

# Complementary/ Alternative Therapies in Nursing

5th Edition

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Editors

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context of hospitalization with acute cardiac conditions.

**Complementary/  
Alternative Therapies  
in Nursing**

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*To our late parents*

*Agnes and Peter Snyder  
Elsie and Warren Dennis*

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# Preface

Fifth edition! Saying this phrase is both daunting and exciting. Daunting in identifying new information and approaches that can be included to make *Complementary/Alternative Therapies in Nursing* appealing and helpful to nursing students and practitioners. Exciting, in that like Beethoven's Fifth Symphony, the appeal of independent nursing interventions and complementary therapies to nursing and health care has not only persisted over time but has continued to grow. The holistic and caring aspects of these therapies have been and continue to be valued both by nurses and those to whom care is provided whether this is in the United States or in countries around the world. Roles of nursing continue to evolve, but within all of these varied roles and places in which nurses practice, concern for the comfort and healing of patients remains foremost in their minds.

Complementary therapies assume a key role in the promotion of healing, comfort, and care. More than 1,800 complementary/alternative therapies and systems of care have been identified. Many of these therapies have been used by nurses for centuries, and an increasing number that have been a part of systems of care across the world are receiving attention in the United States. The increasing mobility of society, whether through immigration, travel, or attendance at international conferences, requires that nurses be knowledgeable about ancient therapies used by many persons around the world. Attention to health care practices of other cultures is given throughout this book. Although nurses may not necessarily administer these therapies, knowledge is required so that respect for the practices of others can be shown and use of these therapies can be reflected in the total plan of care.

The previous editions of this book have focused largely on the use of complementary/alternative therapies with adults. Studies have shown that these therapies are also being used by children and adolescents.

Therefore, material that addresses the use of these therapies with children and adolescents is included in many chapters.

When the first edition of *Independent Nursing Interventions* was published (the book's original title), computers were just coming into vogue and the Internet was an idea that had not yet evolved. As noted throughout the book, content is now being retrieved from web sites, and so we include web sites for obtaining the most recent information about specific therapies. Caution is needed in using web sites as many do not receive the scrutiny for scientific accuracy and safety that is given to journal publications.

As has been the tradition in this book, the scientific basis for use of therapies is provided. In the practice realm, evidence-based practice is being emphasized. Various groups, including the National Academy of Science, have proposed goals to achieve in relation to research on complementary therapies. In addition to continuing to include research studies related to the therapy covered in each chapter, a chapter dedicated solely to research has been added. Developing a research base for complementary therapies is a goal in which nurses can be integrally involved.

As in previous editions, some therapies have been deleted and others added. Our goal has been to include those therapies that nurses frequently use. To assist readers in accessing information about each therapy, a similar format exists across all chapters. A description of the therapy, the scientific basis for use of the therapy to the extent that it exists, the inclusion of one or two techniques that can be used to implement the therapy, conditions and patient populations in which the therapy has been used, and suggestions for research are found in each chapter. Precautions to be aware of when using a therapy are noted in the intervention section. Renewed attention is required as a commonly held fallacy is that all complementary therapies are benign.

As the consumer demand for and use of complementary therapies continue to increase, it is critical that nurses have knowledge about complementary therapies so that they can include selected ones in their practice, provide patients with information about therapies, be informed about research and practice guidelines related to complementary therapies, alert patients to possible contraindications with traditional medicines, and incorporate some of these therapies into their own self-care. Nurses can also direct consumers to reliable sources for obtaining additional information.

We wish to thank the many students across the years who, through the interest they have shown in complementary therapies, have prompted us to continue our quest to obtain new information about complementary therapies that can be used by nurses. We wish to thank our colleagues

at the University of Minnesota School of Nursing and the Center for Spirituality and Healing for their continued support and for helping to develop the knowledge base for complementary therapies and educate students about these therapies.

Mariah Snyder PhD, RN, FAAN  
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# PART I

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## Foundations for Practice

Complementary/alternative therapies (often referenced as complementary/alternative medicine) encompass more than 1,800 therapies and systems of care (Kreitzer & Jensen, 2000). Nurses have used a number of these therapies for centuries in providing care to patients in diverse settings. However, there are many therapies that are less familiar to nurses as these are a part of health care systems other than the Western biomedical model. It is important for nurses to be aware of the broad spectrum of therapies as they provide care to persons from many cultures. Chapter 2 introduces nurses to health care practices in several cultures that use some non-biomedical therapies.

Part I provides an overview of complementary therapies including two in particular, presence and active listening, that are part of the underlying philosophy of complementary therapies. Although it is important for nurses to be competent in a specific therapy before administering it to a patient, it is equally important that they incorporate the philosophy into their practice. The caring, holistic philosophy of nursing is also the philosophy underlying many complementary therapies.

Modeling the holistic, caring philosophy to patients and coworkers is important to the success of complementary therapies. Chapter 3 provides nurses with strategies they can use to “take care of self,” incorporating self-care practices in their lives to renew their energy and to be more present to patients and colleagues. Readers can explore the therapies

described in subsequent chapters and select those that they can use in their personal lives as well as in caring for patients.

Presence and therapeutic listening are an integral part of the underlying, holistic, caring philosophy of complementary therapies. The content in the chapters on therapies may not specifically refer to presence and listening, but these are integrated into the administration of all complementary therapies.

## REFERENCE

Kreitzer, M. J., & Jensen, D. (2000). Healing practices: Trends, challenges, and opportunities for nurses in acute and critical care. *AACN Clinical Issues*, *11*, 7-16.



## CHAPTER 1

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# An Overview of Complementary/ Alternative Therapies

Mariah Snyder and Ruth Lindquist

Complementary/alternative therapies have become an important part of health care in the United States and other countries. Although we will use the term *complementary therapies* primarily in this book, numerous other designations have been used for therapies that have not been a part of the traditional Western medicine system of care. The term *complementary* is preferred by some as it conveys the idea that a therapy is used as an adjunct to Western therapies whereas *alternative* indicates a therapy that is used in place of a Western medicine approach. Both terms are used by the National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health. More recently the term *integrative medicine* indicates that the care provided blends Western medicine, complementary therapies, and therapies from other systems of health care. NCCAM notes that complementary therapies used in integrative medicine must have “some high-quality scientific evidence of safety and effectiveness” (National Center for Complementary and Alternative Medicine, 2004).

## DEFINITION AND CLASSIFICATION

Much debate has occurred over defining complementary therapies. Nursing and other health professions frequently call the area *complementary therapies* whereas NCCAM refers to them as *complementary medicine*. The broad scope of these therapies and the many health professionals and therapists who are involved in delivering them create challenges for finding a definition that captures the scope of this field.

The definition for complementary/alternative therapies put forth by NCCAM is: “Complementary and alternative medicine is a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine” (NCCAM, 2004).

Conventional refers to Western biomedicine. In an earlier NCCAM definition (Panel, 1997), it was noted that complementary medicine included a broad domain of healing practices that were not part of the dominant health system in a society or culture. Thus, Western medicine would be the complementary system of care in a non-Western country.

The ambiguity within the definition of complementary therapies poses challenges when comparing findings from the various surveys that have been conducted on their use. Some surveys have included multiple therapies and others have limited their number. For example, when the NCCAM/National Center for Health Statistics removed the category of prayer, the percent of persons using complementary therapies fell from 62% to 36%. Many studies have focused on persons who speak English, thus excluding recent immigrants who are believed to use many therapies from their native cultures.

According to Kreitzer and Jensen (2000), more than 1,800 therapies have been identified as complementary. NCCAM has classified these multiple therapies and systems of care into five categories, which are shown in Table 1.1. Some of these have been highly publicized and are widely used whereas others are not familiar to anyone who has traditionally used Western medicine. Table 1.1 includes a number of therapies that have been a part of nursing for many years.

## USE OF COMPLEMENTARY THERAPIES

Interest in and use of complementary/alternative therapies has increased exponentially during the past quarter century. Numerous surveys have attempted to determine the percent of use in the United States and other countries (Barnes, Powell-Griner, McFann, & Nahin, 2004; Eisenberg et

**TABLE 1.1** NCCAM Classification for Complementary Therapies and Examples of Therapies

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**Alternative Systems of Care**

Systems of health care that have been developed separate from the Western biomedical approach to care

Examples: Traditional Chinese Medicine, Ayurvedic, Native American medicine, curanderismo, homeopathy, naturopathy

**Mind–Body Therapies**

Interventions that employ a variety of techniques to facilitate the mind’s capacity to impact physical symptoms and body functions

Examples: imagery, meditation, yoga, music therapy, prayer, journaling, biofeedback, humor, tai chi, art therapy

**Biologically Based Therapies**

Natural and biologically based practices and products

Examples: plant-derived preparations (herbs), special diets such as the Pritikin and the Ornish, orthomolecular medicine (nutritional and food supplements), other products such as cartilage

**Manipulative and Body-Based Systems**

Therapies that are based on manipulation and movement of the body

Examples: chiropractic medicine, the many types of massage, body work such as Rolwing, light and color therapies, hydrotherapy

**Energy Therapies**

Therapies that focus on energy emanating from within the body (biofields) or energy coming from external sources

Examples: healing touch, therapeutic touch, Reiki, external Qi Gong, magnets

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al., 1998; O’Brien, 2004; Rhee, Barg, & Hershey, 2004; Rosen, Azzam, Levi, Braun, & Krivoy, 2003). The percent of persons using complementary therapies varied from 21% (Rosen et al.) to 85.4% (Rhee et al.). NCCAM and the National Center for Health Statistics reported that 62% of American adults used some type of complementary therapy (NCCAM, 2004). A survey by Eisenberg and colleagues (1998) found that the percent of Americans using complementary therapies increased from 31% in 1991 to 42% in 1997.

The use of complementary therapies is not limited to adults. Bruener, Barry, and Kemper (1998) found that 70% of a sample of homeless teens reported using them. The percent of children and adolescents using

complementary therapies was lower in a study by Yussman, Ryan, Auinger, and Weitzman (2004), with only 2% using these therapies. However, the study asked about visits to complementary therapists as contrasted with overall use of therapies.

Some researchers have attempted to identify the characteristics of persons who use complementary therapies. Rosen and colleagues (2003) found that more females used these therapies than did males. Also, a higher percent of users had academic degrees, as contrasted with a non-user group. These findings were further validated in the national survey conducted by the NCCAM and the National Center for Health Statistics (2004). Struthers and Nichols (2004) reviewed studies on the use of complementary therapies in racial and ethnic minority populations; in seven studies, persons in minority groups did not use more complementary therapies than did persons in other groups.

Currently, third-party payers, such as insurance companies, pay for a limited number of complementary therapies. Those most frequently covered are chiropractic, acupuncture, and biofeedback. In most instances, physician referral is required for reimbursement. Some states, such as Washington, require the inclusion of complementary therapists in private, commercial insurance products (Lafferty et al., 2004). According to NCCAM (2004), Americans spent between \$36 and \$47 billion on complementary therapies in 1997 with \$12 to \$20 billion paid directly by the consumer. People must feel that complementary therapies produce positive results if they continue to pay for these therapies when insurance companies or HMOs do not pay for them.

What has prompted this rapidly growing interest in complementary therapies? First, the holistic philosophy underlying complementary therapies differs significantly from the dualistic or Cartesian philosophy that for several centuries has permeated Western medicine. In Cartesian philosophy, the mind and body are viewed as separate and non-interacting entities. In complementary therapies the total person is considered: physically, emotionally, mentally, and spiritually. The goal is to create harmony or balance within the person. An individual seeks care from complementary therapists or facilities because he/she wants to be treated as a whole person and not as a heart attack or a fractured hip. Another reason is that people want to be involved in decision making; they want to be empowered. In a study by Mitzdorf and colleagues (1999), 64% of patients stated that they were given minimal time to discuss their health concerns with their physicians, and 42% noted that they were not afforded time to ask questions. The increasing pressure of cost containment in health care has reduced the amount of time physicians and nurses spend with their patients. Physicians, nurses, and others provide assistance to

persons to attain health, but true healing can only come from within the patient. A third reason cited for seeking care from complementary therapists relates to quality of life. Patients have reported they do not want the treatment for a health problem to be worse than the health problem itself. The focus of Western medicine has been on curing problems whereas the philosophy underlying complementary therapies is on harmony within the person and promotion of health. Mitzdorf and colleagues found that 82% of patients reported the side effects of medications as a reason for using complementary therapies.

The personal qualities of the complementary therapist (whether a nurse, physician, or other health care professional) are key in the healing process. Caring, which has received considerable attention in nursing across the years, is a vital component in the administration of complementary therapies. Two therapies that will be covered in subsequent chapters—presence and active listening—illustrate this caring. Remen (2000), a physician who is involved in cancer care, stated:

I know that if I listen attentively to (sic) someone, to their essential self, their soul, as it were, I often find that at the deepest, most unconscious level, they can sense the direction of their own healing and wholeness. If I can remain open to that, without expectations of what the (sic) someone is supposed to do, how they are supposed to change in order to be better, or even what their wholeness looks like, what can happen is magical. By that I mean that it has a certain coherency or integrity about it, far beyond any way of fixing their situation or easing their pain that I can devise on my own. [p. 90]

The heightened interest in complementary therapies prompted the National Institutes of Health (NIH) to establish the Office of Alternative Medicine in 1992, which was elevated to the National Center for Complementary/Alternative Medicine (NCCAM) in 1998. What was significant in establishing this NIH office was that consumers, rather than health professionals, lobbied for it. The purposes of the NCCAM are:

1. to facilitate the evaluation of therapies,
2. to investigate and evaluate the efficacy of therapies,
3. to serve as an information clearinghouse on complementary therapies, and
4. to support research training.

NCCAM has funded studies for individual researchers and for centers that explore the efficacy of a number of specific complementary therapies,

such as acupuncture and Saint John's wort. Other centers explore the use of complementary therapies in the treatment of specific conditions such as addictive disorders, arthritis, cardiovascular disease, and neurological disorders.

## IMPLICATIONS FOR NURSING

Complementary therapies (although this term was not originally used) and their basic philosophies have been a part of nursing since its beginnings. In *Notes on Nursing* (1859/1936) Florence Nightingale stressed the importance of creating an environment in which healing could occur and the importance of therapies such as music in the healing process.

Although it is indeed gratifying to see medicine and other professions recognizing the importance of listening and presence in the healing process, nursing needs to assert the fact that many of these therapies have been taught in nursing programs and have been practiced by nurses for centuries. Therapies such as meditation, imagery, support groups, music therapy, humor, journaling, reminiscence, caring-based approaches, massage, touch, healing touch, active listening, and presence have been practiced by nurses throughout time.

Complementary therapies are receiving increasing attention within nursing. Journals such as the *Journal of Holistic Nursing* and *Complementary Therapies in Nursing & Midwifery* are devoted almost exclusively to complementary therapies and their use. Many journals have devoted entire issues to exploring them.

Because of their increasing use by patients to whom they provide care, and because patients expect health professionals to possess knowledge about complementary therapies, it is critical that nurses have this knowledge in order to

1. provide guidance in obtaining health histories and assessing patients,
2. answer basic questions about the use of complementary therapies and refer patients to reliable sources of information,
3. refer patients to competent therapists, and
4. administer a selected number of complementary therapies.

Information about the use of complementary therapies must be a routine part of a complete health history. Many patients may not volunteer information about using complementary therapies unless they are specifically asked; others may be reluctant to share this information unless the

practitioner displays an acceptance of their use. Although information about all complementary therapies is needed, it is especially critical to obtain information about use of herbal preparations. Interactions between certain prescriptive drugs and herbal preparations may pose a threat to health unless complete information is obtained.

The vast number of complementary therapies makes it impossible for nurses to be knowledgeable about all of them, but knowledge about the more common ones will assist nurses in answering basic questions. Many organizations, professional associations, individuals, and groups have excellent web sites that provide information about specific therapies. Caution is needed, however, in accepting information from any web site. Walji and colleagues (2004) found that 25% of the web sites on St. John's wort contained information that could be harmful if a person acted upon it. One of the functions of NCCAM is to provide consumer information. Web sites for specific therapies are identified in chapters in this book.

Referring patients to competent therapists or helping patients to identify competent therapists is another role for nurses, and this is not an easy task. Because many complementary therapists are not members of a health profession, licensure and regulation often do not apply to them, and regulation varies greatly from state to state. In 2000 the Minnesota legislature passed a bill placing unlicensed complementary and alternative therapies under the auspices of the Department of Health (Alternative Health Care Bill, H. F. 3839). Notably, this bill contains a patient bill of rights. If clients have concerns, they can make them known to the commissioner for complementary and alternative therapies. This law is a beginning in the protection of clients.

The area of practice and nurses' own preferences will assist in determining those therapies in which they wish to become proficient. As with any treatment or procedure, the nurse must have competence in administering the therapy before using it in practice. This may require education beyond that received in basic or advanced education programs. An increasing number of nurses are being certified to administer specific therapies such as healing touch and aromatherapy. Certification shows patients and colleagues that the nurse has the knowledge and expertise necessary to administer the therapy competently.

## **Education**

Inclusion of complementary therapies into nursing curricula at all levels is needed if nurses are to be expected to incorporate these therapies into their practices. Halcón, Chlan, Kreitzer, and Leonard (2003) reported that 95% of faculty and students in one school believed that complementary

therapies should be incorporated into patient care. In a survey of baccalaureate nursing programs in the United States, Richardson (2003) found that 77% included content and/or experiential learning in the teaching of these therapies. This figure is very encouraging and reflects the fact that nurse educators have made efforts to prepare students for contemporary practice.

Little discussion has taken place about which therapies should be taught in basic nursing programs and which should be included in master's curricula. The therapies taught vary across schools of nursing. Therapies such as music intervention, imagery, massage, prayer, aromatherapy, and healing touch could be logically included in baccalaureate curricula, as research exists to support their use in practice. Conveying these therapies within an evidenced-based approach will help students grasp their legitimacy. In addition to content on specific therapies, information about their underlying philosophy is also needed.

Attention to content on complementary therapies in graduate education is also required. Programs preparing advanced nurse practitioners need to ensure that graduates are asking patients about their use of these therapies. Based on the faculty expertise, programs may include courses on selected therapies such as healing touch or aromatherapy that will prepare the graduate to take the certification examination for that therapy. Research courses could focus on helping students examine studies that have been conducted on a specific therapy to evaluate the evidence that exists for its use in practice settings.

Continuing education offerings are needed to help practicing nurses gain basic information about complementary therapies and to update their knowledge and expertise about specific therapies. Some therapies, such as aromatherapy, have self-study modules available. The University of Minnesota Center for Spirituality and Healing has a number of online courses available ([www.csh.umn.edu](http://www.csh.umn.edu)). Other institutions that offer online courses on complementary therapies can be accessed at <http://www.nursece.com>.

## **Practice Settings**

On an individual basis and in facilities, nurses are incorporating complementary therapies into their practice. Some facilities have developed practice guidelines for the use of specific therapies. In some instances this may mean that only nurses who are certified or who have had additional preparation can administer the therapy. It is critical not only that guidelines for specific therapies be addressed, but also that the philosophy underlying complementary therapies, holism, and caring be emphasized. Adding therapies without their underlying philosophy may result in nurses' viewing complementary therapies as just another task to complete.



Patient demand for complementary therapies has resulted in more and more hospitals and clinics integrating them into the care provided. Some facilities, such as the Woodwinds Health Campus in Woodbury, Minnesota, are based on a holistic philosophy of care with complementary therapies part of the warp and woof of the facility. The Institute for Health and Healing at Abbott Northwestern Hospital in Minneapolis offers a number of therapies to patients including massage, reflexology, guided imagery, relaxation techniques, acupuncture, nutrition consultations, healing touch, Reiki, reconnective healing, QiGong, and therapeutic touch. Clients, of course, receive information about the cost of each therapy.

Some concerns have been voiced about nurses implementing complementary therapies as part of their practice. Sparber (2001) found that 47% of boards of nursing had statements about nurses' use of these therapies but 40% had not formally addressed the topic. Seven states (13%) were exploring it. An individual nurse's knowledge about and competence in implementing a specific therapy are key to the administration of a therapy in practice.

The New York State Nurses Association (2003) has developed a position statement on the inclusion of complementary therapies in the practice of nursing. This statement includes a number of recommendations regarding nurses' use of complementary therapies. These include:

- have the appropriate education, experience, and supervision to be competent;
- discuss options with the patient;
- become familiar with state practice acts, particularly as they relate to acupuncture and massage;
- incorporate the American Holistic Nurses Association Standards of Practice and the American Nurses Association's Code of Ethics in one's practice;
- participate in research about the effectiveness of specific therapies;
- advocate for the inclusion of complementary therapies in care settings and for coverage by third-party payers.

## Research

As emphasis on evidence-based practice grows, concerns about the lack of studies to support the use of complementary therapies are being voiced.

Although the body of knowledge on some complementary therapies is increasing, few have been studied extensively using the gold standard of Western medicine, the double-blind clinical trial. However, research has been conducted outside the United States. For example, scientists in Germany have conducted many studies on herbs. Anecdotal evidence and case studies provide support for their efficacy. But there is a need for significantly more research on these therapies.

Over the years, nurses have conducted their own research on a number of the complementary therapies, as can be noted in the references provided for the therapies in this book. Experience with the administration of complementary therapies places nurses in a prime position for assuming leadership roles on interdisciplinary teams that are investigating them. Numerous challenges exist in conducting research on many complementary therapies because current designs and measurement techniques may not be appropriate for therapies whose philosophical basis differs from the traditional Western therapies for which these methods were developed. Chapter 29 will address this issue further.

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## CHAPTER 2

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# Cultural Diversity and Complementary Therapies

Kathleen Niska and Mariah Snyder

Culture refers to the shared way of life of a group of people. Medical anthropologists McElroy and Townsend (2004) specified, “the culture of a group is an information system transmitted from one generation to another through nongenetic mechanisms” (p. 110). The use of symbols, categories, rules, rituals, and other learned behaviors enhances the adaptation of the group, enabling its members to survive within their ecological setting. While people transform their healing systems in the process of adapting, they also maintain fidelity to long-standing traditions (Rogoff, 2003). Traditional healing systems that have persisted over thousands of years and are still alive today are Traditional Chinese Medicine (TCM), Tibetan medicine, Ayurvedic medicine, Samoan medicine, and native medicine of the aboriginal peoples of Australia and the Americas (Selin, 2003). Although differences among these systems exist, a common theme is that health is based on harmony within the person and between the person and the universe. This chapter examines the contribution of these ancient healing systems to the current medical pluralism within American health care that is evident in the coexistence of biomedicine and complementary/alternative therapies. Knowledge about these systems will

help nurses be aware of the many healing practices patients may be using. Table 2.1 presents therapies found in the healing systems discussed.

## TRADITIONAL CHINESE MEDICINE (TCM)

For more than 4,000 years, TCM has consisted of two cosmological principles (yin and yang); five elements (wood, fire, earth, metal, and air); theories about energy channels, viscera, and pathogenesis; and principles of treatment. Yan and Jingfeng (2003) explained: “The underlying basis of TCM is that all of creation is born from the interdependence of two opposite principles, yin and yang. These two opposites are in constant motion, creating a fluctuating balance in the healthy body. Disease results when either yin or yang is in a state of prolonged excess or deficiency” (p. 56). Qi is the pervasive energy of the universe produced when polar opposites are harmonized within the body (Cohen, 1997).

TCM focuses on prevention of diseases as well as prevention of new complications or the worsening of existing diseases. Diet therapy aims to balance the polar opposites of yin/yang, hot/cold, and deficiency/excess. Acupuncture restores harmony by relieving pain, anxiety, and nausea. Herbal medicines are complex blends of plant, animal, and mineral substances.

Young (2001) emphasized: “A healthy individual lives in harmony with the universe and seasons of nature with a balanced diet, calm mind, and energetic body” (p. 100). A healthy person attends to responsibilities

**TABLE 2.1** Complementary/Alternative Therapies Rooted in Ancient Healing Systems

Traditional Chinese Medicine	Tibetan Medicine	Ayurvedic Medicine	Samoan Medicine	Native Medicine of the Americas
Acupuncture	Acupuncture	Aromatherapy	Herbal medicine	Drum circle
Diet therapy	Diet therapy	Diet therapy	Herbal medicine	Herbal medicine
Herbal medicine	Herbal medicine	Herbal medicine	Massage	Massage
Massage	Hot/cold compresses	Massage	Prayer	Prayer
Qi Gong	Massage	Meditation		Singing
Tai Chi	Massage	Spiritual advice		Storytelling
Visualization	Meditation	Yoga		Sweat lodge purification
	Yoga			Talking circle

of his or her intergenerational family (Tung, 2000), meditates daily (Chen, 2001), and exercises doing Qi Gong to maintain an energetic body (Cohen, 1997). Qi Gong is disciplined daily exercise consisting of graceful movements, meditative breathing, and focused concentration. The search for longevity is a respected endeavor within TCM.

## TRADITIONAL TIBETAN MEDICINE

Buddhism was introduced to Tibet in the seventh century CE. The first formal Tibetan medical texts, *Four Medical Tantras*, emerged in the twelfth century CE. In 1696, Tibetans created their first medical college. Medical education of seven years combined memorization of medical texts with practical patient care. In 1959, Tibet was invaded by Communist China, causing many Tibetans to flee to northern India for refuge. The fourteenth Dalai Lama set up a new medical school in northern India.

Steiner (2003) elucidated the spiritual core of Tibetan medicine stating, "Through the discipline of mindfulness, generosity, and compassion, suffering can be transformed. Thus, healing is synonymous with complete awakening or enlightenment" (p. 103). Cameron (2001) stressed, "Tibetan Buddhism encourages intensive spiritual practice to produce a calm mind, good heart, and enlightenment in one lifetime" (p. 45).

Integral to this spiritual core, the strong and healthy person has a balance of three humors (wind, bile, and phlegm) whereas the person suffering from disease and mental illness has lost the balance of these humors (Young, 2001), which are made up of the five elements of the cosmos: earth, water, fire, air, and space. Diseases are categorized by the type of humoral imbalance. Tibetan physicians use questioning, observation, palpation, pulse taking, and urinalysis to diagnose disease (Loizzo & Blackhall, 1998). Treatments focus on using diet modification, prayer, herbal medicines, massage, and moxibustion (burning the herbs gerbera, nutmeg, and ginger in the dried moxa herb). Tibetan herbal pills may contain 3 to 150 herbs per formula.

Self-care is based on modifying one's diet, improving one's virtue, and seeking natural beauty by looking at beautiful scenery, smelling pleasant odors, and listening to pleasing sounds. Meditation promotes relaxation and inner peace. Yoga offers mental calm arising from disciplined breathing, meditation, and coordinated exercise.

## AYURVEDIC MEDICINE

In Ayurveda, health-seeking endeavors were a religious obligation (Desai, 2000). The healthy body was seen as a microcosm of the universe com-

posed of primordial elements of earth, water, fire, air, and ether, which combined to form three humors, or doshas. The relative balance of the three doshas (pitta, vata, and kapha) regulated physiological processes of the body. If the equilibrium of the body were to be upset, disease resulted. Ayurvedic physicians observed the tongue, eyes, skin, tone of voice, pulse, and general appearance, and evaluated urine and feces (Young, 2001). The physician might recommend dietary treatment to restore the equilibrium of the body through rebalancing the doshas. Using food as medicine, warming foods (sour, salty, and pungent) would be digested easily and cooling foods (sweet, bitter, and astringent) would be digested slowly. Ayurvedic massage used essential oils according to the state of balance of the doshas. For example, almond oil was used when vata predominated, sandalwood when pitta regulated, and sesame oil when kapha dominated the physiological processes. Herbal medicines came in the form of pills, powders, pastes, teas, and medicated oils.

Introducing the Ayurvedic tradition to Western people, Chopra (1990) explained a fundamental approach to wellness: “The guiding principle of Ayurveda is that the mind exerts the deepest influence on the body and freedom from sickness depends upon contacting our own awareness, bringing it into balance, and then extending that balance to the body” (p. 6). Meditation was a way of finding calm awareness as part of a daily routine (Chopra, 1991). Yoga practice blended meditation, chanting, and postures of the body, giving the practitioner relaxation, flexibility, and strength. Spiritual advice as an avenue to wellness called for lifestyle improvements, fasts, purification, ritual prayers, and pilgrimages. Cultivating good habits extended to living in harmony with the seasons, and eating and exercising according to the seasons to ensure health.

## SAMOAN MEDICINE

Ancient Samoans taught that all humans were descendants of gods, known as atua and aitu. Illnesses were the result of the gods’ anger at the lack of respect shown by individuals and families (Macpherson & Macpherson, 2003). Traditional Samoan medicine consisted of prayers, incantations, herbal medicine, massage using scented oils, and simple surgery.

Samoans distinguished new illnesses brought to them by contact with European explorers and merchants who introduced influenza, measles, mumps, whooping cough, and syphilis. Botanical fieldworkers found 336 plants in Samoa in 1868, even though the Samoans were using only nine

at the time. With education, Samoans learned how to use many more native plants for medicinal purposes (Macpherson & Macpherson, 2003). When Margaret Mead (1928) lived among the Samoans she noted, "There is no specialization among women, except in medicine and midwifery, both the prerogatives of very old women who teach their arts to their middle-aged daughters and nieces. The only other vocation is that of the wife of an official orator, and no girl will prepare herself for this one type of marriage which demands special knowledge, for she has no guarantee that she will marry a man of this class" (p. 25). Folk remedies employed by women were herbal medicines and massage. With contact with Western visitors, a hybrid healing system emerged. Samoan healers continued to diagnose and treat intrinsically Samoan illnesses that had their root cause in social or spiritual imbalance related to pre-Christian gods (Ishida, Toomata-Mayer, & Mayer, 1996). Samoan healers diagnosed and treated illnesses caused by trauma, effects of the ecosystem, and germs, using Western diagnostic categories and biomedicine for treatment.

## NATIVE TRADITIONS OF THE AMERICAS

To present a broad view of North American native healing, Mehl-Madrona (2003) observed, "Traditional Native American cultures perceive health as a state of balance of spirit, mind, and body; illness is the result of disharmony or imbalance. Illness requires treatment at many levels, including personal, family, community, and spiritual. Traditional medicine has included herbalists, shamans, purification ceremonies, healing rituals, emotional therapies, manipulative medicine, teas, herbs, and special foods" (p. 211). To present a broad view of Mesoamerican and South American healing, Mendoza (2003) stated, "Mexica Aztec, Inca or Quechua, Aymara or Kalawayá, and other American Indian doctors and physicians were required to balance herbal and surgical treatments with interpretive models of causation ranging from the supernatural and magical to the natural and physical" (p. 234). Botanists have documented the native use of more than 1,500 species of medicinal plants, among which the Indians especially valued coca, mescaline, curare, quinine, belladonna, and dopamine (Stark, 1981).

In North America, the land has been a source of healing. The first step for an Indian doctor was to learn to walk in balance with the Earth Mother, and then to seek the power that came from the Great Spirit (Steiger, 1984). Indian doctors organized the power to heal through songs, stories, and ritual acts (McMaster & Trafzer, 2004). Lame Deer and



Erdoes (1992) described the typical medicine man among the Lakota as knowing the right songs to go with every medicine he used in every ceremony he performed. Ritual acts among the First Nations of Canada were the talking circle, the drum circle, smudging, and the sweat lodge ceremony (Hunter, Logan, Barton, & Goulet, 2004). Massage was a healing procedure among the Cherokees and Pawnees (Vogel, 1970). The Cree healing ceremony had five parts: ritual to purify and open the door to the spiritual world, petition of the patient and the healer, treatment with herbal medicine and a sweat lodge ceremony, education of the patient, and closure of the ceremony, emphasizing that the Great Spirit would continue the healing already underway (Morse, Young, & Swartz, 1991). Among the Ojibway, Johnston (1976) noted, "Initially, healers were herbalists. . . . Eventually herbalists became medicine men; and the medicine men became philosophers concerned not only with preserving life and mitigating pain, but also with offering guidance and principles for living the good life whose end was to secure general well being" (p. 71). Peacock and Wisuri (2002) affirmed, "Medicine people sometimes still come all the way from Canada to visit Ojibwe communities. They travel throughout Ojibwe country via an informal network of traditional people, who let each other know when the medicine person will be in town. . . . They are among the most highly respected members of our communities because they are the purveyors and keepers of ancient sacred knowledge" (p. 102).

In the context of Mesoamerica, Lipp (2001) clarified, "In Mesoamerican traditional medicine, illnesses are signs of natural disequilibrium or disorder, and therapeutic treatment is fundamentally concerned with restoring harmonious relations between internal body processes and the physical, social, and cosmological order" (p. 109). When a family member became ill, household remedies consisted of medicinal plants, fright-illness rituals, massage, and sweat baths. If no relief resulted, the shaman joined the family and relatives for a curing ceremony of prayer, sacrificial offerings, ritual meals, and a pilgrimage to local shrines. Divine intervention was the rule that pervaded all facets of life. Health, recovery from illness, and effective use of medicine depended upon divine assistance for healing (Viesca, 2003). In colonial Mexico, the Moorish influence in Spanish medicine blended into indigenous healing practices, creating a strong herbal base, an emphasis on balance between light/dark and hot/cold, and Christian belief that healing came from the power of God through prayer and ritual (Torres, 1983, 1984). In the mid-twentieth century, good health in the Mexican American family was associated with the ability to work (Baca, 1969), whereas illness was associated with sadness, because illness prevented members from working in ways that sustained

the family (Ulibarri, 1978). Samora (1978) identified a conceptualization of health in which being healthy was attributed to the beneficence of God. Hayes-Bautista (1998) noted that for Latinos the strong emotions of fright, shame, sorrow, rejection, and disillusionment were perceived to be triggers for illness. Compassionate listening conveyed respect, and problem solving was facilitated by the use of analogies, wisdom sayings, and stories.

## IMPLICATIONS FOR NURSES AND THE HEALTH CARE TEAM

Numerous complementary/alternative therapies have originated within ancient healing systems of other cultures. Entire systems of health care have survived for thousands of years among neighboring cultures around the globe, whose immigrants have come to live in the United States and have shared healing traditions with health care workers in this country. Through clinical and scholarly work, nurses have learned to extend nursing care in culturally competent ways, have been alert to investigate the scientific foundation for the therapeutic success of specific complementary/alternative therapies belonging to these ancient healing traditions, and have formed collegial bonds with practitioners of diverse ways of healing.

Although they may not be familiar with the minute details, it is helpful for nurses to understand the worldview of these ancient healing traditions that have survived to the present day. Only then can nurses ask patients and family members about specific needs and preferences that are a natural part of their healing tradition.

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## CHAPTER 3

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# Self as Healer

Barbara Leonard and Sue Towey

For nursing students and practitioners of complementary and alternative therapies, the process of developing an authentic self is as integral to practice as learning the technical skills for administering these therapies. An individual's explorations into self-knowledge, self-awareness, consciousness, and spiritual development are an ongoing dialogue between the inner and outer parts of one's being. A nurse must balance being in the moment and fully present with a patient while also taking the self-healing journey. Living an undivided life facilitates the journey toward wholeness (Palmer, 2004). Kabat-Zinn (2005) describes healing as a process of recognizing our wholeness "even when we are terrified or broken apart in life" (p. 336). Nurses integrating complementary therapies into their practice need to embark on the path of personal inner and outer development as part of their professional journey. The student and the practitioner must be aware that they need to care for the self.

Self-awareness and self-care are an integral part of reflective holistic nursing practice. In its Code of Ethics, the American Holistic Nurses Association states that "the nurse has a responsibility to model healthy behaviors. Holistic nurses strive to achieve harmony in their own lives and assist others striving to do the same" (American Holistic Nurses Association, 1992, p. 275). Janet Quinn (as cited in Horrigan, 1996) notes that each nurse needs to do his or her own work in order to become

a healing energy for patients. They need to become whole persons and live authentic lives. The physical, emotional, and spiritual health of practitioners is experienced in their relationship with patients. Commitment to the use of self as an instrument of healing and understanding is the focus of this chapter.

A metaphor from the reductionistic biomedical health care system helps to understand issues associated with self as healer. Just as surgical instruments are washed and sterilized before being used for another procedure, professionals who are instruments of healing must identify therapies that will ensure the cleansing of self so as to provide a personal energy field and space that facilitate healing for self and patients.

In the literature on energy-healing therapies, Brennan (1987) describes the human energy field as the “manifestation of universal energy that is intimately involved with human life” (p. 41). Energetic healing is a term for healing that occurs at the electromagnetic level of a person (Slater, 1995). How do we care for ourselves as “instruments of healing” in our work with patients? Barbara Dossey, a leader in holistic nursing, stated that self-care includes activities that promote an awareness of self that facilitates being an instrument of healing (Horrigan, 1999).

## SELF-CARE

Becoming a healer is a very individual process, one that grows from the inside (Brennan, 1987). Each person is unique and must assess his or her individual strengths and talents in order to move toward wholeness. There are many ways to create a plan for self-care and intentional personal healing. Therapies that will help a person to increase self-knowledge, become more aware of transpersonal experiences, and accept the paradoxical mysteries in life need to be explored.

Several concepts and techniques that are widely accepted as important in self-care are:

- a balanced diet appropriate to current health needs,
- exercise appropriate to the individual,
- adequate sleep and rest,
- social support systems,
- stress management skills,
- meditation and prayer, and
- an active sense of humor (Towey, 1995, p. 11).

Many of the therapies included in this book may be used singly or in combination to heal the self (Gunnarsdottir & Peden-McAlpine, 2004). Santorelli (2000) suggested use of mindfulness meditation, a mind-body intervention, to heal the self. Nature is another therapy frequently used in self-healing (Gunnarsdottir & Peden-McAlpine). Spending time outdoors is innately renewing, restorative, and healing. According to Lewis (1996), “as we garden, tramp through field or forest, we may come to an unexpected door that opens inward to self” (p. xix). Two other interventions that can be used in the healing of self, spiritual direction and dreams, will be discussed later.

## **TRANSFORMATIONAL JOURNEY**

Healing is a key element of the transformational journey. Keegan (1994) defines healing as the integration of the totality of humankind in body, mind, and spirit. The healer is one who is capable of producing and catalyzing integration within self and patients. Keegan further notes that “the spiritual journey involves the process an individual undergoes in the search of the meaning and purpose of life” (p. 4).

### **Becoming a Healer**

The initiation of a healer in ancient cultures was a rigorous process that included a personal journey of inner development and transformation. For centuries, cultures have treated inner transformation as a necessary and desired component of life. The universal aspects of shamanism work with the inner aspects of healing through the use of altered states of consciousness (Grof & Grof, 1990). Like the Greek mythological figure Chiron, shamans, as wounded healers, have the gift for healing others while remaining unable to heal themselves. A nurse’s transformational healing journey is a living out of both the woundedness of Chiron and current knowledge about one’s ability and need to connect with the inner healer (Santorelli, 2000).

### **Barriers, Stressors, and Needs**

As the 21st century begins, the rapid transformation of our health care systems and health profession education has placed great demands on the time, energy, spirit, and health of professionals and students. Nurses and other health care employees are often caught in the crossfire of

mergers, downsizing, redesign, and other changes that create uncertainty and anxiety in the work environment (Disch & Towey, 1998). The current national nursing shortage is making work environments more stressful, and professionals must rapidly acquire new information in order to accomplish their work. Limits of time and economic resources in health care create many challenges to health professionals and require new approaches in educating students.

Viewing time as the enemy creates stress that is not conducive to a healing environment in the workplace (Lofy, 2000). Bailey (1999) identifies the loss of quality relationships among workers as an unhealthy factor in many workplaces. However, healing requires interactions with others. Quiet times are also necessary so that a person is able to listen to the voice of inner wisdom. Silence may help reduce stress (Rubin, 2000), and yet silent reflection is difficult to attain without intentionally setting aside time for quiet. Uncertainty is another stressor in current health care settings. Finding ways to maintain hope and to develop resiliency are needed in the face of uncertainty (Towey, 1995).

The Dalai Lama (1999) described the ethics he regarded as necessary in the 21st century. In addition to restraint, virtue, and compassion, he identified a need for discerning the truth in the unseen world; this requires a healthy level of spiritual development, discipline, and practice.

## SPIRITUAL DIRECTION

Spiritual direction is a time-honored tradition of accompanying other persons as they seek to grow in their relationship with God or a Higher Being. It is journeying with the person as they become more aware of their relationship with God or Higher Being. Spiritual direction is not psychotherapy or counseling, but rather focuses on the spiritual aspect of a person's life. Spiritual directors are professionals who have completed specialized education in the field. As with counseling and other professions, the director maintains professional boundaries when interacting with the directee. Persons may seek spiritual direction during time of spiritual distress or on an ongoing basis.

Some form of spiritual direction is found in many of the major religions of the world. Among traditional Native Americans a medicine person will guide a vision quest and interpret the dreams and visions of the seeker. A Zen master gives spiritual guidance to a seeker in the Buddhist tradition. In Christianity, spiritual direction has existed since the 4th century CE. Until recently spiritual direction was exclusive to those in religious life; laypersons rarely sought direction (Moon, 2002).



Today it is found in many Protestant denominations as well as in the Roman Catholic Church. Benner (2002) states that although large sectors within Christianity have never heard of spiritual direction until recently, seminaries and colleges of many denominations are now busy refashioning departments of Christian education into programs of spiritual formation. Clergy and laity alike are seeking opportunities to learn about spiritual direction.

The modern spiritual director has received education in the art and practice of spiritual direction and adheres to professional ethics such as those specified by Spiritual Directors International. This organization is a global organization of persons from many faiths who share a common concern and passion for the practice of spiritual direction. Opportunities are available for sharing of resources and ideas online (<http://www.sdiworld.org>). The profession strongly recommends that directors receive their own ongoing direction and supervision. A person seeking direction should inquire about a director's educational preparation, supervision, and practice. A spiritual director, with permission of the directee, may collaborate with other professional persons working with a directee. When a directee is in crisis, working with both a counselor and a director may be very beneficial; for others it may be best to work with a counselor first and then with a director.

Nurses would seek spiritual direction to reflect on how God or the sacred is present in their lived experience as a nurse and a person. The focus of spiritual direction is on the inward movement of the spirit in the nurse's life. A nurse may seek direction during life transitions or crises or during ordinary times to gain a deeper relationship with God or the sacred. All of life's experiences can be brought to direction but always at the discretion of the person seeking it (Birmingham & Connolly, 1994). In the course of receiving direction, some of the circumstances of one's life may appear unchanged, but the inner transformation will be evident in professional work, personal relationships, and even in one's environment. Problems may resolve as a side benefit of direction. A nurse, for example, working with a group of women in transition from prison to society, said of herself, "I no longer say prayers; I am prayer." She went on to describe how she had become less judgmental and more accepting, patient, peaceful, relaxed, and joyful. The work was still the same, the women's problems as serious, but she is different and as a result she has become much more present to the women she works with.

Spiritual direction is especially useful to nurses whose working lives are spent in high-stress health care environments dealing with ultimate human questions on a regular basis. Spiritual direction is about reflection on one's life in all of its complexity. At the heart of direction is one's

unique relationship with God or a Higher Being. Direction can help nurses become more sensitive to God's presence in their work and God's desire to "partner" with them. Developing an awareness of this partnership with God provides a serenity that can prevent emotional and spiritual burnout so that relationships with patients, families, and colleagues are healthy and healing.

Spiritual direction typically occurs monthly or more frequently if the individual desires it. Spiritual directors may meet with individuals over several years or months, depending upon the circumstances of the directee. Group spiritual direction is also available. The director and directee assess their work together periodically. For access to a spiritual director, individuals can contact their religious denomination or Spiritual Directors International. Directors are usually willing to see people from any religious tradition.

## DREAMS

The ancients asserted the relationship of health and dreams. Greek temples served as places to receive a dream. The given dream would reveal the nature of a person's illness or need, enabling the physician to prescribe appropriate treatment. In the West, until the 5th century, dreams were respected by all religions as revealing the divine. Subsequently, Christians were admonished to ignore dreams because their religious leaders considered them linked to the occult. This thinking prevailed until the 20th century but changed with the discovery of a mistranslation 15 centuries earlier of Scripture from the Greek to the Latin. Fortunately, dreams are once again recognized for their importance to human health (Kelsey, 1974). Jungian psychology has contributed greatly to the restoration of dreams as part of health and healing.

Dreams serve many functions for the psyche in healing and maintenance of health. They give emotional compensation, reveal truths about life situations that the ego resists, provide warnings, and uncommonly provide what Jung called archetypal understanding (Kelsey, 1974). An archetype is a term used to denote an idea or image that is part of the collective unconscious of persons across time. An example of emotional healing occurred through a dream a woman had following her husband's death. She was in deep grief until her husband appeared to her in a dream, reassuring her that he was happy and wanted her to be as well. She was freed to move on with her life. After the recent tsunami disaster, a young physician had a dream in which an androgynous figure used hand signals to broadcast God's unconditional love to those who had died.

Experts claim that few dreams are prophetic. Nightmares occur when an issue needs to be brought into the person's consciousness. Dreams are specific to the individual and correct interpretations may be difficult. Friends, spiritual directors, or therapists may be helpful as the person tries to understand his or her dreams. For example, a dreamer with a new diagnosis of cancer saw herself riding a bicycle, hitting a bump in the road, falling off the bicycle, and then dusting herself off and riding on happily. Her trusted friend helped her see the relationship between the bump in the road and her cancer. The dream gave her hope that she would be able to continue her journey and that her cancer was not the end.

All human beings and animals dream, but unless dreams are recorded, they are not remembered. A time-tested way to remember dreams is to jot them down even in the middle of the night (a pad and pencil at bedside aids this process). When one awakens, the dream fades quickly and is not easily recalled unless it recurs. It is important to rewrite the dream in as much detail as possible without interpreting it. Then one notes the words, the feeling state, and the sequence of events in the dream. Once the dream is recorded without editing, interpretation can begin. Words may be looked up in the dictionary, and the dream can be meditated upon for further understanding. Dreams often have many levels of interpretation. If one keeps a journal and reviews it from time to time, the meaning of particular dreams may become clear as the person's life experience is seen in retrospect. For example, a woman dreamed about marine life displays in an aquarium. The next day, she made an unplanned visit to an aquarium and recognized the marine displays from her dream even though she had never seen them either live or in pictures before the dream. The journal serves as a record and years later, new awareness of meaning may occur to the individual.

Dreams are gifts that help us find direction and resolve emotional and other life issues. They teach us about our lives and ourselves. Dreams do not lie. They are presented in images tailored exclusively for us. Recording one's dreams honors the gift that they are.

## **FUTURE RESEARCH**

Research in the following areas will contribute to knowledge about self-care and the nurse as healer:

1. qualitative studies on the transformational journeys of healers,
2. studies about the effects of the energy field of the healer on patients and colleagues, and
3. a survey of healers to identify the therapies they use in self-care.

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## CHAPTER 4

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# Presence

Mariah Snyder

Presence is an intervention that is integral to the administration of all complementary therapies, though it can be used independently of other therapies. It is closely related to the therapy of active listening, and the two share many characteristics. Although presence has been recognized for centuries within nursing, research on the subject has been initiated only recently. This research has largely been conducted in conjunction with the concept of caring.

### DEFINITION

Two of the pioneers in this field, Paterson and Zderad (1976), described presence as the process of being available with the whole of oneself and open to the experience of another through a reciprocal interpersonal encounter. Gardner (1992) expanded on this definition by adding specifics related to physical and psychological presence. She defined presence as “the physical being there and the psychological being with a patient for the purpose of meeting the patient’s health care needs” (p. 191). According to Liehr (1989), the nurse needs to genuinely engage with the patient for true presence to occur. From the perspective of patients, presence requires an emotional, subjective interaction with nurses in which the nurses

convey genuine concern for patients, not just as patients but as human beings (Paulson, 2004).

Benner (1984) chose the verb *presencing* to denote the existential practice of being with a patient. *Presencing* is one of the eight competencies Benner identified as constituting the helping role of the nurse. This view of presence in nursing is supported by Parse (1992), who characterized presence as “the primary mode of nursing practice” (p. 40).

Presence is reciprocal. The interaction must be meaningful to both the patient and the nurse. According to Pettigrew (1990), nurses must be involved in the interaction, and the interaction must be deemed meaningful by the patient for presence to produce positive patient outcomes. This transactional characteristic of presence was emphasized by McKivergin and Day (1998): In presence, the nurse is available to the patient with the wholeness of his or her unique individual being. Presence can be characterized as a process that consists of an exchange in which meaningful awareness on the part of the nurse helps to bring integration and balance to the life of the patient (Snyder, Brandt, & Tseng, 2000).

Two classifications of presence have been developed (McKivergin & Daubenmire, 1994; Osterman & Schwartz-Barcott, 1996). The continuum in both classifications extends from merely being physically present with the patient to being available with the wholeness of self. Table 4.1 describes the categories of presence and provides an example of each type of presence. It is only the transcendent (Osterman & Schwartz-Barcott) or therapeutic presence (McKivergin & Daubenmire) that constitutes the complementary therapy designated as presence.

The universality of presence and caring has been documented (Endo, 1998; Jonsdottir, Litchfield, & Pharris, 2004). Presence transcends cultures. Even if the nurse and patient are unable to communicate verbally, the patient perceives the presence of a caring nurse. Paulson (2004) noted that nurses need to focus on positive concern for their patients and not on their personality, race, or socioeconomic status.

## SCIENTIFIC BASIS

Paterson and Zderad (1976) recognized presence as an integral component of their theory of humanistic nursing. Presence implies an openness, a receptivity, a readiness, or an availability on the part of the nurse. Many nursing situations require close proximity to another person, but that in itself does not constitute presence. In order to experience the lived dialogue of nursing, the nurse responds with an openness to a “person-with-needs” and with an “availability-in-a-helping way” (Paterson & Zderad). Reciprocity often emerges through the dialogue.

**TABLE 4.1** Examples of Use of the Various Types of Presence

Types of Presence	Example
Presence/partial presence (Osterman & Schwartz-Barcott, 1996); physical presence (McKivergin & Daubenmire, 1994)	Routine tasks such as taking vital signs and administering medications; nurse enters a patient's room to check the blood pressure, doing so deftly but failing to notice the tears slipping from the patient's eyes; nurse is absorbed in own thoughts.
Full presence (Osterman & Schwartz-Barcott, 1996); psychological presence (McKivergin & Daubenmire, 1994)	Nurse enters a patient's room to check the ventilator. The nurse greets the patient by name and uses personalized ways of interacting with the patient. The nurse is attentive to nonverbal responses of the patient and will occasionally touch the patient. Needs are assessed and a plan of care is developed in conjunction with the patient.
Transcendent presence (Osterman & Schwartz-Barcott, 1996); therapeutic presence (McKivergin & Daubenmire, 1994)	The nurse uses centering before entering the patient's room. The nurse greets the patient by name while simultaneously holding the patient's hand or arm. The nurse uses all of her personal resources of body, mind, emotions, and spirit in being present and available to the patient. The nurse is attentive to responses of the patient and directs attention to specific concerns. All of these can be done while simultaneously regulating the IV or doing other care activities.

Note: From "Use of Presence in the Critical Care Unit," by M. Snyder, C. Brandt, and Y. Tseng, 2000, *AACN Clinical Issues: Advanced Practice in Acute and Critical Care*, 11(1), pp. 27-33. Copyright 2000 by Lippincott. Reprinted with permission.

Presence is closely aligned with caring. It involves the nurse as "co-participant" in the caring process (Watson, 1985). Caring requires the nurse to be keenly attentive to the needs of the patient, the meaning the patient attaches to the illness or problem, and how the patient wishes to proceed. According to Watson, "a truly caring nurse/artist is able to destroy in the consciousness of the recipient the separation between him- or herself and the nurse" (p. 68). The use of presence helps lead the patient to healing, discovery, and finding meaning.

The body of knowledge documenting patients' perceptions of the value of presence is evolving. Much of the research on presence is found within studies on caring. Nurse researchers have sought to elicit patients' views of the caring behaviors of nurses. In a study of hospitalized patients



and their nurses, presence was validated as a caring behavior in a study by Hegedus (1999). In a study by Nelms (1996), nurses revealed that presence was the essence of nursing.

Similar findings have been reported in other studies. In a qualitative study by Riemen (1986) of patients' perceptions of nurses' behaviors, noncaring actions included having minimal contact with the patient and being physically present but emotionally distant. Availability, kindness, and consideration were desired characteristics identified by patients in a study by Cronin and Harrison (1988). Engaging in a reciprocal process with the nurse was one of the caring behaviors identified by patients who had been discharged from a critical care unit (Burfitt, Greiner, Miers, Kinney, & Branyon, 1993).

Studies on the expert practice of critical-care nurses have demonstrated the importance of presence. Minick (1995) found that connectedness with the patient was important not only as a caring behavior but also because it assisted the nurse in the early identification of postoperative problems. Therapeutic presence may help nurses to be more attentive and to detect subtle changes that may not be evident in its absence. Nurses who lacked this connectedness were perceived by their patients as detached. Hanneman (1996) explored the effects of expert nurses on care outcomes and found that these nurses displayed two characteristics: presence with and focused assessment of a patient's situation. Wilkin and Slevin (2004) further validated the fact that the importance of the critical-care nurse being present to the patient was as essential a part of nursing care as were the skills needed to reach unresponsive and intubated patients.

Mohnkern (1992) asked 15 nurses to identify the antecedents, defining attributes, and consequences of presence. Antecedents included a patient who trusts the nurse and has a need to have her or his life processes facilitated, and a nurse who possesses a sense of mission, has an altruistic desire to help the patient, and is willing and strong enough to be open to the experience of the patient. Attributes of presence were physical closeness between the nurse and the patient, a metaphysical connection between the nurse and patient in which energy is exchanged, and the nurse's use of a range of skills to facilitate the patient's experience. Perceptions of patients were not reported.

The importance of presence in care has been recognized for centuries. Documentation of why it plays a role in health outcomes is slowly evolving.

## INTERVENTION

The description of presence related by Mitch Albom (1997) in *Tuesdays with Morrie* succinctly captures its essential elements. Albom is reporting

how Morrie, a man with advanced amyotrophic lateral sclerosis, viewed presence:

I believe in being fully present. That means you should be with the person you're with. When I'm talking with you now, Mitch, I try to keep focused only on what is going on between us. I am not thinking about something we said last week. I am not thinking about what's coming up this Friday. I am not thinking about doing another Koppel show, or about medications I'm taking. I am talking to you, I am thinking about you. [pp. 135–136]

## Centering

Presence entails conscious attention to the upcoming interaction with the patient. The nurse must be available with the whole of self and be open to the personal and care needs of the patient. This process is called centering, a meditative state. The nurse takes a short time, sometimes only 10 or 20 seconds, to eliminate distractions, so that the focus can be on the patient. Some people find that taking a deep breath and closing the eyes helps in freeing them of distractions and becoming centered. This may be done outside the room or setting in which the encounter will occur. Centering may also be as simple as the nurse's pausing before contact with the patient and repeating the patient's name to help focus attention on that person.

## Technique

Table 4.2 lists the key components of presence and the skills necessary for practicing it. Sensitivity to the other requires the nurse to be an

**TABLE 4.2** Presence: Key Components and Necessary Skills

Key Components	Necessary Skills
Whole person to whole person interaction	Centering
Intersubjectivity	Sensitivity and openness
Direction of self toward other	Communication and active listening
Attentiveness	
Accountability	

Note: From "Use of Presence in the Critical Care Unit," by M. Snyder, C. Brandt, and Y. Tseng, 2000, *AACN Clinical Issues: Advanced Practice in Acute and Critical Care*, 11(1), pp. 27–33. Copyright 2000 by Lippincott. Reprinted with permission.

excellent listener and observer. (Active listening is addressed in chapter 5.) Good observation skills assist nurses in identifying nuances in expression and communication that may reveal the real concerns of the patient. Presence often means periods of silence in which subtle interchanges occur. Continuing attentiveness on the part of the nurse is a critical aspect of this therapy. Both the nurse and the client experience a sense of union or joining for a moment in time.

Little is known about the length of a therapy session or when therapeutic presence should be used. Often the nurse identifies it intuitively: "It just seems like this patient truly needs me now." Because of the intense nature of the interaction, the length of time the nurse is present to the patient may seem greater even though only a minute or two may have passed. Although presence is often used in conjunction with another therapy or treatment, identifying when a patient needs someone to just be present for a few minutes may be the most effective therapy.

## **Measurement of Effectiveness**

Measuring outcomes of presence interventions will involve both the patient and the nurse because of their reciprocal interaction. Comments from the patient about feeling cared for, being able to express concerns, and feeling understood are some outcome measures that can be used. The consequences of presence identified by Mohnkern (1992) included improved psychosocial, spiritual, and emotional functioning; improved physical functioning or a peaceful death; and an appreciation of more interaction with the nurse. According to Mohnkern, one consequence noted by nurses was an affirmation of their role as nurses. Because of the intangibles that often occur with the use of presence, finding words or indices to measure presence may be challenging.

## **Precautions**

The major precaution in the use of presence is to take one's cue from the patient and not force an encounter. A true presence encounter considers the wants and needs of the patient and is not for the nurse's primary benefit. If the nurse is "available with the whole of oneself and open to the experience" of the client, as the definition states, the nurse will act in accordance with the wishes and needs of the patient.

One negative consequence of presence identified by Mohnkern was nurses reporting that colleagues were critical about the time they spent with patients and families. Certainly this should not be a deterrent to the

use of presence, but rather a concern that should be discussed and resolved by nursing staff.

## USES

Presence can be used in any nursing situation. Persons struggling with a new diagnosis, an exacerbation of a condition, or a loss are especially in need of moments of presence. Moch (1995) included presence as part of a psychosocial intervention for women diagnosed with breast cancer and found the intervention to be helpful to these women. Presence is of particular value with hospice patients (Zerwekh, 1995).

Presence is also needed with patients in critical-care settings (Wilkin & Slevin, 2004) and emergency departments (Wiman & Wikblad, 2004). Patients and their families often feel lost in high-tech critical-care settings. The use of presence helps prevent critical-care nurses from being viewed by their patients as emotionally distant and focusing only on the machines and technology (Marsden, 1990). Research suggests that incorporating the therapy of presence in critical-care settings can reduce anxiety for patients and their families (Mohnkern, 1992).

## FUTURE RESEARCH

Nurses chart assessments made and treatments administered, but rarely do they document the use of presence and the outcomes of this therapy. Despite the challenges in identifying and documenting outcomes of presence, current interest in complementary therapies provides an opportunity for nurses to validate the positive outcomes from the use of presence. Areas in which research are needed include the following:

1. Although every patient could benefit from presence, large case-loads often place restrictions on nurses' time. What are assessments that would alert nurses to patients who most need the therapy of presence?
2. What are strategies that can be used to teach nursing students and other health professionals how to implement presence?
3. With the advent of telemedicine, how can presence be introduced into these contacts with patients? Is physical presence essential or is presence a non-local phenomenon like prayer?

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## CHAPTER 5

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# Therapeutic Listening

Shigeaki Watanuki, Mary Fran Tracy, and Ruth Lindquist

The most basic of all human needs is the need to understand and be understood. The best way to understand people is to listen to them.

—Ralph Nichols

Listening is an active and dynamic process of interaction with a client requiring intentional effort to attend to a client's verbal and nonverbal cues. Listening is an integral part of nurse–client relationships. In fact, it is one of the most effective therapeutic techniques available to nurses (Sundeen, Stuart, Rankin, & Cohen, 1998). The theoretical underpinnings of listening can be traced back to counseling psychology and psychotherapy. Rogers (1957) used counseling and listening to foster independence and promote growth and development and stressed that empathy, warmth, and genuineness with clients were necessary and sufficient for therapeutic changes to occur. Listening has been identified as a significant component of therapeutic communication with patients and therefore fundamental to a therapeutic relationship between nurse and patient (Foy & Timmins, 2004).

### DEFINITION

A variety of modifiers are used with the word *listening*, including active, therapeutic, empathic, and holistic. The choice of modifier seems to de-

pend more on an author's paradigm than on differences in the descriptions of listening (Fredriksson, 1999). Unless active listening was explicitly used by researchers in the articles reviewed, the term *therapeutic listening* is used in this chapter to focus on the formal, deliberate actions of listening for therapeutic purposes (Lekander, Lehmann, & Lindquist, 1993). Therapeutic listening is defined as "an interpersonal confirmation process involving all the senses in which the therapist attends with empathy to the client's verbal and nonverbal messages to facilitate the understanding, synthesis, and interpretation of the client's situation" (Kemper, 1992, p. 22).

## SCIENTIFIC BASIS

Therapeutic listening is a topic of interest and concern to a variety of disciplines. There are studies or clinical trials of therapeutic listening or communication in the literature; however, anecdotal reports and editorial articles (descriptive or reflective) comprise the main body of nursing literature (Fredriksson, 1999). A number of studies provide a scientific basis of intervention effects in relation to process (e.g., behavioral changes of providers that foster communication) and outcomes (e.g., client satisfaction, improved clinical indicators).

A systematic literature review of 20 intervention studies that aimed at improving patient–doctor communication revealed the effectiveness of interventions that typically increased patient participation and clarification (Harrington, Noble, & Newman, 2004). Although few improvements in patient satisfaction were found, significant improvements in perceptions of control over health, preferences for an active role in health care, adherence to recommendations, and clinical outcomes were achieved. Likewise, preferable client outcomes were found in several studies in nursing. A survey of 195 parents of hospitalized pediatric patients showed that health care provider use of immediacy and perceived listening were positively associated with satisfaction with care and communication (Wanzer, Booth-Butterfield, & Gruber, 2004). Clients of a community mental health center who perceived that the practitioner used skills of empathy, listening, openness, and genuineness were very satisfied with the care received (Sheppard, 1993). In another study, client distress was inversely associated with nurse-expressed and client-perceived empathy (Olson & Hanchett, 1997).

Studies evaluating training of health care providers in therapeutic communication skills have shown varying results. Training of nurses was effective in improving their therapeutic communication skills. Twenty-



six registered nurse graduates attended a 6-hour communication skills training module. An analysis of the attendees' audiotaped responses to clinical vignettes revealed that active-listening scores increased significantly, whereas attempts to suppress or discount clients' feelings decreased significantly when compared to pretraining scores (Olson & Iwasiw, 1987). Conversely, the level of patient satisfaction did not significantly improve after a system-wide training program for physicians to improve their communication styles with patients although the physicians' self-assessed scores of confidence and communication style improved significantly (Brown, Boles, Mullooly, & Levinson, 1999). Such inconclusive results are likely attributed to the complexities of disentangling relationships among training interventions, empathic interpersonal and therapeutic listening skills, and client outcomes.

The helping styles of psychotherapists, crisis intervenors, and untrained individuals were compared with those of nursing school seniors who were completing a course in interpersonal relationships. The students were similar to trained psychotherapists in their use of empathic listening, as evidenced by statements reflecting affect and content (Ryden, McCarthy, Lewis, & Sherman, 1991). An irony, however, is that primary nurses with more years of education or professional experience were rated by the clients as less empathic, perceptive, or effective as listeners than nurses with fewer years of education or professional experience (Reid-Ponte, 1992). Such results may reflect the realities of busy clinical settings or the fact that experienced nurses may rely more on their intuitive sense rather than therapeutically listening to clients in order to elicit their feelings and needs.

Biophysiological instruments can be useful in capturing the process changes of clients and nurses. Electroencephalography (EEG) changes were observed during client-centered interviews conducted by a nurse trained with Rogers' psychotherapy techniques (Minamisawa & Mitoh, 1997). An increased frequency of nurses' alpha wave activity (implying a relaxed state) was observed when they perceived that they established empathic rapport and active presence with their clients. Clients' EEG patterns also showed occasional increased frequency of alpha wave activity at about the same time as those of the nurse interviewers.

Qualitative methodologies provide rich understanding of the nature of therapeutic listening and explore the meaning and experience of being listened to in the context of real-world settings. Self-expression opportunities that enable clients to be listened to and understood can promote their self-discovery, meaning reconstruction, and healing (Myers, 2000; Sandelowski, 1994).

Sources of contradictory or inconclusive findings of studies on therapeutic listening may include lack of a clear theoretical framework, limita-

tions in design and measurement sensitivity, and deficiencies of sample size (Kruijver, Kerkstra, Francke, Bensing, & van de Wiel, 2000). Further systematic studies are needed to enhance knowledge as to evidence of intervention effectiveness, especially the link between client characteristics and type of interventions.

## INTERVENTION

Therapeutic listening enables clients to better understand their feelings and to experience being understood by another caring person. Effective engagement in therapeutic listening requires nurses to be aware of verbal and nonverbal communication that conveys explicit and implicit messages. When expressed words contradict nonverbal messages, communicators rely more often on nonverbal cues; facial expression, tone of voice, and silence are as important as words in determining the meaning of a message (Kacpersek, 1997). Nonverbal communication is inextricably linked to verbal communication and can change, emphasize, or distract from the words that are spoken (Bush, 2001).

### Guidelines

Listening is an active process, incorporating explicit behaviors as well as attention to choice of words, quality of voice (pitch, timing, and volume), and full engagement in the process (Burnard, 1997). Therapeutic listening requires the receiver to tune in to the client and to use all the senses in analyzing, inferring, and evaluating both the stated and the underlying meaning of the client's message. Therapeutic listening requires concentration and an ability to differentiate between what is actually being said and what one wants or expects to hear. Listeners are cautioned to avoid making assumptions that might lead them to hear what they think the client ought to say (Schlesinger, 1994). It may be difficult to listen accurately and interpret messages they find difficult to relate to or to listen to information they may not want to hear, therefore making therapeutic listening both a cognitive and an emotional process (Arnold & Underman Boggs, 1999). When one is not fully engaged, it can be easy to become distracted or to start formulating a response rather than to stay focused on the message. Three components have been identified by De Vito (1995) as being key to listening:

1. rephrasing the patient's words and thoughts to ensure clarity and accuracy,

2. conveying an understanding of the speaker's perceptions, and
3. asking questions and prompting in order to clarify.

These and other techniques are presented in Table 5.1 for this type of intervention.

Therapeutic listening with pediatric patients can be even more complex as it frequently becomes triangular among the nurse, child, and caregiver (Whaley & Wong, 1996). This may take particular skill on the part of the nurse as she attends to both the spoken and nonverbal messages and the reactions of two persons simultaneously. In addition, the nurse

**TABLE 5.1** Therapeutic Listening Techniques

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*Active Presence:* Active presence involves focus on the clients to interpret the messages they are trying to convey, recognition of themes, and hearing what is left unsaid.

*Accepting Attitude:* An accepting attitude will allow clients to feel comfortable expressing themselves. This can be demonstrated by short affirmative responses or gestures.

*Clarifying Statements:* Clarifying statements and summarizing can help the listener verify message interpretation and create clarity. Encourage specificity rather than vague statements to facilitate communication. Rephrasing and reflection can assist the client in self-understanding.

*Use of Silence:* Use of silence can encourage the client to talk, facilitate the nurse's focus on listening rather than the formulation of responses, and reduce the use of leading questions.

*Tone:* Tone of voice can express more than the actual words through empathy, judgment, or acceptance. Match the intensity of the tone appropriately to the message received to avoid minimizing or overemphasizing.

*Nonverbal Behaviors:* Clients relaying sensitive information may be very aware of the listener's body language and the listener will be viewed as either accepting of the message or closed to it, judgmental, and/or uninterested. Eye contact is essential to convey true interest. Maintaining a conversational distance and judicious use of touch may increase the client's comfort. Cultural and social awareness are important to avoid undesired touch.

*Environment:* Distractions should be eliminated to encourage the therapeutic interchange. Therapeutic listening may require careful planning to provide time for undivided attention or may occur spontaneously. Some clients may feel comfortable having family present whereas others may feel inhibited when others are present.

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must be sensitive to the clarification of information and cues in front of either the child or the caregiver, depending on the child's age.

Adolescents may especially appreciate talking with an adult outside their family (Whaley & Wong, 1996). They may, however, respond quickly and abruptly to any perceived indications of judgment, indifference, or disrespect on the part of the listener. It is especially important with adolescents to be fully attentive, allow for complete expression of thoughts, and avoid statements or facial expressions that imply disapproval or can be misinterpreted.

Because therapeutic listening involves both cognitive and emotional processes, it is important that nurses recognize the role of emotional intelligence in their therapeutic interactions. Emotional intelligence is defined as an ability to recognize emotions in self and others and to understand and utilize these emotions in thinking processes and interactions with others (Vitello-Cicciu, 2002). Nursing requires a significant amount of emotional labor, resulting in expectations of caring, understanding, and empathy from patients and families. Strategies such as reflection, empathizing, and skilled therapeutic listening can promote a healing environment (Molter, 2003).

Recently, a new type of listening intervention has been described and tested; this intervention is referred to as *change-oriented reflective listening* (Rollnick et al., 2002). The technique has been piloted on general practitioners to motivate them to intervene with opiate users and as part of alcohol intervention (McCambridge, Platts, Whooley, & Strang, 2004; Strang, McCambridge, Platts, & Groves, 2004). This technique, a brief motivational enhancement intervention based on motivational interviewing, has potential for incorporation into the repertoire of nursing intervention.

## Measurement of Outcomes

Multiple measurements such as self-report, behavioral observation, physiological indicators, and qualitative accounts provide rich data for the study of therapeutic listening. Challenges to outcome measurement include the isolation of an independent variable (therapeutic listening as an intervention) from other confounding variables and the complexity of the multifaceted phenomenon of therapeutic listening that may necessitate multivaried study design (Bennett, 1995). Antecedents to interventions (e.g., clients' characteristics) have to be taken into consideration just as the process of interventions (e.g., short- and long-term improvements in nurses' knowledge, skills, attitudes, and behavior after training) and client

outcomes need to be evaluated (Harrington et al., 2004; Kruijver et al., 2000).

Positive changes in psychological variables such as anxiety, depression, hostility, or nursing care satisfaction are potential client outcomes of therapeutic listening. It may also be useful to examine physiological measures (heart rate, blood pressure, respiratory rate, temperature, oxygen saturation, EEG) as outcomes of therapeutic interchange. Outcomes may also include clinical variables such as length of stay, response to illness, mood, adherence, disease control, morbidity, and health care cost.

## **Precautions**

Therapeutic listening has at its heart the intent to be helpful, so few precautions seem warranted. However, sensitivity and awareness to cultural variations of communication styles are vital to interventional effectiveness. Cultural differences in meanings of certain words, styles and approaches, or certain nonverbal behaviors such as silence, touch, or smile may adversely affect therapeutic communication. Maintaining professional boundaries during therapeutic listening is important; empathy with clients is to be demonstrated within professional and therapeutic guidelines. Referrals for professional counseling may be indicated when there are psychiatric crises. Ethical dilemmas may result if the principle of respecting clients' autonomy and confidentiality conflicts with the principle of maintaining professional responsibility and integrity (e.g., taking action based on sensitive information shared in the therapeutic exchange).

## **USES**

Listening is an intervention that is applicable to virtually an unlimited number of care situations. Active listening is a vital technique that may be used to elicit patients' perspectives on their illness (Simpson et al., 1991). Practitioners are admonished to continue listening to patients throughout their visits, as patients may disclose vital information in the closing moments of their appointments (White, Levinson, & Roter, 1994). Selected patient population examples describing the use of listening are included in Table 5.2. Managers in the health care field may also reap benefits from active listening (Boyd, 1998; Kubota, Mishima, & Nagata, 2004). Table 5.3 presents web sites of national and international professional organizations where online resources for details of therapeutic listening can be found.

**TABLE 5.2** Selected Uses of Listening

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Adolescent mental health (Claveirole, 2004; Street & Svanberg, 2003)
Cancer (Harris & Templeton, 2001; Hirose, 1999)
Culturally diverse populations (Davidhizar, 2004)
Day surgery (Foy & Timmins, 2004)
Emergency care (O’Gara & Fairhurst, 2004; O’Hagan, Webb, & Moore, 2004)
Families of critically ill patients (Garcia de Lucio, Garcia Lopez, Marin Lopez, Hesse, & Caamano Vaz, 2000)
Gastrointestinal conditions (Eckes, 1996)
Loss (Gibbons, 1993)
Mentally impaired community-dwelling adults (Sheppard, 1993)
Older adults (Williams, Kemper, & Hummert, 2004)
Pediatric behavioral problems (Herman-Staab, 1994)
Perinatal care (Battersby & Deery, 2001)
Posttraumatic stress (Gidron et al., 2001)
Terminal care (Cherin, Enguidanos, & Brumley, 2001)
Traumatic stress/disasters (Liehr, Mehl, Summers, & Pennebaker, 2004)

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**TABLE 5.3** Professional Organizations and Online Resources for Therapeutic Listening*National*

- The National Communication Association <http://www.natcom.org>
- The Focusing Institute <http://www.focusing.org>

*International*

- The International Communication Association <http://www.icahdq.org>
  - The International Listening Association <http://www.listen.org>
    - International Journal of Listening <http://www.listen.org/pages/ijl.htm>
  - Communication Institute for Online Scholarship <http://www.cios.org>
    - Electronic Communication Journal <http://www.cios.org/www/ejcmmain.htm>
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## FUTURE RESEARCH

Many questions can be pursued in this area of research. Systematic studies are needed to develop a body of knowledge. Their designs require a new paradigm other than traditional randomization or control because of ethical and feasibility concerns, among other variables. Rather, qualitative studies, case reports, or mixed method designs may be options for understanding the nature and effects of therapeutic listening. Potential questions are as follows:

- Can therapeutic listening via phone or other interactive technology (synchronous and asynchronous) be effective at a distance?
- What are the effects of health care providers' use of listening on patient satisfaction and other outcomes of care?
- Are interventions to improve listening of health care providers cost effective and legitimate areas on which to focus continuous quality improvement (CQI) in order to improve patient safety and quality of care?
- How do multicultural differences manifest in the process and effectiveness of therapeutic listening?

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## PART II

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# Mind–Body Therapies

### OVERVIEW

Many complementary therapies can be placed in this category. According to the National Center for Complementary/Alternative Medicine (NCCAM), mind–body therapies encompass those that promote the mind’s capacity to have an impact on the functioning of the body. This definition does not mention that the reverse is also true—that therapies that affect the body can have an impact on the mind. Neither does the definition make reference to the spiritual realm that is a part of a holistic perspective. The more encompassing perspective, mind-body-spirit, will be the focus in this book.

Mind–body therapies stand in opposition to the long held, beliefs that underlie Western biomedicine in which the body and mind are examined separately. This separation was based on the philosophy of René Descartes. Nursing care, on the other hand, has been based on a holistic philosophy. Florence Nightingale documented the impact that therapies such as music have on the whole person (Nightingale, 1936). Despite the literature on a holistic philosophy and the emphasis that has been given to holistic assessments, in actuality the biomedical model has often predominated in nursing until recently. Other health professionals are also shifting away from the dichotomy of mind and body and are viewing persons from a holistic perspective.

An emerging body of research provides the basis for the use of mind–body therapies. From Herbert Benson’s work in the 1960s on the effect of transcendental meditation on blood pressure to the increasing number of psychoneuroimmunological studies, the interconnectedness of the mind and body is being documented. Measurement of multiple outcomes (physiological, psychological, and spiritual) is needed in which complementary therapies are tested. Such studies pose challenges for identifying and measuring outcomes.

Many of the therapies in this category have been used by nurses. These include imagery, music, prayer, and humor. Many other mind–body therapies such as internal qi gong, soul retrieval, sweat lodges, and body psychotherapy are less familiar to nurses. The therapies chosen for inclusion in part II are ones that nurses frequently use and on which nurses have conducted research. These are imagery, music, humor, yoga, biofeedback, meditations, prayer, storytelling, and animal-assisted therapy.

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## CHAPTER 6

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# Imagery

Janice Post-White and Maura Fitzgerald

Imagery is a mind–body intervention that uses the power of the imagination to effect change in physical, emotional, or spiritual dimensions. Throughout our daily lives we constantly see images, feel sensations, and make impressions. A picture makes us angry or sad, a smell brings us to a past moment, a sound makes the muscles in our neck tighten. A billboard showing a cool glass of lemonade makes our mouths water, and a fondly remembered song on the radio takes us back to carefree feelings of youth. Images evoke physical and emotional responses and help us understand the meaning of events.

Imagery is described as “the world’s oldest and greatest healing resource” (Achterberg, 1985, p. 3), and is used in many ancient healing traditions to effect cure, alleviate suffering, and facilitate spiritual transformation. Throughout time, healers and shamans have used imagery to access the patient’s subconscious mind and belief system in order to open communication among the body, mind, and spirit. In spiritual life, experiences are images reflecting us back to ourselves (Epstein, 2004).

Imagery is commonly used in modern health care, most often in the form of guided imagery, clinical hypnosis, or self-hypnosis. In the mid-1950s, the American Medical Association and the American Psychiatric Association recognized hypnosis as a therapeutic tool (Lee, 1999). Nurses, physicians, psychologists, and others use it in their practice for treatment

of acute and chronic illness, relief of symptoms, and enhancement of wellness. Imagery has become standard therapy to alleviate anxiety and promote relaxation in adults and children, and has been successfully used to relieve both chronic and procedural pain and insomnia, prevent allergic responses, and lower high blood pressure. Imagery is a hallmark of current stress-management programs and is a technique used to promote deep relaxation, gain psychological insight, and progress on a chosen spiritual path.

### DEFINITION

Imagery is the formation of a mental representation of an object, a place, an event, or a situation that is perceived through the senses. It is based on the individual's own imagination and cognitive processing and can be practiced as an independent activity (self-hypnosis) or guided by a professional (guided imagery).

Imagery can be active or passive. For adults and adolescents, physical and mental relaxation tends to facilitate imagery. Younger children often do not need to assume a relaxed state. Imagery may be receptive, with the individual perceiving messages from the body, or it may be active, with the individual cognitively evoking thoughts or ideas. Active imagery can be outcome- or end-state-oriented, in which case the individual envisions a goal, such as being healthy and well, or it can be process-oriented, in which case the mechanism of the desired effect is imagined, such as envisioning a strong immune system fighting a viral infection or tumor.

Images employ all the senses—visual, aural, tactile, olfactory, proprioceptive, and kinesthetic. Although imagery is often referred to as “visualization,” it includes imagining through any sense and not just being able to “see something” in the mind's eye. While inducing imagery, the individual often imagines seeing, hearing, smelling, tasting, and/or touching something in the image.

### SCIENTIFIC BASIS

Imagery is thought to modify disease and reduce symptoms by lowering the stress response, which is mediated by psychoneuroimmune interactions. The stress response is triggered when a situation or event (perceived or real) threatens physical or emotional well-being or when the demands of a situation exceed available resources. One of the goals of imagery is to reframe stressful situations from negative responses of fear and anxiety

to positive images of healing and well-being (Dossey, 1995). Imagery also can be used to increase emotional awareness and restructure the meaning of a situation. Emotional responses to situations trigger the limbic system and signal physiologic changes in the peripheral and autonomic nervous systems, resulting in the characteristic fight-or-flight stress response. The right cerebral hemisphere stores images, which can be evoked through memories (Epstein, 2004). Over time, chronic stress results in adrenal and immune suppression and may be the most harmful to cellular immune function, impairing the ability to ward off viruses and tumor cells (Pert, Dreher, & Ruff, 1998). Redefining negative responses to positive images and meaning reduces the physiologic stress response of the body.

Extensive rat model research by Robert Ader and Nicholas Cohen in the 1970s confirmed that the immune system can be conditioned by expectations and beliefs (Ader & Cohen, 1981; Ader, Felten, & Cohen, 1991). Subsequent research in psychoneuroimmunology attempted to explain the mechanisms of how the brain and body communicate through cellular interactions. Receptors for neuropeptides, neurohormones, and cytokines reside on neural and immune cells and induce biochemical changes when activated. Serotonin and dopamine are two neurotransmitters that increase with stress and activate hypothalamic activity through receptor signaling (Black, 1995). There is overlap between the neuronal pathways and brain structures that are activated in imagery and those that are active in the actual use of the sense (Djordjevic, Zatorre, Petrides, Boyle, & Jones-Gotaman, 2005; Gulyas, 2001; Kraemer, Macrae, Green, & Kelley, 2005; Yoo, Lee, & Choi, 2001). As a result, the brain and the body respond to both real and imagined situations in a similar fashion.

A cascade of signaling events in response to perceived or actual stress results in the release of corticotropin-releasing hormone (CRH) from the hypothalamus, adrenocorticotropin-releasing hormone (ACTH) from the pituitary, norepinephrine and epinephrine from the adrenal medulla and peripheral sympathetic nerve terminals, and immunosuppressive cortisol from the adrenal cortex. These interactions are bi-directional and changes in one system will influence the others.

Although immune responses to emotional states are extremely complex, in general, acute stress activates cardiac sympathetic activity and increases plasma catecholamines and natural killer cell activity, whereas chronic stress (or inescapable or unpredictable stress) is associated with suppression of NK cells and interleukin-1 beta ( $\beta$ ) and other pro-inflammatory cytokines (Cacioppo et al., 1998; Glaser et al., 2001). These effects appear to be mediated by the influence of stress hormones on T

helper 1 (Th1) and T helper 2 (Th2) components (Maes et al., 1998). The degree of response also varies. Cacioppo and colleagues hypothesize that persons who have large physiologic responses to everyday stressors have “high stress reactivity” and are at greater risk for disease susceptibility, even when coping, performance, and perceived stress are comparable. And although genetic factors remain to be studied, baseline levels of neuroendocrine activity are likely to be regulated by genes and may determine the degree of natural resistance to disease, independent of external stimuli and stressors (Bonneau, Mormede, Vogler, McClearn, & Jones, 1998). The amazing heterogeneity in individual responses to stressful situations may determine not only how the individual responds, but also which interventions are more effective for individual adaptation.

## INTERVENTION

### Techniques

Imagery may be practiced independently, with a coach or teacher, or with a videotape or audiotape. The most effective imagery intervention is one that is specific to individuals’ personalities, to their preferences for relaxation and specific settings, their developmental age, and the desired outcomes. An example of the steps of a general imagery session is outlined in Table 6.1.

Imagery sessions for adults and adolescents are usually 10–30 minutes in length, whereas most children tolerate 10–15 minutes. The session typically begins with a relaxation exercise or a focused “centering” situation or event for children. A technique that works well for both children and adults is to focus on slow and expansive breathing, which facilitates relaxation as the breath moves lower into the chest and the diaphragm and abdominal muscles are used more than the upper chest muscles. Other techniques include progressive muscle relaxation or focusing on a word or object. Relaxation helps make the mind more open to new information (Benson, 1993), but is not required for imagery. Some children use active imagery very successfully and may use their bodies to demonstrate or respond to their image.

Once the client is in a relaxed or “altered” state, the practitioner suggests an image of a relaxing, peaceful, or comforting place or introduces a predetermined and agreed-upon image suggested by the client. Scenes commonly used to induce relaxation include watching a sunset or clouds float by, sitting on a warm beach or by a fire on a snowy evening, or floating through water or space. The scene used is often one



**TABLE 6.1** General Guided Imagery Technique

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1. Achieving a relaxed state
    - A. Find a comfortable sitting or reclining position (not lying down).
    - B. Uncross any extremities.
    - C. Close your eyes or focus on one spot or object in the room.
    - D. Focus on breathing with abdominal muscles—with each breath say to yourself “in” and “out.” Notice your breath as it moves in and out. With your next breath let the exhalation be just a little longer and notice how the inhalation that follows is deeper. And as you notice that let your body become even more relaxed.
    - E. Feel your body becoming heavy and warm—from the top of your head to the tips of your fingers and toes.
    - F. If your thoughts roam, bring your mind back to thinking of your breathing and your relaxed body.
  2. Specific suggestions for imagery
    - A. In your mind, go to a place you enjoy and where you feel good.
    - B. What do you see—hear—taste—smell—and feel?
    - C. Take a few deep breaths and enjoy being there.
    - D. Now imagine yourself the way you want to be . . . (Describe the desired goal specifically).
    - E. Imagine what steps you will need to take to be the way you want to be.
    - F. Practice these steps now—in this place where you feel good.
    - G. What is the first thing you are doing to help you be the way you want to be?
    - H. What will you do next?
    - I. When you reach your goal of the way you want to be—feel yourself, touch yourself, embrace yourself, listen to the sounds surrounding you.
  3. Summarize process and reinforce practice
    - A. Remember that you can return to this place, this feeling, this way of being anytime you want.
    - B. You can feel this way again by focusing on your breathing, relaxing, and imagining yourself in your special place.
    - C. Come back to this place and envision yourself the way you want to be every day.
  4. Return to present
    - A. When you are ready you may return to the room we are in.
    - B. You will feel relaxed and refreshed and be ready to resume your activities.
    - C. You may open your eyes and tell me about your experience when you are ready.
-

that the client has actually experienced previously and found to be relaxing. Children may prefer active images that involve motion, such as flying or playing a sport.

For directed imagery, the practitioner guides the imagery, using positive suggestions to alleviate specific symptoms or conditions (outcome or end-state imagery) or to rehearse or “walk through” an event (process imagery). Images do not need to be anatomically correct or vivid. Symbolic images may be the most powerful healing images because they are drawn from individual beliefs, culture, and meaning. For example, a 54-year-old woman with metastatic breast cancer watched her Alaskan Huskie dogs devour their breakfast and then used imagery to envision them scouring her body for tumor cells.

The ability to use guided imagery for therapeutic purposes is related to the individual’s hypnotic ability or the ability to enter an altered state of consciousness and to become involved or absorbed in the imagery (Kwekkeboom, Huseby-Moore, & Ward, 1998). Some individuals have naturally high hypnotic abilities. They recall pictures more accurately, generate more complex images, have higher dream recall frequency in the waking state, and make fewer eye movements in imagery than poor visualizers.

Imagery has been used extensively in children and adolescents as well as with adults. Children as young as age 4 who have language skills that are adequate to understand the suggestions, can benefit from imagery (Olness & Kohen, 1996). Young children often are better at imagery because of their natural active use of their imaginations. It has been found that hypnotizability rises through early childhood, peaking somewhere between ages 7 and 14 and then leveling off into adolescence and adulthood (Olness & Kohen).

When practitioners do imagery with children, techniques must be modified to suit their developmental and cognitive age, as well as their personal preferences. Adjustments may include reducing the length of time and modifying the types of imagery used. Children often do not like to close their eyes. Preschool and school-age children most often imagine in an active state; therefore muscle relaxation is not necessarily a goal. For example, a group of 9- to 12-year-old boys with sickle cell disease were being taught guided imagery as a pain control technique. When asked what special place they would like to go to they requested a trip to a local amusement park and a ride on the roller coaster. During the imagery many of them were physically and vocally active, swaying from side to side and moving their arms up and down. At the end of the visualization they all reported feeling like they had been in the park (absorption) and gave examples of things they felt, saw, heard, or smelled.

Recognizing individual and developmental preferences for settings, situations, and relaxation or stimulation can improve the effectiveness of the imagery and reduce time and frustration with learning it. Practicing imagery oneself is extremely helpful in guiding others.

## **Measurement of Outcomes**

Evaluating and measuring outcomes are important in determining the effectiveness and value of imagery in clinical practice. Clinical outcomes of imagery include physical signs of relaxation, less distress, lower levels of anxiety and depression, a sense of meaning, purpose, competency, and positive changes in attitude or behavior (Post-White & Johnson, 1991). Health services benefits may reduce costs, morbidity, and length of stay, and improve functional performance and quality of life.

The outcomes measured should reflect the client's situation and the conceptual framework providing the rationale for the use of imagery. If imagery is used to facilitate relaxation and progression during the birthing experience, outcomes might include reduced level of pain, decrease in medications taken, perceived helpfulness, and progression of labor. If imagery is used to control symptoms in clients undergoing chemotherapy for cancer, expected outcomes might include reduced nausea, vomiting, and fatigue; enhanced body image; positive mood states; and improved functional abilities. When imagery is used to reduce the stress response and promote relaxation, outcomes may include increased oxygen saturation levels, lower blood pressure and heart rate, warmer extremities, reduced muscle tension, greater alpha waves on EEG, and lower anxiety.

One of the most difficult determinations to make is whether the outcomes are solely the result of imagery or a combination of interventions. Learning and practicing imagery often changes other health-related behaviors, such as getting more sleep, eating a healthier diet, stopping smoking, or exercising regularly. The therapist's presence, attention, and compassion also may be an intervention independent of the imagery process. Because the ability to generate images and become involved in them as if they were real may moderate the effects of imagery on outcomes (Kwekkeboom et al., 1998), it is important to assess the ability to image. Several instruments can be used to measure the effectiveness of the ability to image (Achterberg & Lawlis, 1984; Marks, 1973; Sheehan, 1967; Shor & Orne, 1962) and the level of absorption (Tellegen, 1993).

## **Precautions**

The physical and emotional risks of mind-body techniques are virtually nonexistent as long as they are not used in place of conventional medicine

(Goleman & Gurin, 1993). There are few reports of adverse events and there were no reports of adverse events or side effects reported in a systematic review of guided imagery for cancer (Roffe, Schmidt, & Ernst, 2005). Kwekkeboom and colleagues (1998) reported increased anxiety in 3 of 15 subjects using imagery specifically to reduce anxiety associated with a stressful task. However, the authors also acknowledge that the imagery was perceived as pleasant, despite the inability to relieve anxiety. Some individuals have anecdotally reported airway constriction or difficulty breathing when they focus on breathing techniques. Using another centering method, such as focusing on an object in the room or repeating a mantra, can reduce this distressing response and still induce relaxation.

The expertise and training of the nurse should guide judgment in using imagery to achieve outcomes in practice. Imagery techniques can be easily applied to managing symptoms (pain, nausea, vomiting) and facilitating relaxation, sleep, or anxiety reduction. Advanced techniques such as age regression and management of depression or posttraumatic stress disorder require further training.

## USES

Imagery has been used therapeutically in a variety of conditions and populations (Table 6.2). Pain and cancer are two conditions in which imagery has been helpful in both adults and children.

### **Pain**

Whether pain is from cancer, other illness, side effects of treatment, injury, or physical stress on the body, emotional factors contribute to pain perception, and mind–body interventions such as imagery can help make pain more manageable. Stress, anxiety, and fatigue decrease the threshold for pain, making the perceived pain more intense. Imagery can break this cycle of pain-tension-worry-anxiety-pain. Relaxation with imagery decreases pain directly by reducing muscle tension and related spasms and indirectly by lowering anxiety and improving sleep, both of which influence pain perception. Imagery also is a distraction strategy; vivid, detailed images using all senses tend to work best for pain control. In addition, cognitive reappraisal/restructuring used with imagery can increase a sense of control over the ability to reframe the meaning of pain.

Imagery is especially helpful in muscle tension–related pain, such as some headaches and migraines (Baumann, 2002; Ilacqua, 1994). Imagery also eases pain associated with childbirth (Rees, 1995), dental procedures,

**TABLE 6.2** Conditions for Which Imagery Has Been Tested in Children and Adults

Clinical Conditions	Selected Sources
<b>Children</b>	
Asthma/COPD	Hackman, Stern, & Gershwin (2000); Louie (2004)
Burn dressing change	Foertsch, O'Hara, Stoddard, & Kealey (1998)
Cancer	Steggles et al. (1997)
Cardiac catheterization	Pederson (1995)
Chronic dyspnea	Anbar (2001a, 2001b)
Emotional and behavioral disorders	Olness & Kohen (1996)
Managing procedural pain	Broome, Rehwaldt, & Fogg (1998); Lioffi & Hatira (1999); Stevens et al. (1994); Butler et al. (2005)
Nausea and vomiting	Keller, 1995
Pain	Anbar (2001a); Ball et al. (2003); Baumann (2002); Broome, Rehwaldt, & Fogg (1998); Huth, Broome, & Good (2004); Lambert (1999); Walco et al. (1992)
<b>Adults</b>	
Asthma	Epstein et al. (2004)
Phobias, anxiety	Thompson & Coppens (1994)
Childbirth/postpartum care	Rees (1995); Rossi (1986)
Depression & fatigue in HIV	Eller (1995)
Anxiety and pain medication use following coronary artery bypass surgery	Ashton et al. (1997)
Surgical outcomes	Mandle et al. (1996)
Protective cardiac factors	Mandle et al. (1996)
Psoriasis	Zachariae et al. (1996)
Anxiety during cancer treatment	Baider et al. (1994); Decker & Cline-Elsen (1992); Feldman & Salzberg (1990); Walker (1998)
Nausea and vomiting during cancer treatment	Burish & Jenkins (1992); Troesch et al. (1993)
Five-year survival in lymphoma	Ratcliffe et al. (1995)
Immune response in healthy volunteers	Johnson et al. (1996); Rider et al. (1990); Walker et al. (1993); Zachariae et al. (1994)
Immune response in breast cancer	Anderson (1992); Gruber et al. (1993); Post-White et al. (1996); Richardson et al. (1997); Walker et al. (1996)
Cancer pain	Syrjala et al. (1995); Wallace (1997)
Postoperative pain	Antall & Kresevic (2004)
Comfort during cancer therapy	Kolcaba & Fox (1999)
Sleep	Richardson (2003)

and surgery (Mandle, Jacobs, Arcari, & Domar, 1996; Manyande et al., 1995). Although highly hypnotizable persons benefit more readily than others, practically all patients can learn to better manage their pain and pain-related stresses through simple imagery exercises (Spira & Spiegel, 1992).

Guided imagery has been used extensively with children to alleviate pain and anxiety (Huth, Broome, & Good, 2004; Lambert, 1999; Rusy & Weisman, 2000; Steggle, Damore-Petingola, Maxwell, & Lightfoot, 1997). Imagery is particularly helpful in getting a child through a medical procedure with a safe and effective level of sedation/analgesia and as little movement as possible (Butler, Symons, Henderson, Shortliffe, & Spiegel, 2005). Suggestions to breathe deeply and to relax or be comfortable are combined with vivid images of a favorite place. It is best to introduce the child to breathing techniques and explore favorite places prior to the procedure. In critical or emergency situations, however, imagery has been successfully employed without preliminary work (Kohen, 2000).

Distraction imagery is most useful for dealing with exhausting and severe pain and painful procedures. Suggestions for drawing attention completely from the physical pain include floating or other pleasant sensations, recalling a pleasant past experience or feeling, or distracting oneself from the pain source by rubbing fingers together or squeezing and releasing hands.

Several studies document the effectiveness of imagery to reduce acute procedural pain in children. In one study of chronic pain, imagery and progressive muscle relaxation were effective for reducing chronic recurrent abdominal pain and improving quality of life, social functioning, and school attendance after 10 months of training and practice (Youssef et al., 2004).

In two studies of children with cancer undergoing procedures, relaxation, distraction, and imagery reduced pain during lumbar puncture in a single arm study of 28 children and adolescents (Broome, Rehwaldt, & Fogg, 1998). Clinical hypnosis and cognitive restructuring also reduced pain and anxiety, in comparison to a control condition, in 30 children undergoing bone marrow biopsy (Lioffi & Hatira, 1999).

In a study of 26 children undergoing elective surgical procedures, preoperative imagery reduced postoperative pain scores and length of stay in comparison to standard preoperative education, despite the same dose of pain medication (Lambert, 1996). Two other studies measuring the effectiveness of imagery in reducing procedural pain in children found no differences in distress behaviors and pain with cardiac catheterization in comparison to a control group (Pederson, 1995) and during burn dressing changes (Foertsch, O'Hara, Stoddard, & Kealey, 1998).

The focus with moderate pain is to alter the interpretation or perception of pain. Metaphors for pain can be used to dissociate from the pain and gain control (initially over the metaphor used), thereby reducing the intensity of the pain. Another alternative is to identify pleasant sensations with the metaphor. Associations with hot or cold temperature also can be used, with the individual concentrating on raising and lowering the intensity/level and associating pleasant sensations with different temperatures.

Focusing and transferring analgesia is most effective for mild pain. Several techniques can be used, such as imagining the area being injected with anesthetic, being wooden, or being painted a color that numbs the area. It is helpful to numb an unaffected area first, such as a “hand in glove” anesthesia, and then transfer that numbness to the painful area (Levitan, 1992). Although elements of relaxation, vividness, and distraction were important to pain reduction, Zachariae and Bjerring (1994) and De Pascalis and colleagues (2004) found that focused analgesia was the most effective in reducing acute pain, particularly in subjects with high hypnotizable ratings.

## **Cancer Pain**

Imagery interventions in oncology have focused on four areas: efficacy in pain management, influence on surgical outcomes, improvement in quality of life, and changes in immunity (Lee, 1999). Pain specific to cancer and its treatment can be acute or chronic. In a randomized pretest–posttest study of 67 hospitalized patients with cancer pain, imagery combined with progressive muscle relaxation reduced pain sensation, intensity, and severity and lowered non-opioid breakthrough analgesia use (Sloman, 1995). Similarly, in two clinical trials of bone marrow transplant patients, Syrjala and colleagues measured reduced levels of mucositis-related pain in the imagery/hypnosis group (Syrjala, Cummings, & Donaldson, 1992; Syrjala, Donaldson, Davis, Kippes, & Carr, 1995). Twice-weekly imagery sessions included progressive muscle relaxation, deep relaxation, transference of sensations, and individualized imagery.

Despite its use in cancer, there are few randomized controlled studies documenting the effectiveness of imagery for cancer-related pain (Wallace, 1997). However, a National Institutes of Health technology assessment panel concluded that behavioral therapies for chronic cancer pain should be accepted as standard treatment and reimbursed similar to medical treatments (Eastman, 1995). Kwekkeboom (1999) proposed a model to help predict the effectiveness of cognitive-behavioral cancer

pain management strategies. In a subsequent pilot study testing the relationships among predictive variables in a path analysis model, imaging ability was the strongest predictor of mean pain intensity, positive affect, and perceived control over the pain (Kwekkeboom, Kneip, & Pearson, 2003). Outcome expectancy was not a predictor of imagery success.

Other factors proposed to influence imagery's success include the dose of imagery. Great variability exists in how frequently imagery is recommended. In an attempt to quantify this effect, Van Kuiken (2004) conducted a meta-analysis of 16 published studies since 1996. Although the final sample of 10 studies was too small for statistical analysis, Van Kuiken concluded that imagery practice up to 18 weeks increases the effectiveness of the intervention. A minimum dose was not determined and further study is needed to explore a dose relationship with outcomes. To help with standardization of imagery interventions and generalizability, other documentation should include a detailed description of the specific interventions used, outcomes affected by the imagery, and factors influencing effectiveness.

## **Cancer Outcomes**

Although several prospective randomized studies found that imagery increased survival in patients with cancer (Fawzy et al., 1993; Grossarth-Maticsek & Eysenck, 1989; Spiegel, Bloom, Kraemer, & Gottheil, 1989; Walker, 1998), and reduced time to engraftment in 23 patients undergoing bone marrow transplant (Sahler, Hunter, & Liesveld, 2003), many other factors also influence cancer outcomes. Psychosocial factors such as depression (Walker, 1998) and diagnostic factors such as stage of disease (Ratcliffe, Dawson, & Walker, 1995) are consistent covariates in explaining survival outcomes.

A common explanation for how imagery may improve cancer outcomes is postulated through increasing cellular immune function. Some studies have demonstrated increases in natural killer cytotoxicity (Fawzy et al., 1993; Fawzy et al., 1990; Gruber, Hall, Hersh, & Dubois, 1988; Gruber et al., 1993; Gruzelier, 2002; Walker et al., 1996), NK numbers (Bakke, Purtzer, & Newton, 2002), and T cell responses (Gruber et al., 1988; Gruber et al., 1993), whereas others have found no differences (Post-White et al., 1996; Richardson et al., 1997) or decreases (Zachariae, Hansen, et al., 1994) in natural killer cell numbers and cytotoxicity. Despite inconclusive effects on cancer outcome, imagery interventions have consistently improved coping responses and psychological states in patients with cancer, suggesting that imagery may mediate psychoneuroimmune outcomes in breast and other cancers (Walker, 2004). Further



study is needed to determine the clinical significance of immunological effects.

In a systematic review of guided imagery as an adjuvant cancer therapy for symptom distress, Roffe and colleagues (2005) evaluated the evidence from six studies using imagery as a single intervention in cancer. Three studies reported significant effects on anxiety (Sloman, 2002), comfort during radiation therapy (Kolcaba & Fox, 1999), and emotional response to chemotherapy (Troesch et al., 1993). No effects were found on physical symptoms, which may be partially explained by few distressing symptoms in the subjects. The literature search identified 103 articles investigating imagery for cancer. Guided imagery has recently been identified as one of the 10 most frequently recommended integrative therapies for cancer on the Internet (Schmidt & Ernst, 2004). The low methodological quality of the studies suggests that rigorous research in imagery for cancer is not as prevalent as actual use in clinical practice.

## FUTURE RESEARCH

Despite documented relationships between the mind and the body, many of the intervention trials testing the effectiveness of guided imagery and other mind–body interventions lack the scientific rigor of randomized controlled clinical trials. Wild and Espie (2004) conclude that there is insufficient evidence for the efficacy of hypnosis to manage procedural pain in pediatric oncology, largely because of the lack of high-quality research studies. Small sample sizes and lack of standardized control groups limit the generalizability of the findings. However, the clinical evidence for effect remains strong, and more scientifically rigorous research testing outcomes are needed.

Key questions that remain to be answered are whether psychoneuroimmune responses to imagery influence clinical outcomes and quality of life and if so, how they work to mediate psychosocial and clinical outcomes. Determining personal preferences for use of imagery and specific types of imagery is important for demonstrating significant clinical effects. Measuring clinical outcomes relevant to quality of life and health/illness states is critical to demonstrating cost effectiveness and efficacy of imagery as an intervention useful in practice. As a low cost, noninvasive intervention, imagery has the potential to be effective in reducing pain and distress across several conditions.

Questions to be pursued include:

1. Is imagery more effective than relaxation alone in producing stress-reducing outcomes?

2. Does the type of imagery (outcome or process) produce different outcomes? Does imagining the immune system in cancer actually influence immune response?
3. Are there certain characteristics of individuals that determine their ability to respond to imagery and produce desired outcomes? Are there certain individuals or conditions for which imagery should not be recommended?
4. What are the long-term effects of imagery? Over time, can imagery reduce stress, improve coping, enhance well-being, create healthier lifestyles, and reduce illness in individuals?

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## CHAPTER 7

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# Music Intervention

Linda Chlan

Music has been used throughout history as a treatment modality. From the time of the ancient Egyptians, the power of music to affect health has been noted. Nursing's pioneering leader Florence Nightingale recognized the healing power of music (1860). Today nurses can use music in a variety of settings to benefit patients and clients.

### DEFINITIONS

The *American Heritage Dictionary® of the English Language* defines music as “the art of arranging sounds in time so as to provide a continuous, unified and evocative composition, as through melody, harmony, rhythm, and timbre” (2000). Alvin (1975) delineated five main elements of music. The character of a piece of music and its effects depend on the qualities of these elements and their relationships to one another:

- Frequency or pitch is produced by the number of vibrations of a sound—the highness or lowness of a musical tone noted by the letters A, B, C, D, E, F, G. Rapid vibrations tend to act as a stimulant, whereas slow vibrations bring about relaxation.

- Intensity creates the volume of the sound, related to the amplitude of the vibrations. A person's like or dislike of certain music partially depends on intensity, which can be used to produce intimacy (soft music) or power (loud music).
- Tone color or timbre is a nonrhythmical, subjective property that results from harmony. Psychological significance results from the timbre of music because of associations with past events or feelings.
- Interval is the distance between two notes related to pitch, which creates melody and harmony. Melody results from how musical pitches are sequenced and the interval between them. Harmony results from the way pitches are sounded together, described by the listener as consonant (conveying the feeling of restfulness) or dissonant (conveying the feeling of tension). Cultural norms determine what a listener deems enjoyable and pleasant.
- Duration creates rhythm and tempo. Duration refers to the length of sounds, and rhythm is a time pattern fitted into a certain speed. Rhythm is what influences one to move with music in a certain manner and can convey peace and security, whereas repetitive rhythms can elicit feelings of depression. Continuous sounds that are repeated at a slow pace and become gradually slower produce decreased levels of responsiveness. Strong rhythms can awaken feelings of power and control.

From a nursing perspective, music intervention is the use of music for therapeutic purposes to promote patient/client health and well-being. Music therapists are employed in many health care facilities, and countless situations exist in which nurses can implement music intervention in a patient's plan of care. In order not to confuse the practice of music therapy with the use of music from a nursing perspective, the term *music intervention* will be used in this chapter.

## SCIENTIFIC BASIS

Music is complex and affects the physiological, psychological, and spiritual aspects of human beings. Individual responses to music can be influenced by personal preferences, the environment, education, and cultural factors.

Entrainment, a physics principle, is a process whereby two objects vibrating at similar frequencies will tend to cause mutual sympathetic

resonance, resulting in their vibrating at the same frequency (Maranto, 1993). Music and physiological processes (heartbeat, blood pressure, body temperature, adrenal hormones) are composed on vibrations that occur in a regular, periodic manner and consist of oscillations (Saperston, 1995). Rhythm and tempo of music can be used to synchronize or entrain body rhythms (e.g., heart rate, respiratory pattern) with resultant changes in physiological states. Certain properties of music (less than 80 beats per minute with fluid, regular rhythm) can be used to promote relaxation by causing body rhythms to slow down or “entrain” with the slower beat and regular, repetitive rhythm of selected music (Robb, Nichols, Rutan, Bishop, & Parker, 1995).

Likewise, music can decrease anxiety by occupying attention channels in the brain with meaningful, distractive auditory stimuli (Bauldoff, Hoffman, Zullo, & Sciruba, 2002). Music intervention provides a patient/client with a familiar, comforting stimulus that can evoke pleasurable sensations while refocusing the individual’s attention onto the music instead of on stressful thoughts or other environmental stimuli.

## INTERVENTION

Determination of a person’s music preferences through assessment is essential; among the tools developed for use by nurses is one by Chlan and Tracy (1999). This assessment instrument elicits information on how frequently music is listened to, the type of preferred musical selections, and the reason a person listens to music. For some people the purpose of listening to music may be to relax whereas others may prefer music that stimulates and invigorates. After assessment data have been gathered, appropriate techniques with specific music can then be implemented.

### Techniques

The use of music can take many forms, from listening to selected tapes or compact discs (CDs) to singing or drumming. A number of factors should be kept in mind when considering the specific technique: the type of music and personal preferences, active versus passive involvement, on an individual basis or use in a group, length of time to use music, and desired outcomes. Two of the more commonly used music intervention techniques will be discussed here: individual listening and group work.

#### *Individual Music Listening*

Providing the means for patients to listen to music is the intervention technique most frequently implemented by nurses. Cassette tapes and

CDs make it easy to provide music intervention for patients/clients in all types of settings. Tape or CD players are relatively inexpensive; they are small and can be used even in the most crowded confines such as critical care units. Auto-reverse capabilities of tape players allow patients to listen to music for any length of time without having to turn the tape over. CD players have superior sound clarity and track-seeking that allows immediate selection of a desired piece. Comfortable headphones allow patients private listening that does not disturb others. Equipment selected for music intervention should be easy for patients to use with minimal effort.

With only a very modest outlay of money, a nursing unit can establish a tape or CD library containing a wide variety of selections to meet various music preferences. The Public Radio Music Source ([www.prms.org](http://www.prms.org)) offers a great variety of music for purchase. It is also easy to individualize tapes or CDs to meet the preferences of each patient. (Attention to copyright laws is necessary when reproducing tapes or downloading music from Internet sites.)

Although various music genres are available on the radio, commercial messages and talking are deterrents to using them for music intervention. Likewise, one cannot control the quality of the radio signal reception or the specific music selections.

### *Group Music Making*

Music can be used for patient groups as a powerful integrating force. Music creates interrelationships among the members and between the listener and the music. One method of group music making is drumming, a form of rhythmic auditory stimulation. Drumming circles induce relaxation by entraining theta and alpha brain waves, leading to altered states of consciousness by activation of the limbic brain region with the lower brain (Winkelman, 2003). Drumming circles have been used effectively to reduce burnout and improve mood in nursing students (Bittman et al., 2004) and to enhance recovery from a variety of chemical addictions (Winkelman, 2003).

Nurses should consult with experts in drumming prior to implementing this type of group music making. The American Music Therapy Association web site ([www.musictherapy.org](http://www.musictherapy.org)) can provide assistance in locating a music therapist. Further, diversity in the preferences, interests, and abilities of individuals in a group or securing an appropriate site for a group session may necessitate implementing music on an individual basis; groups also require more planning than do individual sessions.

## Types of Music for Intervention

Careful attention to the selection of the music contributes to its therapeutic effect. For example, music to induce relaxation has a regular rhythm, less than 80 beats per minute, no extreme pitch or dynamics, and a melodic sound that is smooth and flowing (Robb et al., 1995). Past experiences can influence one's response to music as well. Specific selections may be associated with happy or sad occasions and events, and cultural influences will also impact one's musical preferences. Across five pain intervention studies Caucasian persons preferred orchestra music, African American persons jazz, and Taiwanese persons harp music (Good et al., 2000). However, other investigators have found that minority elders tend to prefer music that is familiar to their own cultural background, rather than Western music (Lai, 2004). These disparate findings highlight the need for careful music preference assessment prior to intervention.

Older persons may prefer patriotic and popular songs from an earlier era or hymns with slower tempos played with familiar instruments (Moore, Staum, & Brotons, 1992). Religious music may be welcomed by persons unable to attend religious services.

Classical music is thought to evoke greater enjoyment and interest with repeated listening, whereas popular music declines in effectiveness with repetition (Bonny, 1986). Bonny believes that patients in a weakened state respond less to popular music and are more receptive to the stimulus of classical music that has endured over time. In any event, providing a choice and considering a person's musical preferences are imperative.

New Age, synthesized, or nontraditional music has become very popular. This type of music differs from traditional music, which is characterized by tension and release (Guzzetta, 1995). However, some experts think that this type of synthesized music is not appropriate for relaxation due to the novelty of the stimulus and the absence of the usual forms found in more traditional and American music (Bonny, 1986; Hanser, 1988). Music perceived as unfamiliar will cause an orienting response that may undermine goals for intervention (Maranto, 1993).

## Guidelines

Music intervention for the purpose of relaxation utilizes music as a pleasant stimulus to block out sensations of anxiety, fear, and tension and to divert attention from unpleasant thoughts (Thaut, 1990). A minimum of 20 minutes is necessary to induce relaxation along with some form of

relaxation exercise, such as deep breathing, prior to initiating music intervention (Guzzetta, 1995).

Although the definition of relaxing music may vary by individual, factors affecting response include musical preferences, familiar selections, and cultural background. Relaxing music should have a tempo at or below a resting heart rate (less than 80 beats); predictable dynamics; fluid melodic movement; pleasing harmonies; regular rhythm without sudden changes; and tonal qualities that include strings, flute, piano, or specially synthesized music (Robb et al., 1995). One of the most widely used classical music selections for relaxation is Pachelbel's Canon in D Major, which is frequently included in commercially available relaxation tapes. Table 7.1 outlines the basic steps for implementing music intervention for promoting relaxation.

## Measurement of Outcomes

The outcome indices for evaluating the effectiveness of music vary, depending on the purpose for which music is implemented. Outcomes may be physiological or psychological alterations and include a decrease in anxiety or stress arousal, promotion of relaxation, increase in social

**TABLE 7.1** Guidelines for Music Intervention for Relaxation

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1. Ascertain that patient has adequate hearing.
  2. Ascertain patient's like/dislike for music.
  3. Assess music preferences and previous experience with music for relaxation.
  4. Provide a choice of relaxing selections; assist with tape/CD selections as needed.
  5. Determine agreed-upon goals for music intervention with patient.
  6. Complete all nursing cares prior to intervention; allow for a minimum of 20 minutes of uninterrupted listening time.
  7. Gather equipment (CD or cassette tape-player, cassettes/CDs, headphones, batteries) and ensure all are in good working order.
  8. Assist patient to a comfortable position as needed; ensure call-light is within easy reach and assist patient with equipment as needed.
  9. Enhance environment as needed (draw blinds, close door, turn off lights, etc.).
  10. Post a Do Not Disturb sign to minimize unnecessary interruptions.
  11. Encourage and provide patient with opportunities to "practice" relaxation with music.
  12. Document patient responses to music intervention.
  13. Revise intervention plan and goal(s) as needed.
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interaction, reduction in the need for medications, and increase in overall well-being. The nurse should carefully consider the goals of intervention and select outcome measurements accordingly.

## **Precautions**

Adaptation occurs if the auditory system is continually exposed to the same type of stimulus (Farber, 1982). Neural adaptation can occur after 3 minutes of continuous exposure, with the result that music is no longer the stimulant and may not have the intended calming influence. Use of stimulation such as music in phase I following head injury may increase intracranial pressure. Music of a stimulating quality should be delayed until the autonomic nervous system has stabilized. Quiet music may be used to induce relaxation and block irritating sounds from the environment; however, the patient's individual response to music should be monitored.

Careful control of volume is essential. Permanent ear damage results from exposure to high frequencies and volumes. Decibels higher than 90 dBSL cause discomfort (Idzoriek, 1982), and fatigue occurs more frequently when stimulation is at higher frequencies (Farber, 1982).

Initiating music intervention without first assessing a person's likes and dislikes may produce deleterious effects. Because of music's effect on the limbic system, it can bring about intense emotional responses. Use of portable players with headphones may be inappropriate for patients in psychiatric settings who may use the equipment cords for self-harm.

## **USES**

Music has been tested as a therapeutic intervention with many different patient populations, with a majority of the nursing literature focusing on individualized music listening. Table 7.2 shows those patient populations and the numerous purposes for which music has been implemented. Two frequent uses will be highlighted here.

### **Decreasing Anxiety and Stress**

One of the strongest effects of music is anxiety reduction (Standley, 1986). Music can enhance the immediate environment, provide a diversion, and lessen the impact of potentially disturbing sounds for pediatric patients (Barrera, Rykov, & Doyle, 2002; Klein & Winkelstein, 1996), for patients

TABLE 7.2 Uses of Music Intervention

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*Orientation/minimizing disruptive behaviors*

Elders (Clark, Lipe, & Bilbrey, 1998; Gerdner, 1997; Janelli, Kanski, Jones, & Kennedy, 1995; Sambandham & Schirm, 1995)

Restrained patients (Janelli & Kanski, 1998)

*Decreasing anxiety*

Pediatrics (Barrera et al., 2002; Klein & Winkelstein, 1996)

Surgical (Augustin & Hains, 1996; Yung, Chui-Kam, French, & Chan, 2002)

Cardiac patients (Hamel, 2001; White, 1992, 1999)

Flexible sigmoidoscopy (Chlan, Evans, Greenleaf, & Walker, 2000)

Ventilator-dependent ICU patients (Chlan, 1998; Wong, Lopez-Nahas, & Molasiotis, 2001)

*Pain management*

Acute pain (Good, 1995; Good et al., 1999; Good et al., 2001; Laurion & Fetzer, 2003; Shertzer & Keck, 2001)

Chronic pain (Schorr, 1993)

Invasive procedures/pediatrics (Berlin, 1998)

*Stress reduction and relaxation*

Elderly patients undergoing ophthalmic surgery (Golden & Izzo, 2001)

NICU patients (Burke, Walsh, Oehler, & Gingras, 1995; Kemper, Martin, Block, Shoaf, & Woods, 2004)

Nursing students (Bittman et al., 2004)

*Stimulation*

Depression in older adults (Hanser & Thompson, 1994)

Sleep disturbances in older adults (Mornhinweg & Voignier, 1995)

Increasing children's sociability (Aasgaard, 2001)

Head injury (Formisano et al., 2001; Jones, Hux, Morton-Anderson, & Knep-  
per, 1994)

*Distraction*

Adjunct to spinal or general anesthesia (Lepage, Drolet, Girard, Grenier, & De-  
Gagne, 2001; Nilsson, Rawal, Unestahl, Zetterberg, & Unosson, 2001)

Burn care (Fratianne et al., 2001; Prensner, Yowler, Smith, Steele, & Frati-  
anne, 2001)

Cardiac patients on bedrest (Cadigan et al., 2001)

High-dose chemotherapy (Ezzone, Baker, Rosselet, & Terepka, 1998)

Cardiac laboratory environmental enhancement (Thorgaard, Henriksen, Peders-  
baek, & Thomsen, 2003)

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experiencing a variety of surgical procedures (Augustin & Hains, 1996; Yung et al., 2002), coronary care unit patients (Hamel, 2001; White, 1992, 1999), and ventilator-dependent ICU patients (Chlan, 1998; Wong et al., 2001). Music can be an effective intervention for enhancing the newborn ICU (NICU) environment and reducing stress (Kemper et al., 2004) with such improvements as enhanced oxygenation during suctioning (Chou, Wang, Chen, & Pai, 2003) and increased feeding rates (Standley, 2003).

## **Distraction**

Music is an effective intervention for distraction, particularly for procedures that induce untoward symptoms and distress. It can reduce noise annoyance in the ICU for cardiac surgery patients (Byers & Smyth, 1997). It has been found to be an effective diversional adjunct in the care of persons with burns (Fratianne et al., 2001; Prensner et al., 2001), management of nausea and vomiting induced by chemotherapy (Ezzone et al., 1998), and nausea and pain intensity after bone marrow transplantation (Sahler, Hunter, & Liesveld, 2003), for distress in children undergoing immunizations (Megel, Houser, & Gleaves, 1998), or can reduce the amount of sedation required for adults during colonoscopy (Lee et al., 2002; Smolen, Topp, & Singer, 2002).

## **FUTURE RESEARCH**

Although the evidence base is increasing, the following are areas in which research is needed to further build the science of music intervention:

1. Recent meta-analyses have been published on the strong, consistent effects of music intervention for premature infants (Standley, 2002) and for children and adolescents with autism (Whipple, 2004). A large body of work is available on music intervention for symptom management, such as anxiety, nausea, and vomiting. An up-to-date meta-analysis articulating effect sizes for these symptoms that nurses typically manage would make a significant contribution to the scientific base of music intervention.
2. Cost and cost savings are significant issues in health care today. Little is known about the potential cost savings that could be realized with music intervention. Research is needed to determine

if music is a cost-effective or cost-neutral intervention and, if cost effective, in which patient-care settings.

3. Much of the nursing research focuses on immediate or short-term effects of music intervention. It is not known if music can be effective for managing symptoms and distress in persons with chronic conditions or improving their quality of life.
4. There is a paucity of investigations as to the appropriate or optimal timing for delivery of music intervention to enhance effectiveness and for which specific patient populations or symptoms.
5. Many published studies have used convenience samples limited to single centers. Randomized, multisite clinical trials are needed to determine if music indeed is effective in natural settings that are not as highly controlled by the investigator and under what conditions.

Although intervention research itself is labor intensive, there is a need for additional research on music intervention. The knowledge base of music intervention to promote patient/client health and well-being can be expanded through high-quality research and by dissemination of those findings in a timely manner.

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## CHAPTER 8

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# Humor

Kevin Smith

A merry heart doeth good like a medicine, but a broken spirit  
drieth the bones.

—Proverbs 17:22

Throughout history, human beings have accorded a beneficial effect to joy and mirth. Greek philosophers including Plato and Aristotle wrote treatises on humor (McGhee, 1979). The German philosopher Immanuel Kant, in 1790, set forth similar physical effects of humor and characterized it as a talent that enabled one to look at things from a different perspective (Haig, 1988). In medieval physiology, humor referred to the four principal fluids of the body: blood, phlegm, choler (yellow bile), and melancholy (black bile). A proper balance of the four was called good humor, and a preponderance of any one constituted ill humor (Robinson, 1991).

That humor and laughter can improve our ability to cope with difficulties and to stay healthy is a popular notion. Interest in this area has increased since Norman Cousins's account of the role of laughter in his recovery from a painful collagen disorder (1979). The belief that humor and laughter positively influence health, and the scientific evidence will be reviewed to provide a basis for the use of humor by nurses and others providing health care.

Nursing journal articles continue to address many facets of humor, such as laughter and stress management (Paquet, 1993; Smith, 2003; Woodhouse, 1993), humor as a nursing intervention (Hunt, 1993; Mornhinweg & Voignier, 1995), humor and the older adult (Herth, 1993), humor and healing (Macaluso, 1993), and the positive physiologic effects of humor (Lambert & Lambert, 1995). Humor organizations and publications are increasing, humor workshops are being offered to nurses and other health care providers, and many continuing education offerings are incorporating humorous presentations or activities.

Humor can be used as a specific therapy or with other therapies as a parallel intervention. The goals in using humor as an intervention are to enhance the well-being of the client, to enhance the therapeutic relationship between the nurse and the client, and to bring hope and joy to the situation. Humor creates an outlet for stress for both client and nurse. It can be used to foster trust and a comfortable environment for the client. In addition to incorporating humor into the health care setting with patients, the use of humor in daily and work life is a significant self-care practice for health care professionals. Virtually anyone can develop the requisite skills needed to use humor as an intervention.

## DEFINITIONS

Humor is the good-natured side of truth.  
—Mark Twain

The Association for Applied and Therapeutic Humor (2005) defines therapeutic humor as follows:

Any intervention that promotes health and wellness by stimulating a playful discovery, expression, or appreciation of the absurdity or incongruity of life's situations. This intervention may enhance work performance, support learning, improve health, or be used as a complementary treatment of illness to facilitate healing or coping, whether physical, emotional, cognitive, social, or spiritual. ([www.aath.org](http://www.aath.org))

Nurse and humor expert Vera Robinson (1978) described the phenomenon of humor as “any communication which is perceived by any of the interacting parties as humorous and leads to laughing, smiling or a feeling of amusement” (p. 193). The dictionary defines it as “the quality of being laughable or comical,” and “the ability to perceive, enjoy, or



express what is comical or funny.” Humor can be the process of either producing or perceiving the comical. What is personally defined or perceived as funny and its physical manifestations vary among individuals. However, there are predictable stimuli for laughter and usual responses.

## Why Do We Laugh?

There are many different reasons that we laugh. Sometimes the response is simply for the fun of it; sometimes it is for more important reasons. Here we will discuss four basic theories for the laughter response: surprise, superiority, incongruity, and release.

1. *Surprise*: Good humor or a good joke may catch one off guard. The surprise in itself causes a person to laugh. Another type of surprise humor is shock humor. This could be a startling or loud punch line or something taboo or vulgar. Shock humor is not recommended in clinical or therapeutic settings.
2. *Superiority*: The theory of superiority laughter (Robinson, 1991) involves situations in which laughter occurs when one feels superior to an individual or a group. One’s laughter is in response to the inferiority, stupidity, or misfortunes of others. In its most simple form this is slapstick humor; a more sophisticated form is political satire. It has been suggested that the essential effect of humor is derived from a sense of mastery or ego strength (Lefcourt & Martin, 1986).
3. *Incongruity*: Schaefer (1981) concisely describes this theory as laughter occurring because of “a perception of an incongruity in a ludicrous context.” For example, a man walks into a psychiatrist’s office with a duck on his head. The duck says, “Doc, you got to help me get this guy off my tail.” Two ideas are juxtaposed in an impossible or absurd situation. The incongruity theory advanced by Kant and other philosophers like Schopenhauer and Spencer emphasized the importance of a sudden surprise, shock, conflict of ideas, or incongruity as a trigger for laughter (Liechty, 1987). Asimov (1992) argues that incongruities put the listener, for a brief moment, in a fantasy world. This suspension of reality readies the listener for the crowning bit of fantasy or the punch line that results in laughter.
4. *Release*: The basic premise of the release theory, as a laughter stimulus, is that humor and laughter help to release tensions and anxieties. Freud (1905) viewed humor as a coping tool that

allows individuals to reduce tension by expressing hostile or obscene impulses in a socially acceptable manner. Morreal (1983) called this the relief theory and notes that humor that produces laughter is a method for venting nervous energy. This release type of laughter is often enhanced in group situations where many share the same anxiety.

## **Humor Styles**

Most of the humor employed on a daily basis with staff and patients is of the spontaneous type: situational humor that arises out of the normal absurdities of the day's activities. This type of humor is also a very effective communication tool when used to break the ice with patients or co-workers. An attempt is made to lighten the situation; this is a sign of caring and allows for a free exchange of thoughts and emotions. Formal humor, or premeditated acts of humor (Smith, 1995), include the sharing of jokes, cartoons, humorous articles or stories; novelty toys or gag gifts; and practical jokes. Formal humor, like most kinds of humor, is usually effective only when it is relevant to the situation in which it is presented. Other more specific humor styles include self-deprecating humor, puns and plays on words, ethnic humor, sarcastic humor, and gallows humor.

Self-deprecating humor may be the most effective and powerful humor tool that nurses can develop and use. To show that one is able to laugh at oneself demonstrates that one is a normal human being with weaknesses who at the same time displays confidence, self-awareness, and self-esteem. Ronald Reagan used this type of humor effectively when critics made derogatory comments about his age during his second run for the presidency. He quipped, "Andrew Jackson was seventy-five years old and still vigorous when he left the White House. I know because he told me" (Klein, 1989, p. 10). Paulsen (1989) stated that gently poking fun at oneself acts as a social lubricant. It shows that a person is at ease with the situation. People are often suspicious or afraid of those without a sense of humor.

Puns and plays on words are simple and straightforward humor styles. Some consider puns to be the lowest form of humor, but pun enthusiasts include Asimov and Freud. Puns typically produce groans rather than laughter. For example, "With friends like you, who needs enemies?"

Ethnic humor is often regional. Using one's own ethnicity or profession as the target of the joke is the most acceptable approach. Sarcastic humor is somewhat risky; overheard sarcasm can make a patient or others think they are the target of the sarcastic comments. Freud (1905)

developed a theory about why people laugh at tragedy and death, which he called gallows humor. Such grim humor is typically seen when people are faced with considerable stress. He theorized that jokes allow people to express unconscious aggressive or sexual impulses. Obrldik (1942) asserted that the phenomenon of gallows humor has a definite social purpose. It provides a psychological escape and strengthens the morale of the group and in some situations undermines the morale of the oppressors. Gallows humor is frequently used in situations where individuals are under significant stress, such as emergency rooms, intensive care units, operating rooms, and morgues.

### SCIENTIFIC BASIS

Many of the positive physiological effects of humor and laughter have been studied. Humor is the stimulus and laughter the response. Laughter creates a cascade of physiological changes in the body. Fry (1971) studied the effects of mirthful laughter on heart rate and on the oxygen saturation level of peripheral blood and respiratory phenomena. He found that both the arousal and cathartic effects are paralleled in the physiological. Laughter involves extensive physical activity. It increases respiratory activity and oxygen exchange, increases muscular activity and heart rate, and stimulates the cardiovascular system, the sympathetic nervous system, and the production of catecholamines. The arousal state is followed by the relaxation state in which respiration rate, heart rate, and muscle tension return to normal. Although the oxygen saturation of peripheral blood is not affected during this relaxation state, blood pressure is reduced and a state exists similar to the impact of hearty exercise. Fry and Savin (1988) investigated the effects of humor on arterial blood pressure using direct arterial cannulization. Findings showed increases in systolic and diastolic blood pressure that were directly related to the intensity and length of laughter. Blood pressure decreased immediately after the laughter to below the pre-laughter baseline.

Many studies have found that humor and laughter increase levels of salivary immunoglobulin A (S-IgA), a vital immune system protein that is the body's first line of defense against respiratory illnesses. In a controlled study, Dillon, Minchoff, and Baker (1985) demonstrated increased levels of S-IgA in college students who viewed a humorous video. Martin and Dobbin (1988) measured subjects' sense of humor, stress levels, and S-IgA levels and demonstrated that subjects with low scores on the humor scales showed a greater negative relationship between stress and S-IgA than did subjects with high humor scores. Stone, Valdimarsdottir, Jand-

orf, Cox, and Neale (1987) found that the S-IgA response level was lower on days of negative mood and higher on days of positive mood. Lambert and Lambert (1995) produced similar findings with S-IgA levels in healthy fifth-grade students.

Berk, Tan, and Fry (1989) studied the effects of laughter on the neuroendocrine stress hormones and immune parameters (Berk, Tan, Napier, & Eby, 1989). They found a complex autonomic response with each catecholamine, suggesting that laughter may be an antagonist to the classical stress response. They demonstrated that laughter lowered serum cortisol levels, increased the amount of activated T-lymphocytes, and increased the number and activity of natural killer cells. Laughter stimulated the immune system, counteracting the immunosuppressive effects of stress. Berk, Felten, Tan, Bittman, and Westengard (2001) proposed that interventions of mirthful laughter may be capable of modulating neuroendocrine and neuroimmune parameters and may be an adjunct to other therapies.

Friedman and Ulmer (1984) assigned hundreds of heart attack survivors to one of two groups. The control group received standard advice regarding medications, diet, and exercise. The treatment group received additional counseling on relaxation, smiling, laughing at themselves, admitting mistakes, taking time to enjoy life, and renewing their religious faith. Over 3 years, the treatment group experienced half as many repeat heart attacks as the control group.

In the pediatric oncology setting, Dowling, Hockenberry, and Gregory (2003) found a direct relationship between a high sense of humor and psychological adjustment to cancer as well as fewer incidences of infection among children with high coping humor scores. Yet Schofield and colleagues (2004) found no evidence that a high level of optimism prior to treatment improved survival in patients with non-small-cell lung carcinoma.

## **Psychological Perspectives**

Humor has been considered an adaptive coping mechanism. Freud (1905) regarded humor and laughter as two of the few socially acceptable means for releasing pent-up frustrations and anger, a cathartic mechanism for preserving psychic or emotional energy. Humor and laughter alter our perspective in various situations. Laughter can counteract negative emotions; it allows people to transcend predicaments, overcome painful circumstances, and cope with difficulties. By focusing energy elsewhere, humor can diffuse the stress of difficult events (Klein, 1989). The use of

humor has been shown to reduce threat-induced anxiety (Yovetich, Dale, & Hudak, 1990).

## INTERVENTION

There are many approaches, techniques, and tools that can be used for utilizing humor as an intervention. A first step in deciding how and when to use humor is to complete a humor assessment, first of yourself, then of your patient.

### Assessment

A humor interview guide was developed to explore older adults' perceptions of humor (Herth, 1993; see Table 8.1). This assessment could be adapted for use in clinical settings or used in research. The assessment is completed by the provider and then by the client.

When completing an assessment of one's own sense of humor, one should consider what type of humor seems most natural. Consider preferences for spontaneity versus formal humor. Like all skills, you can always work on improving your sense of humor. Strickland (1993) says that the first and biggest barrier to using humor is the fear of appearing foolish or of losing control over one's self-image.

Part of the humor assessment of a patient is determining what type of humor is appropriate to use for the patient and the particular situation. Humor that is divisive in any way should be avoided. Investigate the patient's and family's prior use of humor and whether they currently appreciate and value humor and laughter (Davidhizar & Bowen, 1992).

**TABLE 8.1** Humor Assessment Interview Guide

- 
1. When you think of humor, what kinds of images or thoughts come to mind?
  2. Was humor a part of your life when you were younger?
  3. Is humor still a part of your life?
  4. How has humor been helpful or not helpful at this time in your life?
  5. If humor is helpful, what do you do to maintain humor in your life?
  6. Are there certain times when you appreciate humor more than other times?
  7. When has humor been a negative experience?
  8. What types of activities do you find amusing or enjoyable?
- 

Note: From "Humor and the Older Adult," by K. A. Herth, 1993, *Applied Nursing Research*, 64, pp. 146–153. Copyright 1993, Philadelphia, PA: W. B. Saunders Company. Used with permission.

Spontaneous humorous comments on a neutral topic such as the weather, equipment, or yourself can help you to see if the individual is open to humor, though readiness for humor may not always be apparent.

## Techniques

Table 8.2 shows a variety of approaches to intervention. Ackerman, Henry, Graham, and Coffey (1994) developed a model for incorporating humor into the health care setting and described the steps to create a humor program. Humorous materials were made available to patients through a “chuckle wagon” cart that was taken to their rooms. A humor resource center was developed to assist nurses in incorporating humor into their patient care, and a patient satisfaction evaluation tool was developed to assess the patients’ response to the humor cart. Table 8.3

**TABLE 8.2** Selected Techniques and Activities to Provide and Support Humor Interventions

- 
1. Assemble/collect humor resources (create humor rooms, humor carts, humorous videos).
  2. Invite guest performers (comedians, magicians, clowns).
  3. Wear a humorous item, silly button, necktie, etc.
  4. Display humorous photos of staff.
  5. Have a cartoon bulletin board with favorites from staff and patients displayed each week.
  6. Play music that encourages playful movement.
  7. Support and applaud the efforts of staff and patients to use humor.
- 

**TABLE 8.3** Selected Online Humor Resources

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1. Association for Applied and Therapeutic Humor: [www.aath.org](http://www.aath.org)
  2. The Joyful Noiseletter: [www.joyfulnoiseletter.com](http://www.joyfulnoiseletter.com)
  3. The Humor Project: [www.humorproject.com](http://www.humorproject.com)
  4. International Society for Humor Studies (ISHS): <http://www.hnu.edu/ishs/>
  5. World Laughter Tour: <http://worldlaughtertour.com/>
  6. Hospital Clown Newsletter: <http://hospitalclown.com/>
  7. Comedy Cures Foundation: [www.comedycures.org](http://www.comedycures.org)
  8. The Humor Collection: <http://www.thehumorcollection.org/>
  9. Dr. Thorson’s Humor Scale: [http://spiritualityhealth.com/newsh/items/self-test/item\\_8508.html](http://spiritualityhealth.com/newsh/items/self-test/item_8508.html)
-

provides several humor web sites that contain material for humor interventions.

### **Measurement of Effectiveness**

Although physical laughter is not an essential outcome of humor, physical responses to a humor intervention are obvious indicators of effectiveness. According to Black (1984), the multiple physical manifestations of the laughter response cover a range from smiling to belly laughing. Other positive responses may be the relief of symptoms, facial expression, degree of involvement in activities, and strengthening of the relationship between caregiver and client.

Lefcourt and Martin (1986) developed the Situational Humor Response Questionnaire (SHRQ) for determining an individual's response to particular types of humor. It has been used in numerous studies and has been validated as effectively measuring humor. Diverse elements, such as developmental or cultural factors, may also influence an individual's response to humor. It is important to be alert to the variations and subtleties of a patient's response.

### **Precautions**

There are a variety of factors that practitioners should consider when using humor. The timing of the use of humor in the clinical setting is crucial to its success. Leiber (1986) cautioned that one must assess the patient's receptiveness to humor. Crane (1987) states that there are times when humor is contraindicated. What may be funny to patients when they are feeling well may not seem funny during an illness episode. Humor and laughter have no place at the height of a crisis, although they can be useful to allay tension as the crisis subsides. Inside jokes among health care professionals can seem offensive or callous to outsiders who may overhear them. Laughing at others negates confidence and destroys teamwork, whereas laughing *with* others builds confidence, brings people together, and pokes fun at our common dilemmas (Goodman, 1992). Patients may use inappropriate or sexually aggressive remarks under the pretext of joking, in which case further assessment may be indicated to determine the underlying reason for the aggressive verbal behavior.

### **USES**

Humor may be effectively used in highly stressful situations to overcome tensions and to facilitate patient catharsis or expression of fear and anxiety.

ety. Ziv (1984) described the use of humor as a defense mechanism for dealing with anxieties. As a provider of patient care, one must be sensitive to the fact that the patient's use of humor could be an attempt to avoid facing more serious issues or feelings. Humorous distraction may be used to reduce preoperative anxiety (Gaberson, 1991). Humor has also been used as an adjunct for enhancing postoperative recall of the exercise routines that were taught preoperatively (Parfitt, 1990). It may be used effectively for problems associated with communication, anxiety, grieving, powerlessness, or social isolation (Hunt, 1993).

The psychological impact of humor and laughter has been studied as an adjunct in the management of psychiatric patients (Saper, 1988, 1990) and may be an effective intervention as part of psychotherapy (Rosenheim & Golan, 1986). Moody (1978) studied and has incorporated the use of positive emotions and humor in dealing with the fear, anxiety, and pain that go along with cancer and other chronic conditions. In the oncology setting, humor provides benefits related to *psychological* aspects of patients, such as using humor as a defense mechanism; *communication*, by creating a more relaxed mood between patients and providers; and *social situations*, using humor to establish relationships with the many individuals involved in their care (Joshua, Cotroneo, & Clarke, 2005). In a group of men with testicular cancer, humor was found to ease difficult interactions, but health care providers should take cues from their patients to determine whether the use of humor is appropriate (Chapple & Ziebland, 2004). Humor has also been advocated as an intervention for elderly clients (Hulse, 1994).

Berger, Coulehan, and Belling (2004) describe potential risks and benefits of using humor in the clinical encounter. The recipient may find some aspect of the humor inappropriate and the health professional may risk embarrassment, which could harm the therapeutic relationship. The provider can start the encounter with low-risk humor, such as the self-deprecating kind, which can enhance communication without being offensive.

Humor may be used to increase comfort or raise the pain threshold. Cogan, Cogan, Waltz, and McCue (1987) studied the effects of laughter and relaxation on discomfort thresholds. In a group of volunteers, tolerance levels of physical discomfort were measured after members of the group either listened to a laughter-inducing narrative, an uninteresting narrative tape, or had no intervention. Patient discomfort thresholds increased (patients could handle more pain) in the laughter-inducing scenario.

The use of humor is particularly appropriate in situations involving short-term pain such as some nursing treatments (e.g., injections) and recovery from procedures or surgery.



## FUTURE RESEARCH

The therapeutic use of humor by nurses has been and will continue to be an important aspect of providing patient care. Awareness of the importance of humor is increasing, as demonstrated by the plethora of articles published in support of humor as an intervention, numerous scientific studies regarding its use, and an increase in the number of educational offerings. A greater understanding is needed of how humor, laughter, and positive emotions benefit the physiology and potential healing capacity of individuals. Nurses can use this same information to incorporate humor into their lives to make their work and personal lives more enjoyable and to become more effective providers of care. Research questions to be addressed include:

1. What are the physiological effects of humor on patients who are critically ill?
2. How can the use of humor be taught and the effectiveness of its use be measured?
3. Can the systematic use of humor speed healing or enhance outcomes of acute illness?
4. Can humor be utilized in care environments to reduce stress and enhance nurse satisfaction and retention?

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## CHAPTER 9

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# Yoga

Miriam E. Cameron

Anyone, regardless of health or beliefs, can benefit from yoga. The regular practice of yoga heals and strengthens the body, sharpens the mind, and calms the spirit. Yoga's do-it-yourself prescription for stress management and optimal health has no side effects and does not require medications or expensive equipment and treatments (Kabat-Zinn, 2005). Nurses do yoga themselves and use it as a complementary, alternative, and primary therapy. Currently, millions of people around the world practice yoga, primarily for physical fitness and relaxation (Feuerstein, 2003). However, it offers much more than physical poses, breathing techniques, and relaxation (Cameron & Parker, 2004).

Yoga consists of a systematic ethical and spiritual path of consciousness transformation, as yogis in India and Tibet have advocated for centuries and Western researchers are now discovering (Frawley, 1999). Doing yoga brings the body, mind, and spirit into harmony with each other and the universe. As practitioners let go of ego, which underlies suffering and most illnesses, they recognize that they are linked to every being, the environment, and larger forces of the universe. Developing gratefulness for this vast interconnectedness, they do their best to relieve suffering for all beings (Arya, 1998). They sift out the unreal from the real and allow their true nature to shine forth. Then their inner wisdom flows spontaneously through all the cells of the body, promoting optimal

health, inner freedom, creativity, peace, and joy (Feuerstein, 2003; Hartranft, 2003).

## DEFINITION

Yoga, an ancient Indian art and science, means union or joining together of the individual and universal spirit. Two millennia ago, the Indian sage Patanjali systemized yoga into the *Yoga Sutra*, a treatise consisting of 196 compact observations. This unique blend of theoretical knowledge and practical application is a primary text for yoga (Bharati, 2001). In the *Yoga Sutra*, Patanjali analyzed how we know what we know and why we suffer. He described a meditative program through which to fulfill the primary purpose of consciousness: to see things as they really are and achieve freedom from suffering (Hartranft, 2003). Through yoga, he explained, we can rein in our tendency to gravitate toward external things, to identify with them, and to try to find happiness through them. Systematic practice of yoga teaches us how to turn inward and become aware of our true nature. Only then, he wrote, can we understand how to develop happiness and wisdom. By becoming still, we can abide in this deep, absorptive knowing (Feuerstein, 2003).

Patanjali described yoga as consisting of eight interconnected limbs, or aspects of the whole. If they are practiced simultaneously, they lead progressively to higher stages of ethics, spirituality, health, and awareness. The first five limbs still the mind and body in preparation for the last three limbs. The eight limbs and their Sanskrit names are as follows:

1. Ethical behavior (*yama*): nonviolence, truthfulness, nonstealing, chastity, and noncovetousness. Practitioners avoid causing any harm or getting involved in harmful activities and relationships. They become gentle, loving, free from anger, and helpful.
2. Personal behavior (*niyama*): purity, commitment, contentment, self-study, and surrender to the infinite. Practitioners make wise lifestyle choices in order to develop a healthy body, mind, and spirit that can fully practice all eight limbs.
3. Posture (*asana*): carefully designed physical poses to methodically stretch, condition, and massage the body. Practitioners perform these postures deliberately without strain or competition to bring the body into harmony with consciousness.
4. Breath control (*pranayama*): regulation and refinement of inhalation and exhalation of the breath to expand prana (life-force).

- Practitioners learn how the breath, consisting of air and prana, affects well-being and the length and quality of life.
5. Sensory inhibition (pratyahara): right management of the senses and ability to go beyond them. Practitioners temporarily withdraw the senses from the external world into the interior self, such as by closing the eyes and looking inward.
  6. Concentration (dharana): focusing steadily and without interruption on an object or field, such as the breath or a mantra. Practitioners give all their mental energy to whatever they are examining in order to develop and extend their powers of attention.
  7. Meditation (dhyana): the capacity to sustain attention without distraction, leading to a profound state of quiet and relaxation. As practitioners develop awareness of the inner self and universal spirit, they perceive the truth of things.
  8. Ecstasy (samadhi): a transcendent state of oneness, truth, wisdom, joy, and peace. Practitioners experience integration with the universal spirit and understanding of ultimate reality (Bharati, 2001; Cameron, 2002; Frawley, 1999; Hartranft, 2003).

## SCIENTIFIC BASIS

Yoga is based on ancient observations, principles, and theories of the mind-body-spirit connection. Qualified teachers have passed down this precise knowledge to their students from one generation to the next. For centuries, these teachers have made health claims, many of which are now being validated by Western scientists. Researchers have found that the systematic practice of yoga treats symptoms and prevents both onset and recurrence of symptoms. Poor body alignment and breathing are major factors in health problems. Yoga improves body alignment and the use of extremities, as well as strengthens cardiorespiratory responses (Sinha, Ray, Pathak, & Selvamurthy, 2004). The vital organs and endocrine glands become rehabilitated and more efficient. The autonomic nervous system stabilizes (Harinath et al., 2004).

Research indicates that yoga enhances self-regulation, healing, and well-being (Telles & Naveen, 2004). It has promoted mindfulness, concentration, circulation, oxygen uptake, flexibility, and strength (Sinha et al., 2004). Yoga practitioners have developed resilience to stress, which has reduced their risk for cardiorespiratory diseases and other health problems (West, Otte, Geher, Johnson, & Mohr, 2004). Elderly women

have decreased breathing frequency and increased breathing amplitude (de Barros et al., 2003). In children, yoga has improved depth perception (Raghuraj & Telles, 2003) and mental health (Bhushan, 2003).

## INTERVENTION

Each of Patanjali’s eight limbs is a potential nursing intervention. Nurses can teach ethical behavior (1st limb) and personal behavior (2nd limb). Table 9.1 describes “Corpse Pose,” a posture that any conscious person can do; thousands of other poses condition all parts of the body (3rd limb). Table 9.2 explains Alternate Nostril Breathing, one of many breathing techniques that nurses can integrate into care (4th limb). Table 9.3 describes one kind of meditation that incorporates the 5th through 8th limbs.

The best way to learn yoga is to do it. Books, classes, and audio-visual aids describe beginning to advanced levels. Qualified teachers can assist nurses to do yoga and to use it as a nursing intervention. Yoga Alliance ([www.yogaalliance.org](http://www.yogaalliance.org)) and International Association of Yoga Therapists ([www.iayt.org](http://www.iayt.org)) are currently developing standards.

### Measurement of Outcomes

Nurses can measure outcomes by asking individuals how they feel after doing yoga. Most health problems develop over time, and yoga may not

**TABLE 9.1** Corpse Pose (Savasana)

- 
1. Lie flat on your back with arms relaxed near your sides, palms turned up, and head, trunk, and legs in a straight line. If you feel uncomfortable, put a small pillow or blanket under your head and a pillow or rolled blanket under your knees.
  2. Close your eyes, keep your eyes still, relax your face, and allow your body to sink.
  3. Focus on breathing slowly and evenly through your nose and from your abdomen.
  4. When you are ready, open your eyes, bend your knees, turn to your right, and get up.

Nurses can use Corpse Pose to encourage deep relaxation and to treat hypertension, anxiety, insomnia, chronic fatigue, and other health problems.

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Note: Adapted from “The Corpse,” by L. Payne & R. Usatine, 2002, *Yoga Rx: A Step-By-Step Program to Promote Health, Wellness, and Healing for Common Ailments*. New York: Broadway Books, p. 70.



**TABLE 9.2** Alternate Nostril Breathing (ANB)

- 
1. Lie in Corpse Pose or sit comfortably with a straight back in a chair or on the floor.
  2. Place your right thumb on the side of your right nostril, and your ring and little fingers on the side of your left nostril.
  3. Use your thumb to close the right nostril and inhale deeply and slowly through the left nostril.
  4. Use your ring and little fingers to close the left nostril and exhale deeply and slowly through the right nostril.
  5. Reverse the process: Inhale through the right nostril while blocking the left nostril, and exhale through the left nostril while blocking the right nostril.
  6. Over time, as you continue to practice, gradually increase the length of your breath and sessions until you reach your comfortable maximum.

Nurses can use ANB to create balance and harmony by allowing each nostril equal time and to strengthen the breath of the nostril that is chronically weaker.

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Note: Adapted from “Alternate Nostril Breathing,” by L. Payne & R. Usatine, 2002, *Yoga Rx: A Step-By-Step Program to Promote Health, Wellness, and Healing for Common Ailments*. New York: Broadway Books, p. 45.

**TABLE 9.3** Meditation

- 
1. Lie in Corpse Pose or sit comfortably with a straight back in a chair or on a meditation cushion. Close your eyes, relax completely, and look inward.
  2. Focus on your breath. As you inhale through the nose, silently count “One.” Exhale. On the next in-breath, count, “Two,” and so on. When your mind wanders away, go back to one again. If you reach 10, go back to one again.
  3. When you are deeply relaxed, open up to your own inner experience. Simply observe and let go of whatever arises, without attachment, judgment, or direction.
  4. Over time, as you systematically meditate, you will be able to hang on to this open-ended awareness for longer periods without distraction.

Nurses can use meditation as an intervention to enhance the immune system, promote a profound state of quiet and relaxation, and develop harmony and wisdom.

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Note: Adapted from “Meditation” by M. E. Cameron, 2002, *Karma & Happiness: A Tibetan Odyssey in Ethics, Spirituality, and Healing*, Minneapolis, MN: Fairview Press, pp. 226–228.

alleviate them right away. Minor difficulties often respond quickly, but serious problems require sustained, patient practice. Yoga advocates gradual change. Optimal benefits occur from regular practice. Short-term outcomes are notable, however, for they include a more relaxed attitude, decreased anxiety, improved balance, and increased musculoskeletal flexibility. Faithful practice produces long-term outcomes of better physical, spiritual, and mental health.

## **Precautions**

Complications may result from doing yoga in a harmful manner, such as straining to do yoga poses and breathing (Johnson, Tierney, & Sadighi, 2004). Some reports have described psychotic symptoms for the first time after meditation, and precipitation of acute psychotic episodes after meditation in persons with a history of psychosis (Naveen & Telles, 2003). Yoga discourages anything unnatural or hurtful. Practitioners can avoid adverse effects by doing yoga gently and in moderation and by developing an attitude of noncompetition and relaxation. Although yoga teachers and other aids can be invaluable, individuals must seek their own inner wisdom (Kabat-Zinn, 2005).

## **USES**

Nurses use yoga as a separate intervention and as part of an integrated health program in all areas of nursing practice. Table 9.4 lists current research findings about the benefits of yoga for persons with specific health problems. Yoga can help nurses reduce their own health problems and become a healing presence. By doing yoga themselves and using it as an intervention, nurses promote nonreactivity of the mind and inner calmness that embraces, rather than denies, difficult circumstances in a healing manner (Ott, 2004).

## **FUTURE RESEARCH**

Additional research is needed to understand yoga's scientific basis and how to use it as a nursing intervention. Research findings are difficult to compare and apply because the various studies use different parts of yoga. Yoga therapists adapt the practice to the needs of people with specific or persistent health problems not usually addressed in a group class (Payne & Usatine, 2002), but research is needed to validate this

**TABLE 9.4** Recent Research Findings: The Benefits of Yoga for Specific Health Problems

- 
- *Asthma*: may improve symptoms and reduce bronchodilator use (Cooper et al., 2003).
  - *Attention Deficit Hyperactivity Disorder (ADHD) in boys*: reduced symptoms (Jensen & Kenny, 2004).
  - *Cancer*: enhanced quality of life, decreased stress, improved endocrine function (Carlson, Speca, Patel, & Goodey, 2004; Rosenbaum et al., 2004); improved sleep-related functions (Cohen, Warneke, Fouladi, Rodriguez, & Chaoul-Reich, 2004).
  - *Carpal Tunnel Syndrome*: significant benefit (Muller et al., 2004); may be effective (Goodyear-Smith & Arroll, 2004).
  - *Chronic Low Back Pain*: may be beneficial (Galantino et al., 2004).
  - *Dementia Caregiver Stress*: improved physical, emotional functioning (Waelde, Thompson, & Gallagher-Thompson, 2004).
  - *Depression*: improved mood (Woolery, Myers, Sternlieb, & Zeltzer, 2004).
  - *Diabetes*: promoted management (Elder, 2004).
  - *Hypertension*: reduced heart rate, systolic pressure, and diastolic pressure (Vijayalakshmi, Bhavanani, Patil, & Babu, 2004).
  - *Irritable Bowel Syndrome*: decreased bowel symptoms and anxiety, enhanced parasympathetic response (Taneja et al., 2004).
  - *Mental Illness*: decreased symptoms of obsessive-compulsive disorder (OCD), phobias, anxiety disorders, and anger (Shannahoff-Khalsa, 2004).
  - *Multiple Sclerosis*: decreased fatigue (Oken et al., 2004).
  - *Osteoarthritis*: may benefit knees (Grober & Thethi, 2003).
  - *Pulmonary Tuberculosis*: reduced symptoms (Visweswaraiiah & Telles, 2004).
  - *Substance Abuse*: decreased symptoms (Shannahoff-Khalsa, 2004).
  - *Stroke*: improved balance and movement (Bastille & Gill-Body, 2004).
- 

work. Because most research was conducted for brief time periods, longitudinal studies are needed to shed light on yoga's long-term effects. New qualitative methodologies may be required to examine the holistic nature of yoga. Some research questions are:

1. Which specific yoga techniques are therapeutic for particular health problems?
2. What characterizes individuals who systematically practice yoga?
3. How can individuals be encouraged to do yoga regularly?
4. What are effective strategies for teaching nurses to do yoga themselves?

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## CHAPTER 10

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# Biofeedback

Marion Good

This chapter provides an overview of biofeedback, its scientific basis, health conditions in which it is useful, and a technique that can be used by nurses trained in its practice.

### DEFINITION

Biofeedback is based on a holistic perspective in which the mind and body are not separated. Its goal is increased control over one's functioning. Biofeedback is defined by Williams, Nigl, and Savine (1981) as

The technique of using equipment (usually electronic) to reveal to human beings some of their internal physiological events, normal and abnormal, in the form of visual and auditory signals in order to teach them to manipulate these otherwise involuntary or unfelt events by manipulating the displayed signals. This technique inserts a person's volition into the gap of an open feedback loop, hence the artificial name of biofeedback. (p. 22)

The holistic philosophy behind biofeedback and its focus on helping persons gain more control over their functioning make the intervention an appropriate one for nurses to use. Biofeedback has been used to control

functions related to all areas of the body including muscle strengthening or relaxation, the brain activity, and somatic and autonomic nervous system (ANS) responses. Responses to control efforts are monitored and feedback is provided to the patient concerning the degree of control achieved so that the person can eventually control the response without feedback.

## SCIENTIFIC BASIS

The following provide the basis for the use of biofeedback:

- Biofeedback originated from research in the fields of psychophysiology, learning theory, and behavioral theory. For centuries it was believed that responses such as heart rate were beyond the individual's control.
- In the 1960s scientists found that the autonomic nervous system (ANS) had an afferent as well as a motor system, and control of its functions was possible with instrumentation and conditioning.
- The basis for biofeedback is a skills acquisition model in which persons determine the relationship between ANS functioning and their voluntary muscle or cognitive/affective activities. They learn skills to control these activities, which are then reinforced by a visual and/or auditory display on the biofeedback instrument. The display informs the person whether control has been achieved, reinforcing learning.
- Behavioral strategies, such as relaxation, modify physiological activity and are often part of biofeedback treatment.
- Biofeedback can also be used with relaxation strategies to control autonomic responses that affect brain waves, peripheral vascular activity, heart rate, blood glucose, and skin conductance.
- Biofeedback combined with exercise can strengthen muscles weakened by conditions such as chronic pulmonary disease, knee surgery, or age, and can recruit auxiliary motor nerves in hemiplegia.
- Combined with positioning and biomechanics, biofeedback can reduce injury from repetitive activities like typing (Barthel, Miller, Deardorff, & Portenier, 1998).



## INTERVENTION

Nurses are ideal professionals to provide biofeedback because of their knowledge of physiology, psychology, and health and illness states. However, they need to acquire special information and skills in order to use it. It is recommended that information be gained from classes and workshops available in many locations and that nurses using biofeedback become certified by the Biofeedback Certification Institute of America, [www.bcia.org](http://www.bcia.org). The Association for Applied Psychophysiology and Biofeedback (AAPB) is an excellent resource for information and can be contacted at 10200 W. 44th Avenue, Wheat Ridge, CO 80033 (303-422-8436). Although nursing practice acts differ across states, the nurses' network of AAPB is working toward nationwide acceptance of autonomous nursing biofeedback practice and inclusion of its principles in basic nursing education programs (Smart, 1990).

### Technique

A biofeedback unit consists of a sensor that monitors the patient's physiological activity and a transducer that converts what is measured into an electronic visual or auditory display to the patient. Frequently measured physiological parameters include muscle depolarization, which is monitored by electromyogram (EMG), and peripheral temperature.

Biofeedback provides information about changes in a physiological parameter when behavioral treatments such as relaxation or strengthening exercises are used for a health problem. For example, a relaxation tape helps persons relax muscles to reduce blood pressure while the EMG biofeedback instrument informs the learner of progress (i.e., reduced tension in the muscle). Temperature feedback is also used with relaxation. As muscles relax, circulation improves and the fingers and toes become warmer. When exercises are used to strengthen perineal muscles in preventing urinary incontinence, success in contracting the correct muscles may be monitored by a pressure sensor inserted into the vagina. In health conditions exacerbated by stress, biofeedback is often combined with stress-management counseling.

Biofeedback is most frequently used in an office or clinic setting in seven to twelve 30-minute training sessions (Brown, 1977). Prior to beginning training at the initial session, the therapist and patient should decide upon the number of sessions. If the patient has not achieved mastery or control of a function at the end of the agreed-upon number of sessions, the reasons and the need for further sessions should be discussed.

The first session is devoted to assessing the patient, choosing the appropriate mode of feedback, discussing the roles of the nurse and patient, and obtaining baseline measurements. Measuring several parameters helps in getting valid baseline data. Because success will be determined by changes from baseline, it is essential that these be accurate and reflect the true status of the parameter being used. The first session will be longer than subsequent ones, perhaps lasting 1 to 2 hours. Behavioral exercises are provided. It is important that patients understand the content of this session so they can use the equipment.

The therapist plays a key role in the success of biofeedback. It is helpful for the nurse to have advanced training in relaxation, imagery, and stress-management counseling. Because practice of the behavioral techniques is vital, the nurse who succeeds in motivating patients to practice at home will have patients who achieve their goals.

The final sessions focus on integration of the learning into the person's life. The patient is connected to the machine but does not receive feedback while practicing the technique; the nurse monitors the degree of control achieved. Descriptions of stressful situations are provided, and the person is asked to practice the procedure as if in those situations. Final measurements are taken. Follow-up sessions at 1 month and 6 months are advocated.

## **Guideline for Biofeedback-Assisted Relaxation**

A protocol for using biofeedback with cognitive-behavioral interventions for relaxation and stress management is found in Table 10.1. This technique could be used for hypertension, anxiety, asthma, irritable bowel syndrome, headache, or chronic pain because muscle relaxation improves these conditions. The protocol should be tailored to the patient, condition, and type of feedback.

Various types of relaxation exercises such as autogenic phrases or systematic relaxation may be used. To increase patient awareness of the relaxed state versus tension, progressive muscle relaxation with alternate contraction and relaxation may be helpful. Imagery may relax patients by distracting the mind and reducing negative or stressful thoughts. Hypnosis and self-hypnosis also produce an alternative state of mind. Music relaxes and distracts and may be used with relaxation or imagery.

It is important to keep the requirements for home practice simple, interesting, and meaningful. Boredom with the same relaxation tape, failure to find a convenient time to practice, and lack of noticeable improvements may decrease adherence to home practice. Changing to a new relaxation technique can revive interest. To integrate new skills

**TABLE 10.1** Biofeedback Protocol

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**1.** Before first session:

- Determine health problem for which biofeedback treatment is sought.
- Ask for physician's name so care can be coordinated. Give information on location, time commitment, and cost.
- Request a 2-week patient log with medications and the frequency and severity of the health problem (e.g., number, intensity, and time of headaches).
- Answer questions.

**2.** First session:

- Interview patient for a health history; include the specific health condition.
- Assess abilities for carrying out current medical regimen and behavioral intervention. Assess cultural preferences for behavioral treatments.
- Discuss rationale for using biofeedback, type of feedback, and behavioral intervention.
- Explain that the role of the nurse is to provide ten 50-minute sessions once a week, using the biofeedback instrument to supply physiological information.
- Explain that the patient is the major factor in the successful use of biofeedback and that it is important to continue to keep a log of the health problem, including home practice sessions. The patient should consult the physician if health problems occur.
- Explain the procedure. If using frontal muscle tension feedback, apply 3 sensors to the forehead after cleaning the skin with soap and water and applying gel. Set the biofeedback machine and operate according to instructions.
- Obtain baseline EMG readings of frontal muscle tension for 5 minutes while the patient sits quietly with closed eyes.
- Instruct the patient to practice taped relaxation instructions for 20 minutes while the EMG sensors are on the forehead. Ask the patient to watch the biofeedback display for information on the decreasing level of muscle tension.
- Review the 2-week record of the health problem and set mutually determined goals.
- Give a tape and instructions for practicing relaxation at home. Provide a log to record practice and responses. Discuss timing, frequency, length, and setting for practice.
- Discuss self-care for any possible side effects to the behavioral intervention.

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*(continued)*

TABLE 10.1 (continued)

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3. Subsequent sessions:

- Open the session with a 20-minute review of the health-problem log, stressors, and ways used for coping in the past week; provide counseling for adaptive coping.
- Apply sensors and earphones and let the patient practice relaxation for 20 minutes while watching the display. Quietly leave the room after the patient masters the technique.
- Vary relaxation techniques to maintain interest and increase skill.
- Give instructions for incremental integration of relaxation into daily life. For example, add 30-second mini-relaxation exercises for busy times of the day.

4. Final session:

- Conduct the session as above; obtain final EMG readings.
  - Discuss a plan for ongoing practice and management of stress after treatment ends.
- 

into daily life, patients can progress to mini-relaxation and use of cues (thoughts, positions, or activities) to signal relaxation. Other intervention protocols are found in the literature for children (Olness & Kohen, 1996), and adults (Coxe, 1994; King, 1992; Schwartz & Associates, 1995).

Although some patients have multiple symptoms requiring treatment, training should only address one symptom at a time. Other symptoms can be treated sequentially after mastery of the first one is attained. The patient decides which symptom will be treated first.

## Measurement of Outcomes

Feedback parameters that reflect mastery of the behavioral intervention or control of the health problem are found in Table 10.2. Frequently used parameters include heart rate, muscle tension, peripheral temperature, blood pressure, and EEG neurofeedback. EMG monitoring demonstrates changes more quickly than temperature or galvanic skin response, but the choice may depend on its appropriateness to the health condition. Temperature feedback is used in peripheral vascular problems, but health care outcomes may be fewer episodes of painful vasoconstriction. EMG feedback and temperature feedback are used in persons with diabetes mellitus, tension headache, and chronic pain. Outcomes may include

**TABLE 10.2** Parameters Used for Feedback to Patients

Airway resistance	Forced expiratory	Peripheral skin
Blood pressure	volume	temperature
Blood volume	Galvanic skin response	Tidal volume
Bowel sounds	Gastric pH	Tracheal noise
EEG neurofeedback	Heart rate	Vagal nerve stimulation
EMG muscle feedback	Heart rate variability	Vaginal pressure
		Visual

decreased glycosylated hemoglobin, headaches, urinary incontinence, or pain.

## Precautions

Biofeedback should be used cautiously, if at all, in persons with depression psychosis, seizures, and hyperactive conditions. Those with rigid personalities may be unwilling to change their mode of functioning (Williams et al., 1981). However, negative reactions may be related to relaxation rather than to biofeedback, and may be avoided by means of patient education and the type of relaxation used (Schwartz & Schwartz, 1995).

Biofeedback-assisted relaxation is expected to lower blood pressure and heart and respiratory rates. Excessive decreases should be avoided in patients with cardiac conditions, hemodynamic instability, or multiple illnesses.

Use of relaxation therapies may also reduce the amount of medication needed to control diabetes mellitus, hypertension, and asthma. This should be discussed with patients and physicians; responses should be carefully monitored. For example, in persons with diabetes there is also the potential for hypoglycemic reactions to occur if patient education and adjustments in insulin or diet are not made. Patients should be taught to manage hypoglycemia and blood glucose. The nurse should keep simple carbohydrates, glucagon, and a blood glucose monitor in the office and have the expertise to administer them. Home practice can be timed to avoid low blood glucose (McGrady & Bailey, 1995).

Electric shock is a potential hazard when any electrical equipment is used. Dangerous levels of current flow may arise from equipment malfunction or operator error. The AAPB publishes a list of companies whose products have met their safety code.

Although biofeedback is noninvasive, cost effective, and very promising in the treatment of many conditions, it is not a miracle intervention.

It requires that the therapist be knowledgeable about the health problem, intervention, and medication effects, with a sincere interest in patient outcome. Patient time, attention, and motivation are also necessary for success. To control the condition, ongoing use of the behavioral technique may be needed after biofeedback sessions end. This should be made very clear before training is initiated.

## USES

Biofeedback has been used in the treatment of many medical and psychological problems. The AAPB web site lists 34 conditions in which biofeedback has been studied in research and has an efficacy rating of 3 (probably efficacious) out of a possible 5 (efficacious and specific). Biofeedback has been shown to be efficacious in multiple observational, clinical, and wait list controlled studies, including replications. The visitor to the web site can click on the health condition of interest and obtain information on the level of evidence, the reason biofeedback would help this condition, and the supporting evidence.

Yucha and Gilbert (2004) review the efficacy ratings for most of the disorders that have been treated with biofeedback. Two examples of health conditions for which the best evidence is available at 5 (*efficacious and specific*) are elimination disorders and migraine and tension headache in adults and children. Biofeedback treatment of hypertension in adults, anxiety in adults and children, and attention deficit disorder in children are at 4 (efficacious). Other conditions and populations treated with biofeedback are described in Table 10.3.

### Tension Headache

Controlled clinical and follow-up studies have shown that biofeedback reduces tension headaches in adults and children. Tension headaches are caused by prolonged tension in the face, jaws, neck, and shoulders. Muscle tension feedback is used to teach patients to recognize the amount of tension and relax the muscles using relaxation therapy. Yucha and Gilbert (2004) and Sherman (2004) found rigorous studies showing that biofeedback is as good as or better than any medication. The effects last for most people as long as they continue to practice the behavioral techniques they learned. For example Bussone, Grazi, D'Amico, Leone, and Andrasik (1998) found that juvenile tension-type headache sufferers treated with biofeedback-assisted relaxation continued to improve and were superior to the control condition (86% vs. 50%) at 6- and 12-month follow-

**TABLE 10.3** Biofeedback Is “Probably Efficacious” for These Conditions and Populations

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Alcoholism	Insomnia
Anxiety	Irritable bowel syndrome
Arthritis	Jaw area pain
Asthma	Knee pain
Attention deficit disorder/ hyperactivity disorder	Low back pain
Breathing problems	Non-cardiac chest pain
Chest pain	Pain
Chronic pain	Phantom limb pain
Constipation	Posture related pain
Drug addiction	Raynaud’s syndrome
Epilepsy/seizure disorders	Stump pain
Fecal elimination disorder	Subluxication of the patella
Headaches (migraine, tension, men- strual, pediatric)	Substance abuse
Hypertension	Temporomandibular disorders
Hyperventilation	Traumatic brain injury
Incontinence (urinary, fecal)	Urinary elimination disorders
	Vulvar vestibulitis

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(Association for Applied Psychophysiology and Biofeedback)

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up. Similarly, others found that children and adolescents with episodic tension-type headache had measurably improved symptoms immediately following treatment, with further gains over three years (Grazzi et al., 2001).

## Children and Adolescents

Olness and Kohen (1996) describe many conditions in children and adolescents, such as migraine, hypertension, and fecal incontinence, in which biofeedback, combined with hypnotherapy, teaches them to change their thoughts in order to bring about changes in their bodies. The authors describe special biofeedback equipment, age-appropriate explanations and inductions, and many imaginative techniques that appeal to children. The techniques for children include a “Mind Over Body” machine, and software with games or traffic lights as feedback signals. The behavioral intervention that they use is hypnotherapy, including teaching the child self-hypnosis. They have taught parents and child health care professionals, including nurses, to facilitate and reinforce what the children have

been taught. For example, researchers found that a computer game to give pelvic floor biofeedback was well accepted in 15 children with chronic voiding dysfunction (Pfister et al., 1999).

## Differences in Use Across Cultures

Cultural differences in use of biofeedback therapies have not been found, and biofeedback studies have been reported from other countries, indicating that the idea and the equipment do cross cultures, but comparisons across countries are lacking. In addition, evidence of use in primarily Hispanic or black clinics in the United States was missing in the literature. Health insurance coverage varies widely among plans (Association for Applied Psychophysiology and Biofeedback, 2005), and because cultural background is often linked to economic issues, it is possible that lower income families lack the resources to pay for biofeedback treatment and/or it may not be available in their clinics.

Cultural differences are likely to exist in some of the health conditions treated by biofeedback. Some biofeedback researchers have stratified their experimental and control groups on race and a few have examined differential effects. McGrady and Roberts (1992) found that Whites but not Blacks had significantly decreased systolic blood pressure and increased finger temperature with biofeedback, perhaps due to greater peripheral resistance in blacks with hypertension. More studies of cultural differences are needed.

## FUTURE RESEARCH

There continues to be great need for controlled clinical trials to determine the effectiveness, acceptability, and durability of biofeedback in treating physiological and psychological conditions in children, adults, and minorities. Nurses employing biofeedback can address the following questions:

1. What is the acceptance of biofeedback treatment by persons in minority groups as compared to acceptance by Caucasians?
2. Are there differences in immediate and long-term effects when culturally appropriate behavioral treatments are given along with biofeedback?
3. While controlling for acceptance and culturally appropriate behavioral treatments, are there differences in effects on health conditions between Caucasian and minority patients?



4. Do children who reduce their headaches with biofeedback-relaxation continue to practice at home and maintain lower levels when the sessions are completed?
5. Does biofeedback-assisted relaxation reduce anxiety and respiratory rate when a patient is weaned from a ventilator?

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## CHAPTER 11

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# Meditation

Mary Jo Kreitzer

Meditation is a self-directed practice for relaxing the body and calming the mind that has been used by people in many cultures since ancient times. It is frequently viewed as a religious practice, although its health benefits have been long recognized. It is a recommended intervention for stress reduction, anxiety and anxiety-related disorders, insomnia, expanding awareness, and overall improvement in well-being. Whereas earlier research studies focused on behavioral outcomes associated with meditation (self-reported changes in anxiety, depression, insomnia, and quality of life), more recent research has documented immunological and neurological changes.

The resurgence in interest in meditation has drawn largely from Eastern religious practices, particularly those of India, China, and Japan. Records substantiate the use of meditation by Hindus in India as early as 1500 BC. Taoists in China and Buddhists in India and China included meditation as an integral part of their religious life. Zen Buddhists in China and Japan reaffirmed the centrality of meditation and practiced a sitting meditation in which a quiet panoramic awareness of whatever is happening at the time is maintained.

Meditation has also been an important aspect of the Western world and the Judeo-Christian tradition. Christian monks and hermits went to the desert to meditate and meditation remains a key element of monastic

life. Contemplation, centering prayer, and praying the rosary or repeating the Hail Mary are forms of meditation. West (1979) noted the use of meditation in the American Indian culture, the Kung Zhu/twasi of Africa, and the Native Americans of Alaska of North America. In the United States, the most common forms of meditation are sedentary, although there is an increasing interest in many moving meditations such as the Chinese martial art tai chi, the Japanese martial art of aikido, and walking meditation in Zen Buddhism. Although specific meditative practices vary considerably, the outcomes are similar for all techniques.

## DEFINITIONS

Many definitions of meditation can be identified in the literature. West (1979) defined it as an exercise in which the individual focuses attention or awareness in order to dwell upon a single object. Welwood's definition (1979) is broader, describing meditation as a technique that allows individuals to investigate the process of their consciousness and experiences and to discover the more basic underlying qualities of their existence as an animate reality. Intense concentration blocks other stimuli, allowing the person to become more aware of self.

Everly and Rosenfeld (1981) divided meditation techniques into four forms: mental repetition, physical repetition, problem concentration, and visual concentration. In mental repetition the person concentrates on a word or phrase, commonly called a *mantra*. Concentration on breathing is frequently the focus in physical repetition techniques; however, dance or other body movements can be the object of concentration. Jogging, for example, allows for concentrating on a physical activity, repetitive breathing, and the sound of one's feet hitting the ground. In samatha Buddhist meditation, the person watches or concentrates on the breath entering and flowing from the tip of the nostrils. In problem-contemplation techniques, an attempt is made to solve a problem that contains paradoxical components, which Zen terms the *koan*. Visual concentration techniques are akin to imagery.

Borysenko (1988) defines meditation simply as any activity that keeps the attention pleasantly anchored in the present moment. It is the way we learn to access the relaxation response. Kabat-Zinn, Wheeler, and colleagues (1998) note that meditation is fundamentally different from relaxation techniques in both methods and objectives. A common but erroneous assumption is that the goal of meditation is to achieve a specific, highly pleasant meditative state akin to deep relaxation. According to these authors, there is no single meditative state and the overall

orientation is one of non-striving and non-doing. Kabat-Zinn (2005) emphasizes that meditation is best thought of as a way of being rather than a collection of techniques. Mindfulness expands our capacity for awareness and for self-knowing. When a mindful state is cultivated, it frees people from routinized thought patterns, senses, and relationships and the destructive mind states and emotions that accompany them. When people are able to escape from highly conditioned, reactive, and habitual thinking, they are able to respond in more effective and authentic ways.

## SCIENTIFIC BASIS

An understanding of the scientific basis for meditation is emerging. In 1979, West noted that there were few theoretical explanations for meditation's effectiveness, though various explanations had been proposed, including adaptive regression (Shafii, 1973) and desensitization, as meditating allows the person to deal with unfinished psychic material (Tart, 1971). Everly and Rosenfeld (1981) suggested that the role of the focal device used in meditation is to allow the intuitive, non-ego-centered mode of thought processing to dominate consciousness in place of the normally dominant analytic, ego-centered style. When the left (rational, analytic) hemisphere of the brain is silenced, the intuitive mode produces extraordinary awareness. A positive mood, an experience of unity, an alteration in time-space relationships, an enhanced sense of reality and meaning, and an acceptance of things that seem paradoxical are experienced in this superconscious state. A serious meditator may progress through a continuum from beginning meditation to this superconscious state.

In a report to the National Institutes of Health (1992) on alternative medical systems and practices in the United States, research on meditation was summarized as one of several mind-body interventions. In describing how and why meditation may work, Kenneth Walton, director of the neurochemistry laboratory at Maharishi International University in Fairfield, Iowa, cited the link among chronic stress, serotonin metabolism, and the hippocampal regulation of the hypothalamic-pituitary-adrenocortical (HPA) axis.

Brain imaging techniques such as PET and functional magnetic resonance imaging (fMRI) have emerged over the past 10 years and have enabled scientists to study the human brain in action. Neuroplasticity refers to the structural and functional changes in the brain that result from training and experience. Research on neuroplasticity has confirmed

that the brain is not a static organ; rather, it is designed to respond to changing experiences. Neuroplasticity research, Schwartz (Schwartz & Begley, 2002) writes, has documented the ability of neurons to literally forge new connections, to blaze new paths through the cortex and even assume new roles. Research on mental training through meditation published by Lutz and colleagues (Lutz, Greischar, Rawlings, Richard, & Davidson, 2004) has provided the most compelling scientific data thus far on what happens in the brain when people meditate. In a study comparing Tibetan monks with student volunteers, this team of researchers found that meditation is associated with brain changes that allow people to achieve different levels of awareness. Longtime practitioners of meditation were found to have unusually powerful gamma waves and the movement of these waves through the brain was better organized and coordinated than in the students.

## INTERVENTION

There is a wide variety of meditation approaches described in the literature; however, the following four techniques will be described: mindfulness meditation, transcendental meditation (TM), centering prayer, and relaxation response.

### Techniques

#### *Mindfulness Meditation*

Mindfulness, awareness and insight meditation are Western terms used interchangeably to describe the Buddhist practice of vipassana meditation. The goal of this meditative practice is to increase insight by becoming a detached observer of the stream of changing thoughts, feelings, drives, and visions until their nature and origin are recognized. The process includes eliciting the relaxation response, centering on breath, and then focusing attention freely from one perception to the next. In this form of meditation, no thoughts or sensations are considered intrusions. When they drift into consciousness, they become the focus of attention (Kutz et al., 1985).

An extension of the practice of mindfulness meditation is what Borysenko (1988) calls “meditation in action” (p. 91). It involves a “be here now” approach that allows life to unfold without the limitation of pre-judgment. Mindfulness exercises are carried out during normal, daily activities using this approach. It requires being open to an awareness of

the moment as it is and to what the moment could hold. It produces a relaxed state of attentiveness to both the inner world of thoughts and feelings and the outer world of actions and perceptions. Borysenko notes that mindfulness requires a change in attitude: joy is not sought in finishing an activity, but rather in doing it.

Mindfulness-based stress reduction programs (MBSR) originated with the Stress Reduction Clinic at the University of Massachusetts Medical Center and are currently used in more than 80 clinics, hospitals, and HMOs in the United States and abroad (Kabat-Zinn et al., 1998). It is generally understood that in MBSR instruction, participants receive training in three formal meditation techniques: a body scan meditation, a sitting meditation, and mindful hatha yoga, which involves simple stretches and postures.

### *Transcendental Meditation*

A much-publicized technique, transcendental meditation was developed and introduced into the United States in the early 1960s by the Indian leader Maharishi Mahesh Yogi. It is estimated that there are now well over 2 million practitioners. The concept of TM is relatively simple. Students are given a mantra (a word or sound) to repeat silently over and over again while sitting in a comfortable position. The mantra is selected not for its meaning but strictly for its sound. It is the understanding that this sound alone attracts the mind and leads it effortlessly and naturally to a slightly subtler level of the thinking process. If thoughts other than the mantra come to mind, the student is asked to notice them and return to the mantra. It is suggested that practitioners meditate for 20 minutes in the morning and again in the evening. TM is easily learned and is practiced by people of every age, education, culture, and religion. It is not a philosophy and does not require specific beliefs or changes in behavior or lifestyle (Russel, 1976).

### *Centering Prayer*

Though similar to TM in several respects, centering prayer is based in Christianity and is designed to reduce the obstacles to contemplative prayer and union with God. Thomas Keating (1995), the founder of the centering prayer movement, describes centering prayer as a discipline designed to withdraw our attention from the ordinary flow of thoughts. The understanding is that people tend to identify with their thoughts—the debris that floats along the surface of the river—rather than being in touch with the river itself—the source from which these mental objects

are emerging. Keating suggests that like boats or floating debris, our thoughts and feelings must be resting on something. They are resting, he asserts, on the inner stream of consciousness, which is our participation in God's being. In centering prayer, as with TM, people are encouraged to find a comfortable position, to close their eyes, and, to focus on a sacred word. Keating notes that 20 to 30 minutes is the minimum amount of time necessary for most people to establish interior silence and to get beyond their superficial thoughts.

### *Relaxation Response*

This response incorporates four elements that are common in many of the other relaxation techniques: a quiet environment, a mental device, a passive attitude, and a comfortable position.

A quiet environment, which is an element of Benson's technique (1975), eliminates outside stimuli and allows the person to concentrate on the mental device. Some people prefer a church or chapel for meditating, but such a place may not be readily accessible. Playing music while meditating is not advocated because it may draw the person's attention away from the internal processes. People should select the place they wish to use for meditation and continue to use that place. This eliminates adjusting to new surroundings and stimuli each time a person meditates.

Use of a mental device helps shift the mind from logical, externally oriented thought to inner rumination. The purpose of the mental device is to preoccupy oneself with an emotionally neutral, repetitive, and monotonous stimulus. Unlike TM, in which the teacher gives the student a mantra, Benson's technique requires the person to select the mental device that will be used whenever the person meditates. It may be a sound, word, or phrase that is repeated silently or aloud, a phrase or portion of a religious prayer or psalm. Fixation on an object is also sometimes used as the mental device.

### **Guidelines**

Borysenko (1988) describes a simple, step-by-step process incorporating many of the concepts previously described that can be used to teach meditation to patients:

1. Choose a quiet place where you will not be disturbed by other people or by the telephone.
2. Sit in a comfortable position with back straight and arms and legs uncrossed, unless you choose to sit cross-legged on the floor.



3. Close your eyes.
4. Relax your muscles sequentially from head to feet.
5. Focus on your breathing, noticing how the breath goes in and out, without trying to control it in any way.
6. Repeat your focus word silently in time with your breathing.

Borysenko advises meditators to not worry about how they are doing. It is helpful to maintain a passive attitude and allow relaxation to occur at its own pace. When distracting thoughts intrude, meditators are encouraged to ignore them by not dwelling on them and return to repeating the chosen word. Successful meditation usually takes practice—at least once a day for 10 to 20 minutes.

Benson (1975) suggests that people wait for 2 hours after any meal before meditating, as the digestive processes seem to interfere with the elicitation of the relaxation response. He also emphasizes the importance of fitting the technique to the individual and making modifications as necessary. Therefore, before any teaching is initiated, an assessment of the individual is needed to determine what might be the most appropriate technique. This requires that nurses have knowledge about various approaches to meditation.

## Measurement of Outcomes

Whereas earlier studies of meditation focused on self-report measures and easy-to-obtain physiologic data (changes in blood pressure, respiratory rate, etc.), there is increased interest in neurobiologic and immune system changes. Lutz and colleagues (2004) documented changes in brain structure and function as a result of prolonged meditation. Robinson, Matthews, and Witek-Janusek (2003), in their study of HIV/AIDS patients, found natural killer cell activity and number increased significantly in the mindfulness-based stress reduction group compared to a control group. It is likely that future meditation research will continue to attempt to elucidate the mechanism of action as well as outcomes associated with meditation.

To document the efficacy of meditation in a clinical setting, nurses can use blood pressure readings, heart rate, and respiratory rate as indicators of its effectiveness. Measures should not only be taken before and immediately after practicing meditation, but also at other times during the day, and records should be kept to determine if changes occur over time. Because the person is resting while meditating, it would be expected that the readings would be lower after practice. It is also important that continued follow-up be done to determine if the effect persists over time.

## Precautions

Meditation is not a benign intervention. The nurse must be aware of side effects of the intervention, persons for whom it should not be used, and assessments to be made as the person practices meditation. Careful monitoring of reactions to medications is necessary, as doses may need to be altered. Everly and Rosenfeld (1981) noted problems of overdosage with insulin, sedatives, and cardiovascular medications in people who meditated. Because of the effect meditation can have on the cardiovascular system, blood pressure should be checked before meditation begins. If the systolic pressure is below 90 mm Hg, meditation should not be practiced. Patients should be instructed not to meditate if there is light-headedness or dizziness. Also, individuals should not stand immediately after meditating because a hypotensive state is frequently present.

Benson (1975) notes that hallucinations can occur if the person meditates for several hours at a time. Loss of contact with reality is a possibility, and continued assessment is needed to determine if this is occurring. Lazarus (1976) reported cases of attempted suicide, schizophrenia, and severe depression after the continued practice of meditation. Meditation should not be prescribed for some people; however, the characteristics of people who would be harmed by it are as yet unclear.

## USES

There is a substantial body of research supporting the use of meditation for a wide variety of conditions. Table 11.1 lists conditions for which it has been used. Use of meditation for patients with chronic pain, hypertension, and anxiety and generalized stress will be discussed.

In addition to being a low-cost intervention with demonstrated efficacy, there are some data that suggest meditative practices may also impact overall use of health care services. In a study comparing 2,000 people who meditated with a group of non-meditators of comparable age, gender, and profession, it was found that over a 5-year period, use of medical services (visits to the doctor and hospitalizations) by the group that meditated was 30% to 87% less than the group of non-meditators (Orme-Johnson, 1987). The difference was greatest for individuals over 40 years of age.

## Conditions/Populations

### *Chronic Pain*

Use of meditation for patients experiencing chronic pain has been well documented experientially and empirically. Early studies of mindfulness-

**TABLE 11.1** Conditions for Which Meditation Has Been Used

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Anxiety (Kabat-Zinn, Massion, et al., 1992; Miller, Fletcher, & Kabat-Zinn, 1995)
Asthma (Wilson, Honsberger, Chin, & Novey, 1975)
Cancer (Carlson, Speca, Patel, & Goodey, 2004; Speca, Carlson, Goodey, & Angen, 2000)
Carotid atherosclerosis (Castillo-Richmond et al., 2000)
Chronic pain (Kabat-Zinn, Lipworth, & Burney, 1985; Kabat-Zinn et al., 1992)
Coronary artery disease (Zamarra, Schneider, Besseghini, Robinson, & Salerno, 1996)
Coronary care units (Guzzetta, 1989)
Depression (Teasdale et al., 2000)
Diagnostic procedures (Frenn, Fehring, & Kartes, 1986)
Drug abuse (Shafii, 1973)
Fibromyalgia (Astin et al., 2003)
Headache (Benson, Klemchuk, & Graham, 1974)
HIV/AIDS (Robinson et al., 2003)
Hypertension (Schneider, Stagers, Alexander, & Sheppard, 1996)
Irritable bowel syndrome (Keefer & Blanchard, 2002)
Organ transplantation (Gross et al., 2004; Kreitzer, Gross, Ye, Russas, & Treesak, 2005)
Psoriasis (Kabat-Zinn et al., 1998)
Psychotherapy (Bogart, 1991)

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based stress reduction examined the impact of MBSR on patients with chronic pain. In a study of 51 patients with chronic pain who had been unsuccessfully treated by conventional methods, Kabat-Zinn (1982) reported significant decreases in pain and in the number of medical symptoms reported by patients enrolled in a 10-week training program. Significant reductions in mood disturbances and psychiatric symptomatology were also noted. One methodological limitation of this study was the lack of a comparison or control group.

A larger clinical trial by Kabat-Zinn et al. (1985) examined the impact of mindfulness meditation on 90 chronic pain patients. Statistically significant reductions were reported in present-moment pain, negative body image, inhibition of activity by pain, symptoms, mood disturbance, and psychological symptomatology including anxiety and depression. A comparison group of chronic pain patients did not show significant improvement on these measures. Improvements reported by the patients who received the 10-week mindfulness meditation training were maintained up to 15 months post-meditation training for all measures except present-moment pain.

A 4-year follow-up of 225 chronic pain patients (Kabat-Zinn, Lipworth, Burney, & Sellers, 1987) enrolled in an 8-week mindfulness meditation training program documented that improvements in physical and psychological status were maintained: 93% of patients reported the present use of at least one of the three meditation practices taught in the initial training.

In a randomized controlled clinical trial of patients with fibromyalgia (Astin et al., 2003), an 8-week mindfulness-based meditation intervention was compared with an education support group. Pain was one of the primary outcome measures. Comparison of outcomes at baseline with those at 8, 16, and 24 weeks indicated that both groups demonstrated statistically significant improvements across time. However, there was no difference between the mind–body training group and the education support group control. In a 1-year follow-up of relaxation response meditation in patients with irritable bowel syndrome (Keefer & Blanchard, 2002), statistically significant reductions in abdominal pain were found post-course, and these changes were maintained over the long-term.

### *Hypertension*

Because of the decreases in blood pressure experienced by persons who had practiced TM, Benson (1975) explored the effectiveness of the relaxation response in persons with hypertension. Statistically significant changes between the experimental and control groups were found in his initial study. Mean systolic pressures decreased from 146 to 137 mm Hg, and mean diastolic pressures from 93.5 to 88.9 mm Hg in subjects who were taught and who practiced Benson's technique. Blood pressure was not measured immediately after meditation, but readings were taken at random times throughout the day instead. It is hypothesized that meditation counteracts the sympathetic responses of the fight-or-flight reaction to stressors.

A study of hypertensive African Americans (Castillo-Richmond et al., 2000) was designed to measure the impact of a TM program on carotid atherosclerosis. In a randomized controlled trial comparing a TM program with a health education program, groups were matched for teaching format, instructional time, home practice, and expectations of health outcomes. Preliminary findings revealed that the TM program was associated with reduced carotid atherosclerosis. This study is encouraging, given the high incidence of hypertension and cardiovascular disease in the African-American population.

### *Anxiety and Generalized Stress*

Two studies have examined the effect of a group mindfulness-based meditation program on patients with anxiety disorders. In a study of 22

patients diagnosed with generalized anxiety disorder or panic disorder with or without agoraphobia, Kabat-Zinn and colleagues (1992) reported significant reductions in anxiety and depression. These improvements were maintained at a 3-month follow-up. Another follow-up study of this same patient population at 3 years (Miller, Fletcher, & Kabat-Zinn, 1995) revealed maintenance of the gains reported in the original study on the following measures: anxiety, depression, number and severity of panic attacks, mobility, and fear.

Astin (1997) conducted a study of the effect of an 8-week mindfulness-based stress reduction program on 28 medical students who were randomized to an experimental group or a nonintervention control group. Participants in the mindfulness meditation training evidenced significant reductions in overall psychological symptomatology (depression and anxiety), increases in a perceived sense of control, and higher scores on a measure of spiritual experiences. Astin concluded that mindfulness meditation might serve as a powerful cognitive-behavioral coping strategy for transforming the ways in which people respond to life events.

The impact of a mindfulness-based stress reduction program on English- and Spanish-speaking patients cared for in a bilingual inner-city primary care clinic was studied by Roth and Creaser (1997). Data revealed that patients who completed the 8-week training program reported statistically significant decreases in medical and psychological symptoms and improvement in self-esteem. Anecdotal reports of the 79 patients who completed the training program indicated that many experienced changes far more profound than the documented reduction in physical and psychological symptoms. Changes reported included greater peace of mind; more patience; less anger and fewer temper outbursts; better interpersonal communication; more harmonious relationships with family members; improved parenting skills; more restful sleep; decreased use of medications for pain, sleep, and anxiety; decrease or cessation of smoking; weight loss; greater acceptance of aspects of life over which they have no control; greater self-knowledge; and a marked improvement in the overall sense of well-being.

## FUTURE RESEARCH

Although nurses are increasingly using meditation in their practice, the research base for its use in nursing is sparse. Much of the current research is being conducted by interdisciplinary teams. Because meditation holds great promise as a therapeutic nursing intervention, nurses should be encouraged to contribute to whatever research is being done. Questions and areas that merit further investigation include:

1. What are the characteristics of people who benefit from meditation? Do people who continue to practice it differ significantly from those who abandon it?
2. How easily generalized are the effects of meditation? Does its use affect areas of the person's life other than those for which it was taught? If the person is taught meditation as a means of decreasing hypertension, is there also an improvement in sleep or other areas?
3. How does meditation differ in process and outcome from other forms of self-regulation such as hypnosis, relaxation, and guided imagery?
4. What are biologic and behavioral outcomes associated with meditation?

## WEB SITES

Mind and Life Institute: [www.mindandlife.org](http://www.mindandlife.org)

Center for Spirituality and Healing, University of Minnesota: [www.csh.umn.edu/modpub/](http://www.csh.umn.edu/modpub/)

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## CHAPTER 12

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# Prayer

Mariah Snyder

Prayer has been identified as a complementary therapy by the National Center for Complementary/Alternative Medicine (2005). Prayer is ubiquitous, having been used by persons of all cultures throughout time. McCaffrey, Eisenberg, Legedza, Davis, and Phillips (2004) reported that 35% of respondents in a national survey used prayer for their own health concerns and of these persons 75% used prayer for their own wellness. Only within recent years have studies on the efficacy of prayer in promoting health been conducted. Some contend (Dusek, Astin, Hibberd, & Krucoff, 2003) that prayer, given its philosophical basis, cannot be studied using randomized clinical trials.

People often equate prayer with religion. Yet prayer, like spirituality, transcends religion. Prayer and spirituality acknowledge the existence of a Greater or Higher Being and that we as humans have a connectedness with this Being. Cultural and religious groups have different names for this Higher Being: God, Supreme Being, Mother Earth, Master of the Universe, Creator, Absolute, El, or Great Spirit are some of them.

Spirituality, of which prayer is a component, has been a part of nursing for centuries. The holistic perspective of nursing mandates that nurses assess the spiritual needs of a patient along with the physical, psychological, and social elements. Early hospitals and schools of nursing were often affiliated with specific religious organizations. Within this

context, student nurses were taught to include prayer as part of care. With the increasing cultural diversity in American society it is necessary for nurses to be acquainted with prayer and religious practices found in multiple cultures.

## DEFINITION

“Prayer” is from the Latin *precarius*, which means to obtain by begging, and from *precari*, which means to entreat. Dossey (1997) defined prayer as communication with the Absolute. A simple definition of prayer is the lifting up of the heart and soul to God or a Supreme Being.

Prayer and meditation (chapter 11) share many commonalities. Whereas the object of meditation is to focus attention on a word or an object so as to become more attentive and aware, the focus of prayer is on communication with a Higher Being. There are many forms of meditation and some of these, such as centering, incorporate prayer.

Many different types of prayer have been described in the literature. Table 12.1 provides a description of types of prayer that are commonly used. Prayer may be done on an individual basis, within a group, or as part of a faith or religious community. In the latter context, prayer often has prescribed words and rituals. However, this is not always true, as the Quaker prayer meeting does not use prescribed words. Prayer is unique to an individual in that each person establishes his or her relationship with the Absolute or Higher Being.

## SCIENTIFIC BASIS

Some suggest that it is oxymoronic to explore the scientific basis of prayer because religion and science each have a different philosophical basis.

**TABLE 12.1** Types of Prayer

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Adoration or praise: acknowledging the greatness of a Higher Being
Colloquial: communicating informally with Higher Being
Directed: requesting a specific outcome
Intercessory: communicating with a Higher Being for another who has a need
Lamentation: communicating to a Higher Being during bereavement
Nondirected: requesting the best thing to occur in a given situation
Petition: asking a Higher Being for a personal request
Ritual: using set words and/or practices often within a specific religious faith
Thanksgiving: offering gratitude to a Higher Being for a request or gift received

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However, studies have been conducted. Mueller, Plevak, and Rummans (2001) proposed a number of reasons persons experience positive results from religious involvement. Spiritual practices such as prayer engender positive emotions. These emotions in turn help to reduce a person's stress. Persons involved in religious experiences have been shown to have an enhanced immune function. Those with religious affiliations often have a support system that provides comfort and assistance. These suggestions are similar to those proposed by Dossey (1999). More studies are needed to validate these hypotheses.

Since the seminal research by Joyce and Welldon (1965), numerous studies on prayer have been conducted, and the findings from many of those studies support the benefits prayer has on health. Byrd (1997) randomized patients who were admitted to a critical care unit into a group that received intercessory prayer by Christians and a control group. All subjects agreed to be in the study and did not know to which group they were assigned. Findings showed that patients in the intercessory prayer group required less ventilatory assistance and fewer antibiotics and diuretics than did those in the control group. Harris and colleagues (1999) reported that patients in a coronary care unit who received intercessory prayer had an 11% reduction in critical care outcome scores, contrasted with a 4% reduction in the control group. In both of these studies, the length of hospital stay was not affected by prayer. In the MANTRA project conducted at Duke University (Mitchell & Krucoff, 1999), findings showed a 50% to 100% reduction in adverse outcomes in subjects undergoing cardiac catheterization who were prayed for compared with patients who had received the standard treatment without prayer.

Studies have also been conducted on the use of prayer for persons with chronic conditions. Sicher, Targ, Moore, and Smith (1998) found that the use of distant healing prayer with persons with AIDS resulted in the experimental group having a lower severity index after 6 months than subjects in the control group. Subjects in the prayer group showed improved mood; however, no differences in CD4+ counts were found between the two groups. O'Laire (1997) found positive differences on the measures of depression, self-esteem, or mood between persons in the control and the experimental group who received prayers.

Positive results from prayer have not been found in all of the reported studies. Walker, Tonigan, Miller, Comer, and Kahlich (1997) did not find any differences in alcohol consumption in chronic alcoholics between the group receiving intercessory prayer and the control group. In a review of studies on intercessory prayer, Roberts, Ahmed, and Hall (2000) concluded that the findings from their review provided no guidance to either uphold or refute the effects of intercessory prayer on health outcomes.

Likewise, Astin, Harkness, and Ernst (2000), in a review of distant healing interventions, found an average effect size of .25 in four studies that had used prayer as an intervention.

In the aforementioned studies, praying was done by persons other than the patients. A number of studies have documented the effectiveness of prayer as a coping strategy for patients themselves. Ai, Dunkle, Peterson, and Bolling (1998) found that patients who prayed following cardiac surgery had a significant decline in depression at one year compared to immediately after surgery and that they had less overall distress. The relationship between church attendance and health was examined by Strawbridge, Cohen, Shema, and Kaplan (1997). They found that people who frequently attended church had lower mortality rates than those who attended on an infrequent basis. Persons who went to church regularly also were more likely to engage in health-promoting behaviors such as exercising and not smoking.

How prayer works, whether intercessory on behalf of others or for oneself, is not known. Dossey (1999) has proposed that prayer is one of a number of nonlocal phenomena, that is, prayer is not constrained by space or time. The person praying does not have to be in proximity to the person being prayed for in order to be effective. A question also exists about whether the person being prayed for must believe in prayer or be receptive to it. In research studies, patients have given consent to be the recipients of prayers. However, in daily life, prayers are said for others without their knowledge. Roberts and colleagues (2000) noted that the understanding of prayer may be beyond our present scientific methods, and if the effects occur because of a Higher Being, determining the mechanism may be beyond our ability to prove or disprove the effects.

## INTERVENTION

When prayer is discussed in terms of health, intercessory prayer (i.e., prayer for others or for self related to a particular problem) is often the type of prayer being used. Less attention has been given to exploring the impact of overall prayerfulness on the lives of individuals.

### **Assessment**

Spiritual assessment should be part of a patient's health history obtained by nurses or other health professionals. Many spiritual assessments include information about the beliefs people hold, how they address the Higher Being, and settings and rituals that are important to them in order

to pray. The spiritual assessment guide developed by O'Brien (1999, pp. 66–67) gathers information about belief in a Higher Being, religious practices, and spiritual contentment through agreement or disagreement with statements such as the following:

- I receive strength and comfort from my spiritual beliefs.
- My relationship with God is strengthened by personal prayer.
- I feel far away from God.

Findings from the spiritual assessment will guide the nurse in using prayer as an intervention. Times for discussing the use of prayer include when a diagnosis is given, when the person is fearful or anxious, before and after surgery, when giving birth, or at the end of life. Prayers of thanksgiving should not be forgotten in times of recovery or when the findings from a diagnostic test show no serious condition. Associated actions include providing an environment that will assist the person to pray; obtaining resources for the person; contacting a minister, rabbi, priest, or spiritual guide; or praying with the person if appropriate.

Increased attention is being paid to health professionals praying for their patients (Post, Puchalski, & Larson, 2000). Praying is closely linked to caring for a person. Praying for patients can be as simple as asking God (or the name you give to your Higher Being) to bless the patients and families you meet during the day, or it may be a short prayer as one enters a room. (We have little information about prayer dosage. Are long prayers better than short ones?) Remen (2000) commented that caring for the souls of our patients is as important as caring for their bodies.

Although prayer can be used outside of a religious context, knowledge about the beliefs and practices of the major religions is helpful. Such knowledge will help the nurse make patients feel comfortable in using practices that are part of their tradition and avoid proposing a prayer or ritual that may be offensive to the patient. Readers are referred to references such as *World Religions* (Bowker, 2003), which will provide them with information about religious traditions.

## Technique

The form prayer takes should be the one the patient desires. If nurses feel comfortable doing so, they can ask if patients would like them to join them in praying. Reading scripture or from a holy book is one way to pray with a person. The nurse can also create an environment in which the person can pray. Many hospitals, nursing homes, and clinics have a

chapel or room for prayer and meditation. Although the health status of many patients in acute care settings does not allow them to go to a chapel, family members may find peace and comfort in this space.

Patients with a religious affiliation may wish to use the formal prayers of their faith. For example, Christians may find the Lord's Prayer comforting. Patients of the Jewish faith may want to read the psalms or have them read to them, and Muslims may choose to read from the Qur'an (Koran). Giving praise to the four directions may be a prayer form people of Native American ancestry would like to use. Nurses need to respect whatever form or ritual the prayer takes. Table 12.2 provides short prayers from two faith traditions that were obtained from <http://www.worldprayers.org>. Numerous web sites provide prayers of many religions that can be used. For example, a web site containing Christian prayers and meditations for each day is <http://www.sacredspace.ie>.

Prayer circles or chains exist in many churches and groups. These provide a vehicle for intercessory prayer to be offered for a particular person or family. If nurses know about the existence of prayer circles,

**TABLE 12.2** Examples of Prayers of Two Faith Groups

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**Muslim**

O Allah, I supplicate you to grant me your Love  
 And the love of those who Love you  
 And the action that would lead me to win your Love  
 And make my love for you more dear to me  
 Than myself, my family, and cold refreshing water.

**Hindu**

From the point of Light within the Mind of God  
 Let light stream forth into the minds of men.  
 Let Light descend on Earth.  
 From the point of Love within the Heart of God  
 Let love stream forth into the hearts of men.  
 May Krishna return to Earth.  
 From the centre where the Will of God is known  
 Let purpose guide the little wills of men—  
 The purpose which the Masters know and serve.  
 From the centre which we call the race of men  
 Let the Plan of Love and Light work out  
 And may it seal the door where evil dwells.  
 Let Light and Love and Power restore the Plan on Earth.

they could ask the patient or family members if they would like to have a group pray for them.

## Measurement of Outcomes

The purpose for which prayer has been used will dictate what outcomes to measure. Because of the mind-body-spirit interaction, nurses may want to include more holistic elements than simply measurement of physiological or psychological status. For example, other indicators of effectiveness that could be pursued are the contentment of a person, overall well-being, and the person's relating that he or she is more at peace. The effect of prayer may be healing rather than curing an illness; this presents a challenge to Western measurement indices.

## Precautions

Because of the highly personal nature of faith, spirituality, religious beliefs, and practices, it is important for nurses to assess both the prayer preferences of patients and their own personal beliefs and comfort with prayer. Knowledge about the beliefs and practices of other faith traditions is imperative in our pluralistic society. Used improperly, prayer may offend, awaken old antipathies, and make patients uncomfortable. Assessment and then offering possibilities are paramount.

Because prayer is to a Supreme Being and the "result" depends on what the Supreme Being determines is best for the person, the outcome is truly outside the realm of the person praying. When the outcome is not the one desired by the patient or family, the nurse must be careful not to use such platitudes as "God knows what is best," but rather provide comfort and support.

## USES

Prayer has been used for persons with every type of illness, of all age groups, and from all cultures. Table 12.3 lists selected conditions for which studies on the use of prayer have been conducted. The literature also contains many anecdotal accounts about the efficacy of prayer. In a number of surveys, prayer has been found to be the most frequently used complementary therapy (Barnes, Powell-Griner, McFann, & Nahin, 2004; King & Pettigrew, 2004; Yeh, Eisenberg, Davis, & Phillips, 2002).

**TABLE 12.3** Selected Studies Documenting the Effectiveness of Prayer

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Addictive behaviors (Walker et al., 1997)
Cancer (Merviglia, 2002; VanderCreek, Rogers, & Lester, 1999)
Cardiac conditions (Ai et al., 1998; Harris et al., 1999)
Caregivers (Stolley, Buckwalter, & Koenig, 1999)
Depressive symptoms (Ellison, 1995)
Immunosufficiency syndrome (Sicher et al., 1998)
Post-stroke (Robinson-Smith, 2002)
Reduction of anxiety (Tloczynski & Fritzsich, 2002)
Renal transplantation (Martin & Sachse, 2002)

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## FUTURE RESEARCH

Prayer continues to be a frequently used complementary therapy. Conducting research on prayer, especially using randomized clinical trials, faces many challenges. The following are several areas in which research is needed:

1. Most of the reported studies have been from a Judeo-Christian perspective. Explorations on the impact of prayer on health outcomes need to reflect the many cultures and religions of the world.
2. Prayer has often been studied from the perspective of better health outcomes. Studies are needed that examine the impact of prayer on comfort, peace, and holistic healing. These latter studies are needed in persons with chronic illnesses or those approaching the end of life
3. What are methods that can be used to study prayer? How can scientific methods, if possible, be balanced with the philosophical basis of prayer?

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## CHAPTER 13

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# Storytelling

Roxanne Struthers\*

All age groups engage in storytelling, a natural and common component of everyday conversation. It has been used for centuries as a powerful vehicle for communication (Koch, 1998). The ancient art of storytelling predated writing and was used by preliterate societies (Bowles, 1995). It is one of the oldest arts, having its roots in the beginning of articulate expression.

Stories are constructed to tell a tale, impart information to others, explain views, and share experiences. It is an intrinsic part of many cultures. African Americans make frequent use of storytelling (Banks-Wallace, 2002) and within our indigenous society storytelling takes precedence over written tradition (American Indian Research and Policy Institute, 1998). Representatives of many indigenous cultures argue that writing absolves individuals from remembering and therefore dilutes the complexity of knowledge that can be kept alive in any society (Thorne, 1993). The act of imparting oral knowledge and telling stories brings

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\*Dr. Roxanne Struthers, a leading nurse leader among Native Americans, died in December of 2005. We are privileged to have had Dr. Struthers as a contributor to the 4th and 5th editions. We extend our sympathy to her family and know that her memory will live on through her contributions to nursing among which is this chapter.

about a metaphysical presence and provides a natural, holistic, intuitive, and spiritual order to communication (Crazy Bull, 1997).

Storytelling serves multiple purposes across the life span and can be used by nurses. Nurses listen to stories whenever patients tell them what is going on in their lives and they tell and retell stories every time they pass on information about patients (Fairbairn & Carson, 2002). Whether we are the nursed or the nurse, we are the stories we tell (Sandelowski, 1994). It is in the unfolding, intertwining, and connecting that a story becomes my story, your story, our story. Stories are woven into the threads of life's fabric in our daily lives (Barton, 2004). We are all connected on a deeper, higher level and storytelling can take us to these levels.

### DEFINITION

Storytelling depicts human memory and is an art and a science (Lawlis, 1995; Roberts, 1994). It involves an individual account of an event that creates a memorable picture in the mind of the listener (Kirkpatrick, Ford, & Castelloe, 1997). There are many forms of story, including the fairy tale, the legend, the personal incident, and the personal myth (Lawlis). Nevertheless, a factual or fictional story always has certain characteristics. William Labov, a sociolinguist, states that a complete story typically is composed of:

- an abstract—what the story is about
- an orientation—the “who, when, where, and what” of the story
- the complicating action—the “then-what-happened” part of the story
- the evaluation—the “so-what” of the story
- the resolution—the “what-finally-happened” portion of the story
- the coda—the signal a story is over
- the return to the present (Sandelowski, 1994, p. 25).

Margaret Newman (1994), a nurse theorist, defines stories or narratives as expressions of human consciousness and a means to expand this consciousness; thus, they help a person move toward the wholeness of health. Storytelling, as defined by Bowles (1995), is a descriptive medium by which personal experiences may be communicated to others with an immediacy and relevancy that can effect changes in the narrator as well as the audience. In other words, storytelling is an age-old healer.

Within the African American culture, storytelling is first and foremost about healing and nurturing through communion with the Great Spirit and one another; the collection and sharing of stories is considered sacred work (Banks-Wallace, 2002). According to an indigenous Canadian teacher, natural forms of indigenous healing include song, dance, ritual, and storytelling (C. Bird, personal communication, August 3, 2000). In indigenous healing workshops and retreats, storytelling is a major element used to assist with the healing process. Usually these storytelling sessions occur with the participants sitting in a talking circle, also known as a healing or sharing circle. According to Einhorn (2000), the circle is the most universally occurring shape; therefore, all healing ceremonies take place in a circle. The circle helps the person to gain insights about self and to tap into intuition. From this vantage point, process is crucial; the mind can exclaim with wonder and delight at what is revealed through the eyes of the heart, and intuitive knowledge discerns that things will occur when and how they are intended to happen.

## SCIENTIFIC BASIS

Storytelling is regarded as an act or tool for prompting and influencing the health status of individuals and groups. Attributes of health that storytelling affects include (1) providing a connection to other people, (2) rendering a sense of connection between life events, (3) unlocking an opportunity for healing to occur, (4) helping to achieve the fullness of human potential, and (5) leading to an integrated sense of self (Sandelowski, 1994). Storytelling allows the person to gain perception about time; changes people's sense of place; articulates and stimulates strong emotions; helps resolve problems; facilitates change; and provides individuals with a forum for personal introspection in which to assess, understand, and change health-related behaviors (Banks-Wallace, 2002; Hodge, Pasqua, Marquez, & Geishirt-Cantrell, 2002; Sandelowski, 1991; Snyder, 1992). According to Lawlis (1995), anxiety is lowered in the listener, imagery is developed, relaxation ensues, pain may be relieved, and patients can become empowered. Nagai-Jacobson and Burkhardt (1996) state that storytelling can awaken spiritual forces and facilitate the release of energy, resulting in the healing of self and others. Students come alive when a teacher digresses and tells a story (Noddings, 1994). It is known that whenever an individual wants to provide an account of "what really happened," the natural impulse is to tell a story (Bowman, 1995) because stories depict what matters to people (Barton, 2004).

Although storytelling is utilized as a therapeutic and everyday tool across all ages, research on its effectiveness as a nursing intervention is in

the beginning stages. In current qualitative and quantitative intervention research studies, various methods of storytelling have been used alone or in conjunction with other interventions, and there are multiple instruments to measure the effectiveness and outcomes that result.

### **Storytelling With Children**

The therapeutic usefulness of storytelling with children has been explored in a number of studies. Walker (1988) used cartoon storytelling as one of several techniques to assess cognitive and behavioral coping strategies of siblings of pediatric cancer patients. Content analysis of the data revealed major stressor themes of loss, fear of death, and change among the siblings. In a descriptive correlation study, Collins (1991) used spontaneous storytelling to determine the stress levels in fourth graders. Differences were found in story themes among children with low, moderate, or high levels of stress. Werle (2004) used storytelling with middle-school students to explore the lived experience of violence. The students responded to the stories through a free writing style using open-ended questions as guides. School nurses may find storytelling helpful in violence prevention education programs.

### **Storytelling With Older Adults**

Not only children benefit from storytelling. Lepp, Ringsberg, Holm, and Sellersjo (2003) conducted a pilot study among 12 elderly patients with moderate to severe dementia. Seven of their caregivers also participated in the research. Two groups received the intervention: one group focused on dance, rhythm, and songs familiar to this age group while the other group participated in storytelling. Quality of life improved in the drama and storytelling groups. Strickland (1996) used listening circles of 1<sup>1</sup>/<sub>4</sub> hours for four sessions in a nursing center. Each week, the residents shared personal stories, including much about “presence” and “caring” in the retirement community. Clark, Hanson, and Ross (2003) conducted focus groups among staff of a nursing home, community-dwelling older people, family caregivers, and practitioners to explore whether a biographical approach that incorporates storytelling can be used to enhance person-centered care. Findings revealed that life stories helped practitioners to see patients as people and to understand them more fully, and improved relationships with elders’ families.

### **Storytelling Use in Hospice**

Storytelling has been used with hospice patients and their families. Lehna (1999a) interviewed 4 mothers of sick children enrolled in hospice. Moth-

ers used storytelling for two therapeutic purposes. This helped them to place the child in context of entire life. Telling stories helped them place the birth of their medically fragile children on a continuum connecting the time before their birth with the time after their birth and the life changes that occurred with diagnosis and/or birth. Telling the stories also helped the mothers understand and come to terms with their feelings. Storytelling provided this group of mothers with insight into their family's functioning and could be a powerful tool for health care providers.

### **Storytelling Use by African American and Native Indian Women**

In a narrative analysis of 115 stories of women of African descent, Banks-Wallace (1998) found storytelling useful for learning more about the historical and contextual factors affecting the well-being of these women. The major functions storytelling served were: contextual grounding, bonding with others, validating and affirming experiences, venting and catharsis, resisting oppression, and educating others.

Rogers (2004) found storytelling at the heart of 11 Pacific Northwest African American widows, ages 55 and older, who described their experience of bereavement after their husbands' deaths. During the interviews, the widows took on various mannerisms and speech patterns of persons who were part of the story. These included changed tones, mimicking the voices of those involved, and use of hands, body language, and facial expressions. Nurses should be aware of storytelling as a means to gain in-depth understanding and cultural insight into African American experience.

Culturally appropriate communication methods, such as storytelling, have been found to be effective in health promotion activities. The talking circle is one format in which the art of storytelling occurs. Indigenous Ojibwa and Cree women healers use talking circles as instruments of healing and storytelling in their everyday traditional practice (Struthers, 1999). Studies have shown that the talking circle of American Indians can be used to promote health and convey health information. Using an experimental design, Hodge, Fredericks, and Rodriguez (1996) discovered that American Indian women responded favorably to the use of the talking circle, coupled with traditional stories, as a vehicle to disseminate cancer education and improve adherence to cancer screening. In another study, Hodge, Stubbs, Gurgin, and Fredericks (1998) also found that the talking circle was effective in teaching about cancer prevention. Storytelling was preferred as a natural pattern of communication for Yakima Indians to learn about health promotion related to cervical cancer prevention (Strickland, Squeoch, & Chrisman, 1999).

## INTERVENTION

Inherent in each person's story is a key to healing (Roche, 1994), an opportunity for personal growth (Heiney, 1995), and the experience of interconnectedness while co-creating possibilities for change and growth (Milton, 2004). However, it is only within the past several decades in America and the Western world that telling one's personal story was recognized as a therapeutic healing modality (Sandelowski, 1994).

### Techniques: How the Talking Circle Works

In a talking circle, participants sit in chairs placed in a circle in an environment that is conducive to healing; participants can number from 2 to 10, but groups of 5 to 10 are best. A facilitator opens the session by welcoming everyone and sharing a story. The information disclosed usually centers around a selected topic or reason for the talking circle. Then the circle is opened to all and each person is afforded the opportunity to talk. Typically, a feather, rock, or other item is passed from one participant to the next speaker, who holds the item while speaking. During this time, that particular person takes the lead and shares a story with the group. While the person is speaking, the facilitator and the other participants respect and support the person who is sharing the story by honoring that person, being present, and listening to the essence of the story. After each person has had a chance to contribute, the facilitator summarizes the events and the circle closes.

When one tells his or her story within a talking circle, several things happen simultaneously. A place is created where the following elements come together:

1. *A healing environment:* The first step necessary for healing to take place is to create an environment conducive to storytelling (Lindesmith & McWeeny, 1994). There can be no healing without an atmosphere conducive to it. Therefore, it is imperative that a comfortable physical environment be sought out, away from distractions. With chairs placed in a circle, participants can view each other and experience everyone's presence. The environment can be cleansed and kept clear with the assistance of purification rituals such as the use of candles, crystals, or feathers. In the Native American tradition sage, cedar, or sweet grass is commonly used for this purpose.
2. *Nonjudgment:* Individuals and groups must feel safe and supported in their surroundings (Bowman, 1995; Evans & Sev-



ertsen, 2001) in order to facilitate the healing process. We are often reluctant to reveal too much about ourselves because it makes us vulnerable. However, we cannot tell a story without self-disclosure (Kelly, 1995). Therefore, an atmosphere free from criticism, exploration, interpretation, or judgment must prevail and confidentiality must be assured.

3. *Listening*: It is of utmost importance that others listen to the story. Listening shows that one is valued as an individual (Clark et al., 2003; Koch, 1998). We need to cultivate the quality of listening carefully, patiently, attentively, and compassionately to other human beings while they tell their story. Simply put, this is caring enough about others to listen to what they have to say (Kelly, 1995) and to listen with one's heart (Heiney, 1995). While listening, we can let our imagination, our past experiences, and our various passions and problems help us form images to accompany the words we are hearing (Roberts, 1994).
4. *Spontaneity and creativity*: Storytelling requires no training or skill (Heiney, 1995). However, stories come alive when we let the story "lift and flow" and "laugh and cry" (Wilson, 1979, p. 3). Imagination, flexibility, and creativity flow forth naturally in storytelling (Kuhrik, 1995).
5. *Presence*: To be present is to consciously stay in the moment. Change takes place in the present, not in the past or in the future. When one is present in the moment, a state of non-interfering attention that allows natural healing to flow is generated (Dossy, Keegan, & Guzzetta, 2000). When a story is told, others can "settle into their bodies and become fully present" (Kimmel & Kazanis, 1995, p. 216).
6. *Empathy and caring*: Empathy is defined as "the action of understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts, and experience of another . . . without having the feelings, thoughts, and experiences fully communicated in an objectively explicit manner" (Merriam-Webster, 1984, p. 407). Storytelling increases empathy (Heinrich, 1992). According to Diekelmann (1994/1995), as the story unfolds, participants in the narrative travel together to a place of intertwining where it is difficult to distinguish between the speaker and listeners. This sets up the possibility for one of us to dwell within the lived experience of another (Heinrich). To listen is to display caring, and caring is a factor Western society has a tendency to neglect.

7. *Community*: In the process of storytelling, a feeling of community is established. This feeling creates bonding or strengthening of intimate relationships with others like themselves and facilitates survival and well-being (Banks-Wallace, 1998). This sense of community decreases the invisibility and isolation of people (Heinrich, 1992). A feeling of belonging develops during the storytelling process that not only connects us to other people, but also connects us to higher truths (Heiney, 1995). This connection can be a liberating experience.
8. *Learning and sharing*: Learning occurs when stories are shared (Lindesmith & McWeeny, 1994) because storytelling provides a vehicle to share knowledge and wisdom (Banks-Wallace, 1998). According to Heiney (1995), part of this learning is becoming able to see things on many different levels through a prism. New perspectives may emerge as stories are told. In the process of storytelling, validation (Heinrich, 1992), recognition and self-knowledge (Kelly, 1995), and personal meaning develop. It is in these acknowledgments that the spirit evolves.

## Measurement of Outcomes

A variety of tools can be used to measure outcomes of storytelling. Depending on the purpose for which storytelling is used, instruments that measure anxiety, depression, social isolation, spirituality, caring, and sense of well-being may be appropriate. Qualitative research methods may also be used to measure the effectiveness or changes brought about through storytelling.

## Precautions

Those using storytelling need to be prepared to deal with the strong emotions stories may evoke. Health professionals should be ready to assist and support the participants, as diverse reactions can occur. A list of available resources to make referrals for follow-up may be helpful after the session ends. Only persons trained in psychotherapy should utilize storytelling with people who have psychological problems.

## USES

Nurses can use storytelling in multiple situations across the life span for a variety of purposes. Stories can be used in family therapy and can assist

members to tap into the flow of meaning of the past, present, and future, and help patients open up possibilities for making meaning and healing (Roberts, 1994). During storytelling, voices are found that become stronger and individualized and may be accompanied by visible signs of growth reflected in a straightening of the spine or release of tension (Kimmel & Kazanis, 1995). See Table 13.1 for storytelling uses in patient populations.

Stories can be used in self-help groups (Koch, 1998). Many 12-step self-help programs, such as Alcoholics Anonymous (AA), are based on storytelling (Davis & Jansen, 1998). Individuals tell about the development of their illness(es), identify how transformation occurs, and how subsequent recovery takes place. The stories people tell are powerful forms of communication both for themselves and others in AA (Davis & Jansen). Reach for Recovery for mastectomy patients is also based on a similar premise (Larkin & Zabourek, 1988).

## FUTURE RESEARCH

Clearly, more research needs to be conducted to document storytelling as a proven therapeutic modality. Even though qualitative studies have

**TABLE 13.1** Uses of Narrative Storytelling in Patient Populations

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- To discover and uncover knowledge embedded in practice, recover the art of nursing, rediscover the “every-dayness” of nursing practice (Sandelowski, 1994; Walker, 1995), coordinate patient care, and prevent burnout (Lehna, 1999b).
  - To enhance learning, professional development, and clinical practice among practicing nurses (Koch, 1998; Walker, 1995).
  - To explain procedures, invoke hope, obtain information, resolve conflicts (Snyder, 1992), relieve tension (Kirkpatrick et al., 1997), and teach health behaviors (Lawlis, 1995) and morals and values (Kirkpatrick et al.).
  - To frame healing encounters (Heiney, 1995; Struthers, 1999).
  - To increase quality of care in long-term care settings (Heliker, 1999).
  - To provide those in the storytelling relation with some distance from whatever threatens them when life is hard (Frank, 2000).
  - To address diversity through understanding (Koch, 1998), assess cultural factors (Evans & Severtsen, 2001), and allow marginalized groups to have a voice (Koch, 1998).
  - To help children master their feelings, act out unacceptable and/or fantasy feelings, support socialization (Lehna, 1999a).
-

been conducted that utilize storytelling to explore phenomena or to illuminate experiences in the discipline, storytelling must be viewed for its effect on patient outcomes. Examples of future research questions related to storytelling include the following:

1. Which are the characteristics of patients who benefit from storytelling?
2. How can nurses use storytelling to improve the quality of patient care?
3. How can stories assist in increasing identification of cultural factors, health behaviors, and health outcomes?

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## CHAPTER 14

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# Journaling

Mariah Snyder

Journal writing is one of a group of therapies that provide an opportunity for persons to reflect on and analyze their lives and the events and people surrounding them and to get in touch with their feelings. Reminiscence, life review, and storytelling are other interventions that utilize a similar scientific basis. Journal writing (journaling) requires the active involvement of the person in reflecting and analyzing his or her experiences.

Since the beginning of history, people have recorded the events of their lives, first in pictures and then in words. Libraries abound with volumes of personal journals, and countless others are stashed away in closets and attics. *Diary of a Young Girl* (Mooyaart, 1952), and *Markings* (Hammarskjold, 1964) are examples of journals that have had an impact on lives beyond that of the author. Journals provide a unique perspective on the thinking and struggles of individuals and on real life in a particular era. However, journaling as presented in this chapter will focus on writing for oneself and not for sharing with others via publication.

Although much anecdotal evidence exists about the beneficial effects of journaling, research on the use of journals is sparse. In nursing, studies have related primarily to journaling as an educational tool. Research by Pennebaker, a psychologist, and his colleagues provides evidence of the positive effects of journaling (Esterling, L'Abate, Murray, & Pennebaker, 1999; Pennebaker & Seagal, 1999; Petrie, Fontanilla, Thomas, Booth, &

Pennebaker, 2004). Although research on journaling is in the early stages of development, its pervasive use across the centuries and anecdotal accounts point to its value in promoting positive health outcomes.

## DEFINITION

The terms *journal*, *diary*, and *writing* are often used interchangeably. Diaries focus on the recording of events and encounters whereas journals serve as a tool for recording the process of one's life (Baldwin, 1977). Events and experiences are noted in journals with emphasis placed on the person's reflections about these events and the personal meaning assigned to them. In journal writing, an interplay between the conscious and unconscious often occurs. Writing, another term, is used when the focus is on a theme or topic (Esterling et al., 1999). For example, people may be asked to write about their thoughts and feelings related to a specific stressful event in their lives. Poetry and stories are other forms that expressive writing may take. The term *journaling* will be used in this chapter to encompass writing for therapeutic purposes.

## SCIENTIFIC BASIS

Journaling is a holistic therapy because it involves all aspects of a person: physical (muscular movements), mental (thought processes), emotional (getting in touch with feelings), and spiritual (finding meaning). Through journal recordings, people are able to connect with the continuity of their lives and thus enhance wholeness. Writing also assists persons in identifying unconscious ideas and emotions. Awareness of these is furthered when they reflect on specific events, thoughts, or feelings as they record them, link them with past feelings and meanings, and consider present and future implications.

Progoff (1975), a Jungian psychologist who developed a systematized method for journaling called the intensive journal, noted that this transpsychological approach provided active strategies that enable persons to draw upon their inherent resources to become whole. Through journaling, Progoff maintained, people become more self-reliant as they develop their inner strengths and can use them when faced with problems and challenges such as stress or illness.

Journaling provides an opportunity for catharsis about highly emotional events (Pennebaker, 1997). Unlike merely venting feelings, journaling furnishes the avenue for a person to explore causes and solutions



and to gain insights. A participant in a study by Pennebaker noted: “Although I have not talked with anyone about what I wrote, I was finally able to deal with it, work through the pain instead of trying to block it out. Now it doesn’t hurt to think about it” (p. 38).

Inhibiting feelings about an event results in increased autonomic activity that often has long-lasting harmful effects on the body, such as hypertension. Therapies that assist in venting feelings may help to improve a person’s health. Ulrich and Lutgendorf (2002) reported that students who journaled about cognitive and emotional aspects of a stressful event developed a greater awareness of the impact of the event as compared to students who wrote only about overall events. Further support for the efficacy of writing about traumatic events was documented in a second study in which persons with HIV infections journaled about emotional topics versus neutral topics; journaling about emotional topics resulted in a heightened immune function (Petrie et al., 2004). Spera, Buhrfeind, and Pennebaker (1994) found that 52% of persons in their study who had lost their jobs and engaged in journaling about the event had obtained employment after 8 months, compared to only 14% in the non-writing group and 24% in the group that wrote about superficial events.

Esterling and colleagues (1999) proposed three hypotheses for why journaling about a traumatic event may be helpful in bringing about positive physical and emotional outcomes:

1. Journaling allows the person to access multiple aspects of the event, including its significance and meaning.
2. Journaling makes the event more readily accessible. People can recall more of its dimensions, and as they deal with it over time, calling to mind the elements of the event becomes more automatic and thus less effort is needed to process information about the trauma.
3. Journaling transfers feelings into language. Applying a label to an emotion may help to reduce its intensity.

## INTERVENTION

Techniques for journaling include free-flowing writing, topical or focused journaling, and creative writing. The period of time for which journaling is carried out (weeks, months, or years) will depend on its purpose. Sometimes people initially write during a specific stressful situation in their lives but become “hooked” and continue writing after the precipitating event has ended.

Some general guidelines for journaling or writing are found in Table 14.1. What is most important is for the person to be honest with him- or herself when writing. Knowing that the content is private and only to be shared if the writer so desires allows the person to write about very personal items. If one is required to share the entry, an internal monitor is activated that often censors what one will write.

Entries are made in a special notebook. This may be a fancy book purchased specifically for journaling or an inexpensive spiral notebook. Plain notebooks can be personalized by pasting pictures on the cover or using other artwork throughout the notebook. Because pencil recordings fade over time, a pen should be used as the person may want to re-read past entries. Some may prefer to use word processing for journaling. If this type of recording is done, strategies are needed to maintain privacy.

When and for how long to write are questions each person needs to answer. Establishing a specific time of day to make entries is helpful. Cameron (1992) suggested making entries in the early morning because it is easier to access the unconscious upon awakening. Many recommend making entries on a daily basis. The length of time devoted to journaling will vary. Pennebaker (1997) recommended 15 to 30 minutes. However, journaling needs to be the servant and not the master.

## Techniques

### *Free-Flow Journaling*

This is the most common type of journaling. Cameron (1992) describes it as “the act of moving the hand across the page and writing down

**TABLE 14.1** Guidelines for Journaling

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Date entries.
Write for 10–20 minutes each day.
Have a specific place to write that is private and where interruptions will not occur; you may wish to light a candle or play music.
Write with a pen.
Have a special notebook for writing.
Do not erase or black out words.
What you write is personal and you do not need to share what is written unless you wish to do so.
You may wish to personalize the journal with pictures, drawings, colored pens, and so forth.

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whatever comes to mind. Nothing is too petty, too silly, too stupid, or too weird to be included” (p. 10). No attention is given to grammar, punctuation, or spelling. The main goal is to put one’s thoughts and feelings on paper. Baldwin (1990) noted that flow writing is like the tip of the iceberg and allows us to begin to touch thoughts that are deep within us.

### *Dialogue Writing*

Free-flow writing is like a monologue whereas dialogue journaling allows the person to view the situation or emotions from two perspectives. Dialogue writing may help individuals resolve conflicts and see the perspective of another person. This type of journaling can also be used for dialoguing with an event. Baldwin (1990) noted that in monologues we can avoid examining an issue whereas dialogue can get to the heart of the issue.

Using dialogue writing, one notes the question or issue and then proceeds to write from each perspective.

*Me:* I am really upset that you did not show up for our walk.

*Jane:* I just really forgot about it.

*Me:* Forgot about it! I must not be that important in your life.

*Jane:* You are, but there is so much going on now that I am having problems remembering.

*Me:* Well, I was really teed off. Consider the time I have given to you when you needed to talk and last night was a time when I really needed to talk.

*Jane:* What about?

*Me:* Something that has been bugging me for a long time.

This written dialogue with Jane may open “Me” up to facing problems and exploring them and begin to see things from another’s perspective.

### *Topical Journaling*

This type of journaling focuses on a specific event or situation. The focus can be the person’s illness or that of a family member. Journalers write about their feelings, how the illness will affect or has affected their lives, and fears they have about the treatment or outcome. Pennebaker has focused his research on using journaling to assist those dealing with trauma in their lives. They are instructed to consider multiple aspects of

the event: who was involved, why they believe the event occurred, how it affected their lives, and the associated feelings. They just write, with no attention to the structure of what is written. No constraints are imposed.

### *Creative Writing*

Some people may be more comfortable writing in story form or in poetry rather than focusing on specific events or emotions in their lives. This type of writing can assist persons to uncover deeper thoughts or emotions. Some may find that a picture or scene may help them focus on a topic. When they write about the picture or scene, inner feelings and thoughts come forth. Stories allow for feelings to emerge first in the people in the story and then in the self.

For those daunted by writing poetry, the Japanese forms of haiku or tanka may be used. Haiku consists of 17 syllables: lines of 5, 7, and 5 syllables (Haiku for People, 2004). Tanka poetry is an older form and consists of 31 syllables with lines of 5, 7, 5, 7, 7 syllables (American Tanka, 2004). One situation that comes up when using these poetry forms is that a person often needs to uncover new words of the appropriate syllabic length rather than using familiar words. These new words may reveal feelings the person has not previously considered.

## **Measurement of Outcomes**

Many of the outcomes of journal writing may not be immediately discernable. Some of the possible areas to measure are improvement in self-esteem, reduction in anxiety, and acceptance of a chronic condition. Because journaling is very personal, it may be difficult for the nurse to evaluate specific outcomes, but patients doing journaling can report changes that have occurred.

## **Precautions**

Fear that others will find and read journal entries is a common concern. This fear may prevent some persons from being completely open in expressing themselves. The heightened anxiety that the journal might be found may prevent unconscious thoughts from entering consciousness and thus decrease the efficacy of the intervention. Caution is needed in using journaling with those who are extremely introspective as the process may increase the turning inward.

## USES

Journaling has been used to achieve a variety of outcomes. Table 14.2 lists some uses. One use is with people who are newly diagnosed with a chronic condition. Recording their perspectives may help them to uncover fears that could then be discussed with a health professional. Some fears may turn out to be unfounded. Journaling also provides an avenue for persons to increase knowledge about their own lives and to identify hidden resources or strengths that can be used in living with a chronic illness. Cameron (1992) urged people to provide positive affirmations to the self. Writing positive statements and then reading them may help them gain confidence in their ability to manage the chronic condition. Johnson and Kelly (1990) had patients with breast cancer use journaling to help them gain insights about their lives. Another group of researchers (Rancour & Brauer, 2003) used journaling to help patients with cancer adjust to changes in their body image.

Research and anecdotal evidence support the use of journaling to improve well-being. Runions (1984) instructed the mother of a seriously ill adolescent to keep a journal. She found that journaling helped her in coping with the stressful situation. Two authors (DiNapoli, 2004; Hall, 1990) used journaling with adolescents. DiNapoli found that journaling assisted adolescent girls with a smoking history to decrease their use of tobacco. Hall reported that journaling by high school students helped them identify their potential and develop techniques for managing conflict.

Although it is not specifically journaling, Storlie, Lind, and Viotti (2003) described the use of diaries in intensive care units. Nurses and families kept a record of the patients' stays. These were then used in a follow-up program to help patients gain an understanding of their time

**TABLE 14.2** Uses of Journaling

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Assisting with transitions (Spera et al., 1994)
Decreasing anxiety (L'Abate & Baggett, 1997; Ulrich & Lutgendorf, 2002)
Decreasing depression (L'Abate, Boyce, Frazier, & Russ, 1992)
Decreasing use of tobacco (DiNapoli, 2004)
Improving well-being (Booth, Petrie, & Pennebaker, 1997; Richards, Beal, Seagal, & Pennebaker, 2000)
Increasing creativity (Cameron, 1992)
Personal growth (Patton et al., 1997)
Spiritual growth (Chittister, 2004)

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in the intensive care unit, including dreams and times when the patient was confused. The program has proved to be valuable for both patients and staff.

Journal writing has also been used extensively to help people develop spiritually (Baldwin, 1990; *Writing the Journey*, 2004). Growing spiritually requires reflection, and journaling is one intervention that will help people gain insight and discover new avenues to pursue. Chittister (2004) related how journaling on quotations or sayings of others helped her gain new perspectives.

## FUTURE RESEARCH

Research on the efficacy of journaling is in its infancy. Few findings exist to guide clinicians in its use with patients. Several areas in which research is needed are as follows:

1. Identifying the characteristics of persons who will most benefit from journaling will assist health care workers to select persons for whom journaling may be helpful. Few of the studies on journaling have made reference to its use with minority groups, thus indicating that studies on use with these populations are needed.
2. Identification of outcome measures for journaling is needed. When and how should the measurements be made?
3. Studies using qualitative methodologies will help to identify the processes people use in journaling. Because a journal is private and to be shared only if the person so wishes, strategies are needed that will allow researchers to identify the topics or themes being recorded and how they relate to the outcomes.

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# Animal-Assisted Therapy

Jennifer Jorgenson

Animal-assisted therapy (AAT) is grounded in research on the human–animal bond. Until recently this body of knowledge has been largely anecdotal, based on pet ownership and casual interactions between people and animals. Since the 1970s, research has begun to establish a link between animal companionship and improved health and well-being. The evolution of this research has promoted AAT as a therapeutic healing modality that can help promote physical, social, and psychological benefits. Today AAT has been implemented as an adjunctive therapy by nurses across the health care continuum in outpatient, acute care, and extended care facilities, as well as in all patient populations from pediatrics to geriatrics (Cole, 1999). It is important that nurses as advocates in the promotion of optimal holistic health care are aware of the role animals can play.

Throughout history animals have played a significant role in our customs, legends, and religions. Primitive people found that human–animal relationships were important to their very survival, and keeping pets was common in hunter-gatherer societies (National Institutes of Health [NIH], 1987). The process of domestication, which began more than 12,000 years ago, continues today as humans and domestic animals coexist, interact, and profoundly influence the shape of each other’s social space (Young, 1985). National survey data on pet ownership indicate



that approximately 58.9% of all U.S. households contain a companion animal (American Veterinary Medical Association, 1997).

The first recorded setting in which animals were used therapeutically was the York Retreat in England (Netting, Wilson, & New, 1987). Founded in 1792, the retreat kept small animals such as rabbits and poultry, which were cared for by psychiatric patients. The nursing establishment recognized the benefits of AAT early on. In 1860, Florence Nightingale observed that "a small pet is often an excellent companion for the sick, for long chronic cases especially" (Nightingale, 1860, p. 103). She suggested the use of a caged bird as the only pleasure an invalid confined for years to the same room might enjoy. The use of animals in a therapeutic setting began in the U.S. in 1944 at the Army Air Corps Convalescent Hospital at Pawling, New York. Patients recovering from war experiences were encouraged to work at the hospital's farm with hogs, cattle, horses, and poultry (NIH, 1987).

## DEFINITION

AAT has had many names including pet-facilitated therapy, pet-assisted therapy, pet therapy, pet-oriented child psychotherapy, animal-facilitated therapy, animal-assisted activity, and animal visitation. These generic terms allude to programs that include visitation, attempts at milieu therapy, and animal-assisted psychotherapy (Berrisford, 1995). Today the terminology tends to differentiate between two distinct types of interventions: pet visitation and AAT.

The simplest use of animals in health care is pet visitation. This intervention is intended to foster rapport and initiate communication between therapists and patients. It is often effective in increasing patient responsiveness, giving patients a pleasurable experience, enhancing the treatment milieu, and helping to keep patients in touch with reality (Barba, 1995a). The animal initiates contact with patients, and the direction of the visit is determined by patients' needs at that particular time. Social interaction is often increased using the animal as a springboard for conversation. This therapeutic modality has demonstrated success in psychological counseling, as well as in long-term care facilities. Visitation may be provided by one or more animals and volunteer teams and may occur in individual or group settings. A variety of animals have been used favorably in this intervention including cats, rabbits, birds, and dogs.

By contrast, AAT is a goal-directed intervention in which an animal (usually a dog) that meets specific criteria is an integral part of the treatment process. This intervention, directed by a health or human-

services provider, is designed to promote improvement in human physical, social, emotional, and cognitive functioning. AAT can be utilized in a variety of group or individual settings, often in acute care facilities, and is documented and evaluated (Delta Society, 1991). AAT exercises are purposeful, individually goal oriented, and can provide multiple benefits that include but are not limited to improvement in fine and gross motor skills; verbal, tactile, and auditory stimulation; verbalization skills; ambulating and equilibrium; following instructions and decision making; memory recall; and increased concentration and extended attention span. Often AAT interventions may occur during a visitation program, and the two terms are frequently used interchangeably.

## SCIENTIFIC BASIS

Many theoretical frameworks support the use of AAT in health care. The most commonly cited is the social support theory (Barba, 1995b), which recognizes that buffers against stress are developed in relationships in which people gain a sense of security and a feeling of being needed. Using this framework, studies conducted with companion animals have demonstrated that animals promote well-being, health, and longevity and provide a source of relief, love, and companionship (Carmack, 1998). Willis (1997) applied Roy's Adaptation model to the extent that animals in the environment are factors that can influence adaptation and interdependence as a response. Studies by Calvert (1988) and Friedmann, Katcher, Lynch, and Thomas (1980) have supported the hypothesis that interaction between people and companion animals has a positive influence on loneliness. As early as 1965, family systems therapist Murray Bowen recognized the influence of animals in the dynamic family. Cain (1991) validated the notion that companion animals are often given "people-status," that pets can provide the emotional devotion that persons may be seeking from others, and that many family members believe that their pets are "tuned in" to their feelings.

The idea that human interactions with companion animals can result in physiological and psychological benefits is gradually gaining acceptance. Many research studies have indicated that people's health and well-being benefit from AAT. Table 15.1 lists research studies that support these conclusions in a variety of populations in a range of settings with many different types of interventions.

One of the first nursing studies to associate health benefits with animal contact was performed by Baun, Bergstrom, Langston, and Thoma (1983). Their study revealed a decrease in subjects' heart rate, respiratory

**TABLE 15.1** Populations in Which Animals and Animal-Assisted Therapy Have Been Studied (Cole & Gawlinski, 1995)

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Adolescents with special education needs (Cawley, Cawley, & Retter, 1994)
Adults in the community (Raina, Waltner-Toews, Bonnett, Woodward, & Abernathy, 1999; Sebkova, 1977)
Adult pet owners (Anderson, Reid, & Jennings, 1992; Serpell, 1991)
College students (Wilson, 1991)
Older persons in elder residences (Mugford & M'Comsky, 1975)
Older adult apartment residents (Riddick, 1985)
Heart patients (Friedmann et al., 1980; Friedmann, Katcher, Lynch, Thomas, & Messent, 1983; Friedmann & Thomas, 1995)
Hospice patients (Chinner & Dalziel, 1991)
Hospitalized psychiatric patients (Barker & Dawson, 1998)
Persons with Alzheimer's disease (Batson, McCabe, Baun, & Wilson, 1995; Kongable, Stolley, & Buckwalter, 1990)
Persons requiring wheelchair use (Allen & Blaskovich, 1966)
Pet-owning children (Triebenbacher, 1998)
Physically challenged school-aged children (Madder, Hart, & Bergin, 1989)
Women in prison
Older adults with dementia (Richeson, 2003)
Alzheimer patients with nutritional disparities (Edwards, 2002)
Elderly schizophrenic patients (Barak, Savorai, Majashev, & Beni, 2001)

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rate, and blood pressure while petting a companion animal with which they had a bond. Allen (2002) conducted a trial of 30 men and 30 women and found a correlation between dog ownership and control of borderline hypertension. This study compared one group that adopted a dog from a shelter and those involved in a program of transcendental meditation. At the conclusion of the study it was demonstrated that the pet owners showed a significant reduction in resting and ambulatory blood pressure while at work. Those who practiced transcendental meditation showed no significant changes (Stanley-Hermanns & Miller, 2002).

Research conducted by Siegel (1990) suggested that pet ownership could influence physician utilization in older adults. Ownership of pets appeared to help these individuals in times of stress. The accumulation of stressful events was associated with increased physician contacts for respondents without pets; however, this association did not emerge for pet owners. Data revealed that owning a dog provided a stress buffer, whereas owning other types of pets did not. The advantages associated

with dog ownership included the companionship functions of talking, spending more time outdoors, and having an increased sense of security.

An exciting study conducted by Heimlich (2001) attempted to provide a quantitative measure of the effects of animal-assisted therapy for severely disabled children. Although analysis of the data indicated a positive effect for all participants, no generalizations were made due to a number of confounding factors. Despite the lack of conclusive evidence, much was learned and tools for evaluation were developed.

More recently, Cole and Gawlinski (2000) explored the value of aquariums in promoting relaxation in patients awaiting heart transplants. Benefits included humanizing the hospital environment, and patients reported a sense of control in choosing feeding schedules and in performing the feeding ritual. Many patients described the fish as soothing and comforting at night. The aquariums also provided cognitive stimulation and became a bridge for communication among patients.

## INTERVENTION

One of the newer and more exciting ways AAT has been utilized is in critical care settings. Several successful programs have been documented in the literature. Conner and Miller (2000) have implemented an extensive program at Trinity Mother Frances Health System in Tyler, Texas, as have Giuliano, Bloniasz, and Bell (1999) at Baystate Medical Center in Springfield, Massachusetts.

The author is involved in expanding an existing pet visitation program in pediatrics and rehabilitation at WakeMed Hospital to include the surgical intensive care unit (SICU). WakeMed is a 650-bed level-II trauma center with a nine-bed SICU located in Raleigh, North Carolina. The program was implemented in order to reduce patients' anxiety and stress, improve communication, aid in reality orientation, and provide a more humanistic environment.

The preparation for obtaining approval was fairly rigorous and involved many disciplines. Physicians were surveyed about their support for the program, staff in the SICU was educated, and the volunteer department was involved to refine the existing policies and protocols. An extensive literature search was performed, highlighting other successful programs around the country, and a final proposal was prepared and presented to the hospital's infection control committee. Approval was obtained for a 6-month pilot program. Next the actual volunteers and dog teams were oriented to the unit to ensure that the dogs and the volunteers would be comfortable in the ICU setting. Issues addressed

were sights, smells, equipment, appearances of patients, and guidelines for prevention of disease transmission. The program was well received by patients and families as well as staff and physicians. During the first 6 months approximately 25 visits were provided, there were no untoward events, and the positive feedback was phenomenal. Because of the high degree of success initially generated, the program has evolved to include all of the adult intensive care units. There are approximately 21 canines in the program and there are 3 teams that visit the hospital each day (1 per shift) and weekend teams that come every other Saturday. Currently there are approximately 400 visits per month. Johnson (2005) states, “The visits are received very favorably by the patients, families and staff. It is as much a stress relief for the staff and families as it is for the patients. The patients will respond to the dogs, when they will not respond to the staff and other ‘humans.’ There has been no resistance to the expansion by physicians, families, staff or patients” (personal communication, February 8, 2005).

## **Guidelines**

Policies and procedures were developed for pet visitation in the SICU at WakeMed. Visits in the unit were conducted twice a week, and each visit lasted approximately 20 minutes. These policies are unique to the facility, but may be viewed as general guidelines (Table 15.2).

## **Measurement of Outcomes**

In the evaluation of AAT, there are frequent methodological limitations, often caused by the complexity of the subject area. Small sample sizes, failure to randomize subjects, and poor design are cited most often as the barriers to fully appreciating the results of many AAT studies (Brodie & Biley, 1999). Failure to correct and design appropriate studies will only slow the acceptance of AAT as a legitimate, research-based intervention.

Outcome measurements are assessed relative to the various types of interventions and their intended effects. To date, published material on AAT suggests that the human–animal bond could have positive effects on human physical, social, and psychological health. Brodie and Biley (1999) conducted a review of the literature on animal-induced health benefits and concluded that evidence exists to promote the use of AAT as a therapeutic intervention by nurses. Improvements in physical health included reduced risk of cardiac problems, lowered blood pressure, and

**TABLE 15.2** Guidelines for Pet Visitation

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Inclusion criteria for potential patients to receive pet visitation:

- Length of stay >72 hours
- Patient is awake and alert
- Patient is hemodynamically stable
- Patient meets the screening for exclusion criteria

Exclusion criteria: Any patients with the following diagnoses or conditions would be excluded from participating in a pet visitation:

- Fear of animals
  - Any patient in the SICU with a documented allergy to dogs
  - Pet visitation not supported by the attending physician
  - Patient is diagnosed with any of the following:
    - Methicillin-resistant staphylococcus
    - Tuberculosis
    - Group A streptococcus
    - Hepatitis
    - Salmonella
    - Staphylococcus aureus
    - Ringworm
    - Shigella
    - Fever of unknown origin
  - All patients in the SICU, who have been medically cleared and have guardian or patient permission, may participate in a pet visitation, unless otherwise ordered by the physician.
  - Staff RNs in the SICU will be responsible to ask if patient/family members would like a pet visit. If they are agreeable, a note confirming verbal consent will be placed in the nursing notes.
  - The charge RN will evaluate the unit acuity and level of activity to determine if a pet visitation is appropriate.
  - The volunteer team will contact the charge RN for a list of appropriate patients prior to entering the unit.
  - Prior to the visit, linen or bedding will be placed on the patient's bed as a barrier.
  - The dog and the volunteer team will go directly to the appropriate room; once inside, the door will be closed with a sign posted outside to indicate that pet visitation is in progress.
-

better overall health. When AAT is employed, increased social interaction, happiness, and harmony appear elevated in the general population and in specific groups such as children, older adults, and those with disabilities. Decreased loneliness, improved morale, and increased levels of relaxation appear to be some of the psychological benefits.

## Precautions

The strongest opposition to using AAT is found in acute care facilities. The major concern is the potential for transmitting disease. For this reason dogs are the most frequently used species as specific guidelines have been well established to ensure that the risk of disease transmission is minimized. The Delta Society (1991) and Therapet (Bernard, 1998) are two well-known programs that have developed standards for policy, protocol, and procedures that clearly outline the criteria for AAT visits. Protocols for the health and grooming of dogs are addressed, along with policies for patient selection and handler responsibilities. Dogs in the program are carefully screened by a veterinarian for any physical or behavioral problems. A primary concern is patient exposure to animal feces, saliva, blood, or parasites. Stool samples to screen for any enteric pathogens and parasites are taken from the dogs on entry to the program and on an ongoing basis thereafter. Patients and staff members must wash their hands after petting the dogs. In addition, the dogs never ride the elevators, thus avoiding encounters with people who may be allergic or phobic.

Dr. Sandra Wallace, an infectious disease specialist and chair of the infection control committee at Huntington Memorial Hospital, Pasadena, California, reports that thoroughly screened dogs in controlled programs can interact with hospital patients without transmitting zoonotic infections or serving as transient carriers of nosocomial pathogens. Huntington Memorial Hospital has been host to 3,281 dog visits to 1,690 patients over 5 years. In that time no zoonotic infections have been reported (Huntington Memorial Hospital, 1992). In addition, as of 2005, the WakeMed program reports no infection generated as a result of the pet visits.

Yamauchi and Olmsted (1996) have developed specific guidelines for AAT, which are presented in *APIC-Infection Control and Applied Epidemiology*. This comprehensive overview is an invaluable tool for creating policies for new or existing programs. It is noted that although the transmission of nosocomial infection associated with AAT programs is theoretically possible, there are no documented cases.

## USES

In addition to the types of interventions already mentioned, the variety of ways and settings in which AAT can be used is almost limitless. One only has to be creative when designing this intervention. The following is a partial list of additional ways AAT can be utilized.

- “Hippotherapy,” or horseback riding is used in a variety of ways to influence the physical and psychological well-being of a person with movement disorders. Specially trained physical and occupational therapists prescribe therapeutic riding to improve a patient’s posture, balance, mobility, and function (NIH, 1987). Casady and Nichols-Larsen (2004) have performed a comprehensive study of the effect of hippotherapy on children with cerebral palsy. Positive improvement in functional motor performance was statistically significant.
- Porpoises and dolphins have helped autistic children become more responsive. A 1989 study demonstrated that dolphins, used as both stimulus and reinforcement, were 2 to 10 times more effective at increasing attention and language skills among children with mental disabilities than were other stimuli and reinforcements used in land-based classrooms (Nathanson & de Faria, 1993).
- Psychotherapy has utilized animals in an effort to decrease anxiety and open up the lines of communication. Often patients will more readily talk about painful experiences in their lives when they are petting a dog (Conner & Miller, 2000).
- Companion dogs have been used with great success for people who are blind and in recent years by those who are hearing impaired or using a wheelchair. Not only do service dogs provide for more independence and greater mobility, but the presence of a companion dog also creates a “magnet” effect that serves to increase the quantity and quality of attention directed toward those who are handicapped (Edney, 1992).
- Rehabilitation units in acute care facilities have begun to utilize AAT to increase motor skills through activities that challenge balance, fine and gross motor skills, and endurance; improve stress management and coping skills; improve cognitive function; and assist with adjusting to life changes (Jorgenson, 1997).
- Several prisons have recently begun limited trials in which inmates are given animals to raise for service programs or local



shelters. These programs are carefully supervised. Pet visitation to inmates is also being used as a form of behavior modification (Connor & Miller, 2000).

## FUTURE RESEARCH

Because the interventions available to AAT are virtually limitless, so too are the areas for further research. In critical care, the effect of therapy dogs on ventilatory weaning, pain medication requirements, length of stay, and body image are interesting areas for further research. Determining the most effective delivery aspects of AAT (i.e., timing and frequency of visits) and comparing AAT outcomes to other types of therapy should also be investigated. Finally, studies to determine cost effectiveness in improving recovery rates and long-term health benefits would substantially increase the acceptance of AAT.

## Web Sites

Excellent information and resources can be found at:

- Delta Society, 580 Naches Avenue SW, Suite 101, Renton, WA 98055-2297 (425)226-7357, (800)869-6898 [www.deltasociety.org](http://www.deltasociety.org).
- Therapet Animal Assisted Therapy Foundation, PO Box 1696, Whitehouse, TX 75791 (903)842-2150 [www.therapet.com](http://www.therapet.com).

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## PART III

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# Energy and Biofield Therapies

### OVERVIEW

The classification of complementary/alternative therapies of the National Center for Complementary/Alternative Medicine combines biofield therapies and bioelectromagnetics into one category: energy therapies. These therapies focus on energy originating in or near the body and energy coming from other sources. The concept of energy and its use in healing is universal. Most cultures have a word to describe energy. Qi (pronounced chee) is a basic element of Traditional Chinese Medicine. The Japanese word is ki, whereas in India energy is prana, and in ancient Egypt it was called ankh. The Dakota Indians' word for energy is ton and the Lakota Indians call it waken.

Nurses have used energy therapies for many years. The most familiar is therapeutic touch, which Krieger described in the 1970s. Healing touch incorporates multiple therapies based on energy as a form of healing. The "touch" noted in these therapies may or may not involve actual physical touching of the body. Rather, the nurse or therapist seeks to bring energy into the patient or to balance the energy within the patient. Although persons other than nurses may administer these therapies, nurses continue to be the leaders in the use of and research on healing touch therapies.

Other energy therapies are less well known but are increasing in popularity. Some nurses have been educated in the administration of acupressure, the stimulation of pressure points of the body, from Traditional Chinese Medicine, in order to treat illness and promote health. Acupressure points can be used to decrease pain, nausea, and vomiting. Reflexology, the massage and stimulation of select parts of the body to promote the movement of energy to promote healing in targeted organs and tissues, is a therapy that has great potential for use by nurses. Reiki, originating in Japan, is another energy therapy that nurses are using to promote healing; energy is channeled through the practitioner to achieve healing of the total person.

A growing body of research is found on bioelectromagnetic therapies. A variety of therapies are based on the use of electromagnetic fields: pulsed fields, transcutaneous electrical nerve stimulation, low-energy emission therapy, and magnets. Magnets have been used to treat pain, especially back pain. Transcutaneous electrical nerve stimulation (TENS) likewise has been used to manage pain and to promote wound healing.

Establishing a scientific base to support the use of energy therapies has been challenging because many of the measurements and designs typically used in Western clinical trials can be difficult to apply when studying the effectiveness of energy therapies. It is difficult to observe energy, and some have questioned whether the effects are real or merely a placebo effect. However, strides have been made in developing techniques to measure energy. Nurse researchers can play a critical role in the ongoing research to document the efficacy of energy and biofield therapies.

## CHAPTER 16

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# Magnet Therapy

Corjena K. Cheung

Magnets have been used for healing purposes for centuries in many countries such as China, Egypt, Greece, and India. It was mentioned in the oldest medical text ever found, the Yellow Emperor's *Classic of Internal Medicine* in 2000 BC as well as in the ancient Hindu scriptures, the *Vedas* (Whitaker & Adderly, 1998). Magnet therapy was popular in the United States in the 18th century. It was used for treating many ailments of the body, but with the introduction of antibiotics, cortisone, and other medications, magnet therapy lost its allure. Since the 1960s, there has been a resurgence of interest in magnet therapy by health professionals (Whitaker & Adderly). Currently, magnets have been marketed for a wide range of diseases and conditions such as soft tissue or muscle sprains, arthritis, respiratory problems, high blood pressure, circulatory problems, stress, and pain (National Center for Complementary and Alternative Medicine [NCCAM], 2000).

Today, energy healing remains a debatable subject in the scientific community. The scientific literature on magnet therapy, although it has conflicting findings in the limited studies, is slowly increasing. Scientists are trying to understand the healing power of magnets, and if, how, and why, magnets work on certain health problems.

## DEFINITION

According to the classification of the National Center of Complementary and Alternative Medicine (NCCAM), magnet therapy is classified under the category of energy therapies. Energy therapies operate on the principle that health can be influenced by the subtle realignment of a person's "vital energy"—energy that is innate to all living beings and that, when disordered or blocked, theoretically creates disease (Kaptchuk, 1996).

Magnet therapy is the use of magnets that are applied to different parts of the body for specific therapeutic purposes. The term *magnet* comes from the legend of a Greek shepherd, Magnes, who about 2,500 years ago discovered mysterious iron deposits attracted to the nails of his sandals while walking in an area near Mount Ida in Turkey. These deposits, which were known to the ancients as lodestones or live-stones, are now known as magnetite (magnetic oxide,  $\text{Fe}_3\text{O}_4$ ) (Macklis, 1993).

## SCIENTIFIC BASIS

The existence of the earth's magnetic field as well as the body's own bioenergetic field is beyond all reasonable doubt. Magnet therapy is based on the premise that all living things exist in a magnetic field (the earth), and that the human body exists in and generates a magnetic field that has healing powers. For centuries, the effects of magnets and low-frequency electromagnetic fields on biological processes have been investigated and debated. The application of magnets is believed to restore the balance or flow of electromagnetic energy so as to restore health (Hinman, 2002). However, the mechanism of action is still not fully understood.

According to Oschman (1998), each of the great systems in the body—the musculoskeletal system, the digestive system, the circulatory system, the nervous system, the skin—is composed of connective tissues that have important roles in communication and regulation. The extracellular, cellular, and nuclear matrices throughout the body form an interconnected solid-state network of a "living matrix." Because the main structural components are helical piezo-electric semiconductors, the living matrix generates energetic vibrations, absorbs them from the environment, and conducts a variety of energetic signals from place to place. There are many energetic systems in the living body and many ways of influencing them. The western version of energy is similar to "Qi" in Traditional Chinese Medicine and "Prana" in Ayurveda.

Scientists suggest that magnetic fields can influence important biological processes in the following ways: decrease the firing rate of certain



neurons, particularly c-type chronic pain neurons; change the rate of enzyme-mediated reactions, which may play a role in inflammatory cascades and free radical generation; modulate intracellular signaling by affecting the functioning of calcium channels in cell membranes; and cause small changes in blood flow (Wolsko et al., 2004). The *Mayo Clinic Health Letter* reports that magnets may also work by blocking pain signals to the brain (Second Opinion, 1998). Yet another theory, the Hall effect, has been suggested. The Hall effect refers to positively and negatively charged ions in the bloodstream that become activated by a magnetic field and generate heat-causing vasoconstriction and an increased blood and oxygen supply to the affected area (Whitaker & Adderly, 1998).

## INTERVENTION

### Types of Therapeutic Magnets

A permanent magnet is either a natural or artificially made magnet that produces magnetic force by the movements of electrons in the atoms of the material that make up the magnet, such as iron or nickel. These materials can be ordered to all lie in one direction (referred to as “north” or “south”). Therefore one large magnetic field can be created where similar poles repel one another and opposing poles attract (Lawrence, Rosch, & Plowden, 1998). Permanent magnets can be unipolar (one pole of the magnet faces or touches the skin) or bipolar (both poles face or touch the skin, sometimes in repeating patterns).

There are a number of permanent magnets available commercially for therapeutic purposes in various shapes and forms. The three most common forms of permanent magnets are plastiform magnets, neodymium magnetic discs, and ceramic magnets. Plastiform magnets are flexible, rubberized magnetic rolls that can be wrapped around an affected extremity or lie along the full length of the spine. Neodymium magnetic discs are lightweight and can be used on the face and on various acupuncture points. Ceramic magnets can be made in any shape and size (Beattie, 2004). Typically, permanent magnets are placed directly on the skin or inside clothing or other materials that come into close contact with the body.

Electromagnets are magnets produced by electric current passing through a cylindrical coil of wire, also known as a time-varying magnetic field. The magnetic strength is directly proportional to the strength of the electric current. When the electric current is discontinued, the wire

loses its magnetism. Pulsed electromagnetism is the process by which alternating electromagnetic fields are delivered in a time-varying manner. The electromagnetic field is primarily used in hospitals and clinics under the supervision of a health care provider. Medicare has recently announced the coverage of electromagnetic therapy for wound treatment (Medlearn Matters, 2004).

Two other electromagnets being used in clinical settings are Magnetic Molecular Energizer (MME) and Transcranial Magnetic Stimulation (TMS). They are considered experimental treatments, with ongoing studies being conducted to evaluate their efficacy. MME, which acts as a catalyst to improve chemical reactions occurring in the human body, is commonly used for neurological and neuromuscular ailments. TMS, a neurological technique for inducing motor movement by direct magnetic stimulation of the brain's motor cortex, is most often used as a diagnostic tool (NCCAM, 2000). TMS has been explored for treating depression in psychiatric settings (George et al., 1999).

### **Strength of Magnets**

The strength of a magnet is measured in units referred to as gauss (G), which represents "the number of lines of magnetic force passing through an area of 1 square centimeter" (Whitaker & Adderly, 1998, p. 15). Currently, the earth's magnetic field is estimated to be about 0.5 G, whereas a refrigerator magnet ranges from 35–200 Gs. Magnets used for pain intervention usually measure from 300–5,000 Gs (Magnetic field therapy, 2003; Vallbona, Hazlewood, & Jurida, 1997). Manufacturers are not required to mark the strength of magnets on the magnets, so the G of a magnet can be checked against the weight a magnet can lift with a formula of 1 kg as equivalent to approximately 600 Gs. (Whitaker & Adderly). Although it is important to determine the correct strength of a magnet for a therapeutic effect, some practitioners believe that the right choice of polarity (north or south pole) is more crucial. However, the issue of the two poles remains controversial.

### **Methods and Duration of Application**

Table 16.1 lists various ways in which magnets can be applied. Generally, it is safe to apply permanent magnets for a long period of time. The time of application largely depends on the type and nature of the disease, the age of the individual, and the strength of the magnet. It is thought that large magnets of more than 2,000 Gs should be used for short periods of time ranging from several seconds to about 60 minutes for one application (Beattie, 2004).

**TABLE 16.1** Methods of Application of Magnets

Modes	Applications
Local	Magnets are placed directly on the skin over affected areas
Acu-Site	Local application with use of acupuncture points
General	Used for whole body or larger portion of the body ailments
Internal	Magnetic water (ionized water) is ingested
Remote	Wearing magnetic jewelry to treat an ailment remote from the point of application such as a magnetic necklace for stimulating the thymus to boost its own immune system

## Measurement of Effectiveness

The type of measurement used to determine the effectiveness of a magnet therapy depends on the purpose for the intervention. A variety of outcome measures have been used. For instance, the progression of bone healing has been objectively measured by using X-rays, bone mineral density, and calcium content in bone. Pain relief or stress reduction has been measured by an individual's subjective report on a pain/stress rating scale. The improvement of a sleep disorder can be detected by using the Polysomnography, a diagnostic test that records a number of physiologic variables during sleep. Two objective measurements that have been used to indicate the change of magnetic field in the body are as follows:

1. The superconducting quantum interference device (SQUID), a sensitive magnetometer to map the magnetic fields around the human body, can be used to detect an increase or decrease of the biomagnetic field in the body (Oschman, 1997).
2. Kirlian photography is a tool that provides photographs, video, or computer images of energy flow. It introduces a high frequency, high voltage, ultra low current to the object being photographed. This influx of electrical energy amplifies as it travels through the object and makes visible the biological and energetic exchange (Cope, 1980).

## USES

There are electromagnets that require professional administrations. Commercially available magnets exist in the form of wraps, belts, mattresses, and jewelry for the public for self-help treatments. Many people purchase

magnets in stores or over the Internet to use on their own without consulting a health care provider. A 1999 survey indicated that the permanent magnet was the second most frequently used complementary and alternative medicine (CAM) therapy by arthritis patients (Rao et al., 1999). Table 16.2 lists conditions in which magnets have been used for treatment.

## Health Conditions Treated With Magnetic Therapy

### *Pain*

Although articles and books contain testimonials to support the efficacy of magnets on pain, there are only a few studies to support its use. Vallbona and colleagues (1997) reported that a single 45-minute treatment with 300 to 500 G bipolar magnets significantly reduced chronic pain in 50 postpoliomyelitis patients. Weintraub (1999) reported that magnetic foot insoles might be an effective way of relieving the pain of diabetic feet. However, a similar study (Caselli, Clark, Lazarus, Velez, & Venegas, 1997) showed that the placebo group reported better pain improvement in the heel (60%) than the subjects with magnetic insoles (58%). Brown, Parker, Ling, and Wan (2000) found that a majority of female patients with chronic refractory pelvic pain reported a 50% reduction in pain ratings after 4 weeks of treatment with pulsating magnets. Likewise, findings from a recent study on chronic knee pain indicated pain ratings, functional ratings, and gait speed improved significantly more in a magnet group than in a placebo group (Hinman, Ford, & Heyl, 2002). In a report of a pilot study, bipolar permanent magnets had no

**TABLE 16.2** Conditions and Populations in Which Magnets Have Been Used

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Bone and Wound Healing (Saltzman, Lightfoot, & Amendola, 2004; Szor & Topp, 1998)
Cancer (Raylman, Clavo, & Wahl, 1996)
Depression (George et al., 1999)
Improve Balance (Suomi & Koceja, 2001)
Inflammatory Disorders (Johnson, Waite, & Nindl, 2004; Wolsko et al., 2004)
Muscle Injury (Borsa & Liggett, 1998)
Neurological Disorder (Richards et al., 1997; Sandyk, 1999)
Pain (Hinman et al., 2002; Vallbona et al., 1997)
Growth in Pre-term Infants (Cody & Moran, 1999)

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effect on subjects with chronic low back pain (Collacott, Zimmerman, White, & Rindone, 2000).

### *Inflammatory Disorder*

Alfano and associates (2001) reported a significant decrease in pain and tender points and an increase in functional status in patients with fibromyalgia who had magnet therapy versus placebo and control groups. The study also found that unipolar mattress pads were more effective in reducing pain than bipolar pads. Colbert, Markov, Banerji, and Pilla (1999) also found significant improvement in pain and physical function in patients with fibromyalgia who slept for a 4-month period on a mattress pad containing 1100 G unidirectional magnets.

Wolsko and colleagues (2004) reported that magnets were significantly more effective in relieving knee pain in osteoarthritis patients in a treatment group than in those in a placebo group. In another study a significant decrease in pain, tenderness, and joint swelling was reported, along with improvements in the rheumatologist's global assessment of the disease activity in patients with osteoarthritis (Segal, Huston, Fuchs, Holcomb, & McLean, 1999). Although results of these studies are promising, their number is limited, and thus so are the generalizations that can be made about their use in improving inflammatory symptoms.

### *Wound/Bone Healing*

Clinical tests have proven that pulsed electromagnetic field therapy will "jump-start" bone repair. Medical research has revealed that magnetic fields can activate a healing process even in patients who have suffered for as long as 40 years (Bassett, 1995). Because clinical trials have reported the absence of side effects, pulsating electromagnetic therapy for fracture "non-unions" was granted the "safe and effective" classification by the Food and Drug Administration (FDA) in 1979 (Horowitz, 2000). A case report of a chronic non-healing wound showed that the wound was healed 1 month after the application of magnet therapy over the wound dressing (Szor & Topp, 1998). A review article on PEMF in the treatment of bone fracture reported a success rate of 81% in bone healing among patients with ununited fractures (Bassett, 1995). However, a recent report indicated that PEMF, immobilization, and limited weightbearing did not promote healing in 19 post foot and ankle arthrodesis patients (Saltzman et al., 2004). More research is needed to support the use of magnet therapy in wound and bone healing.

## Precautions

There are some precautions regarding the placement of magnets. Magnets should not be placed over (1) the heart as it may cause arrhythmia, (2) the carotid artery as it may cause lightheadedness and dizziness, (3) the stomach within 60 minutes after a meal as it may interfere with the normal contraction of the digestive tract, (4) any open wounds with active bleeding, or (5) any transdermal drug delivery system or patch as it may increase the amount of drug circulating in the body (Magnetic Field Therapy, 2003). Magnets should not be used with pregnant women or people with pacemakers or defibrillating regulators. Strong magnets are not recommended for small children.

## RESEARCH QUESTIONS

Claims of magnet therapies vary greatly from promoting wound healing to growth of pre-term infants. However, findings from Western research are inconclusive. These findings could be attributed to the subjective nature of many of the outcome measures used, the inability to control the etiology and severity of the pathological condition, and variation in the types of magnets and treatment parameters. Furthermore, conducting controlled, scientific experiments on permanent magnet therapy is challenging because participants can notice if a metal device is magnetized or not. However, as there is little evidence that the application of magnets is harmful, it is reasonable to encourage the practice if a patient experiences symptom relief from their use, especially if they can reduce the patient's consumption of drugs. Continued efforts are needed to enhance our knowledge about the use of magnet therapy. Questions for further knowledge development include:

1. Why do magnets appear to be ineffective for some people?
2. What are the long-term effects of the use of magnets?
3. Which research methods are best for studying permanent magnet therapies?

## WEB SITES

Advanced Magnetic Research Institute: [www.amripa.com/](http://www.amripa.com/)  
Biomagnetic Therapy; The science and history of using magnets to improve health:  
<http://biomagnetictherapy.webwise-media.com/>  
Biomagnetic Therapy Association: [www.biomagnetic.org/](http://www.biomagnetic.org/)

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## CHAPTER 17

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# Healing Touch

Alexa W. Umbreit

All cultures, both ancient and modern, have developed some form of touch therapy as part of their desire to heal and care for one another. The oldest written evidence of the use of touch to enhance healing comes from China more than 5,000 years ago (Dossey, Keegan, Guzzetta, & Kolkmeier, 1995; Hover-Kramer, Mentgen, & Scandrett-Hibdon, 1996; Krieger, 1979). This therapeutic use of the hands has been passed on from generation to generation as a tool for healing. However, there have been philosophical and cultural differences that have influenced the way touch has been used throughout the world. The Eastern viewpoint has based its touch healing practices on energy channels (called meridians), energy fields (auras), and energy centers (chakras). Expert practitioners in energetic touch therapies use their hands to influence this flow of energy to promote balance and healing. The Western viewpoint focuses on physiological changes that occur at the cellular level from touch therapies that are believed to influence healing. A blending of both Eastern and Western techniques has led to an explosion of a wide variety of touch therapies (Dossey et al.). Nursing has used touch throughout its history and today's nurses are integrating many touch techniques into their practice. One of these therapies is Healing Touch, which now has more than 80,000 participants who have been trained during the past 15 years.

## DEFINITION

Healing Touch (HT) is a type of complementary therapy that uses gentle energy-based techniques to influence and support the human energy system within the body (energy centers) and surrounding the body (energy fields) (Healing Touch International, 2005). Based on a holistic view of health and illness, HT focuses on creating an energetic balance of the whole body at the physical, emotional, mental, and spiritual levels rather than on a dysfunctional part. Through this process of balancing the energy system and therefore opening up energy blockages, an environment is created that is conducive to self-healing. Through the interaction of the energy fields between practitioner and client, the use of the HT practitioner's hands, an intention focusing on the client's highest good, and a centering process, non-invasive HT techniques specific for the client's needs are used to create this energetic balance (Umbreit, 2000). Krieger (1979) describes the centering process as a meditation in which one eliminates all distractions and concentrates on that place of quietude within which one can feel truly integrated, unified, and focused. Finding this "place of quietude within" is achieved by many through deep belly breathing, prayer, meditation, or any other technique that slows one down, calms the mind, and accesses a deeper spirit of compassion and strength. To be centered is to be fully present with another person or situation, with heart and mind, deeper feelings, and thoughts. The centered state of mind is maintained throughout the HT treatment.

Umbreit (2000) describes the role of the HT practitioner as observation, assessment, and repatterning of the client's energy field because it is disrupted when there is disease, illness, psychological stressors, and pain. Practitioners describe these disruptions in the energy field as blockages, leaks, imbalances, or congestion. The goal of the HT practitioner is to open up these blockages, seal the leaks, rebalance the energy field to symmetry, and release congestion.

The HT program, started in 1989 and endorsed by the American Holistic Nurses' Association, involves a formal educational program that teaches techniques including interventions described by Brugh Joy (1979), concepts presented by Rosalyn Bruyere (1989) and Barbara Brennan (1986), and original techniques developed by the founder of the healing touch program, Janet Mentgen, and her students (Scandrett-Hibdon, 1996). The six-level HT educational program in energy-based practice moves from beginning to advanced practice, certification, and instructor level. Advanced practice requires at least 105 hours of workshop instruction plus a 1-year course of study, as well as work in case studies, mentoring, ethics, client-practitioner relationships, establishment of a

practice, and integration of activities within the health community (Healing Touch International, 2005). After this, students may apply for certification. Instructor status requires more education and mentoring. The HT course work is open to nurses, physicians, body therapists, counselors, psychotherapists, other health care professionals, and individuals desiring an in-depth understanding and practice of healing work using energy based concepts (Mentgen, 2003). Six thousand HT workshops have been taught over the past 15 years.

## SCIENTIFIC BASIS

Nursing has long described the profession as dedicated to the art and science of human caring. Rogers (1990) and Watson (1985) have written extensively about caring as a central quality of the nursing profession, along with nursing's concern for the promotion of health and well-being, taking into account the individual's constant interaction with the environment. It was this concern that led nurse theorist Rogers to develop her concepts of the nature of individuals as energy fields in constant interplay with the surrounding environment (Hover-Kramer et al., 1996). The most concentrated part of the energy field is the physical body, but it also extends beyond the level of the skin, imperceptible to the untrained senses (Wright, 1987). Simply stated, Rogers' theoretical framework emphasizes that every living thing is composed of energy, and that living things are continually, simultaneously, and mutually exchanging energy with each other, striving toward the goal of balance and universal order (Sayre-Adams, 1994). Using the hands, intention, and centering, the HT practitioner assesses the client's energy field and helps direct it to a more open, symmetrical pattern that enhances the client's ability to self-heal. Results of scientific studies on energy-based healing, as initially researched in therapeutic touch, indicate that healers can interact with energy fields even without actually touching the client (Fedoruk, 1984; Keller & Bzdek, 1986; Quinn, 1984; Wirth, Richardson, Eidelman, & O'Malley, 1993). These findings support Rogers' concept that humans and environment are energy fields constantly interacting (Miller, 1979). However, it is still not clear how the energy of a practitioner balances the energy patterns of a recipient or how recipients utilize the energy to enhance their self-healing processes (Egan, 1998), but the effect of energy-based healing interactions are measurable and significant (Hover-Kramer, 2002). The fields of physics, engineering, biology, and physiology continue to research this area of energy exchange in an attempt to explain what occurs during an energetic interaction (Forbes, Rust, & Becker, 2004; Oschman,

2000; Stouffer, Kaiser, Pitman, & Rolf, 1998). Oschman reports that various energy therapies (including complementary therapies and those approved by current medical practice) actually stimulate tissue healing by the production of pulsating magnetic fields that induce currents to flow within the body's tissue. A superconducting quantum interference device (SQUID) has been used for more than 20 years to measure these biomagnetic fields emanating from the hands of energy field practitioners who use therapeutic touch, qi gong, yoga, and meditation. Motoyama (1997), a Japanese physicist, has developed electrode devices that measure the human bioelectrical field at different distances from the body (Hover-Kramer, 2002). Infrared energy (heat) and other forms of energy yet unnamed from the interaction of energy fields between practitioner and client may also affect the healing process.

This concept of energy systems as part of the human interactive environment and healing has been part of many cultures for centuries. Ancient East Indian traditions speak of a universal energy (prana) that flows and activates the life force (kundalini) (Hover-Kramer et al., 1996). In China, Japan, and Thailand, the basic life energy is called chi, qi, or ki. The Egyptians called it ankh and the Polynesians refer to it as mana. Multiple other cultures throughout the world have equivalent terms for describing human energies (Hover-Kramer, 2002). The belief is that an imbalance in this energy force can result in illness.

It is unknown precisely how symptoms are managed by HT interventions. What have been observed are changes in outcomes being measured in the nursing research. It may be postulated that because energy fields are in constant interaction within and outside the physical body, internal mechanisms are stimulated by this movement of energy (Umbreit, 2000). Studies specific to HT interventions and biological markers are limited by weak findings (Merritt, 1998; Stouffer, Duennes, & Pitman, 2000; Wilkinson, 2002; Wilkinson et al., 2002), due to the fact that HT research is in the early stages of development. However, over the past 30 years, most published studies of touch energy therapies have focused on the therapeutic touch technique in which changes in some internal mechanisms have been observed (Krieger, 1976; Krieger, Peper, & Ancoli, 1979; Olson, Sneed, Bonadonna, Ratliff, & Dias, 1992; Quinn & Strelkauskas, 1993; Wirth, Chang, Eidelman, & Paxton, 1996; Wirth et al., 1993), indicating that physiologic changes at the cellular level can be affected by working with the body's energy fields. Studies specific to other HT interventions and physiological changes are currently in process (Healing Touch International, Inc., 2004).

What has been reported in the HT literature is managing the symptoms of pain and anxiety; decreasing the side effects of cancer treatments;

promoting faster post-procedural recovery; improving mental health; using HT with the elderly to improve pain, appetite, sleep, behavior patterns, and functional abilities; increasing relaxation; and promoting a sense of well-being (Bulbrook, 2000; Cook, Guerrerio, & Slater, 2004; Geddes, 2002; Healing Touch International, Inc., 2004; Hutchison, 1999; Krucoff et al., 2001; Post-White et al., 2003; Scandrett-Hibdon, Hardy, & Mentgen, 1999; Silva, 1996; Umbreit, 1997, 2000; Wardell, 2000; Wardell & Weymouth, 2004; Wilkinson et al., 2002). In pediatrics, two small research studies have been completed (Speel, 2002; Verret, 2000) and four more are in progress (Healing Touch International, Inc., 2004) that examine various outcomes. As of May 2004, there were 63 completed HT studies and 25 in progress (Healing Touch International, Inc., 2004).

Umbreit (2000) proposed a model of how HT may promote positive changes in symptoms (Figure 17.1). A trained HT practitioner moves and repatterns a client's energy field, promoting a more open and symmetric pattern to enhance the client's perceived sense of well-being. This movement of energy may stimulate physiological, neurochemical, and psychological changes that promote positive impacts on pain, anxiety, wound healing, immune system function, depression, and sense of well-being.

## INTERVENTION

### Techniques

Nearly 30 HT techniques are taught in the HT program, from the simple to the complex. The HT practitioner determines which to use after an assessment of the client's expressed needs, symptoms presented, and results of an energy field hand scan. They range from localized to full-body techniques. Table 17.1 lists several basic techniques, including indications and brief descriptions of the procedures. These techniques, which treat a wide range of client symptoms, should be practiced in a supervised setting with an instructor before working with a client.

Most of the HT techniques involve two basic types of hand gestures (called magnetic passes) that are described in terms of hands in motion or hands still (Mentgen, 2003). In the hands in motion gestures, the hands make gentle brushing or combing motions, usually downward and outward, in order to remove congested energy from the field. The hands remain relaxed, palms facing downward toward the patient, between one to six inches above the skin or clothing. The hand strokes may be slow and sweeping or short and rapid. In the hands still position, the practitioner holds his or her hands over an area of the client's body for one

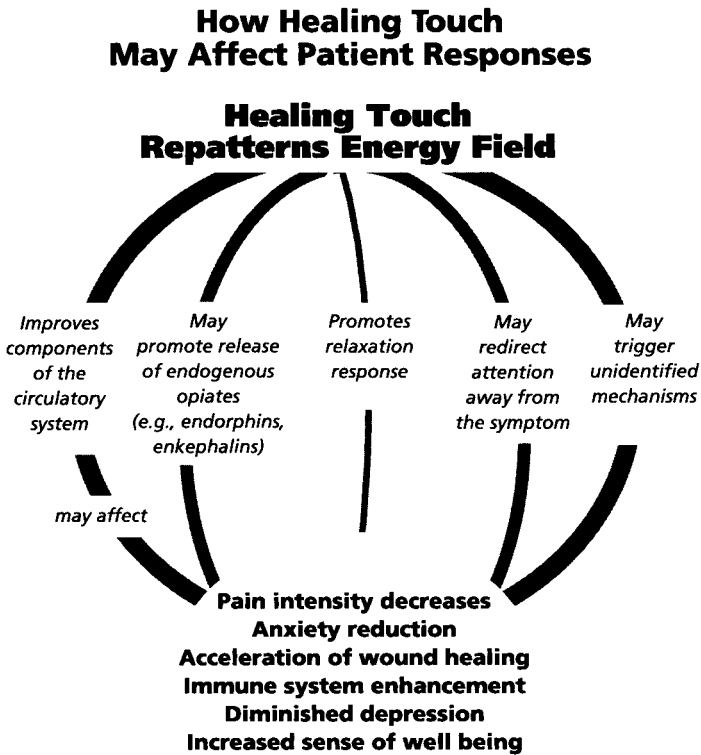


FIGURE 17.1 How healing touch may affect patient responses.

*Note:* From “Healing Touch: Applications in the Acute Care Setting,” by A. Umbreit, 2000, *AACN Clinical Issues*, 11(1), 107. Copyright 2000 by A. Umbreit. Reprinted with permission.

to several minutes, either lightly touching or just above the skin. The practitioner uses intent to facilitate a transfer of energy to the specific body part of the client from a “universal source” of energy, with the practitioner as the conduit of this energy.

Although several of the HT techniques can be done in a seated position, most are done while the client is lying down in the most relaxed state possible, in order to promote a more profound effect. The practitioner briefly describes HT and what he or she plans to do, invites the client to ask any questions at any time, and receives permission to do the treatment and to touch the client.

## Measurement of Outcomes

Measurement of HT outcomes have included patient satisfaction; anxiety

**TABLE 17.1** Basic Healing Touch Techniques (Hover-Kramer, 2002; Mentgen, 2003)

Note: Each technique begins with determining the client's specific need for HT and obtaining client permission. This is followed by centering oneself, physically and psychologically, setting the intention for the client's highest good. Each technique ends with evaluating the client's experience and asking for feedback.

	Indications:	Brief Description of Procedure:
<b>Full Body Techniques</b>		
Basic Healing Touch (HT) Sequence	Promote relaxation Reduce pain Lower anxiety, tension, stress Facilitate wound healing Promote restoration of the body Promote a sense of well-being	<ol style="list-style-type: none"> <li>1. Assess client's energy field with a hand scan over the body</li> <li>2. Use magnetic passes in client's energy field (hands in motion and/or hands still) to move congestion and density from the field</li> <li>3. Re-assess client's energy field with hand scan to determine effects of intervention</li> <li>4. Ground the client to the present moment and to feel connection to the earth</li> </ol>
Magnetic Clearing	Clear the body's energy field of congestion and emotional debris Used for: history of drug use, post-anesthesia, chronic pain, trauma, systemic disease, after breathing polluted air, history of smoking, environmental sensitivities, emotional clearing and release of unresolved feelings (e.g., anger, fear, worry, tension)	<ol style="list-style-type: none"> <li>1. Assess client's energy field with a hand scan over the body</li> <li>2. Place hands 12 inches above the top of client's head with fingers spread, relaxed and curled, thumbs touching or close together</li> <li>3. Move hands very slowly in long continuous raking motions over the body from above the head to off the toes, one to six inches above the body, each sweep taking about 30 seconds (work the middle of the body first, followed by each side)</li> </ol>

(continued)



TABLE 17.1 (continued)

		Indications:	Brief Description of Procedure:
			4. Procedure is repeated 30 times and takes about 15 minutes
			5. Re-assess client's energy field with hand scan to determine effects of intervention
Chakra Connection (Joy, 1979)	Connect, open, and balance the energy centers (chakras), enhancing the flow of energy throughout the body		6. Ground the client to the present moment and to feel connection to the earth
			1. Assess client's energy field with a hand scan over the body
			2. Place hands on or over the minor energy centers (chakras) on the extremities and the major energy centers (chakras) on the trunk in a defined sequential manner, holding each area for at least 1 minute
			3. Reassess client's energy field with hand scan to determine effects of intervention
			4. Ground the client to the present moment and to feel connection to the earth
Chakra Spread	Open the energy centers (chakras) producing a deep clearing of energy blocks Used for: severe pain, pre- and post-medical procedures/surgery, severe stress reactions, the terminally ill, and assisting a client who has chosen to enter a profound spiritual state		1. Assess client's energy field with a hand scan over the body
			2. Hold the client's feet, then hands, one by one in a gentle embrace for at least 1 minute
			3. Place hands (palms up) above each energy center (chakra), moving the hands slowly downward toward the chakra, then spreading the hands out-

TABLE 17.1 (continued)

Indications:	Brief Description of Procedure:
<b>Localized Techniques</b>	<p>ward as far as possible; motion is repeated three times for each energy center, moving from the upper to the lower chakras</p> <ol style="list-style-type: none"> <li>4. Repeat entire sequence two more times</li> <li>5. Re-assess client's energy field with hand scan to determine effects of intervention</li> <li>6. End treatment with holding the client's hand and heart center (procedure is done in silence and takes 10–15 minutes; is used very carefully by experienced practitioners for special needs and sacred moments in healing)</li> </ol>
Energetic Ultrasound	<p>Break up congestion, energy patterns, and blockages</p> <p>Relieve pain</p> <p>Assist in stopping internal bleeding, sealing lacerations, healing fractures, and joint injuries</p> <ol style="list-style-type: none"> <li>1. Hand scan client's localized area to assess energy field</li> <li>2. Hold the thumb, first, and second fingers together, directing energy from the palm down the fingers</li> <li>3. Imagine a beam of light coming from the fingers of one hand into the client's body</li> <li>4. Place opposite hand behind the body part being worked on</li> <li>5. Move the hand in any direction over the affected part continuously moving for 3–5 minutes</li> <li>6. Repeat hand scan to determine effect of intervention</li> </ol>

(continued)

TABLE 17.1 (continued)

	Indications:	Brief Description of Procedure:
Energetic Laser	Cuts, seals, and breaks up congestion in the energy field Relieves pain	<ol style="list-style-type: none"> <li>1. Hand scan client's localized area to assess energy field</li> <li>2. Hold one or more fingers still and pointed toward the problem area</li> <li>3. Use for a few seconds to a minute</li> <li>4. Repeat hand scan to determine effect of intervention</li> </ol>
Mind Clearing	Promotes relaxation and focusing of the mind	<ol style="list-style-type: none"> <li>1. Hold fingertips or palms on designated parts of the neck and head, holding each part 1–3 minutes</li> <li>2. Gently massage mandibular joint</li> <li>3. End with light sweeping touches across the forehead and cheeks three times, and a gentle hold around the jaw</li> </ol>
Pain Drain	Eases pain or energy congestion	<ol style="list-style-type: none"> <li>1. Place left hand on area of pain or energy congestion and right hand downward away from body</li> <li>2. Siphon off congested energy from painful area through left hand and out right hand</li> <li>3. Place right hand on painful or congested area and place left hand upward in the air to bring in healing energy from the universal energy field (each position is generally held for 3–5 minutes)</li> </ol>

TABLE 17.1 (continued)

	Indications:	Brief Description of Procedure:
Wound Sealing	Repairs energy field leaks that occur from the physical body experiencing trauma, incisions, or childbirth	<ol style="list-style-type: none"> <li>1. Hand scan body above a scar or injury to determine if any leaks of energy are felt coming from the site (may feel like a column of cool air)</li> <li>2. Move hands over the area gathering energy</li> <li>3. Bring gathered energy down to the client's skin over the injury and hold for a minute with hands</li> <li>4. Re-scan the area to determine that the energy field feels evenly symmetrical over the entire body</li> </ol>

pain reduction; improved sense of well-being; decrease in depression; positive changes in blood pressure, blood glucose, and salivary immunoglobulinA; decreased length of hospitalization and adverse periprocedural outcomes after cardiac procedures; diminished agitation levels in dementia patients; improved behaviors in Alzheimer's patients; and improved functional status for patients with mobility issues. Studies currently in progress are also examining cellular immune function and cancer treatment side effects comparing those who receive HT and those who do not; interpersonal connectedness, emotional well-being, functional quality of life, and sense of meaning between elders giving and receiving HT; cost effectiveness outcomes; and stress recovery in a neonatal intensive care unit. Until a reliable and easily available tool is developed to measure changes in the energy system, objective measuring of changes in the flow of an energy field is not possible. Practitioners do report a change in clients' energy field that they perceive through the use of their senses, most commonly through touch.

Outcomes measured must reflect the specific client need and presenting symptoms, and the particular HT technique used to treat. Tools that have been used to measure client outcomes have included measuring patient satisfaction and well-being using Likert-type scale responses; the Spielberger State/Trait Anxiety Inventory, Profile of Mood States, or an

Anxiety Visual Analog Scale; a Pain Visual Analog Scale, the McGill-Melzack Pain Questionnaire, or the Chronic Pain Experience Instrument; Beck's Depression Inventory; cardiovascular variables (heart rate, systolic/diastolic blood pressure, and mean arterial blood pressure); oxygenation variables (pH, CO<sub>2</sub>, PO<sub>2</sub>, and HCO<sub>3</sub>); Recovery Index; goniometer readings; length of stay; Functional Behavioral Profile; the Cohen-Mansfield Agitation Inventory; Ashworth Scale for grading spasticity; the HELP Strands or Preschooler for assessing gross motor skills; SF-36 to measure health related quality of life; and immunoglobulin concentrations pre- and post-treatments.

It is difficult to determine whether the outcome of the HT intervention is solely due to the treatment or to other factors. The effect of the practitioner's presence has always been considered a confounding variable affecting client outcome, but this is also true in many nursing interventions.

## Precautions

Precautions to be aware of when using HT techniques include the following:

- The energy field of infants, children, older people, the extremely ill, and the dying are sensitive to energy work, so treatments should be gentle and time limited.
- Gentle energy treatments are also required for pregnant women because the energy field also includes the fetus.
- Energy work with a cancer patient should be focused on balancing the whole field rather than concentrating on a particular area.
- The effect of medications and chemicals in the body may be enhanced with energy work so one must be alert to the possibility of side effects and sensitivity reactions to these substances.

It is recommended that experienced practitioners work with clients in the above situations. However, in order to help develop a knowledgeable practice, a student or an apprentice in HT can provide treatments in these situations if supervised by a mentor (Umbreit, 2000). Healing Touch is not considered a curative treatment and must always be used in conjunction with conventional medical care. However, practitioners and clients have reported that clients have experienced a sense of healing at a more holistic level of mind, body, and spirit, even if a cure is not possible.

Umbreit (2000) reports anecdotal comments from clients that include: “I feel wonderful,” “relaxed,” “peaceful,” “in a meditative state,” “warm,” “soothed,” “safe,” “reassured,” “more balanced,” “mellow,” “happier with life,” “as if all my tension was melting,” and a “sense of inner peace.” Because HT is a noninvasive intervention, these clients’ responses have enormous implications for improving quality of life in their striving toward wellness.

## USES

Healing Touch interventions have been used on all age groups from the neonate to the elderly. Besides the general curriculum for learning HT, there are also classes available for specifically working with infants. Healing Touch has been taught in 21 countries in North, Central, and South America; Europe; Africa; Australia; and New Zealand, with more countries continuing to request HT education each year. In addition, HT is being utilized within diverse health care facilities: tertiary care, community hospitals, hospices, medical clinics, and long-term care. Models of delivering services range from volunteer to staff-provided programs. There are also well-established community service models that provide support for individuals with cancer while they are receiving conventional medical treatment (L. Anselme, personal communication, January 13, 2005). Healing Touch interventions have been supported by a limited number of rigorous research studies, with the majority of reports from anecdotal stories in a variety of clinical situations in all age groups and states of illness or wellness (Bulbrook, 2000; Hover-Kramer, 2002; Scandrett-Hibdon et al., 1999; Umbreit, 1997, 2000) and from studies that unfortunately were missing some vital information, which led to problems with both internal and external validity (Wardell & Weymouth, 2004). Healing Touch studies have shown positive results in the following clinical situations:

- Reduction of anxiety and stress
- Promotion of relaxation
- Reduction in acute and chronic pain
- Acceleration of postoperative recovery
- Aid in preparation for medical treatments and procedures
- Improvement of cancer treatment side effects
- Reduction in symptoms of depression

- Promotion of a sense of well-being
- Reduction in agitation levels
- Improvement in quality of life physically, emotionally, relationally, and spiritually

Table 17.2 lists several research studies that have supported the use of HT interventions in some of these clinical situations over the past 10 years. Many studies are not published in medical, nursing, or psychology

**TABLE 17.2** Research Studies Using Healing Touch Interventions (1996–2004)

Uses	Selected sources
Anxiety/stress reduction	Dubrey (1997); Gehlhaart & Dail (2000); Guevara, Menidas, & Silva (2002); Taylor (2001); Wilkinson et al. (2002)
Promotion of relaxation/relief of spasticity in pediatric populations	Speel (2002); Verret (2000)
Acute and chronic pain reduction	Cordes, Proffitt, & Roth (1997); Darbonne & Fontenot (1997); Diener (2001); Merritt & Randall (1998); Peck (2001); Protzman (1999); Slater (1996); Wardell (2000); Welcher & Kish (2001); Weymouth & Sandberg-Lewis (2000)
Acceleration of postoperative recovery	Arom & MacIntyre (2002); Silva (1996)
Aid in medical procedures/treatments	Norris (2000)
Improvement of cancer treatment side effects	Cook et al. (2004); Post-White et al. (2003)
Diminished depression	Bradway (1998); Van Aken (2003)
Agitation level reduction/functional behavior improvement in elders	Ostuni & Pietro (1999); Wang & Hermann (1999)
Quality of life improvement: physically, emotionally, relationally, spiritually	Geddes (1999); Wardell (1999)

journals, but information can be accessed through Healing Touch International's research department ([www.healingtouch.net/research/index.shtml](http://www.healingtouch.net/research/index.shtml)). The research continues to be controversial because the exact mechanism of action cannot be seen or easily explained in our Western view of what constitutes sound scientific research, and few double-blind studies have been done in this area.

## FUTURE RESEARCH

Research studies and anecdotal cases in HT offer promising, yet certainly not conclusive, data on the positive outcomes from this complementary therapy. Qualitative responses from clients have been especially important in helping guide the direction of the research and may provide insight into the phenomenon of energy exchange in the future. Some of the problems encountered in nursing research include insufficient funding to support the work, multiple variables that are hard to control in a clinical setting versus a laboratory setting, and the use of small sample sizes that can be easily affected by highly variable data and sampling error. There is the additional difficulty of testing the efficacy of an energy-based therapy in which the energy exchange between practitioner and client cannot be seen by most but is only observed as subjective responses from clients. The whole conceptual framework of energy fields and energy exchange does not fit the cause-effect model that Western science is focused on. Rogers' theory (1990) speaks about energy changing, exchanging, and patterning, one moment in time never replicating itself. The focus is on nature's restoring universal order and balance, and restoring energy balance is the goal of HT. This is a huge area of research that obviously will require a multidisciplinary effort by Western and Eastern medicine, quantum physics, biology, psychology, philosophy, spirituality, and nursing. Outcome studies, as well as studies of mechanism, will help support the development and understanding of the phenomenon of energy exchange. As shown in Figure 17.1, there are mediating factors that may contribute to decreases in pain intensity, anxiety reduction, acceleration of healing, immune system enhancement, diminished depression, and increased sense of well-being. More studies that measure some of these mediating mechanisms are recommended.

The choice of a valid instrument for measuring outcomes is critical in HT studies. Results can be skewed in either direction if the instrument is not reliable. However, in order to obtain subject cooperation when working with persons who are ill, the measuring instrument must be easy to use and not burdensome to patients who are already facing difficulties.



Other challenges to be controlled in conducting HT research studies include the experience of the HT practitioner, the presence phenomenon of the caregiver, the type of HT treatment modality chosen, the length and number of treatments, when the treatment is done, and when measurements are done. There is a wide range of skill levels of HT practitioners from novice to certified practitioner and comparable skill level is important in planning a research study. The phenomenon of presence of the HT practitioner may also affect the outcome of the research and needs to be controlled in the study design. Because there are many HT interventions that can be used, a research study would need to be consistent in the type of chosen therapy. The challenge with length and number of treatments is that under normal circumstances, a HT intervention is not used for a prescribed length of time or number of treatments. The practitioner does the work until he or she intuitively feels that it is time to stop or that no more treatments are needed. Research could restrict this professional decision-making process. Choosing when to give a HT treatment and when to measure outcomes and ascertaining how long the outcome may last continue to be challenging. Experienced HT practitioners must have input into determining these time lines by observing patterns they may typically see in their own professional practice.

The next steps for research must build upon the small studies already completed. Replication of studies would help strengthen the validity of HT. The following are questions related to specific areas to build upon:

1. Is HT equally effective in acute versus chronic pain? How long and how often do treatments need to be for the client to report a decrease in pain? How long does this improvement last?
2. How is postoperative recovery affected by administering HT (pain relief, wound healing, restoring of bowel function, ease of physical activity, length of stay in the hospital)?
3. Does HT have a positive effect on degenerative diseases such as arthritis, multiple sclerosis, fibromyalgia, stroke, immune deficiency disorders, and chronic lung conditions?
4. Does HT assist in managing the side effects of treatments in cancer patients?
5. What are the psychological and spiritual benefits reported by HT recipients?
6. What tools are effective in measuring a change in energy in the recipient before and after HT or an exchange of energy between practitioner and recipient?
7. Does HT reduce medical costs for pharmaceuticals, hospital stays, and clinic time?

In the quest to examine the impact of HT scientifically, we must not be too quick to dismiss the overwhelming positive client feedback from its clinical application. Creativity is necessary in conducting research of this phenomenon that cannot be seen by the naked eye, but is so often felt by the human spirit.

## WEB RESOURCES

For more information on healing touch:

Healing Touch International: [www.healingtouch.net](http://www.healingtouch.net)

Colorado Center for Healing Touch: [www.healingtouch.net](http://www.healingtouch.net)

American Holistic Nurses Association (AHNA): [www.ahna.org](http://www.ahna.org)

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## CHAPTER 18

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# Therapeutic Touch

Janet F. Quinn

Therapeutic Touch was developed from the laying-on of hands by Dora Kunz, a gifted healer, and Dolores Krieger, Ph.D., R.N. In 1979 Krieger outlined the steps of the practice in her first book (Krieger, 1979). She introduced the method to students in the graduate nursing program at New York University in the early 1970s in a course called “Frontiers of Nursing,” which continues today. Krieger estimates that, as of 1990, “Therapeutic Touch has also been taught in more than eighty colleges and universities in the United States as well as in innumerable hospital and health facility in-service and continuing education programs. In addition, Therapeutic Touch has been taught in sixty-eight countries” (Krieger, 1993, p. 5).

### DEFINITION

Therapeutic Touch (TT) is the use of the hands on or near the body with the intention to help or to heal. It is a contemporary intervention that is different from the laying-on of hands in several key ways. Perhaps most notable of these differences is that Therapeutic Touch need not take place within a religious or spiritual framework. It is seen as a natural human potential that can be actualized by anyone who has the intention to heal

and makes the commitment to learning and practicing. Therapeutic Touch has as its focus the facilitation and acceleration of the natural healing potential within all living systems.

## SCIENTIFIC BASIS

Therapeutic Touch is founded on three basic assumptions:

1. Human beings are energy fields and open systems.
2. Illness is an imbalance in energy flow and/or pattern.
3. Trained practitioners can perceive and intervene in the recipient's energy field to stimulate the recipient's own natural healing potential.

1. *Human beings are energy fields.* When Kunz and Krieger developed Therapeutic Touch, they called on understandings gained from knowledge of Eastern thought to explain both the method and its effects. Prana, the vital life force energy identified in Indian philosophy and healing systems, is posited to be the energy that surrounds and pervades every living system. According to Krieger, it is this prana that is directed and modulated by the healer for the healee (Krieger, 1973, 1979, 1993). Other theorists have further developed Krieger's original hypothesis by applying the theoretical framework postulated by Rogers. In her "Nursing: Science of Unitary Human Beings," Rogers (1990) defines people as irreducible, indivisible, multidimensional energy fields integral with the environmental energy field. In earlier conceptualizations of TT within this framework, the theory that there was an energy transfer or exchange between the practitioner and the recipient was a primary explanatory model (Heidt, 1981; Keller & Bzdek, 1986; Quinn, 1984) deriving from Rogers' conceptual system and consistent with theoretical explanations offered by earlier researchers (Grad, 1963, 1964, 1965; Grad, Cadoret, & Paul, 1961; Smith, 1972). More recently, it has been postulated that the Therapeutic Touch practitioner, knowingly participating in the mutual human/environment process by shifting consciousness into a state that may be thought of as a "healing meditation" (Krieger, Peper, & Ancoli, 1979), facilitates repatterning of the recipient's energy field through a process of resonance, rather than "energy exchange or transfer" (Cowling, 1990; Quinn, 1992).

Therapeutic Touch practitioners believe that human beings are energy fields; they also believe that people are open systems. Because neither practitioners nor recipients stop at their skin, the Therapeutic Touch



exchange may occur with no physical contact at all, or with a mix of physical contact and no physical contact. This becomes most relevant when actual physical contact between practitioner and recipient is undesirable for either medical or sociocultural reasons.

2. *Illness is an imbalance in energy flow and/or pattern.* When there is illness or other dysfunction in the body-mind-spirit, there is a corresponding imbalance in the energy field. In the case of disease, the assumption is that a shift in the energy field probably preceded the onset of physical symptoms and clinical evidence of the disease. This assumption is consistent with current scientific theories concerning the relationship between the state of the resistance of the host when exposed to pathogens and the onset of disease. In an energetic framework, one assumes that there are patterns or flows of energy that are more, or less, consistent with health and that therefore provide greater, or lesser, resistance to disease.

3. *Trained practitioners can perceive and intervene in the recipient's energy field to stimulate the recipient's own natural healing potential.* Through the process of turning one's attention inward and becoming quiet, relaxed, and focused, one can begin to get a sense of the human energy field of another. The energy field is always there, but we are not always quiet enough and paying close enough attention to notice it. Through practice, TT practitioners can become extremely sensitive to even subtle changes in the field, and through gentle movements of the hands coupled with a very focused intention they can assist in repatterning the field in a direction more conducive to health.

A 1998 study conducted by Therapeutic Touch critics Rosa, Rosa, Sarner, and Barrett, and published in the *Journal of the American Medical Association*, attempted to test the assumption that TT nurses can perceive the human energy field. The authors concluded, using a one-tailed t-test to test their hypothesis, that there was no deviation from chance in nurses' ability to detect a human energy field when a hand was held over their hands out of their vision. Serious design and interpretation flaws are itemized by the skeptics' group to which the authors belong (Selby, 1998). Selby concludes that "the unequivocal conclusion drawn by *JAMA* in its Editor's Note: 'This simple, statistically valid study tests the theoretical basis for Therapeutic Touch: the human energy field. This study found that such a field does not exist . . . ' is simply not so. The work reported in the *JAMA* article does not support that conclusion."

Furthermore, the authors neglected to report that, in fact, there was a significant deviation from what chance would allow, but it was in the opposite direction from their predictions. The nurses performed significantly worse than chance would have predicted. Thus, something other than the nurses' ability to perceive the energy field influenced their perfor-

mance or they would have gotten the correct answer at least as often as chance would allow. The study may represent an instance of negative intentionality, that is, the negative expectations of the investigators and others present that the nurses would fail actually influenced their performance. This would support, rather than refute, the theory that we are open systems interacting with all other energy fields and that intention directed at those interactions may produce effects. Of course, this is a hypothesis requiring further research, along with all three of the basic assumptions presented here.

A better test of human beings' ability to perceive the energy of other human beings is presented by Schwartz, Russek, and Beltran (1995). These authors report on several experiments in which blindfolded subjects were able to correctly guess when another person's hand was held 3 to 4 inches above, palm open and facing, the open palm of one of the (randomly assigned) hands of the subject at a rate statistically greater than chance would allow.

At this time there is no conclusive evidence that is acceptable in the Western scientific tradition that a human energy field exists. As long as Therapeutic Touch practitioners and practitioners of all so-called "energy medicines," including Acupuncture, Homeopathy, Qi Qong, and others, acknowledge this and continue to treat the theory of energy exchange as a working hypothesis, they are well within the bounds of responsible scientific practice. Theories, rather than confirmed facts, regarding the mechanisms by which interventions have effects are the rule, not the exception, across modern medical, pharmaceutical, and nursing practice. The scientific evidence for the efficacy of TT will be discussed in the section on uses.

## INTERVENTION

### Technique

The steps of Therapeutic Touch include centering, assessment of the energy field, clearing and mobilizing the energy field, directing energy for healing, and balancing the energy field. They are described in detail below.

#### *Centering*

The TT assessment of the human energy field is uncomplicated and simple, but developing a deep sensitivity to subtle cues and differences in the field will take practice. To facilitate this sensitivity, and to create the most

healing environment for both practitioner and recipient, the Therapeutic Touch practitioner prepares for the assessment and treatment by centering.

Centering involves a shift from our ordinary state of being into a calm, relaxed, and focused healing presence. It is the turning inward of attention and the making of an intention to help or to heal. The mind is quieted, extraneous thoughts from the past or about the future are temporarily set aside, and the full awareness of the practitioner is brought into the present moment. For this reason, Therapeutic Touch has been called a “healing meditation” (Krieger et al., 1979).

The intention to heal is believed to be the key variable in the efficacy of the treatment. In a randomized, placebo-controlled study, cardiac patients were given a TT treatment by very experienced nurses, and a control group received a mimic sham treatment, provided by nurses with no training in TT. The nurses who were doing the real treatments centered themselves in the moment and made the intention to heal before beginning and during the movement of their hands. The nurses in the sham condition were taught how to mimic the hand movements of the nurses doing real Therapeutic Touch but were doing mental arithmetic while they simply went through the motions, rather than holding the intent to heal. Both groups of nurses were videotaped and the tapes were reviewed by naïve observers. No one could tell the difference in the treatments by the way they looked. In the experimental group, receiving Therapeutic Touch, there was a highly significant decrease in anxiety on posttest. In the mimic group, anxiety didn’t change (Quinn, 1984). This type of control has been used in other Therapeutic Touch research and demonstrates the same phenomenon, namely, that the intention of the practitioner seems to be the critical variable, not the hand movements. This is why centering is the most important step of the process. All of the movements of TT are done within this context of the intention for healing, wholeness, and balance.

### *Assessing*

The goal of the assessment is to gain information about the pattern and flow of energy in the field. During the entire TT session the patient can be seated sideways in an armless chair, so that his or her back is unobstructed. To complete an assessment the practitioner, standing behind the clothed patient, extends the hands over the top of the patient’s head, with palms turned toward the patient, and holds them about 2 to 4 inches above the skin. Maintaining this distance, the hands, held somewhat parallel to each other and palms parallel to the patient’s body, are

moved gently from the top of the head to the level of the hips, while the practitioner mentally notes any areas in which the energy field feels different from the rest of the field. Next, the practitioner moves to the front of the patient and repeats the assessment process from head to toe, again noting areas where the field feels different. Alternatively, the practitioner can assess front and back at the same time, and compare them, by using one hand behind the patient and one hand in front and moving both hands from head to foot simultaneously. Patients can also be assessed while lying in bed or on an exam table.

In the healthy person, the energy field should feel essentially symmetrical from left to right and from top to bottom. There should be a sense of smoothness or evenness and there should not be areas where there is a sharp difference in temperature or rhythm or flow. In illness, there are often areas of the field in which the smoothness is broken, or where there is a sharp change in perceived temperature over the area. In the person with serious systemic illness or depression the assessment may reveal a generalized disturbance over the entire field, such as a weakness, a thickness, a dullness, or a sense of decreased flow or increased temperature. For an excellent discussion of the various perceptions and their meanings as developed by one expert Therapeutic Touch practitioner see Macrae's primer (1988).

### *Clearing and Mobilizing the Energy Field*

Krieger refers to this step as *unruffling* whereas Macrae uses the language employed here. The unruffling or clearing process prepares the field for further treatment and is also an extremely effective method of inducing a profound relaxation response. The practitioner again begins by holding the hands 2 to 4 inches above the body at the top of the head and moves the hands above the body, palms toward the patient, from head to foot in a gently sweeping motion. The intention of the practitioner remains focused on wholeness and balance, imagining that the patient is becoming more and more relaxed and that his or her energy is flowing easily and freely, from head to toe, in a balanced and harmonious way. This process is repeated over the front of the patient's body, ending with the feet. When the practitioner is at the feet, it is useful to gently massage the bottoms of the feet to assist in the outward flow of energy.

### *Directing Energy for Healing*

Using the assessment data as a guide, the practitioner now begins to direct energy with the intention of restoring the imbalances in the field

to order and harmony. The direction of energy is accomplished by placing the hands on or over the area of imbalance and allowing a sense of the healing energy to flow out through the practitioner and toward the patient. If it is useful, the practitioner may hold an image of the desired outcome in mind while directing this energy.

### *Balancing*

The practitioner systematically treats each area of imbalance detected during assessment, as well as new areas uncovered through the clearing process. When the practitioner perceives that the imbalances have been eliminated or that the patient's system has taken as much energy as it can, the treatment ends with a general balancing and grounding process. The balancing consists of an additional head to toe clearing as before, but with the intention of smoothing and balancing the whole field. This process ends with the practitioner touching the feet and imagining the patient as being whole, balanced, and grounded or rooted—steady and strong like a tree with roots deep into the earth.

## **Measurement of Outcomes**

Because the focus of Therapeutic Touch is broader than the cure of physical disease, outcomes of the process are not uniformly predictable. In general, most patients experience Therapeutic Touch as calming, integrating, and balancing. A strong relaxation response, characterized by the usual indicators of this response, is usually seen within minutes of the start of the treatment and deepening over its full course.

The Therapeutic Touch practitioner will be assessing the patient's energy field throughout the treatment. The practitioner is looking for changes in the pattern of the energy field compared to the initial assessment. These changes may be large or small, and may or may not be perceived by the patient. There are also times when the practitioner may assess that, although the pattern of imbalance has not shifted, the treatment is, nevertheless, over; the patient has gotten all that he or she can in this session. The intuitive capacity of the Therapeutic Touch practitioner helps to guide this process.

In addition to the energetic assessment, the Therapeutic Touch practitioner carefully monitors the patient's response throughout, and at the end of the treatment asks for feedback. Patients describe felt changes in their energetic, physical, emotional, and spiritual being. Some patients cannot report their perceptions, but the practitioner can observe them, like the neonate in the NICU who promptly falls asleep during the treat-

ment after crying for an extended period of time, or the combative patient with Alzheimer's disease who becomes quiet and relaxed. Sometimes there is no immediate response, but the patient will experience a decrease in physical symptoms in the 15 to 20 minutes following treatment. Sometimes the change will manifest as a good night's sleep.

When Therapeutic Touch is used over time as a course of therapy, these kinds of changes can be monitored by having the patient keep a treatment journal and reviewing it with the practitioner before each session. Cumulative physical, emotional, and/or spiritual effects may become more obvious as a result. Again, because the focus in Therapeutic Touch is beyond, but including, the physical, changes in attitude, philosophy, and general well-being are all part of the process. These changes can be assessed best in dialogue with the patient over time.

## **Precautions**

The safety of Therapeutic Touch is borne out in clinical practice. Since its introduction by nurses into mainstream health care institutions there have been no reported incidents of harm to a patient related to Therapeutic Touch. However, because we do not know the effects of energetic forms of healing on unborn children, Therapeutic Touch practitioners recommend that it not be used by inexperienced practitioners on pregnant women. Caution when treating the very old or the very young is also appropriate, and treatments with people in these age groups should be shorter and carefully modulated. Some people find direct treatment of the head to be uncomfortable and so the hands should be kept moving when working around the head.

## **USES**

There is no way to know at the outset how any given person will respond to TT. What we do know is that Therapeutic Touch is a treatment for the whole person, not just an illness or a disease, and so is appropriate for use on anyone. Therapeutic Touch is almost always best used as a complement to standard medical and nursing care. As such, it has been found to be very useful clinically in musculoskeletal conditions such as sprains, strains, muscle spasms, and fractures. Practitioners report that the sooner treatment is given in these cases the more effective TT seems to be. Research data supporting efficacy remains preliminary. Peters (1999) reports in a meta-analytic review of TT studies that "it is impossible to make any substantive claims [about the efficacy of Therapeutic Touch]

at this time because there is limited published research and because many of the studies had significant methodological issues that could seriously bias the reported results” (p. 52).

Nevertheless, there have been observed effects demonstrated through well-designed, placebo-controlled research and also reported from clinical practice that suggest uses for TT (Table 18.1). Therapeutic Touch may be useful in the treatment of tension headache pain (Keller & Bzdek, 1986), migraine headache pain (Hoffmeyer, 2000), pain in burn patients (Turner, Clark, Gauthier, & Williams, 1998), in extending the time between pain medicine requests of postoperative patients (Meehan, 1993; Meehan, Mersmann, Wiseman, Wolff, & Malgady, 1990), in managing chronic pain in the elderly (Lin & Taylor, 1998), and in treating both pain and functional ability in patients with osteoarthritis (Gordon, Merenstein, D’Amico, & Hudgens, 1998; Peck, 1997, 1998). A pilot study by Denison (2004) suggests that TT may be helpful in decreasing pain and improving quality of life in women with fibromyalgia syndrome. Engle and Graney (2000) found that TT produced a significant decrease in total pulse amplitude (indicating vasoconstriction) and a shift in time perception, with effect sizes of large and medium respectively.

Therapeutic Touch may also be useful in any situation where anxiety or stress contributes to physical and/or psychological symptoms and where relaxation could be curative or at least palliative (Gagne & Toye, 1994; Heidt, 1981; Lafreniere et al., 1999; Larden, Palmer, & Janssen, 2004; Lin & Taylor, 1998; Olson et al., 1997; Quinn, 1984; Quinn & Strelkauskas, 1993; Simington & Laing, 1993; Turner et al., 1998). This includes all of those conditions generally thought of as psychosomatic. A pilot study by Woods and Dimond (2002) demonstrated that there was a significant decrease in overall agitation, vocalization, and pacing during treatment and posttreatment with TT in persons with Alzheimer’s disease.

A pilot study where the immune systems of both practitioners and recipients were examined before and after a course of Therapeutic Touch treatments suggests that TT may have an immuno-enhancing effect in bereaved adults (Quinn & Strelkauskas, 1993). Turner and colleagues (1998) found a similar effect in burn patients. Smith, Reeder, Daniel, Baramée, and Hagman (2003) found that TT increased scores on a comfort scale in patients undergoing bone marrow transplant. However, no effects were noted on other variables in the study.

## FUTURE RESEARCH

In 1989, three critical directions for future research efforts in TT were proposed and are still relevant and appropriate as guidelines (Quinn,

**TABLE 18.1** Selected Therapeutic Touch Research (1980–2005)

Author/Yr.	Design	N	Variables/Population	Intervention	Control	Result
Heidt (1981)	Experimental Pre-Posttest	90	Anxiety (STAI)/cardiac patients	TT	Casual touch; presence	Significant ↓ in TT group
Keller & Bzdek (1986)	Experimental Pre-Posttest	60	Tension headache pain (McGill-Melzack)/college students	Non-Contact TT (NCTT)	Mimic TT	Significant ↓ in TT group immediately after treatment
Quinn (1984)	Experimental Pre-Posttest	60	Anxiety (STAI)/cardiac patients	NCTT	Mimic NCTT	Significant ↓ in TT group
Quinn & Strelkauskas (1993)	Descriptive Pre-Posttest; Pilot	6	Immune status; anxiety (STAI); positive and negative affect (ABS)/recently bereaved patients and TT nurses	TT	None	20% mean ↓ Suppressor T-cells; 29% ↓ anxiety; increased positive affect; decreased negative affect in bereaved. (not statistically analyzed)
Meehan (1993)	Experimental Pre-Posttest	159	post-op pain (VAS); analgesia consumption	NCTT with narcotic	Mimic NCTT; standard care	TT group waited significantly longer time before requesting re-medication



TABLE 18.1 (continued)

Author/Yr.	Design	N	Variables/Population	Intervention	Control	Result
Meehan et al. (1990)	Experimental Pre-Posttest	108	Post-op pain (VAS)	NCTT with narcotic	Mimic NCTT; standard care	Non-significant in pain ( $p < .06$ ); TT group waited significantly longer time before requesting re-medication
Simington & Laing (1993)	Experimental Posttest only	105	Anxiety (STAI)/institutionalized elderly	TT with backrub	Back rub without TT; Mimic TT with backrub	Significant ↓ in TT with backrub group compared to backrub without TT group
Gagne & Toye (1994)	Experimental Pre-Posttest	31	Anxiety (STAI)/inpatient psychiatric patients	TT; Relaxation therapy	Mimic TT	Significant ↓ in anxiety in both TT and relaxation therapy
Peck (1997)	Experimental repeated measures	82	Pain and distress (VAS)/elderly arthritis patients	TT; Progressive Muscle Relaxation (PMR)	Subjects served as own controls; routine care for baseline	Significant ↓ in both pain and distress with both TT and PMR
Olson et al. (1997)	Experimental Pre-Posttest	20	T-lymphocyte function (CD25); immunoglobulin level/stressed college students	TT	No treatment	Significant differences between groups in IgA and IgM (immunoglobulins); differences in CD25 non-significant

(continued)

TABLE 18.1 (continued)

Author/Yr.	Design	N	Variables/Population	Intervention	Control	Result
Gordon et al. (1998)	Experimental	25	Pain (West Haven-Yale Multidimensional Pain Inventory; VAS); level of functioning (Stanford Health Assessment Questionnaire) general well-being (VAS)/patients with osteoarthritis of knee	T	Mimic TT; standard care	Significant ↓ in pain and ↑ functional ability in TT group compared to controls
Lin & Taylor (1998)	Experimental Pre-Posttest	95	Chronic musculoskeletal pain (numeric rating scale) anxiety (STAI), salivary cortisol/elderly	TT	Mimic TT; standard care	Significant ↓ in pain and anxiety in TT group compared to controls; no differences in cortisol
Peck (1998)	Experimental repeated measures	82	Functional ability (VAS)/elderly arthritis patients	TT; Progressive Muscle Relaxation (PMR)	Subjects served as own controls; routine care for baseline	Significantly ↑ functional ability after TT and PMR; significantly better functional ability in TT group

TABLE 18.1 (continued)

Author/Yr.	Design	N	Variables/Population	Intervention	Control	Result
Turner et al. (1998)	Experimental Pre-Posttest	99	Pain (McGill Pain Questionnaire; Anxiety (VAS); lymphocytes subsets for 11 patients/burn patients	TT	Mimic TT	Significant ↓ in pain and anxiety in TT group; ↓ in CD8 (suppressor T-cells) and lymphocyte concentration in TT group
Lafreniere et al. (1999)	Experimental Pre-Posttest	41	Biochemical and mood indicators (multiple measures)/healthy women	TT	No treatment	Significant ↓ in mood disturbance, levels of nitric oxide in TT group
Engle (2000)	Quasi-experimental, repeated measures Pre-Posttest	11	Pulse amplitude; BP; stress; self-assessment of health, time perception	TT	Mimic TT	Significant ↓ in total pulse amplitude and time perception in TT group
Hoffmeyer (2000)	Multiple single-case study, experimental repeated measures	9	Frequency, duration and intensity of migraine headaches, medications use; relaxation levels; perception of quality of life; hope	TT	Subjects served as own controls	Significant ↓ in frequency; Significant ↑ in relaxation level post-treatment

(continued)

TABLE 18.1 (continued)

Author/Yr.	Design	N	Variables/Population	Intervention	Control	Result
Woods & Diamond (2002)	Within-subject, interrupted time-series	10	Physical activity, salivary and urine cortisol	TT	Patients served as own controls	Significant ↓ in overall agitated behavior during treatment and post-treatment
Smith et al. (2003)	Randomized clinical trial	88	Time for engraftment, complications, patient perception of benefit	TT; massage (MT)	Friendly visit	Higher scores on comfort subscale in TT and MT groups
Denison (2004)	Quasi-experimental, Pre-Posttest	15	Pain (McGill Pain Questionnaire); Quality of life (Fibromyalgia Health Assessment Questionnaire; EIT)	TT	Sat quietly, listened to informational tape	Significant ↓ in pain and significant ↑ in QOL in TT group
Larden et al. (2004)	Experimental repeated measures	54	Anxiety (STAI); withdrawal symptoms checklist	TT	Shared activity with a nurse; standard care	Significant ↓ in anxiety in the TT group

1989). These are: new outcome/efficacy studies, replication of existing studies, and theory development studies. Whereas it is clear that the rigorous work of explicating outcomes of and an explanatory framework for TT has begun with serious and careful explorations by a small cadre of researchers, much remains to be done. TT researchers must continue to explore the effects of TT in controlled outcome studies, testing competing theoretical explanations for the outcomes observed, in addition to participating in interdisciplinary efforts related to basic research about the postulated human energy field. Of particular urgency are studies of the use of TT with children, as there has been so little work in this area. Because there are so few clinical situations in which TT has actually been researched related to outcomes, we should also expect that a significant amount of work will be done using simple descriptive designs, the most appropriate starting point when attempting to study a new area.

## WEB RESOURCES

The Nurse Healers—Professional Associates International (NH-PAI):  
[www.therapeutic-touch.org](http://www.therapeutic-touch.org)  
Therapeutic Touch Network Ontario: [www.therapeutictouchnetwk.com](http://www.therapeutictouchnetwk.com)

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## CHAPTER 19

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# Reiki

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Reiki is an energy healing method that can be used as an alternative or complementary therapy for a broad range of acute and chronic health problems. Increasingly, it is gaining acceptance as an adjunct to management of chronic conditions: pain management, hospice and palliative care, and stress reduction. Miles and True (2003) identified hospitals and community-based programs in the United States that utilize Reiki in the areas of general medicine, surgery, treatment of HIV/AIDS and cancer, elder and hospice care, and for staff and family members.

According to the National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health, Reiki is a biofield therapy. Therapies in this category affect energy fields that both surround and interpenetrate the human body. Bioenergy therapies involve touch or placement of the hands into a biofield, the existence of which has not been scientifically proven (Miles & True, 2003). The NIH is currently investigating the effectiveness of Reiki in the treatment of fibromyalgia, diabetic neuropathy, AIDS, and prostate cancer (Miles, 2004). A Reiki practitioner does not need to be prepared as a health care practitioner, but nurses and doctors who practice Reiki may have greater access to patients and acceptability within the health care system in performing hands-on treatments.

The origins of Reiki are unclear, but Reiki historians generally agree that this therapy may have its roots in hands-on healing techniques that



were used in Tibet or India more than 2,000 years ago. Reiki emerged in modern times around 1900 through the work of a Japanese businessman and practitioner of Tendai Buddhism, Mikao Usui (Miles & True, 2003). According to William Rand, founder of the International Center for Reiki Training (2000), Usui searched for many years for knowledge of healing methods until he had a profound, transformative experience and received direct revelation of what became known as Reiki. Following this experience, Usui worked with the poor in Kyoto and Tokyo, teaching classes and giving treatments in what he called “The Usui System of Reiki Healing.” One of Dr. Usui’s students, Chujiro Hayashi, wrote down the hand positions and suggested ways of using them for various ailments.

Mrs. Hawayo Takata is credited with the spread of Reiki in the Americas and Europe. In 1973, Mrs. Takata began to train Reiki teachers (Miles & True, 2003). The Reiki Alliance, a professional organization of Reiki masters, grew from 20 to nearly 1,000 members from 1981 to 1999 (Horrigan, 2003). Currently, the International Center for Reiki Training estimates that there are more than 50,000 Reiki masters and 1 million Reiki practitioners worldwide (Federally funded, 2004).

## DEFINITION

The word *Reiki* is composed of two Japanese words—Rei and Ki. Rei is usually translated as “universal,” although some authors suggest that it also has a deeper connotation of all-knowing spiritual consciousness. Ki refers to life force energy that flows throughout all living things, known in certain other parts of the world as Ch’i, prana, or mana. When Ki energy is unrestricted, there is thought to be less susceptibility to illness or imbalances of mind, body, or spirit (Rand, 2000). In its combined form, the word *Reiki* is taken to mean spiritually guided life force energy or universal life force energy.

A mind–body component to Reiki healing is evidenced in the underlying belief that the deepest level of healing occurs through the spirit. The emphasis is on healing, not cure, which is believed to occur by Reiki energy connecting individuals to their own innate spiritual wisdom. Reiki flows through, but is not directed by, the practitioner, leaving the healing component to the individual receiving the treatment (Miles & True, 2003).

Reiki is not only a healing technique, but also a philosophy of living that acknowledges mind-body-spirit unity and human connectedness to all things. This philosophy is reflected in the Reiki principles for living: Just for today do not worry. Just for today do not anger. Honor your

teachers, parents, and elders. Earn your living honestly. Show gratitude to all living things (Mills, 2001).

The ability to practice Reiki is transmitted in stages directly from teacher to student via initiations called attunements. This attunement process differentiates Reiki from other hands-on healing methods. During attunements, teachers open up the students' energy channels by using specific visual symbols that were revealed to Dr. Usui. There are three degrees of attunement necessary in order to achieve the status of Master Teacher, at which stage the practitioner is considered fully open to the flow of universal life force energy. By tradition, the Usui Reiki symbols and their Japanese names are confidential. This arises from the sacred nature of the technique rather than from proprietary motives; the symbols are not believed to carry power if used by non-initiates.

Level I Reiki is taught as a hands-on technique that includes basic information about Reiki principles and hand positions. In Level II, students are taught symbols that allow transfer of energy through space and time, also known as absentee or distance healing. The higher vibration of energy available at Level II is considered to work at a deeper level of healing. Level III, or the mastery level, is typically achieved through an apprenticeship with a Reiki Master, and includes more in-depth study of Reiki practice and teaching. At all levels, Reiki skill develops through committed practice.

In recent years additional branches of Reiki with further degrees of attunement have developed; two of these are Karuna Reiki and Reiki Seichim. There are currently no uniform standards in Reiki education. Because of the non-invasive nature of the treatments, this does not present problems in personal practice. However, the lack of standardization does pose problems when working to integrate Reiki into the conventional health care system (Horrigan, 2003).

## SCIENTIFIC BASIS

An emerging body of evidence confirms the existence of energy fields and suggests new ways of measuring energy; these are not specific to Reiki. Traditional electrical measurements such as electrocardiograms and electroencephalograms can now be supplemented by biomagnetic field mapping to obtain more accurate information about the human condition. Superconducting quantum interference devices have been used to show the effect of disease on the magnetic field of the body, and pulsating magnetic fields have been used to improve healing (Oschman, 2002). In a small experimental study concerning the effects of one type of energy

therapy, researchers found consistent, marked decreases in gamma rays measured at several sites within the subjects' electromagnetic fields during treatment (Benford, Talnagi, Doss, Boosey, & Arnold, 1999). To a lesser extent, the findings indicated a decrease during sham treatment but not among control subjects. The authors hypothesized that the effect among sham treatment recipients resulted from human touch. Brewitt, Vittetoe, and Hartwell (1997) studied electrical skin resistance at selected body points to measure effects of Reiki treatments. Charman's research (2000) suggests that intention to heal transmits measurable wave patterns to recipients. These studies indicate that in the future it may be possible to directly measure subtle elements of the human energy field in order to elucidate mechanisms by which Reiki and other energy healing techniques lead to changes in health outcomes.

Methodological problems have been identified in studies of Reiki. It is difficult to demonstrate validity in studies of energy therapies. Although case studies and anecdotal examples have been relatively consistent in reporting positive responses to Reiki treatments, this does not represent the scientific rigor that is demanded within an evidenced-based health care system. Mansour, Beuche, Laing, Leis, and Nurse (1999), in an effort to standardize treatments, demonstrated that it is possible to blind subjects to real vs. placebo Reiki, opening the door to placebo-controlled studies in Reiki research.

It has also been speculated that energy healing has an impact on outcomes in a way that is difficult to measure. Engebretson and Wardell (2002) concluded that many research models are not complex enough to capture the experience of a Reiki session. In their qualitative study they found that participants had a diverse and descriptive language that accompanied their experience. They also measured the effects of Reiki on objective measures for stress and anxiety. These measures demonstrated a decrease in perceived anxiety, an increase in signs of relaxation, and an increase in humoral immunological functioning (Wardell & Engebretson, 2001). These two studies demonstrate the potential for increasing the understanding of Reiki energy by utilizing more qualitative research designs.

## INTERVENTIONS

### Technique

The Reiki practitioner acts as a conduit for healing-intended energy to self or others. During treatments, a level I Reiki practitioner employs a

series of 12 to 15 hand positions. A level II Reiki practitioner also uses hand positions but may use various Reiki symbols to focus the Ki energy or to perform distance healings. If touch is contraindicated for any reason, the hands can be held 1 to 4 inches above the body. A full Reiki session usually lasts 45 to 90 minutes. Reiki practitioners, especially if they are nurses working in a clinical setting, often do not have the luxury of providing a full session. At such times, shorter and more targeted treatments may be offered for specific purposes. In the original Reiki handbook of Usui the use of particular hand positions is recommended for addressing specific health problems (Petter, 1999).

Unlike other energy healing modalities, Reiki energy flows through the hands without employing cognitive, emotional, or spiritual skills. The attunement process provides access to the energy without requiring ongoing practice or conscious intention. In this respect, it has the advantage of simplicity (Nield-Anderson & Ameling, 2001). Potter (2003) compared her experience with therapeutic touch after receiving a level I attunement. She found that her work became less directive and the effort to stay centered was no longer a concern.

## **Guidelines for Full Hands-On Reiki Sessions**

The recipient may sit or lie down, but because Reiki tends to be very relaxing, it is often preferable to lie down. Patients may remain clothed during a Reiki treatment. A massage table or hospital bed is frequently used, as this provides for both client and practitioner comfort. After practitioners center themselves and establish an intent to heal with Reiki, the energy flows automatically from their hands without cognitive effort. The hands rest gently on the person's body with the fingers straight and touching so that each hand functions as a unit. The sequence of hand positions may vary, but will generally include all seven major chakras and the endocrine glands.

## **Measurement of Outcomes**

Recipients' subjective feelings during a Reiki session are not considered indications of effectiveness. Patients may feel sensations similar to those of the practitioner, but they may also feel nothing. Sensations may include heat, cold, numbness, involuntary muscle twitching, heaviness, buoyancy, trembling, throbbing, static electricity, tingling, color, and heightened or decreased awareness of sound (Engebretson & Wardell, 2002). This author found that it is not uncommon for clients to fall asleep during a

treatment, and that they frequently reported feelings of increased relaxation, peacefulness, and reconnecting to their center.

Physiologic outcome measures examined in other healing touch studies are also appropriate for Reiki, such as hematology tests, blood pressure and heart rate, bioelectric measures, wound healing rate, inhibition of harmful microorganisms, and body temperature changes. Psychological measures are equally important, including perceived pain; cognitive function; memory; and levels of anxiety, depression, anxiety, or hostility.

## **Precautions**

No serious adverse effects of Reiki treatments have been published. Some patients, however, may experience emotional release that may be uncomfortable or disturbing. Therefore, practitioners must be prepared to provide assistance and appropriate referrals if emotional distress persists. Moreover, some individuals may dislike being touched. Practitioners can avoid this discomfort by assessing the person's comfort level with touch and taking into account gender and cultural considerations. Few patients who are fully informed object, and even among vulnerable populations such as victims of torture, responses to hands-on energy healing methods have been found to be very favorable (Kennedy, 2001). The success of a Reiki treatment does not depend on the use of certain hand positions, for the Ki energy goes where it is needed.

## **USES**

The range of potential practical applications with patients is broad and depends on the setting (Lipinski, 1999). Reiki has been used in hospice and palliative care (Bullock, 1997; Lewis, de Vedia, Reuer, Schwan, & Tourin, 2003; Mramor, 2004), among cancer patients (Mills, 2003; Olson & Hanson, 2003), introduced into HIV/AIDS programs (Horrigan, 2003; Schmehr, 2003), for pre- and post-operative patients (Alandydy & Alandydy, 1999; Sawyer, 1998), and in stroke rehabilitation (Hall, 2004; Shiftlett, Nayak, Bid, Miles, & Agostinelli, 2002). The common theme described in many of these programs is the benefit of Reiki for pain relief, stress and anxiety reduction, and relaxation. Miles, founding director of the Institute for the Advancement of the Studies of Complementary Studies, has been involved in research looking specifically at pain and anxiety reduction in HIV/AIDS clients (Vanderbilt, 2004). Shore (2004) recently provided evidence that Reiki may reduce symptoms of depression, with favorable outcomes that last as long as 1 year following treatment.

Table 19.1 provides a list of populations/settings in which Reiki has been used. In a biomedical treatment setting Reiki is best regarded as a complementary healing modality, whereas in other circumstances it can either be used alone or with other approaches.

## Self-Treatment and Practitioner Benefits

One of the unique features of Reiki therapy is the capacity to self-treat. The concepts of empowerment and self-treatment have particular value when considering chronic health problems. For some Reiki practitioners, teaching their clients level I Reiki provides the clients with a greater sense of control over some of their health problems, including pain management and stress reduction (Miles & True, 2003; Mills, 2001). This author has taught level II Reiki to a client with advanced amyotrophic lateral sclerosis, which increased the practitioner's ability to self-treat and also to perform distant healing.

**TABLE 19.1** Suggested Applications for Reiki in Clinical Settings

Application	Reference
Promoting relaxation in labor and delivery	(Mills, 2001)
HIV/AIDS	(Schmehr, 2003; Vanderbilt, 2004)
Supporting pre- and post-operative surgical patients	(Alandydy & Alandydy, 1999; Sawyer, 1998)
Hospice and palliative care	(Bullock, 1997; Lewis et al., 2003; Mramor, 2004)
Pain management	(Olson & Hanson, 2003; O'Mathuna, 2003)
Decreasing anxiety and stress levels	(Dressen & Singg, 2000; Shore, 2004; Witt & Dundes, 2001)
Enhancing immune function	(Wardell & Engebretson, 2001)
Promoting wound healing	(Papantonio, 1998)
Stroke rehabilitation	(Hall, 2004; Shiftlett et al., 2002)
Addiction and chemical dependency treatment	(Burkert, 1999)
Improving hematology measures	(Wirth, Chang, Eidelman, & Paxton, 1996)

Reiki energy, by moving through the practitioner's crown and out through the hands, also has positive effects on the practitioner. Reiki practitioners report feeling energized, relaxed, and more centered after performing a treatment. Whelan (2003) found in her research that performing Reiki on clients increased nurses' satisfaction with their nursing role. With Reiki use, nurses have reported an increase in touch sensitivity, perception, and assessment skills. Fortune and Price (2003) have identified Reiki as an energy therapy that can be used to prevent and treat burnout among nurses.

### FUTURE RESEARCH

Most published research on Reiki has been conducted with small, non-controlled, convenience samples, raising questions about the validity and generalizability of findings. Clinical evaluation of Reiki represents a challenge, using our current standards of assessment. New models of research that enlarge our definition of outcomes need to be explored (Schiller, 2003). Combining subjective and physiological measures in such research studies will allow broader assessment of the effects of Reiki (Liverani, Minelli, & Ricciuti, 2000). Because the goals of Reiki may be broader than symptom relief and include concepts of physiologic and psychological balance, qualitative studies that can address values and meaning are also important (Wardell & Engebretson, 2001).

Although both hands-on and distant healing are forms of energy healing, the presence of touch has the capacity to confound the results, as all touch may have some healing properties. A review of studies of the efficacy of distant healing (Astin, Harkness, & Ernst, 2000) identified both methodological limitations and positive outcomes meriting further study. Shore (2004) compared outcomes between hands-on and distant Reiki healing and found a greater reduction in depression symptoms with distance healing.

There is a need to develop research designs that consider more subtle and lasting outcomes than those that have typically been used. If energy treatment works on a different level than the conventional medical model, the results may not be as dramatic and may require larger groups and a longer treatment period to show a positive outcome (Niield-Anderson & Ameling, 2000).

Suggested questions for future research include:

1. What are the physiologic and/or psychological effects of Reiki treatments for specific conditions when used alone or in conjunction with other therapies?

2. What is the relative effectiveness of non-contact Reiki (distant healing) as compared to hands-on Reiki?
3. What role does Reiki have in providing stress reduction for health care providers?
4. Are there differences in selected outcome measures between Reiki and other energy therapies?

## REIKI WEB SITES

IARP-International Association of Reiki Professionals: [www.iarp.org](http://www.iarp.org)  
 The International Center for Reiki Training: [www.reiki.org](http://www.reiki.org)  
 The Reiki Page: [www.reiki7gen.com](http://www.reiki7gen.com)  
 Usui Reiki: [www.usuireiki.com](http://www.usuireiki.com)

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## CHAPTER 20

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# Acupressure

Pamela Weiss

Touch has been central to the practice of nursing since its inception. This chapter will discuss a Traditional Chinese Medicine form of touch known as acupressure and its application in nursing care. This method of treatment is common in many cultures. As Dossey, Keegan, and Guzzetta (2000) note, “All cultures have demonstrated that some form of rubbing, pressing, massaging or holding are [sic] natural manifestations of the desire to heal and care for one another” (p. 615). Acupressure is also integral to the practice of shiatsu, tui na, tsubo, and jin si ju jitsu.

### DEFINITIONS

Acupressure is defined by Gach (1990) as “an ancient healing art that uses the fingers to press certain points on the body to stimulate the body’s self-curative abilities” (p. 3). To assist the reader, the following other definitions are provided.

*Acupuncture*: “A procedure used in or adapted from Chinese Medical Practice in which specific body areas are pierced with fine needles for therapeutic purposes or to relieve pain or produce regional anesthesia” (Freedictionary, 2005).

*Auriculotherapy*: “also called ear acupuncture, applies the principles of acupuncture to specific points on the ear” (Firsthealth, 2005).

*Jin Shin Jyutsu*: “a non-massage form of shiatsu . . . using pressure points to ‘harmonize’ the flow of ‘energy’ through the body” (Heall, 2005).

*Meridians*: “specific interconnected channels through which Qi circulates” (Answers.com, 2005).

*Moxibustion*: “The burning of moxa or other substances on the skin, to treat diseases or to produce analgesia” (Freedictionary, 2005).

*Qi*: Pronounced “chee,” “The vital force believed in Taoism and other Chinese thought to be inherent in all things. The unimpeded circulation of chi and a balance of its negative and positive forms in the body are held to be essential to good health in traditional Chinese medicine” (Freedictionary, 2005).

*Shiatsu*: “A form of therapeutic massage in which pressure is applied with the thumb and palms to those areas of the body used in acupuncture. Also called acupressure 9” (Freedictionary, 2005).

## TRADITIONAL CHINESE MEDICINE

Traditional Chinese Medicine (TCM) is an ancient system of health developed more than 3,000 years ago in Asia. This system is based on the concept that qi that flows throughout the body and that balance of yin and yang forces represents health and well-being. As Kaptchuk (1983) describes it:

This system of care is based on ancient texts and is the result of a continuous process of critical thinking, as well as extensive clinical observation and testing. It represents a thorough formulation and reformulation of material by respected clinicians and theoreticians. It is also, however, rooted in the philosophy, logic and sensibility, and habits of a civilization entirely foreign to our own. It has therefore developed its own perception of the body and health and disease. [p. 2]

The focus of care within this system is to restore balance in the body. To do so, yin and yang must be balanced. Yin aspects are associated with cold, passivity, interiority, and decreases. Yang aspects are associated with warmth, activity, external forces, and increases. Yin and yang are always in relation to each other (Kaptchuk, 1983). According to this conceptualization, they are in continuous flux and there is always yin within yang and yang within yin.

Unschuld (1999) reflects that TCM theory is a mixture of beliefs that pathogenic influences from the outside combine with the lack of balance or harmony within the person and result in illness. TCM is also concerned with the concept of qi. Qi flows in the body through specific pathways identified as meridians or channels. If the qi is blocked or diminished, a person experiences pain or illness.

There are 12 bilateral meridians and 8 extra meridians. All meridians have an exterior and an interior pathway and are named according to the organ system. Located on the meridians are specific points. In the 12 major meridians, the points are bilateral and in the West are called acupuncture points. This nomenclature implies that the points are designated for needle insertion and does not fully reflect the TCM concept of the point.

Acupuncture points are used for acupressure. The points do not have a corresponding anatomic structure but are described by their location relative to other anatomical landmarks. This contributes to the skepticism of many Western-trained scientists about their existence. In Chinese, the name of the point usually is descriptive of its function or location. Mistranslation over the years has often limited the substantial amount of anatomical basis for the nomenclature of points and the apparent knowledge of anatomy of Chinese scholars (Schnorrenberger, 1996).

There are 365 (Kaptchuk, 1983) to 700 (Jwing-Ming, 1992) major points on the meridians. Jwing-Ming stated that 108 could be stimulated using the fingers. In a traditionally formulated TCM treatment plan, whether the modality is needles or pressure, the points are combined to achieve maximum benefit for the patient. Rarely is only one point used. There are points that should not be stimulated, especially during pregnancy, which are referred to as “forbidden points.”

## SCIENTIFIC BASIS

Western medicine is the dominant system of health care in the United States. It is characterized by hospitals, clinics, pharmaceutical resources, and by a workforce of physicians, nurses, specialized therapists, and various support service personnel. There are many differences between Western medicine and TCM, which become more evident as nurses seek to add TCM modalities to their practice. Western medicine emphasizes disease, causal agents, and treatments that are designed to control or destroy the cause of disease (Kaptchuk, 1983). Once a causal agent or mechanism is identified, treatment plans are developed that focus on the agent or mechanism as a consistent factor in all human manifestations

of the disease. In Western journals, almost all studies using the modality of acupuncture and acupressure emphasize the specific effects of needling one point known to address a specific symptom. Medical researchers are eager to find the mechanism by which acupuncture alleviates the symptoms. Some of the mechanisms have been suggested in Western medical research (National Center for Complementary/Alternative Medicines [NCCAM], 2000; National Institutes of Health [NIH], 1997). Stimulation of the points with needles or with pressure may produce a therapeutic effect due to the following:

1. Conduction of electromagnetic signals that may start the flow of pain-killing biochemicals, such as endorphins, and of immune system cells to specific sites in the body that are injured or vulnerable to disease (Dale, 1997; Takeshige, 1989)
2. Activation of opioid systems, thereby reducing pain (Han, 1997)
3. Changes in brain chemistry, sensation, and involuntary responses by changing the release of neurotransmitters and neurohormones in a health-promoting way (Wu, 1995; Wu, Zhou, & Zhou, 1994).

The scientific research into an underlying mechanism demonstrates one of the differences between Western medicine and the TCM system. The focus in TCM is the imbalance in the patient, and the causality is always multifactorial. The function of the points is described in terms of TCM diagnosis. For example, Western medicine research has focused on pericardium 6, or *nei guan*, for the treatment of nausea. In English its name means inner border gate. Lade (1986) describes the point:

The name refers to the point's role as the gateway or connecting point of the triple burner channel and the yin-linking vessel. Inner refers to the palmar aspect of the forearm and to the point's location on the yin channel. The actions of this point are: to regulate and tonify the heart, transform heart phlegm, facilitate qi flow, regulate the yin-linking vessel and clear heart fire, redirect rebellious qi downward, expand and relax the chest and benefit the diaphragm. [p. 196]

The indications for use of the point are: asthma, bronchitis, pertussis, hiccups, vomiting, diaphragmatic spasms, intercostal neuralgia, chest fullness, and pain and dyspnea. [p. 197]

Whereas Western medicine focuses on the treatment of nausea for this point, the TCM paradigm suggests multiple uses. In TCM theory, nausea is considered rebellious qi (qi that flows in the wrong direction). Nausea

and vomiting are examples of this. Nei guan (pericardium 6) is used as one of the points in the treatment of a patient who presents with nausea. In TCM theory, nausea is considered one of the external manifestations of the imbalance, but in an authentic TCM treatment, a practitioner would evaluate the imbalances that set up the manifestation and treat the underlying condition. Therefore, a combination of points to treat nausea would be used, possibly including other primary points for antiemesis (Hoo, 1997): Stomach 36 on the stomach meridian located on the knee, Ren 12 on the ren/conception meridian located on the upper abdomen, or the Spleen 4 on the spleen meridian located on the foot. Application of multiple acupoints may be more effective for the treatment of nausea; however, in Western medicine, the focus on finding the single active point or the mechanism creates an almost insurmountable challenge to the fullest application of the therapy.

In 1997, the National Institutes of Health held the first consensus conference on acupuncture. The conference concluded that

Acupuncture is effective in the treatment of adult nausea and vomiting in chemotherapy and probably pregnancy and in postoperative dental pain. The conference members stated there is an indication that acupuncture may be helpful in the treatment of addiction, stroke rehabilitation, headache, menstrual cramps, tennis elbow, fibromyalgia, myofascial pain, osteoarthritis, low back pain, carpal tunnel syndrome, and asthma, in which acupuncture may be useful as an adjunct treatment or an acceptable alternative or be included in a comprehensive management program. [NIH, 1997]

Research evidence underlying the use of the point called nei guan (pericardium 6) for nausea is reviewed below. This NIH statement was the springboard for increasing the number of studies completed for the treatment of nausea and vomiting that include the use of devices to apply pressure or stimulation to pericardium 6. These devices included an elastic bracelet with a pressure button called SeaBands® or an electrical stimulation device called a Reliefband®. Table 20.1 demonstrates that studies continue to find conflicting results about the effectiveness of using pericardium 6 for the treatment of nausea and vomiting from any condition.

There are many limitations to the research done in acupuncture, and therefore acupressure. Harris (1997) frames the ongoing debate about the studies and results.

The scientific quality of most of the published studies examining the effectiveness of multipoint acupressure, predominantly auriculotherapy, has been poor, without adequate control groups, randomization,

**TABLE 20.1** Sample of Studies Using P6 for Treating Nausea

Condition Causing the Nausea	Modality	Author/Date	Conclusion
Nausea of chemotherapy	Acupressure on P6 and Stomach 36	Dibble, Chapman, Mack, & Shih (2000)	During the first 10 days of the chemotherapy cycle, women with breast cancer who were taught and practiced acupressure of P6 experienced a decreased intensity and frequency of nausea.
All nausea studies	Acupressure	Cochrane Collaborative (2000)	The studies on nausea are limited and the results are equivocal.
Nausea of chemotherapy	Acupressure	Klein & Griffiths (2004)	Acupressure may decrease nausea among patients undergoing chemotherapy but further study is required.
Nausea of chemotherapy	Acupressure	Shin, Kim, Shin, & Juan (2004)	Acupressure on P6 point appears to be an effective adjunct treatment.
Nausea of pregnancy	Acupressure and acupressure stimulation bands	Roscoe et al. (2003)	This review article concludes that stimulation of the point is positive, but many of the studies have limitations that leave questions about effectiveness.
Nausea of chemotherapy	Acupressure	Collins & Thomas (2004)	Acupressure in addition to antiemetics provides better control of the nausea of chemotherapy.
Nausea of HIV/AIDS	Acupressure	Capili (2002)	Symptoms of nausea were decreased; however reports of the quality of life did not improve.
Postoperative nausea and vomiting	Acupressure	Ming, Kuo, Lin, & Lin (2002)	In view of the absence of side effects, acupressure is a safe alternative to treatment of nausea and vomiting.



placebos, blinding, and statistical analyses. There seems to be a cultural divide between theory and methodological rigor. The scientifically rigorous studies have tended to be atheoretical in selecting the acupoint for treatment and in explaining how the points may work. [p. 157]

Table 20.2 presents a brief overview of recent studies examining the use of acupressure in a variety of patients. The conditions treated include wandering in Alzheimer's disease, dyspnea, sleep in elderly patients, pain of labor, dysmenorrhea, and stress of patients transported by emergency vehicles. The number of studies continues to increase, and yet scarce funding has yielded studies with small sample sizes, thus limiting their generalizability. However, these limited studies do provide the incentive for nurses to consider incorporating acupressure techniques into their practices as it is a non-invasive treatment that may have an impact on patient outcomes.

## INTERVENTION

A diagnostic process is used to choose the correct points to stimulate. In TCM, the process includes an extensive history, observing the patient's appearance and demeanor, noticing the patient's odor, checking the tongue, palpating the abdomen and points on the body, and palpating the pulses at the radial location on the wrists. A diagnosis is formulated and a treatment plan, which may use a variety of techniques, is implemented. Nurses will not follow this process and will therefore be using a Western symptom-based system of determining the correct treatment plan.

### Guidelines for Use

Nurses can incorporate acupressure into the care of patients by using some common points that have specific actions to relieve common symptoms. The nurse can treat the patient with acupressure or teach the patient or family members how to use acupressure as part of a care plan.

Prior to touching any patient, the nurse must assess the readiness of the client. Shames and Keegan recommend the following assessment of clients:

- perception of mind–body situation
- pathophysiological problems that may require referral
- history of psychological disorders

**TABLE 20.2** Sample of Studies of Effective Uses of Acupuncture/  
Acupressure

Condition	Modality	Author/Date	Conclusion
Wandering behaviors in Alzheimer's disease	Foot acupressure	Sutherland, Reakes, & Bridges (1999)	Foot acupressure may produce a decrease in wandering and an increase in quiet time.
Dyspnea of COPD	Acupressure	Wu, Wu, Lin, & Lin (2004)	Pulmonary function, dyspnea scores, and other physiological measures were improved with the use of acupressure of appropriate points
Sleep of elderly	Magnetic auricular beads	Suen, Wong, & Leung (2002)	Three-week treatment of placing magnetic beads in the ear significantly increased sleep time in the elderly.
Dysmenorrhea	Relief Brief® (a brief that puts pressure on acupuncture points)	Taylor, Miaskowski, & Kohn (2002)	Wearing of the acupressure brief relieved pain symptoms and reduced the need for medication in subjects.
Low back pain	Acupressure	Hsieh, Kuo, Yen, & Chen (2004)	Acupressure is another effective alternative medicine for reducing low back pain. However, careful assessment should be made in future studies.
Pain of labor	Ice massage at the Large Intestine 4 (LI 4) point	Waters & Raisler (2003)	Ice massage assisted women in reducing their pain perception on a scale from distressing to uncomfortable.
Pain of labor	Acupressure using Large Intestine 4 (LI 4) and Bladder 67 (BL 67) points	Chung, Hung, Kuo, & Huang (2003)	Acupressure reduced the pain of labor while not diminishing the quality of contractions in first stage labor.
Stress experienced during transport in EMS vehicle	Auricular acupressure	Kober et al. (2003)	Auricular acupressure reduced anxiety, decreased pain, and resulted in more positive attitudes about potential outcomes.

- cultural beliefs about touch
- previous experience with body therapies (2000, p. 264)

Each point is located using an anatomical marker. There are many books describing point location. The standard measure is the *cun*, which is different for each individual. One *cun* for a particular patient is defined as the “width of the interphalangeal joint of the patient’s thumb or as the distance between the two radial ends of the flexor creases of a flexed middle finger of the patient. Two *cun* is the width of the index finger, the middle finger and the ring finger” (Hoo, 1997).

### *Stimulating the Point*

There are several different types of techniques to stimulate the points, according to Gach:

- *Firm stationary pressure* using the thumbs, fingers, palms, the sides of hands, or knuckles
- *Slow motion kneading* using the thumbs and fingers along with the heels of the hands to squeeze large muscle groups
- *Brisk rubbing* using friction to stimulate the blood and lymph
- *Quick tapping* with the fingertips to stimulate muscles on unprotected areas of the body such as the face (1990, p. 9)

### *Evaluating Acupressure’s Effect*

Gach has developed guidelines for assessing results. The elements of the assessment include:

- Identifying the problems being addressed with acupressure
- Identifying the points being used for the treatment
- The length of time for the acupressure
- Identifying what makes the condition worse (e.g., standing, cold weather, menstruation, constipation, lack of exercise, stress, traveling, and others) (Gach, 1990, p. 13)
- Describing the changes experienced by the patient after 3 days and after 1 week of treatment
- Describing the changes in the condition and overall feeling of well-being

## USES

There are many uses for acupressure. Some conditions for which it has been used are shown in Table 20.2. The use of acupuncture for nausea, pain, and gastrointestinal disorders is described below.

### Nausea

*Point: Pericardium 6 (nei guan, "inner gate")*

*Location:* Pericardium 6 is located on the inner aspect of the wrist 2 cun (units) proximal to the transverse crease of the wrist between the tendons of the palmaris longus and flexor carpi radialis muscles (Lade, 1986). Have the patient place the middle three fingers (index, middle, and ring fingers) on the opposite hand that is palm upward. The point under the ring finger between the two tendons is pericardium 6 (see Figure 20.1).

*Functions:* Its functions were outlined previously in the discussion on the research on this point.

*Method of stimulation:* The point can be stimulated using firm pressure either with a rotating pattern with the thumb or the static pressure of a SeaBand.

*Indications in nursing:* This point can be used for the treatment of nausea in many situations, but research, as cited previously, has focused on postoperative nausea, the nausea of pregnancy, and the nausea accompanying chemotherapy.

### Pain and Gastrointestinal Disorders

*Point: Large intestine 4 (LI 4) (hoku, "joining the valley")*

*Location:* This point is on the back of the hand halfway between the junction between the first and second metacarpal bones, which form a depression or valley when the thumb is abducted (Lade, 1986). There are two ways to locate this point easily. Have the patient hold the hand with the thumb touching the index finger; hold the hand at eye level and the highest mound at the base of the thumb and index finger is the location of LI 4. Or instruct the patient to place the thumb of one hand in the web between the thumb and index finger of the opposite hand. The patient should match the first crease on the thumb of one hand to the web of the other and then rotate the thumb to touch the fleshy area between the index finger and thumb. The point is where the tip of the thumb touches the area between the thumb and the index finger.

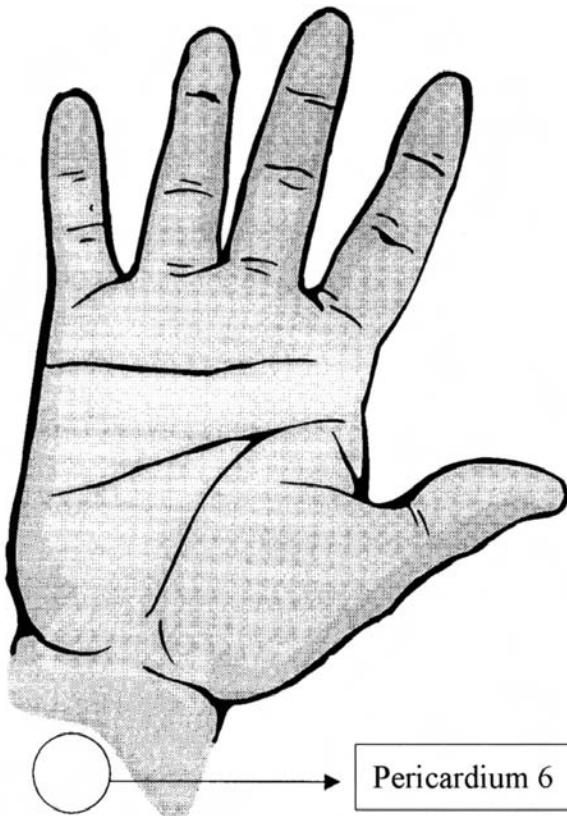


FIGURE 20.1 Pressure point pericardium 6.

*Functions:* This point has multiple functions and is one of the most important points of the body. It alleviates pain, tones qi, and protective qi (in Western medicine this would be considered an immune system building function); moistens the large intestine and in so doing relieves diarrhea or constipation; clears the nose; regulates the lungs in asthma, bronchitis, or the common cold; and expedites labor. This point is contraindicated in pregnancy because of this function (Lade, 1986, pp. 40–41).

*Indications in nursing:* This point will relieve any pain in the body. In addition, persons with diarrhea or constipation may feel relief because stimulating the point balances the gastrointestinal functions. This point can be used to induce labor and, coupled with its pain-relieving effect, may be helpful.

*Method of stimulation:* Firm pressure can be applied on this point with a rotating thumb massage technique. This point is often sensitive and the patient will report a feeling of discomfort. This is normal and not indicative of a problem.

## Precautions

There are overall guidelines and precautions carefully outlined by Michael Reed Gach (1990) in his book, *Acupressure Potent Points*.

- Never press any area in an abrupt, forceful, or jarring way. Apply finger pressure in a slow, rhythmic manner to enable layers of tissues and the internal organs to respond (p. 11).
- Use abdominal points cautiously, especially if the patient is ill. Avoid the abdominal area altogether if the patient has a life-threatening disease, especially intestinal cancer, tuberculosis, or leukemia. Avoid the abdominal area during pregnancy (pp. 11–12).
- During pregnancy, strong stimulation of certain points should be avoided: LI 4 (four point on the large intestine meridian), K 3 (third point on the kidney meridian), and SP 6 (sixth point on the spleen meridian). Each of these points may have an effect on the pregnancy (p. 192).
- Lymph areas such as the groin, the area of the throat just below the ears, and the outer breast near the armpits are very sensitive. Touch these areas lightly (p. 12).
- Do not work directly on a serious burn, ulcer, or area of infection.
- Do not work directly on a newly formed scar. New surgical or other wounds should not be touched directly. Continuous holding on the periphery of the injury will stimulate the injury to heal (p. 12).
- After an acupressure treatment, tolerance to cold is lowered and the energy of the body is focused on healing, so advise the patient to wear warm clothes and keep out of drafts (p. 12).
- Use acupressure cautiously in persons with a new acute or serious illness (Gach, 1990).
- Acupressure is not a sole treatment for cancer, contagious skin disease, or sexually transmitted disease (Gach, 1990, pp. 11–12).

- Brisk rubbing, deep pressure, or kneading should not be used for persons with heart disease, cancer, or high blood pressure (Gach, 1990, p. 9).

## FUTURE RESEARCH

There are many areas of research in which the methods of traditional Chinese medicine and the underlying theory can be tested using Western medical research techniques. Research questions about the usefulness of acupressure techniques can be posed in many areas of nursing including their use for palliative care, rehabilitation nursing, support of women in labor, and health promotion and disease prevention.

Acupressure is used by millions of persons around the world. Incorporating this technique into nursing care plans will unite us in the commonality we share—the desire to relieve human suffering (Serizawa, 1976).

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## CHAPTER 21

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# Reflexology

Thora Jenny Gunnarsdottir

Although reflexology is ancient, it is one of a number of complementary therapies that has gained popularity in recent years. In reflexology the entire body has been mapped out in the hands and in the feet and can be manipulated directly from there with specific massage technique. The corresponding areas on the feet are easier to locate because they cover a larger area and are more specific, rendering them easier to work on than the hands. Therefore reflexology for the feet will be the main subject in this chapter. Reflexology shares the philosophical base of holism congruent with nursing. As such, it provides the nurse an opportunity to show caring and presence with the idea of helping the patient to become more whole within a fragmented health care system. This gentle intervention has been shown to affect symptoms, but the scientific basis behind reflexology needs to be further established.

### DEFINITION

Reflexology is a holistic healing technique that aims to treat the individual as an entity, incorporating the body, mind, and spirit. It is a specific pressure technique that targets precise reflex points on the feet, based on the premise that reflex areas on the feet correspond with all other body

parts. Figure 21.1 shows the areas on the foot and their corresponding body parts. Because the feet represent a microcosm of the body, all organs, glands, and other body parts are laid out in an arrangement similar to that on the feet (Dougans, 1999).

The International Institute of Reflexology defines it as a manual technique based on the theory that there are reflex areas in the feet and hands that correspond to all glands, organs, and parts of the body (Byers, 1983). Kunz and Kunz (2003) stipulate that the pressure techniques stimulate specific reflex areas on the feet and hands with the intention

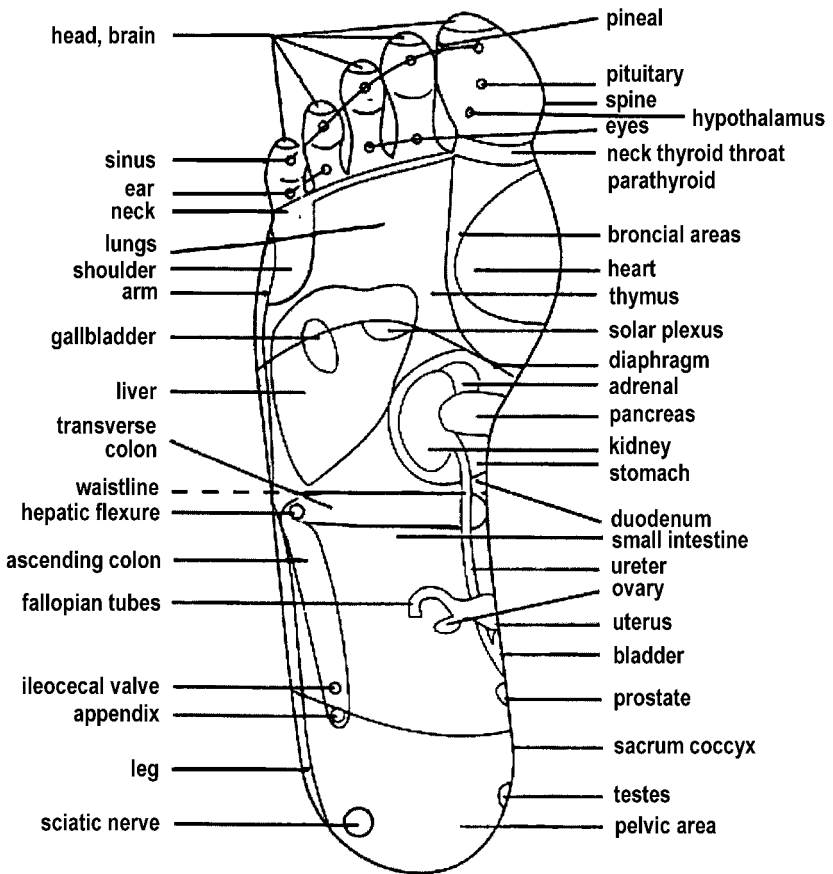


FIGURE 21.1 Relationship of body parts with reflexology points on the foot. (Retrieved from <http://www.ivy-rose.co.uk>, May 25, 2005)

of invoking a beneficial response in other parts of the body. Vennells (2001) articulates the word *reflex* as stimulus or reaction in the form of an increase, decrease, or rebalance of a particular physical, mental, or emotional function in the body.

Other definitions of reflexology have been presented, but they all carry the basic principle that the sole of the foot and the hand are connected to all parts of the human body and internal organs, and that there is a relationship among organs, systems, and processes. By using specific pressure techniques on the foot or hand, healing the whole body is possible. The left foot/hand represents the left site of the body and the right foot/hand represents the right site of the body.

## SCIENTIFIC BASIS

The foundations of reflexology can be traced from two different theories or schools of thought that have been documented in the reflexology literature. The first theory originates from Traditional Chinese Medicine and the second one from Zone Therapy.

### Traditional Chinese Medicine

The Chinese first began using reflexology roughly 5,000 years ago; however, its reputation has since declined in China. Its decline is believed to have been due to a rise in the popularity of acupuncture, which emerged from similar roots (Kunz & Kunz, 2003). Reflexology is thought to be of Eastern origin (Dougans, 1999), and it is congruent with the principle of organ representation from Traditional Chinese Medicine (TCM): the whole represents itself in the parts (Kaptchuk, 2000). This statement means that the feet are a microcosm, or holographic image of the body, where all organs, glands, and other body parts are laid out in a similar arrangement on the feet as they are in the body. The idea that the whole body can be represented in the parts is not new. For example, tongue diagnosis has been documented in China for at least 2,000 years. It is also evident in the iris of the eye, the face, and the ear (Omura, 1994).

TCM stipulates that there are a number of invisible energy pathways, or meridians within the body, that carry energy called Qi, which is the vital energy behind all processes. All organs are interconnected with each other by a meridian network system, and to maintain health, energy needs to be flowing in balance. Factors impeding the free circulation of Qi are divided into categories of “excess” and “deficiency.” Excess refers to the presence of something that is “too much” for the individual to handle—too

much food to digest, too much waste to eliminate, and so forth. Deficiency refers to the absence or relative insufficiency of one or more aspects of the life energies necessary for sustaining health and well-being. A deficiency or excess of life energy can allow outside factors to overwhelm the individual, thus inducing pathology and leading to pain and illness (Ehling, 2001; Kaptchuk, 2000).

In a healthy person with energy in balance, the feet feel soft when palpated and should have the same texture in every area. When an area is felt to be “empty” or is lacking in texture when palpated, it is an indication of deficiency in the energy of the corresponding organ or area in the body. If an area feels stiff and hard in texture when palpated, it indicates an excess of energy. If a lack of energy is found in one area, that means that some other area has too much energy. On empty areas, more aggressive pressure is needed to increase the energy flow, and more outgoing pressure is applied on the area that has too much energy in order to direct the flow out and away from this area. In that way, reflexology redirects excess energy in one area to another where there is an apparent deficiency in order to supplement a deficiency or to sedate an excess pattern. This process guides the client back to balancing the whole.

## Zone Therapy

The second theory originates from the West, and is often referred to as *zone therapy*. At the beginning of the 20th century Dr. William H. Fitzgerald found that pressure applied to some parts of the feet of his clients induced anesthesia in a specific part of the body. Hence he found that the body and organs were laid out in a similar arrangement to that in the soles of the feet. He divided the body into 10 longitudinal zones, running from the top of the head to the toes, and proposed that parts of the body within a certain zone were linked with one another; thus this idea became known as zone therapy. An American therapist, Eunice Ingham, is credited for establishing reflexology in its present form. She used the zones as a guiding map, but began to chart the feet according to where pressure would produce distinct effects in the body. She evolved a map of the entire body on the feet and called the areas reflexes. Her proposition was that when the bloodstream becomes blocked with waste materials or excess acid, calcium deposits start to form in the nerve endings, thus impeding the normal circulation of the blood and creating an imbalance in the various parts of the body, depending on where the blockage is. She believed that by using the specific pressure of reflexology, the calcium deposits on the feet can be detected as “gritty areas,” and the client may feel pain in those areas when touched. Ingham describes

these as resembling particles of frost when examined under a microscope. The pressure and massage techniques taught in reflexology are designed to dissipate these crystal blocks and to break down their crystalline structures. By doing so, the corresponding area connected with this particular nerve ending will receive an added supply of blood. In this way, the circulatory and lymphatic systems are stimulated, thus encouraging the release and removal of toxins, and the body starts to heal itself (Ing-ham, 1984).

Neither of these theories has been directly proven, which may explain why there is little agreement on how to classify reflexology. The NCCAM (National Center for Complementary and Alternative Medicine) classifies reflexology as a manipulative and body-based method (NCCAM, 2003), but many reflexologists see their practice as an energy therapy (Dougans, 1999; Vennells, 2001).

## INTERVENTION

The client will be lying comfortably, covered with a blanket, on a table somewhat higher than the chair in which the reflexologist sits, and will have pillows under the knees and the head to induce relaxation. In addition the client will be barefoot, with any tight clothes loosened so as not to hinder circulation. Then the client will be assessed continuously for tolerance of the amount of pressure applied. The pressure needs to be firm enough to activate the body's healing potentials, but must also be suitable for the client. Sensitivity varies in each individual, and the feet usually become more sensitive with subsequent treatments. Each area is worked, finishing the toe area on one foot and then treating the toe area on the other, and so on, going from one foot to the other.

Although it is emphasized that reflexology is to be applied on the feet as a whole, it is important to work specifically on several systems of the body. These specific systems are, for example: the digestive system to increase proper elimination, the lymphatic system to increase the clearance of waste materials, the bladder and kidneys to increase urine and energy flow as the kidneys are one source of Qi, the solar plexus, which is the area around the stomach where feelings and emotions are stored (this is important to know when working on this area to increase relaxation), all internal glands to stimulate their functions, and lungs to increase oxygen consumption. By using reflexology on these body systems, the reflexologist is increasing both circulation and elimination, and is also working on the meridians and affecting the flow of the Qi because all organs are interconnected with each other by meridians.

There are several techniques used, depending on what area of the foot is worked on. One hand is used to support the foot while the fingers and the thumb of the other are used to massage the skin. A period of 45 minutes to 1 hour is estimated to be enough time to perform reflexology on both feet; this will allow for extra time to work on specific areas that need further care. At the end of each session the client is encouraged to relax for several minutes. Reflexology can be used in combination with other complementary therapies such as massage (Long, 1996).

## **Techniques**

There are some standard pressure techniques for working on the reflexes of the feet. The two techniques described here are thumb walking and hook and back up (Kunz & Kunz, 2003). Other grips are used depending on what area one is working on. It is important not to forget any area and to finish one area before starting the next one. See Table 21.1.

## **Measurement of Outcomes**

The philosophy behind reflexology is that it affects the body as a whole, but based on the literature, which will be discussed in detail later, more studies have measured physiological or psychological outcomes of reflexology than its overall effects. It is important to measure the effect of reflexology over a period of sessions to gain insight about its overall benefits.

## **Precautions**

Before beginning treatment the nurse should always be well centered and make sure the patient is relaxed. It must be emphasized that many people do not like to have their feet touched and approval from the patient is needed before starting. The condition of the feet must be examined before massage for swelling, color, ulcerations, toe deformities, and odor (Kunz & Kunz, 2003). The physical condition of the patient is also very important and therefore his or her health history must be reviewed. If patients have a problem regarding the blood flow to the limbs because of diabetes, neurological diseases (Dougans, 1999; Ingham, 1984; Kunz & Kunz, 2003; Vennells, 2001), or arteriosclerosis, the therapist must be careful about the pressure of the massage, as the patient may be more alert to pain. The elderly may have concerns about things such as restricted

**TABLE 21.1** Techniques

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*Thumb walking*

The goal of the thumb walking technique is to apply a constant, steady pressure to the surface of the foot or the hand.

1. With the other hand (holding hand) stretch the sole of the foot. Rest your working thumb on the sole and your fingers on the top of the foot. Drop your wrist to create leverage, which exerts pressure with the thumb.
2. Bend and unbend the thumb's first joint, moving it forward a little bit at a time. When your working hand feels stretched, reposition it and continue walking it forward. Take a little step forward with each unbend. The goal is to take small bites to create a feeling of constant, steady pressure. Always walk in a forward direction, not backward. Keep your thumb slightly cocked as you work to prevent overextending it.

*Hook and back up*

The hook and back up technique is used to work a specific point, rather than to cover a large area. It is a relatively stationary technique, with only small movements of the working thumb involved. To avoid digging your fingernail into the flesh, apply pressure using more of the flat of the thumb.

1. Support and protect the area to be worked with the holding hand. The hand wraps around the area while the thumb and fingers hold it in place. Place the fingers of the working hand over those of the holding hand.
2. Place the working thumb in the center of the area to be worked. Hook and back up, using the edge of the thumb.

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Note: Adapted from *Reflexology: Health at your fingertips*, by K. Kunz and B. Kunz, 2003. New York: DK Publishing.

movement, incontinence, arthritis, and aching joints. Under those circumstances it may be better to consider comfort and touch as the primary goal.

## USES

Research testing the effects of reflexology is limited and includes many of the approaches and practices of reflexology used in the studies mentioned below. Some conditions for which it has been used are shown in Table 21.2.

Reflexology has been found to significantly reduce the anxiety and pain of patients with lung and breast cancer after one session (Stephenson, Weinrich, & Tavakoli, 2000). In another study, the duration of the effects



**TABLE 21.2** Uses of Reflexology

- 
- Decrease pain (Launsö, Brendstrup, & Arnberg, 1999; Stephenson, Dalton, & Carlson, 2003; Stephenson et al., 2000)
  - Decrease anxiety (Gambles, Crooke, & Wilkinson, 2002; Stephenson et al., 2000)
  - Improve the quality of life (Gambles et al., 2002; Hodgson, 2000; Milligan, Fanning, Hunter, Tadjali, & Stevens, 2002)
  - Reduce the symptoms of multiple sclerosis (Joyce & Richardson, 1997; Siev-Ner, Gamus, Lerner-Geva, & Achiron, 2003)
  - Promote relaxation (Gambles et al., 2002; Hodgson, 2000; Joyce & Richardson, 1997; Launsö et al., 1999; Milligan et al., 2002; Ross et al., 2002; Trousdell, 1996)
  - Improve sleep (Gambles et al., 2002; Joyce & Richardson, 1997; Milligan et al., 2002)
- 

of reflexology on pain was tested in patients with various types of cancer. The immediate effects were supported, but the pain-relieving effects were not significant at 3 and at 24 hours after the reflexology session (Stephenson et al., 2003). In a study by Ross and colleagues (2002), the effects of reflexology on anxiety and depression were compared to those of simple foot massage in two groups of cancer patients. These patients received six sessions of intervention, and depression and anxiety were measured at baseline and within 24 hours after each session. No significant differences were found between the groups with respect to anxiety and depression, but both groups indicated deriving relaxing effects from the treatment.

Quality of life (QoL) has been found to be enhanced in cancer patients after reflexology. To examine if reflexology has any impact on QoL, Hodgson (2000) studied 12 cancer patients. They were randomized into two groups to receive either reflexology or placebo for 40 minutes. All of the participants in the reflexology group reported an increase in QoL, compared to 33% in the placebo group. To investigate patient satisfaction with reflexology service and its impact on QoL, an audit was undertaken in a Scottish hospice (Milligan et al., 2002). Twenty cancer patients completed self-report questionnaires after receiving from three to more than five reflexology sessions from a nurse trained in the therapy. The patients reported that reflexology reduced pain, improved sleep, enhanced relaxation, and reduced stress. In England, a similar study took place in which 34 cancer patients under palliative care were asked to comment about reflexology therapy they had received (Gambles et al., 2002). The

patients received from four to six individually tailored interventions. They commented on reflexology as being emotionally beneficial in reducing anxiety and tension, improving sleep, and coping with the side effects of medications.

Patients with multiple sclerosis (MS) tend to suffer from a variety of chronic muscular symptoms. In a study by Joyce and Richardson (1997), improvements were found in sleep, balance, pain, and spasms; however, these findings were based only on subjective responses. Siev-Ner and colleagues (2003) conducted a randomized, controlled clinical trial to detect the effects of reflexology on the symptoms of MS. Statistically significant positive differences for the scores of paresthesia, urinary symptoms, and spasticity were found in the group receiving reflexology compared to the control group.

Reflexology has been found to have an impact on migraine headaches (Launsö et al., 1999). Two hundred and twenty patients with migraine headaches receiving reflexology sessions for 6 months reported a decrease in their medication consumption. By the final treatment, 23% of the patients reported being cured, and 55% were completely relieved of their symptoms.

Eleven women with emotional problems received eight reflexology sessions (Trousdell, 1996). In open-ended interviews afterward they all reported increased relaxation, and many of them found improvements in their emotional and mental state such as feeling higher self-esteem and more in control. Furthermore, many of the women reported a number of physical and emotional improvements including reduced irritable bowel syndrome symptoms; alleviation of back problems; reduced premenstrual symptoms; and improvements in headache pain, appetite, and sleep.

Two studies in Denmark were conducted to test the effects of reflexology on symptoms of asthma (Brygge et al., 2001; Petersen, Faurschou, Olsen, & Svendsen, 1992). Neither study found significant effects. Similarly, the symptoms of irritable bowel syndrome were not found to improve significantly in a study by Tovey (2002).

## FUTURE RESEARCH

The scientific basis behind reflexology is growing, and promising results of its use for some symptoms are beginning to emerge, but more rigorous research is needed if it is to be used effectively by nurses within health care settings. Although the principle behind reflexology states that it can affect the body as a whole, this phenomenon has not been captured in the studies reviewed. Nurses are in a primary position to conduct research

on reflexology because their holistic background is in tune with its philosophies. Some questions for future research are:

1. What are the specifics of reflexology in relation to other complementary therapies? Recommendations from best clinical practice experience and valid research findings should be used in combination to guide the results (Mackereth, Dryden, & Frankel, 2000).
2. What is the mechanism behind reflexology? This needs to be better understood to provide a basis for outcome measures.
3. How do patients experience reflexology, and how do they give meaning to these experiences and the effect of the therapist on the overall outcome? Using qualitative research methods may greatly enhance the understanding and increase the validity of the results (Verhoef, Casebeer, & Hilsden, 2002).

### REFLEXOLOGY-SPECIFIC WEB SITES

Kevin and Barbara Kunz hold out two web sites offering the basics on reflexology theory and practice and information on developments in reflexology research.

[www.reflexology-reserach.com](http://www.reflexology-reserach.com)

[www.foot-reflexologist.com](http://www.foot-reflexologist.com)

Other web sites offer lists of worldwide reflexology organizations and interactive information on reflexology products and practice.

[www.reflexology-usa.net](http://www.reflexology-usa.net)

[www.reflexology.org](http://www.reflexology.org)

[www.myreflexologist.com](http://www.myreflexologist.com)

[www.aor.org.uk](http://www.aor.org.uk)

[www.icr-reflexology.org](http://www.icr-reflexology.org)

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## PART IV

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# Manipulative and Body-Based Therapies

### OVERVIEW

This category of the National Center for Complementary/Alternative Medicine (NCCAM) includes therapies that involve the manipulation and movement of body parts. Three large groups of therapies comprise this category: chiropractic, osteopathy, and massage. Other therapies in this category are reflexology, Trager body work, acupuncture, acupressure, and Rolfing. (Acupressure and reflexology were placed in Part III because of their tie with the flow of energy.) Nurses may use some of the other therapies in this group such as hydrotherapy, diathermy, light and color, heat, and alternate nostril breathing.

Massage, in the form of back rubs, is a basic skill that has been included in nursing curricula over the years. In recent years back rubs have been largely abandoned by nurses with “too busy” the reason cited for the decline in use. However, a number of nurses have pursued education to become massage therapists. The practice of massage therapy is often separate from their practice of nursing, although some nurses who are massage therapists use this modality in nursing homes and in independent practice as advanced practice nurses.

Although many of the therapies in this group are routinely administered by other therapists such as chiropractors and massage therapists, a number of them are used by nurses. Exercise is commonly prescribed

to promote health and prevent disease. Likewise, Tai Chi can be used to improve health and functioning. Nurses teach and coach patients in techniques of muscle relaxation to achieve benefits such as pain relief, improved sleep, and reduced symptoms of stress. A growing body of research on these therapies supports their use.

## CHAPTER 22

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# Massage

Mariah Snyder

Massage is an ancient therapy that has been used in China for more than 5,000 years (McRee, Noble, & Pasvogel, 2003). It is one of the most widely used complementary therapies and has been part of the nursing armamentarium for centuries. Ironically, however, at a time when massage is increasingly being used by the general public, nurses rarely administer back rubs or other types of massage. Rather, some institutions have massage therapists on staff with patients paying for these services.

Massage is often combined with other therapies such as music, aromatherapy, acupuncture, and simple touch, making it hard to differentiate the specific effects of massage from those resulting from a combination of therapies. The results in many studies point to the positive effects of massage in producing relaxation, improving sleep, and reducing pain.

### DEFINITION

The term *massage* is derived from the Arabic word *mass'h*, which means to press gently (Furlan, Brosseau, Imamura, & Irvin, 2004). As defined by the American Massage Therapy Association (2004), massage is “the application of manual techniques and adjunctive therapies with the intention of positively affecting the health and well-being of the client.” Various



strokes are used in applying friction and pressure on cutaneous and subcutaneous tissue. Results depend on a number of factors: type and speed of movements; pressure exerted by the hands, fingers, or thumbs; and area of the body treated.

There are a number of types of massage: Swedish (a more vigorous massage with long, flowing strokes); Esalen (a meditative massage with a light touch, and a highly variable style); deep tissue or neuromuscular (an intense kneading of the body); sports (a vigorous massage to loosen and ease sore muscles); Shiatsu (a Japanese pressure-point technique to relieve stress); and reflexology (a deep foot massage stimulating all parts of the body). The various types of massage incorporate different strokes and procedures. Strokes can be administered to the entire body or to specific areas such as the back, feet, or hands.

## SCIENTIFIC BASIS

Massage is a natural healing process that helps to connect the body, mind, and spirit. It produces therapeutic effects on multiple body systems: integumentary, musculoskeletal, cardiovascular, lymph, and nervous. Manipulating the skin and underlying muscle makes the skin more supple. Massage increases or enhances movement in the musculoskeletal system by reducing swelling, loosening and stretching contracted tendons, and aiding in the reduction of soft-tissue adhesions. Friction to the cutaneous and subcutaneous tissues releases histamines that in turn produce vasodilation of vessels and enhance venous return.

Massage has been found to produce a relaxation response (Hattan, King, & Griffiths, 2002; Holland & Pokorny, 2001; McNamara, Burnham, Smith, & Carroll, 2003). Investigators have reported that massage resulted in a decrease in physiological parameters (systolic and diastolic blood pressure, heart rate, and skin temperature) indicative of the relaxation response (Holland & Pokorny; Snyder, Egan, & Burns, 1995a).

Reduction of pain, a frequently desired outcome of massage, is closely related to the production of the relaxation response. Reports from numerous studies have validated that patients were more comfortable after the administration of massage (Chang, Wang, & Chen, 2002; Furlan et al., 2004; Hernandez-Rief et al., 2001; Walach, Guthlin, & Konig, 2003). The positive impact of massage on pain reduction is often posited on the gate control theory with massage stimulating the large diameter nerve fibers that have an inhibitory input on T-cells (Furlan et al.).

Results from some studies on the use of massage have shown that it does not always produce relaxation. One factor that may contribute

to the arousal response is that a short duration of massage may initially cause stimulation of the sympathetic nervous system before the relaxation response occurs (Ferrell-Torry & Glick, 1993). Tyler, Winslow, Clark, and White (1990) administered a 1-minute back rub to patients who were critically ill. Findings included increases in the heart rate and decreases in the  $SVO_2$ ; these gradually returned to baseline after 4 minutes. The investigators suggested that although these changes were statistically significant, they were not clinically significant as the heart rate only increased by four beats per minute. However, in the majority of studies reviewed, subjective indices for relaxation (anxiety inventories and self-reports) suggested that subjects felt relaxed after the massage intervention.

The impact of massage on the psychoneuroimmunological functions of the body and mind is beginning to be explored. Groer and colleagues (1994) reported that administering a 10-minute back massage stimulated the production of antibodies (salivary secretory immunoglobulin A, s-IgA). Anecdotal reports have suggested that massage has produced positive results in persons with HIV infection.

Massage is a holistic therapy and as such promotes overall health. Studies have shown that it also improves psychological well-being (Chang et al., 2002; Hattan et al., 2002), quality of life (Wilkinson, Aldridge, Salmon, Cain, & Wilson, 1999), and self-esteem (Hernandez-Rief, Field, Fielt, & Theakston, 1998). Hanley, Stirling, and Brown (2003) commented that although the patients in a massage group offered no different findings on sleep and well-being than patients who listened to a relaxation tape, patients expressed a strong preference for massage versus the relaxation tape.

## INTERVENTION

The techniques for hand and shoulder massage will be presented. The environment in which massage is administered and the oils or lotion used add to the therapeutic effects. Room temperature is very important; the room must be warm enough so that the person is comfortable. Shivering would negate the effects of the massage. In addition, privacy needs to be ensured.

Adding music and aromatherapy to a massage session has been thought to increase its effectiveness. Fellowes, Barnes, and Wilkinson (2004), however, did not find any convincing evidence that aromatherapy contributed to additional improvement in outcomes. Chapter 7 details the intervention of music and aromatherapy is described in chapter 26.

## Massage Strokes

The various types of massage involve several stroke techniques. Commonly used strokes include effleurage, friction, pressure, petrissage, vibration, and percussion. Effleurage is a slow, rhythmic stroking with light skin contact. It may be applied with varying degrees of pressure, depending on the part of the body being massaged and the outcome desired. The palmar surface of the hands is used for larger surfaces with the thumbs and fingers used for smaller areas. On large surfaces, long, gliding strokes about 10 to 20 inches in length are applied.

In friction movements, moderate, constant pressure to one area is made with the thumbs or fingers. The fingers may be held in one place or moved in a small circumscribed area. The pressure stroke is similar to the friction stroke, except that pressure strokes are made with the hands.

Petrissage, or kneading, involves lifting a large fold of skin and the underlying muscle and holding the tissues between the thumb and fingers. The tissues are pushed against the bone, then raised and squeezed in circular movements. The grasp on the tissues is alternately loosened and tightened. Tissues are supported by one hand while kneading is done with the other hand. Variations of kneading include pinching, rolling, wringing, and kneading with fists or fingers. Petrissage is limited to tissues having a significant muscle mass.

Vibration strokes can be administered with either the entire hand or with the fingers. Rapid, continuous strokes are used. Because administering vibration strokes requires much energy, mechanical vibrators are often used.

For percussion strokes, the wrist acts as a fulcrum for the hand, with the hand hitting the tissue. Strokes are made with a rapid tempo over a large body area. Tapping and clapping are variants of percussion strokes.

## Shoulder Massage

Shoulder massage can be easily implemented by nurses and others. The person receiving the massage sits so that the back is accessible to the person administering it. The massage can be administered with the person's shoulders uncovered or clothed. If clothed, no oil or lotion is used.

The massage begins with some gentle pressure applied on the shoulders using the palm of the hand. Next, attention is given to stretching the trapezius muscles, moving from the center of the back to the insertion in the scapula at the shoulder joint. Fingers can be used to massage the fibers in the muscles of the shoulder. The skin can be lifted and the muscle fibers massaged between the fingers. Attention is given to the attachment

of the muscles at the base of the skull by massaging up the neck and cross fibers and stretching the muscles. If the person is unable to hold the head up, a hand can be placed on the forehead to support the head. The massage is concluded with lighter percussion strokes along the top of the shoulder.

## Hand Massage

A technique for implementing hand massage is presented in Table 22.1. The technique is easy to implement with many populations including

**TABLE 22.1** Technique for Hand Massage

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Each hand is massaged for 2<sup>1</sup>/<sub>2</sub> minutes. Do not massage if hand is injured, reddened, or swollen.

1. Back of hand
    - (a) Short medium-length straight strokes are done from the wrist to the finger tips; moderate pressure is used (effleurage).
    - (b) Large half-circle stretching strokes are made from the center to the side of the hand using moderate pressure.
    - (c) Small circular strokes are made over the entire hand using light pressure (make small O's with the thumb).
    - (d) Featherlike straight strokes are made from the wrist to the fingertips using very light pressure.
  2. Palm of hand
    - (a) Short, medium-length straight strokes are made from the wrist to the fingertips using moderate pressure (effleurage).
    - (b) Gentle milking and lifting of the tissue of the entire palm of the hand is done using moderate pressure.
    - (c) Small circular strokes are made over the entire palm using moderate pressure (making little O's with index finger).
    - (d) Large half-circle stretching strokes are used from the center of the palm to the sides using moderate pressure.
  3. Fingers
    - (a) Gently squeeze each finger from the base to the tip on both sides and the front and back using light pressure.
    - (b) Gentle range of motion of finger.
    - (c) Gentle pressure on nail bed.
  4. Completion
    - (a) Place client's hand on yours and cover it with your other hand. Gently draw your top hand toward you several times. Turn the client's hand over and gently draw the other hand toward you several times.
-

older adults (Cho & Snyder, 1996; Snyder et al., 1995a) and infants and children (Field, 2002). The time suggested for administering massage is 2<sup>1</sup>/<sub>2</sub> minutes per hand. However, the amount of time needed can be individualized for each patient.

### **Measurement of Outcomes**

Both physiological and psychological outcomes have been used to measure the effectiveness of massage. Indices of relaxation (heart rate, blood pressure, skin temperature, and muscle tension) have been measured in many studies. Anxiety inventories and scales to determine pain level, sleep time and quality, and quality of life indices have been used to determine the efficacy of massage. It is important that both short- and long-term effects of massage be measured.

### **Precautions**

Before administering massage, the nurse should explain the intervention and obtain the patient's permission. Also, a history and assessment need to be made to determine if patients have received massage in the past and if they experienced any adverse reactions, and to ascertain their overall response to touch. The area to be massaged is assessed for redness, bruises, edema, or rashes. Some people may be averse to being touched because of past negative experiences. Others may be hypersensitive to touch. One method for overcoming this sensitivity is beginning with light touch and slowly increasing the pressure.

Because blood pressure may be lowered during massage, initial monitoring for light-headedness is suggested following the initial massage sessions, particularly in older adults. Allowing a light-headed person to remain recumbent for several minutes may help to lessen hypotension. Monitoring of blood pressure and pulse rate are needed in persons with cardiac conditions to determine if adverse effects are being experienced.

Ernst (2003) reviewed literature to determine adverse reactions to massage. Although a number of negative reactions were noted, the majority of these were associated with exotic types of massage and not with the Swedish massage technique.

## **USES**

A list of conditions for which massage has been used is found in Table 22.2. Use of massage to produce relaxation and reduce pain will be discussed.

**TABLE 22.2** Uses for Massage

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Promote relaxation

- Decrease aggressive behaviors (Snyder et al., 1995a, 1995b)
- Produce sleep (Richards, 1998)
- Lessen fatigue (Ahles et al., 1999)

Lessen pain (Chang et al., 2002; Ernst, 2004; Hulme, Waterman, & Hillier, 1999)

Improve mobility (Smith, Stallings, Mariner, & Burrall, 1999)

Increase weight in preterm infants (Field, 2002)

Increase psychological well-being (Hattan et al., 2002)

Lessen depression (Kite et al., 1998)

Lessen anxiety (Fellowes et al., 2004; Johnson, Frederick, Kaufman, & Mountjoy, 1999)

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## Relaxation

Many people use a massage therapist to ameliorate their stress. Holland and Pokorny (2001) reported a positive response in patients in a rehabilitation setting to a slow stroke back massage. Hattan and colleagues (2002) found that subjects receiving foot massage reported feeling much calmer than before the therapy. In a review of studies on the use of massage in acute and critical care, Richards, Gibson, and Overton-McCoy (2000) found that massage decreased anxiety in 8 of the 10 studies in which it was administered.

In addition to patients, massage can also be used with family members who are experiencing high levels of stress due to the condition of the family member who is a patient. A short hand massage may help to relax a family member who has difficulty resting or sleeping. Lloyd (1995) suggested that nurses could give quick massages to colleagues to promote relaxation.

## Pain

Numerous studies have found that massage resulted in reduction of pain. Ernst (2004), in a meta-analysis of seven studies, found that Swedish massage may be effective in lessening pain. However, the investigator also noted that there were many methodological concerns about the studies, such as small sample size, short follow-up, and no funding of investigator to group. In a review of research on the use of massage and

aromatherapy in persons with cancer, Fellowes and colleagues (2004) found a reduction in pain in three studies. Hulme et al. (1999) reported that foot massage decreased postoperative pain, with similar findings reported by Nixon, Teschendorff, Finney, and Karnilowicz (1997) and Wang and Keck (2004).

## FUTURE RESEARCH

In reviews of the research that have been conducted using massage, a number of methodological issues were identified. One challenge posed in conducting research on massage is having a comparable control group. McNamara and others (2003) compared massage and standard care in patients having a diagnostic test. Others have compared the effects of massage and other therapies such as imagery (Hattan et al., 2002). The following are suggestions for research that will help guide practitioners in using massage.

1. Few studies on massage have investigated the impact it has on psychoneuroimmunological functions. Such studies would help validate its effects on health conditions such as HIV infection and cancer.
2. Ernst (2003) examined studies to determine the safety of massage. Studies need to give more attention to determining any adverse effects of the various types of massage and its use with different conditions and populations.
3. As noted earlier, massage has often been combined with other therapies such as aromatherapy and music. Designs are needed that determine differences in outcomes with the combination of therapies. Fellowes and colleagues (2004), in their review of aromatherapy and massage, questioned whether the use of aromatherapy added anything to the outcomes beyond those outcomes that might be attributable to massage.

## WEB SITES

The following are web sites that will provide additional information about massage:

<http://www.massagenetwork.com>

<http://www.massagetherapy.com>

<http://www.massageresource.com>

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## CHAPTER 23

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# Exercise

Diane Treat-Jacobson, Daniel L. Mark, and Ulf Bronäs

### BACKGROUND

Exercise is rapidly becoming recognized as a lifelong endeavor essential for energetic, active, and healthy living. Mortality and morbidity are reduced in physically fit individuals compared with sedentary individuals (Kujala, Kapiro, Sarna, & Koskenvuo, 1998; Paffenbarger et al., 1993; Sherman, D'Agostino, Cobb, & Kannel, 1994). The research supporting the benefits of exercise is substantial. Its effects have been linked to many positive physiological and psychological responses, from reduction in the stress response to an increased sense of well-being (Crews & Landers, 1987; Pender, 1996). Surprisingly, despite the tremendous benefits of exercise, it is an activity largely ignored by the general population. Indeed, the U.S. Surgeon General (1996) issued a report identifying millions of inactive Americans as being at risk for a wide range of chronic diseases and ailments including coronary heart disease (CHD), adult onset diabetes, colon cancer, hip fractures, hypertension, and obesity. *Healthy People 2010* (2000) specified several objectives for improving health, including physical activity and exercise. These include reducing the percentage of adults who do not participate in any physical activity, increasing the percentage of adults who engage in moderate physical activity on most days of the week, and increasing the percentage of adults participating

in vigorous exercise, as well as exercises to improve strength and flexibility. There are additional objectives related to physical activity and exercise habits of children and adolescents, including goals to increase participation in daily school physical education classes. The alarmingly low (<27%) percentage of children participating in physical activity in school and outside of school is reportedly contributing to the nation's growing childhood obesity problem (Andersen, Crespo, Bartlett, Cheskin, & Pratt, 1998; McKenzie et al., 1996).

It is important to recognize the role of exercise as a component of good health. Exercise *must* be an integral part of personal lifestyle if it is to have optimum effects. Maintaining physical fitness can be enjoyable and rewarding for persons of all ages and can contribute significantly to extending longevity and improving quality of life. Nurses' knowledge of exercise and its application in multiple populations will assist in the delivery of expert nursing care. This chapter discusses the definition, physiological basis, and application of exercise as a nursing intervention.

### DEFINITION

Physical activity is defined as "any bodily movement produced by skeletal muscles that results in caloric expenditure" (Pender, 1996, p. 185). Definitions of exercise are complex and vary according to discipline; however, they all incorporate physical activity into their descriptions. Exercise is commonly considered to be a planned, recurring subset of physical activity that results in physical fitness, a term used to describe cardiorespiratory fitness, muscle strength, body composition, and flexibility related to the ability of a person to perform physical activity (Thompson et al., 2003).

Exercise is commonly classified according to the rate of energy expenditure, which is expressed in either absolute terms as metabolic equivalents (MET) or in relative terms according to what percentage of maximal heart rate or maximal oxygen consumption exercise is performed (Astrand, Rodahl, Dahl, & Stromme, 2004; Thompson et al., 2003). Exercise is aerobic when the energy demand by the working muscles is supplied by aerobic ATP production as allowed by inspired oxygen and mitochondrial enzymatic capacity (Astrand et al.). In general, aerobic exercise increases demand on the respiratory, cardiovascular, and musculoskeletal systems. Sustained periods of work require aerobic metabolism of energy at a level compatible with the body's oxygen supply capabilities (i.e., oxygen uptake equals oxygen requirements of the tissues). Anaerobic exercise is exercise during which the energy demand exceeds what the body is able to produce through the aerobic process or when the body is performing short bursts of high intensity exercise (Astrand et al.; Kisner & Colby, 1996).

## SCIENTIFIC BASIS

Better understanding of exercise physiology and the body's response to various stages of physical activity will assist in the development of exercise programs appropriate for the individual and the goal of the exercise. The response of the body to exercise occurs in stages. The initial response to acute exercise is a withdrawal of parasympathetic stimulation of the heart through the vagal nerve. This results in a rapid increase in heart rate (HR) and cardiac output (CO). The sympathetic stimulation occurs more slowly and becomes a dominant factor once HR is above approximately 100 beats per minute. Sympathetic stimulation is fully completed after approximately 10 to 20 seconds during which time a large sympathetic outburst occurs and the heart overshoots the rate needed, but then returns to the rate required for increased activity (Rowell, 1993). The brain stimulates the initial cardiovascular response together with impulses from muscles being exercised, which are sent to the brain; an increase in the heart rate is initiated and the blood flow is shunted toward the exercising muscles (Astrand et al., 2004; Fletcher, 1982; Rowell, 1993). During this phase, there is a sluggish adjustment of respiration and circulation, resulting in an O<sub>2</sub> deficit; the initial energy needed by the exercising tissue is mainly fueled by the anaerobic metabolism of creatine phosphate and anaerobic glycolysis (glucose) (Kisner & Colby, 1996).

As exercise continues, oxygen consumption (VO<sub>2</sub>) increases in a linear fashion in relation to the intensity of exercise. The increase in VO<sub>2</sub> is caused by an increase in oxygen extraction by the working muscles and an increase in cardiac output (CO). Oxygen extraction by the working muscle tissues is approximately 80% to 85% or a three-fold increase from rest, in sedentary and moderately active individuals. This is caused by an increase in the number of open capillaries, thereby reducing diffusion distances and increasing capillary blood volume (Fletcher et al., 2001; Rowell, 1993). Cardiac output is increased to meet the increased O<sub>2</sub> demands of the working muscle. The increase in CO is due to increased stroke volume (SV) which is due to an increase in ventricular filling pressure brought on by increased venous return and decreased peripheral resistance offered by the exercising muscles. Together with the withdrawal of parasympathetic stimulation and increases in sympathetic stimulation, the increase in heart rate (HR) further accentuates the increase in CO as well as increased myocardial contractibility (from positive inotropic sympathetic impulses to the heart) (Astrand et al., 2004; Fletcher, 1982). In normal individuals, CO can increase 4 to 5 times, allowing for increased delivery of O<sub>2</sub> to exercising muscle beds and facilitating removal of lactate, CO<sub>2</sub>, and heat. Respiration increases to deliver O<sub>2</sub> and to allow for elimi-

nation of CO<sub>2</sub>. Blood pressure increases as a result of increased cardiac output and the sympathetic vasoconstriction of vessels in the non-exercising muscles, viscera, and skin. During this “steady state” exercise phase, O<sub>2</sub> uptake equals O<sub>2</sub> tissue requirement, aerobic metabolism of glucose and fatty acids occurs, and there is no accumulation of lactic acid.

As exercise becomes more strenuous, there is a shift toward anaerobic metabolism of glucose, resulting in increased production of lactic acid (Balady & Weiner, 1992). The anaerobic threshold is a point during exercise at which ventilation abruptly increases despite linear increases in work rate. As exercise goes beyond steady state, the O<sub>2</sub> supply does not meet the oxygen requirement, and energy is provided through anaerobic glycolysis and creatine phosphate breakdown. This increases proton release and phosphate accumulation, increasing acidosis (Robergs, Ghiasvand, & Parker, 2004; Westerblad, Allen, & Lannergren, 2002). Shortly beyond the anaerobic threshold, fatigue and dyspnea ensue and work ceases. This usually coincides with a significant drop in blood glucose levels (Hargraves, 1995). Exercise at a level that allows for aerobic metabolism and reduces the need for anaerobic metabolism and reliance on glucose metabolism as the primary fuel may delay onset of these symptoms.

Following cessation of exercise, there is a period of rapid decline in oxygen uptake followed by a slow decline toward resting levels. This slow phase of oxygen uptake return is termed excess post-exercise oxygen consumption. During this period, the body attempts to resynthesize used creatine phosphate, remove lactate, restore muscle and blood oxygen stores, decrease body temperature, return to resting levels of HR and BP, and lower circulating catecholamines (Astrand et al., 2004; Fleg & Lakatta, 1986). It is important to facilitate this phase of exercise by performing a 5- to 10-minute cool-down, as will be discussed below.

## INTERVENTION

*Healthy People 2010* is a set of objectives for the nation to try to achieve by 2010 ([www.healthypeople.gov](http://www.healthypeople.gov)). One of these objectives is to improve health, fitness, and quality of life through daily physical activity. According to the NIH consensus statement (1995), exercise is considered to be beneficial to health. In 1996 the U.S. Surgeon General released a report detailing the benefits of physical activity including (1) decreased risk of premature death, (2) decreased risk of premature death from heart disease, (3) decreased risk of acquiring type 2 diabetes, (4) decreased risk of incurring high blood pressure, (5) decreased high blood pressure in hypertensive individuals, (6) decreased risk of acquiring colon cancer,

and (7) decreased feelings of uneasiness and despair. According to this report, exercise also (8) aids in weight control, (9) helps in the strengthening and maintenance of muscles, joints, and bones, (10) assists older adults with balance and mobility, and (11) fosters feelings of psychological well-being. In addition to these benefits, the American Heart Association (Thompson et al., 2003) and the American College of Sports Medicine (Mazzeo et al., 1998; Pollock et al., 1998) have published scientific statements summarizing evidence confirming physical activity as a significant factor in both primary and secondary prevention of cardiovascular disease. There is a relationship between lack of physical activity and development of coronary artery disease and increased cardiovascular mortality (Thompson et al.). Further, there is evidence that persons who engage in regular exercise as part of their recovery post myocardial infarction have improved rates of survival (Fletcher et al., 1996).

Given that the benefits apply to all age groups across a broad spectrum of health and disease, it is important for nurses to recognize opportunities to promote exercise as a nursing intervention. There are countless activities included under the umbrella of exercise. Finding the activity that fits an individual's capabilities and that meets the purposes for which exercise is prescribed is key to the success of the intervention (Gavin, 1988). When prescribing an intervention, it is important to take into account the recommended exercise intensity for the patient population being served.

Evidence suggests that exercise is more likely to be initiated if the individual (1) recognizes the need to exercise, (2) perceives the exercise to be beneficial and enjoyable, (3) perceives that the exercise has minimal negative aspects such as expense, time burden, or negative peer pressure, (4) feels capable and safe engaging in the exercise, (5) has ready access to the activity and can easily fit it into the daily schedule (NIH Consensus Statement, 1995).

## Technique

An exercise session should involve three phases: warming up, aerobic exercise, and cooling down. These phases are designed to allow the body opportunity to sustain internal equilibrium by gradually adjusting its physiological processes to the stress of exercise and thus maintaining homeostasis.

### *Warm-Up Phase*

The goal of the warm-up is to allow the body time to adapt to the rigors of aerobic exercise. Warming up results in an increase in muscle

temperature, a higher need for oxygen in order to meet the increased demands of the exercising muscles, dilatation of capillaries resulting in increased circulation, adjustments within the neural respiratory center to the demands of exercise, and a shifting of blood flow centrally from the periphery, resulting in increased venous return (Kisner & Colby, 1996). In addition, a good warm-up increases flexibility and decreases or prevents arrhythmias and ischemic ECG changes (Kisner & Colby). Warming-up exercises should be done for 10 minutes, involve all major body parts, and achieve a heart rate within 20 beats per minute of the target heart rate for the following aerobic exercise (Kisner & Colby). In addition, a good warm-up should incorporate stretching exercises. Stretching exercises are done at a slow, steady pace and help maintain a full range of motion in body joints while strengthening tendons, ligaments, and muscles.

### *Aerobic Exercise Phase*

The aerobic phase of exercise is also known as the stimulus phase. It consists of four essential components: intensity (which is usually measured as the relative percentage of maximal aerobic capacity), frequency, duration, and mode of exercise. The combination of these components determines the effectiveness of the exercise. The mode of exercise should involve rhythmic, continuous movement of large muscle groups such as walking, jogging, cycling, swimming, or cross-country skiing. The frequency should be most days of the week, with a duration of at least 30 to 60 minutes of cumulative exercise. This could be achieved by exercising 3 times for 10 to 20 minutes. The intensity should be moderate or between 55% and 90% of maximum heart rate as calculated by the method described below. For most individuals physical fitness improvements may be gained with an intensity of 55% to 75% of maximal heart rate.

As physical fitness improves, it may be necessary to increase one of the components to gain additional benefits (Institute of Medicine Report [IOM], 2004; NIH Consensus Statement, 1995; Pollock et al., 1998; U.S. Surgeon General, 1996). It should be emphasized to the patient that it is the accumulated amount of daily moderate physical activity and exercise that is important. Although individuals who perform 30 minutes of accumulated moderate physical activity show significant health benefits compared to sedentary individuals, those who perform 60 minutes show additional health benefits, including prevention of weight gain. A balance needs to be achieved to obtain maximal benefit with the least risk and discomfort. Adjustment of intensity is important not only for safety rea-

sons, but also for comfort and enjoyment of the activity (Foster & Tamboli, 1992). If exercise can be kept at a comfortable level, the individual is more likely to continue to perform the activity. As tolerance develops, any or all of the exercise components can be increased to meet the individual's aerobic capacity. For example, if an individual is comfortable with the intensity of the exercise, the duration and frequency can be increased to further improve training effect.

### *Cool Down*

Immediately following the endurance exercises, the person should engage in a cooling-down period. The cool down allows the body to return to its normal resting state. This allows the HR and BP to return to resting levels and attenuates any post-exercise hypotension by improving venous return. The cool down also improves heat dissipation and elimination of blood lactate, and provides a means to combat any potential post-exercise rise in catecholamines (Fleg & Lakatta, 1986). Five to ten minutes are needed for the body to adjust to a slower pace. Cooling-down exercises may include walking slowly and deep breathing, and stretching.

### *Maintenance*

The maintenance phase begins after 6 months of regular training, with the goal of maintaining achieved improvements in physical fitness (NIH Consensus Statement, 1995). Maintaining the exercise program is the key to the effectiveness of the intervention. Setting both short- and long-term goals helps improve adherence. The individual can experience a sense of accomplishment upon meeting short-term goals while still striving for overall goals. Keeping a record or graph supplies a visual demonstration of progress and may provide insight into adjustments to the exercise program that may assist in achievement of goals.

### *Reversibility and Detraining*

Once participation in exercise has ceased there is a rapid return to pre-exercise levels of physical fitness. Most of the rapid decline occurs during the first 5 weeks following cessation of exercise and is usually complete within 12 weeks (Coyle et al., 1984; Saltin et al., 1968). With disuse, the muscle tissues atrophy. Additionally, the decreased caloric expenditure leads to a positive energy balance, which can result in increased accumulation of adipose tissue.



## Specific Technique: Walking

One of the strategies identified by *Healthy People 2010* to improve health and quality of life through daily physical activity is an increase in “trips made by walking.” Walking has declined rapidly in the United States and has reached the point at which 75% of all trips 1 mile or less are made by car (U.S. Department of Transportation [DOT], 1994). Walking is an easy and enjoyable activity that has significant health benefits. Moreover, it is an exercise in which persons of all age groups and with varying levels of ability or disability can engage to improve endurance. A major advantage is that walking requires no special equipment, facilities, or new skills. It is also safer and easier to maintain than many other forms of exercise. Intensity, duration, and frequency are easily regulated and adjusted to accommodate a wide range of physical capabilities and limitations. The initial intensity should be outlined at the start of the program and is dependent on baseline level of conditioning, physical or disease-related limitations or precautions, and outcome goals.

A walking program can be approached in two ways. The exercise can be completed in one or more daily sessions. For example, a previously sedentary individual may wish to begin an exercise program consisting of 2-minute brisk walks throughout the day. This could be increased to 5-minute walks, and then 10-minute walks as stamina increases. The more traditional alternative is to engage in one longer session at least three times per week; the recommended frequency for optimal benefits is 60 minutes of enjoyable moderate physical activity most days of the week (Daniels et al., 2005). These sessions would include a warm-up session for 5 to 10 minutes, an aerobic period that could start at 10 to 15 minutes and be gradually increased 30 to 60 minutes, and a cool-down period of 5 to 10 minutes (AHA, 1995). Tips for fitness walking are included in Table 23.1.

Exercising individuals should monitor their body’s response to the activity to ensure that the intensity is appropriate. This can be done in several ways:

*Monitor Target Heart Rate:* The target heart rate for a previously sedentary individual should be between 50% and 75% of the maximal heart rate, which is calculated by subtracting one’s age from 220 (AHA, 1995) to gain improvements in physical fitness. The heart rate should be assessed one-third to halfway through the exercise session and immediately after stopping exercise. Exercise intensity can be increased or decreased based on this measurement.

*The Talk Test:* The talk test can replace target heart rate monitoring when an individual is exercising at a moderate intensity. If

**TABLE 23.1** Tips for Fitness Walking

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- Warm up by performing a few stretches.
  - Think tall as you walk. Stand straight with your head level and your shoulders relaxed.
  - Your heel will hit the surface first. Use smooth movements rolling from heel to toe.
  - Keep your hands free and let your arms swing naturally in opposition to your legs.
  - When you're ready to pick up the pace, quicken your step and lengthen your stride, but don't compromise your upright posture or smooth, comfortable movements.
  - To increase your intensity, burn more calories, and tone your upper body, bend your arms at the elbows and pump your arms. Keep your elbows close to your body.
  - Breathe in and out naturally, rhythmically, and deeply.
  - Use the "Talk Test" to check your intensity, or take your pulse to see if you are within your target heart rate.
  - Cool down during the last 3 to 5 minutes by gradually slowing your pace to a stroll.

American Heart Association (1995)

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the exercise prevents the individual from talking comfortably, the intensity should be decreased. A variation of this technique is to whistle; if the individual is unable to whistle, the intensity is too great and should be decreased.

*Rating of Perceived Exertion:* This is a scale that describes the sense of effort during the exercise. This scale can be ranked from one to ten with one being no effort and ten being maximal effort (AHA, 1995).

### **Conditions/Populations in Which the Intervention Has Been Used**

Several populations for whom exercise is particularly beneficial include children, the elderly, those with affective disorders, individuals with heart disease, and those with peripheral arterial disease. The application and demonstrated effects of exercise intervention in each of these populations are discussed below.

#### *Overweight Children and Adolescents*

The number of overweight children and adolescents is rapidly increasing. Of particular concern are the increasing rates of type 2 diabetes mellitus

and metabolic syndrome diagnosed in overweight children and adolescents, problems that used to be primarily limited to adults. Lack of physical activity and excess caloric intake cause central obesity, which, in turn, is believed to promote development of these conditions. Treatment includes dietary modification and initiation of physical activity. Increased physical activity has been shown to improve insulin sensitivity, blood pressure, cholesterol, and vascular function, and prevent further weight gain. The current recommendations are essentially the same as for healthy adults: 60 minutes of enjoyable, moderate physical activity most days of the week. An additional goal is to achieve less than 2 hours per day of consecutive sedentary activity, and at least 90 minutes to achieve weight loss (Andersen et al., 1998; Daniels et al., 2005; Sallis & Patrick, 1994).

### *The Elderly*

The fastest growing segment of the population in the United States is individuals over the age of 65. The benefit of exercise as a therapy to prevent or delay functional decline and disease and improve quality of life is demonstrated by the numerous favorable changes occurring in response to exercise. Improvements in cardiovascular function have been shown to help lower risk factors for disease and reduce the need for assisted living (Mazzeo et al., 1998). The elderly are especially prone to the “hazards of immobility” that affect many of the body’s systems. Exercise results in increased bone strength (Smith & Reddan, 1976), and increased total body calcium (Dalsky et al., 1988), as well as improved coordination, which may result in a reduction in falls (Bassett, McClamrock, & Schmelzer, 1982). Exercise has also been shown to improve body functioning and overall well-being. Blumenthal, Schocken, Needles, and Hindle (1982) reported in their study that 40% of the elderly who exercised felt healthier, were more satisfied with life, and had more self-confidence and improved mood.

It is particularly important to tailor exercise programs for the elderly, who may have specific limitations. Exercise needs to be initiated at lower levels and increased gradually. Previously sedentary elderly individuals may be more comfortable initiating an exercise program with some supervision, which allows them to become accustomed to this new level of activity in a safe environment. Group exercise may be especially appealing to older persons.

### *Affective Disorders*

Exercise is an effective although underused intervention for individuals with affective disorders. There is considerable evidence supporting the

positive effects of exercise in combating depression and anxiety (Byrne & Byrne, 1993). There are fewer, if any, side effects when compared with pharmacotherapy, and exercise is often more cost effective than psychotherapy and pharmacotherapy (Yaffe, 1981). Although most studies have evaluated the effects of aerobic activity as the intervention, anaerobic activity has also been shown to be beneficial in alleviating depression. This suggests that improvement in mood is associated with exercise in general, rather than increased aerobic capacity (Doynie et al., 1987).

### *Heart Disease*

Cardiac (exercise) rehabilitation (CR) is a common intervention prescribed for those with coronary heart disease (CHD), providing a safe environment for the initiation of an exercise program. Programs usually have several phases and are tailored to the specific needs, limitations, and characteristics of individual patients, helping them resume active and productive lives (Foster & Tamboli, 1992; Hamm & Leon, 1992; Leon et al., 2005). Exercise has multiple protective mechanisms that contribute to reduction of CHD risk, including anti-atherosclerotic, anti-arrhythmic, anti-ischemic, and anti-thrombotic effects (Leon et al.).

Exercise training has been shown to improve symptom-limited exercise capacity in CHD patients primarily as a result of peripheral hemodynamic adaptations (Ferguson et al., 1982; Juneau, Geneau, Marchand, & Brosseau, 1991; Wenger, 1993). Patients with CHD have a low skeletal muscle oxidative capacity that is significantly improved with training, despite relatively low workloads and exercise intensities, consistent with other non-heart disease populations (Ferguson et al.). Prior to training, patients with CHD are often unable to perform activities of daily living (ADLs) without symptoms. Exercise-trained CHD patients function further above the ischemic threshold in performing ADLs and thus require a lower percentage of maximal effort to perform activities. This increases stamina and endurance and helps to maintain independence (Wenger). Even patients with heart failure (HF), who typically have very poor cardiac function, have found that CR improves their exercise tolerance (Koch, Douard, & Broustet, 1992; Sullivan, 1994).

### *Peripheral Arterial Disease*

Peripheral arterial disease (PAD), a prevalent atherosclerotic occlusive disease, limits functional capacity and is related to decreased quality of life. Individuals with PAD typically experience exercise-induced ischemic pain in the lower extremities, known as claudication. Exercise training

is one of the most effective interventions available for the treatment of claudication due to PAD (Hiatt, Regensteiner, Hargarten, Wolfel, & Brass, 1990; Regensteiner, Steiner, & Hiatt, 1996). Exercise training has been shown to improve walking distance up to 180% (Regensteiner, 1997; Regensteiner & Hiatt, 1995). Prior to program initiation, an exercise prescription should be generated based on a graded exercise test and patients should start training at 50% of their functional capacity (Ekers & Hirsch, 1999). During a typical session, patients will exercise at a moderate pace until they experience moderate to severe claudication. At that point they will rest until the pain subsides. This exercise/rest pattern is repeated throughout the exercise session (Hiatt et al.). The most effective exercise programs for the treatment of claudication include the following components. The patient should exercise to the point of almost maximal claudication. The exercise session should be at least 30 minutes in length, with at least 3 sessions per week. The exercise program should continue for at least 6 months, with intermittent walking as the most effective mode of exercise (Gardner & Poehlman, 1995).

### **Measurement of Effectiveness**

The appropriate measure of the effectiveness of an exercise intervention depends on the specific exercise prescribed and the goals of the intervention. Changes in atherosclerotic risk factors (i.e., cholesterol levels, triglycerides, insulin sensitivity, waist circumference, BP, and BMI) may be measured if cardiovascular health is the primary outcome of the exercise program. If cardiovascular fitness is the targeted outcome, an aerobic exercise program would be prescribed and improvements in the cardiovascular system such as increased CO, VO<sub>2</sub>, and improved local circulation would be used to determine the effectiveness of the intervention (Fletcher et al., 2001; Halfman & Hojnacki, 1981). Cardiovascular response to submaximal exercise may provide further information and may be even more beneficial in assessing the impact on quality of life, as most activities of daily living are performed at submaximal intensity. Exercise prescribed to improve function may use parameters such as improved joint mobility, prevention or reduction of osteoporosis, and improved strength in determining exercise effectiveness (Benison & Hogstel, 1986). Assessment may also include changes in physical functioning and disability, ability to perform ADLs, changes in symptoms and activity tolerance, and other variables that reflect the individual's ability to function in daily life. Lower intensity programs, which may not demonstrate great changes in maximal exercise capacity, might produce sufficient changes in these outcome variables to make a difference in the individual's quality of life. Such

programs would be especially appropriate in elderly and very sedentary individuals where low intensity exercise can produce a modest increase in fitness and more significant improvements in function (Belman & Gaesser, 1991; Foster, Hume, Byrnes, Dickenson, & Chatfield, 1989). Development and implementation of programs designed to meet the specific needs of patients can help maximize functional and quality-of-life outcomes.

## Precautions

Before initiating an exercise program pre-participation screening procedures are recommended. These include such questionnaires as the Physical Activity Readiness Questionnaire (PAR-Q), designed to identify potential patients in need of medical advice prior to exercising (Canadian Society for Exercise Physiology, 1994). If a patient is identified as having potential or actual medical concerns, it is advisable that a graded exercise test be performed. The American College of Sports Medicine recommends that a graded exercise test be performed for any individual with more than two risk factors for CHD. This is done to rule out any potential contraindications to exercise and to provide a tool for determining initial exercise intensity (ACSM, 1998; Fletcher et al., 2001).

To avoid injury, it is important to begin an exercise program slowly, to follow safety guidelines, and to exercise consistently, several times per week. Potential exercise-related injuries include muscle and joint pain, cramps, blisters, shin splints, low back pain, tendonitis, and other sprains or muscle strains. The most commonly reported adverse event of exercise is musculoskeletal injury; approximately 25% of adults between 20 and 85 years reported an injury occurring at least once during 1 year (Hootman et al., 2002). It is possible that some of these are misclassified as injuries instead of muscle soreness due to a rapid increase in volume or intensity of training without proper knowledge of the principles of training.

The AHA (1995) has listed general guidelines to help ensure exercise safety. These include (1) stretching the muscles and tendons prior to beginning exercise; (2) wearing appropriate footwear; (3) exercising on a surface with some “give” to it, especially during high impact activities; and (4) learning the exercise properly and continuing good form even with increased speed or intensity. Should exercise-related injuries occur, they can usually be treated with one or a combination of therapies including rest, ice, compression, and elevation (AHA).

Previously sedentary elderly individuals and those with chronic disease, especially heart disease, should consult a physician prior to initiating

an exercise program to ensure that an appropriate exercise prescription is given. Warning signs of heart disease should be provided prior to initiation of an exercise program, especially to those in high-risk categories.

## AREAS IN WHICH FUTURE RESEARCH IS NEEDED

There are many gaps in our knowledge related to exercise, its measurement, the benefits, and methods to improve exercise adherence. Specific research areas needed include:

- development of measures of exercise behavior that are valid and reliable in different populations and with various levels of activity,
- development and testing of specific interventions to increase exercise adherence in multiple populations,
- assessment of the impact of exercise interventions in multiple populations through controlled longitudinal studies, and
- development of strategies to increase lifelong physical activity and exercise.

## SELECTED EXERCISE INFORMATION WEB SITES

National Institute on Aging (2004) AgePage: Exercise: Getting fit for life: <http://www.niapublications.org/engagepages/exercise.asp>

Physical Activity Task Force Reference List: <http://www.patf.dpc.wa.gov.au/documents/reflist.pdf>

Overweight in children and adolescents: Pathophysiology, consequences, prevention, and treatment: <http://circ.ahajournals.org/cgi/content/full/111/15/1999?ck=nck>

Exercise and physical activity in the prevention and treatment of atherosclerotic cardiovascular disease: <http://circ.ahajournals.org/cgi/content/full/107/24/3109>

Resistance exercise in individuals with and without cardiovascular disease: <http://circ.ahajournals.org/cgi/content/full/101/7/828>

Exercise and heart failure: <http://www.circ.ahajournals.org/cgi/content/full/107/8/1210>

Physical activity and exercise recommendations for stroke survivors: [http://www.guideline.gov/summary/summary.aspx?view\\_id=1&doc\\_id=5358](http://www.guideline.gov/summary/summary.aspx?view_id=1&doc_id=5358)

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## CHAPTER 24

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# Tai Chi

Kuei-Min Chen

Due to the pressures of work, many people do not have proper exercise, which may lead to mental strain, nervous breakdown, or inefficiency in their daily work (Cheng, 1994). Good health is essential, and how to acquire a strong and healthy body is a vital concern. It is commonly recognized that proper physical exercise is the best method of keeping our bodies fit and healthy. However, it is not easy to find an exercise that suits people of all ages (Cheng).

Tai Chi, a manipulative and body-based therapy, is one of the interventions widely recommended across different professions, including nurses, physicians, occupational therapists, physical therapists, and recreational therapists. A manipulative and body-based therapy can heighten individuals' awareness of their bodies and take advantage of their body structure for expressing feelings and ideas. Gradually, individuals become more aware of their total being, which promotes harmony within themselves and leads to enhanced well-being (Lange, 1975). The purpose of this chapter is to introduce and describe Tai Chi.

### DEFINITION

Tai Chi, which means "supreme ultimate," is a traditional Chinese martial art (Koh, 1981) and a mind-body exercise (Forge, 1997). It involves a

series of fluid, continuous, graceful, dance-like postures, and the performance of movements known as forms (Perry, 1982; Smalheiser, 1984). The graceful body movements are integrated by mind concentration, the balanced shifting of body weight, muscle relaxation, and breath control. They are performed in a slow, rhythmic, and well-controlled manner (Plummer, 1983).

There are several styles of Tai Chi that are currently practiced: Chen (quick and slow large movements), Yang (slow large movements), Wu (mid-paced compact), and Sun (quick compact) (Jou, 1983). Each style has a characteristic protocol that differs from the other styles in the postures or forms included, the order in which they appear, the pace at which movements are executed, and the level of difficulty; yet, the basic principles are the same (Yang, 1991). For example, one significant difference between Chen and Yang styles is that Yang movements are relaxed, evenly paced, and graceful. It is the most popular Tai Chi practiced by older adults (Jou). In comparison, the Chen style is characterized by alternating slow movements with quick and vigorous ones, and restrained and controlled actions, which reflect a more martial origin (Yang).

There are a few simplified, Westernized forms of the ancient Tai Chi. The most common one is called Tai Chi Chih, which was developed by an American, Justin Stone. Tai Chi Chih consists of 20 simple, repetitive, non-strenuous movements and an ending pose. It emphasizes a soft, flowing, continuous motion and is easier for beginners to learn. Most Tai Chi movements were named after animals, such as “white crane spreads its wings” and “grasp the bird’s tail” (Koh, 1981).

## SCIENTIFIC BASIS

Tai Chi practice is closely linked to Chinese medical theory, in which the vital life energy, chi (or qi), is thought to circulate throughout the body in discrete channels called meridians. Using correct postures and adequate relaxation, the principle of Tai Chi is to promote the free flow of chi throughout the body, which improves the health of an individual. In 1992, Tse and Bailey reported that regular Tai Chi practice significantly improved balance control in three of five tests and advocated the following factors as an explanation for the improvements:

1. All Tai Chi movements are circular, slow, continuous, even, and smooth. Patterns of movement flow from one to the next. The even, slow tempo facilitates a sensory awareness of the speed, force, trajectory, and execution of movement throughout the exercise.

2. Because movements are well controlled, all unnecessary exertion is avoided, and only sufficient effort is used to overcome gravity. Muscle coordination instead of rigid contraction can therefore be promoted.
3. Throughout the exercise, the body is constantly shifted from one foot to the other. This is likely to facilitate improvement of dynamic standing balance.
4. Throughout the exercises, different parts of the body take turns in playing the role of stabilizer and mover, allowing smooth movements to be executed without compromising the balance and stability of the body.

The performance of Tai Chi looks like a classical dance with graceful movements and attentive actions, regulated by the timing of deep breathing and the movement of the diaphragm. It offers a balanced exercise to the muscles and joints of the various parts of the body (Cheng, 1994). In addition, a peaceful state of mind and spiritual dedication to each movement during the exercise ensure that the central nervous system is given sufficient training and is consequently toned up with time as the exercise continues. A strong central nervous system is the basic condition of a healthy body and the various organs depend largely on the soundness of the central nervous system (Cheng).

## INTERVENTION

In Eastern countries such as Taiwan, it is common and popular for older adults to practice Tai Chi as a group in parks or on the athletic grounds of elementary schools in the early morning. Tai Chi practice groups are usually led by masters who are pleased to share its essence with others. People who are interested in Tai Chi are welcome to join the groups and learn the movements from these masters. In Western countries, there is a growing interest in the practice of Tai Chi. Various Tai Chi clubs are available to the public through community centers, health clinics, or private organizations. General information is widespread through web sites, books, and videos. Tai Chi is a convenient exercise that can be practiced in any place, at any time, and without any equipment.

### Techniques

As mentioned earlier, although various styles of Tai Chi are currently practiced, the underlying practice principles are the same. In Schaller's study (1996), five essential principles of movement were identified:

1. Hand and leg movement should be synchronous.
2. The emphasis should be on a soft, relaxed rather than a hard, tense position.
3. Moves should be practiced with a quiet and open mind.
4. The soles of the feet should be rooted to the ground with the knees bent in a low stance and the primary focus of awareness within the lower abdomen.
5. The physical force should be rooted in the feet, passed up through the legs as weight is shifted, and distributed by the pivoting of the waist.

In the physical performance, an individual must relax and think of nothing else before starting. The movements should be slow and rhythmic with natural breathing. Every action becomes easy and smooth, the waist turns freely, and the feelings of comfort and relaxation are gradually developed (Cheng, 1994). In the spiritual aspect, Tai Chi is an exercise that produces harmony of body and mind. Each movement should be guided by thought instead of physical strength. For instance, to lift up the hands an individual must first have the necessary mental concentration, and then the hands can be raised slowly in a proper manner. Hence, the breathing will become deeper and the body will be strengthened (Cheng).

## Guidelines

The prototype for performing the movement called “around the platter” is presented in Table 24.1. Various videotapes on Tai Chi are also available through local video rental stores. Welsch (1998) identified the following books as useful for learning Tai Chi:

- *Tai Chi Chuan for Health and Self-defense* (Liang, 1977) is an introduction and reflection on the art of Tai Chi.
- *The Elements of Tai Chi* (Crompton, 1991) provides a basic introduction to Tai Chi as a martial art and as a way to achieve better health.
- *Tai Chi: Transcendent Art* (Cheng, 1994) demonstrates each Tai Chi movement through pictures and graphs.

Additional information can be found through several useful web links:

- [www.supply.com/lee/tcclinks.html](http://www.supply.com/lee/tcclinks.html), which provides links to more than a hundred other web sites on Tai Chi and related topics;

**TABLE 24.1** Prototype for Performing “Around the Platter”

- 
1. Hands are held at chest level, wrists slightly bent and elbows close to sides. Fingers are spread apart. Legs are slightly apart and bent with the left in front of the right. Weight is equally distributed between legs.
  2. Begin to rock forward, shifting weight to the left leg with hands moving to the left. (Imagine a round platter at the chest level, and the hands circling around the platter from left to right.)
  3. As most of the weight shifts to the left leg and the hands are directly in front of the body, the left heel comes off the ground. As the hands move right of midline, the weight begins to shift to the right leg. When the hands have completed a full circle (held at chest level), most of the weight is on the right leg and the right toe is off the ground.
  4. This movement can be repeated 6–9 times and then repeated again going from right to left.
- 

Note: Adapted from *Tai Chi Chih: Joy Through Movement*, by J. F. Stone, 1994, Fort Yates, ND, Good Karma.

- <http://sunflower.signet.com.sg/~limttk/index.htm>, which is a valuable site with complete historical and background information on Tai Chi.

## Measurement of Outcomes

According to Plummer (1983), mind concentration and breathing control are two of the major tenets of Tai Chi practice. When practicing Tai Chi with a peaceful, focused mind and incorporating smooth breathing into each movement, a person will experience physical and psychological relaxation, which leads to enhanced well-being, both physically and psychologically (Plummer). With this conceptual framework in mind, the measurement of the effects of Tai Chi could be for both physical and psychological well-being. Based on the literature, which will be discussed in detail later, more studies were done to measure the physical outcomes of Tai Chi practice (such as cardiovascular functioning) with little emphasis on psychological well-being outcomes (such as mood states).

## Precautions

Tai Chi is unique for its slow graceful movements with low impact, low velocity, minimal orthopedic complications, and is a suitable conditioning exercise for older adults (Lai, Lan, Wong, & Teng, 1995). Although



many research studies have shown the benefits of Tai Chi, there are some contraindications to its practice, such as an acute stage of angina, ventricular arrhythmia, or myocardial ischemia. The instructor and the learner have to be aware of those contraindications and an initial assessment is necessary to determine an individual's exercise tolerance and other limitations (Forge, 1997). While learning Tai Chi, a novice should be periodically evaluated in terms of progress, program adherence, cognitive response, muscular strength, balance, and level of flexibility at fairly regular (e.g., 4-week) intervals for the first 60 to 90 days of participation in such a program, and, if progress is considered satisfactory, at 6-month intervals thereafter (Forge). It is strongly recommended that one learn Tai Chi from an experienced master who is able to teach the movements based on individual needs and physical tolerance. Recommendations for choosing a class are provided in Table 24.2.

## USES

Tai Chi is especially appropriate for older adults or for patients with chronic diseases because of its low intensity, steady rhythm, and low physical and mental tension (Xu & Fan, 1988). It has been shown to enhance cardiovascular and respiratory functions, improve health-related fitness, and promote positive health status (Brown, Mucci, Hetzler, & Knowlton, 1989; Lai et al., 1995; Lan, Lai, Chen, & Wong, 1998; Lan, Lai, Wong, & Yu, 1996). In addition, practicing Tai Chi has been effective in lowering blood pressure (Channer, Barrow, Barrow, Osborne, & Ives, 1996; Jin, 1989, 1992; Thornton, Sykes, & Tang, 2004; Tsai et al., 2003; Wolf et al., 1996). However, in a pretest–posttest study on the effects of a 10-week, short-term Tai Chi training program, there were no significant improvements of health status or blood pressure in the community-dwelling elders as compared to their baseline data (Schaller, 1996). Schaller explained that these non-significant results might be attributed to the fact that the health status measures may not have been sensitive or specific enough to detect changes in a short-term exercise program.

**TABLE 24.2** Choosing a Tai Chi Class

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1. If possible find a studio or organization that specializes in tai chi.
  2. Find an experienced teacher (6–10 years of experience) who demonstrates and verbally explains the movements. Ask to observe a class before joining.
  3. Find a class with fewer than 20 students.
  4. Avoid purchasing any special clothing or equipment.
- 

Note: Adapted from “Tai Chi,” by L. B. Downs, 1992, *Modern Maturity*, 35, pp. 60–64.

Falls are common in the older population, and they often cause severe physical trauma (Tideiksaar, 1989). Most studies have shown that Tai Chi increases postural stability and enhances balance (Brown et al., 1995; Jacobson, Chen, Cashel, & Guerrero, 1997; Shih, 1997; Thornton et al., 2004; Tsang & Hui-Chan, 2004; Tse & Bailey, 1992; Wolf et al., 1996), which lead to a reduction in the risk of falls (Hainsworth, 2004; Shih, 1997). Furthermore, several studies found that Tai Chi enhanced positive mood states and decreased mood disturbances (Brown et al., 1995; Jin, 1992), and improved quality of sleep (Li et al., 2004). However, one study showed that it had no significant impact on mood states in community-dwelling elders (Schaller, 1996).

Tai Chi also plays an important role in symptom control of chronic illnesses. Chen and Yen (2002) summarized experimental studies on the effects of Tai Chi on symptom control in patients with various chronic illnesses. Most results indicated that it was beneficial to those with cardiovascular diseases, arthritis, chronic obstructive pulmonary disease, and low back pain. Chen, Snyder, and Krichbaum (2001) also found that Tai Chi practitioners had better physical and mental health status, lower systolic and diastolic blood pressure, fewer falls within the past year, less mood disturbance, and better mood states when compared to non-practitioners. Researchers have suggested that Tai Chi could be incorporated into community programs or senior center activities to promote the well-being of community-dwelling elders. It could also be included as one of the activities in nursing homes or in rehabilitation programs in hospital settings.

No studies were found on the use of Tai Chi specifically with children. However, the movements may be enticing to children as many enjoy participating in various martial arts.

## **FUTURE RESEARCH**

Overall, practicing Tai Chi appropriately has various benefits, as evidenced in the literature, and it is highly recommended for the appropriate populations. More studies about the effects of Tai Chi from a nursing perspective are needed in order to provide guidance to nurses in its use with various populations (Chen & Snyder, 1999). Some questions for further research include:

1. What are the possible benefits and harms of practicing Tai Chi?
2. Which populations, especially children, can most benefit from practicing Tai Chi and are there conditions that would preclude its use?

3. What is the nature of stability or change in the well-being status of elders who practice Tai Chi?
4. What are the differences on well-being outcomes of beginners (people who are just starting to learn Tai Chi movements), practitioners (people who have practiced Tai Chi regularly for more than a year), and masters (people who have practiced Tai Chi regularly for more than a decade and are licensed by the National Tai Chi Association to be instructors)?

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# Muscle Relaxation Techniques

Mariah Snyder, Elizabeth Pestka, and Catherine Bly

Relaxation techniques have been used for millennia. Ancient religions such as Hinduism and Buddhism document the use of yoga and breathing exercises as relaxation techniques. Reducing muscle tension is a component of many complementary therapies used in decreasing anxiety and promoting comfort. For example, muscle relaxation is often a part of guided imagery. Many techniques exist to promote muscle relaxation. Progressive muscle relaxation (PMR), developed by Edmund Jacobson (1938), serves as the basis for many of these techniques.

## DEFINITION

Muscle relaxation is bringing awareness to muscles in the body and the tension that exists in them, and reducing this tension. Awareness can be achieved either by tensing the muscles even more and then releasing the tension or by focusing attention on the muscles and imaging them being free of tension.

Progressive muscle relaxation is the tensing and relaxing of successive muscle groups. A person's attention is drawn to discriminating between

the feelings experienced when the muscle group is relaxed and when it was tensed. With continued use of PMR, an individual can sense muscle tension without having to go through the tensing and relaxing of specific muscle groups.

The relaxation response proposed by Benson (1975) directs attention to muscle relaxation and incorporates meditative techniques. The relaxation response consists of a mental device, a passive attitude, and decreased muscle tone. (The relaxation response is described in Chapter 11.) A quiet environment is recommended for achieving relaxation using this technique.

## SCIENTIFIC BASIS

When people perceive an actual or potential event as a threat to their well-being, a sympathetic nervous system response occurs, which is often referred to as the fight-flight response. It includes dilation of the pupils, shallowness of respiration, increased heart rate, and tensing of muscles. This response assists humans in handling short-term stressful situations such as moving quickly to avoid a car that appears suddenly. However, if the perceived stressor persists over time or the person perceives it as such, the repeated psychophysiological stress response can have deleterious effects on the body. The desired outcome of relaxation strategies is the mitigation of persisting high levels of stress or their avoidance.

Brown (1977) noted that the stress response is part of a closed feedback loop between the muscles and the brain. Appraisal of stressors results in a tensing of the muscles that send stimuli to the brain, establishing a feedback loop. The brain alerts the entire body that a stressor, real or imagined, is being encountered and then sends signals to the muscles to prepare to handle the stressor. This results in increased tension in the muscles. Relaxing the muscles interrupts the feedback loop.

Jacobson (1938) reported that PMR decreased the body's oxygen consumption, metabolic rate, respiratory rate, muscle tension, premature ventricular contractions, and systolic and diastolic blood pressure, and increased alpha brain waves. Subsequent studies have validated Jacobson's findings. Additionally, Teshima, Sogawa, and Mizobe (1991) proposed that relaxation could enhance B-endorphins and potentially enhance cellular immune function.

Although findings from many studies have shown positive outcomes from the use of muscle relaxation techniques, positive results have not been reported in all of the studies in which they were explored. Reasons for the differences in outcomes may relate to the wide variation in the

types of relaxation techniques, the length and type of instruction, the degree of mastery of the technique, and irregular or sporadic use of the technique.

## INTERVENTION

Numerous techniques for muscle relaxation have been developed since Jacobson publicized his technique in 1938. Some of the techniques focus on active tensing and relaxing of the muscles whereas others direct the person to “just relax” the muscles without first tensing them. Often the techniques include attention to breathing (Schaffer & Yucha, 2004). Two web sites that provide helpful information and products for muscle relaxation are <http://www.HealthyPlace.com> and <http://www.healthstore.com/>.

### Technique

Some general guidelines apply to the use of any muscle relaxation technique. A quiet environment is needed so that the person can concentrate on relaxing the muscles. This includes eliminating interruptions, reducing noises, and dimming the lighting. The instructor assists the individual to identify a place in the home that is quiet and restful in which to practice relaxation. A comfortable chair that provides support for the body is ideal. A bed or couch may be used, but the horizontal position may result in the person’s falling asleep. Clothing should be loose and not restrictive; shoes, glasses, and contact lenses should be removed. The person may wish to use the bathroom before practicing muscle relaxation.

#### *Progressive Muscle Relaxation (PMR) Technique*

The PMR technique developed by Bernstein and Borkovec (1973) is widely used. They combined the 108 muscles and muscle groups of Jacobson’s original technique into the initial tensing and relaxing of 16 muscle groups. Subsequently the number of groups is reduced to 7 and then 4 (Table 25.1). Although Bernstein and Borkovec included instructions for tensing muscles of the feet, these are not included in Table 25.1 because spasms in the foot may result when tensing these muscles. The ultimate goal is to achieve muscle relaxation throughout the body without initially having to tense the muscles. Through practice the person acquires a mental image of how the muscles feel when they are relaxed and is able to relax them using this image.



**TABLE 25.1** Guidelines for 14-Muscle Group Progressive Muscle Relaxation**General Information:**

Instruct persons to tense a specific muscle group when they hear “tense,” and to release the tension when they hear “relax.” Tension is held for 7 seconds. Conversation is used to draw attention to the feelings of tension and relaxation. When muscles are relaxed, attention is drawn to the differences between the two states.

**Tensing Specific Muscle Groups:**

Dominant hand and forearm: Make a tight fist and hold it.

Dominant upper arm: Push elbow down against the arm of the chair.

Repeat instructions for the non-dominant arm.

Forehead: Lift eyebrows as high as possible.

Central face (cheeks, nose, eyes): Squint eyes and wrinkle nose.

Lower face and jaw: Clench teeth and widen mouth.

Neck: Pull chin down toward chest but do not touch chest.

Chest, shoulders, and upper back: Take deep breath and hold it, pull shoulder blades back.

Abdomen: Pull stomach in and try to protect it.

Dominant thigh: Lift leg and hold it straight out.

Dominant calf: Point toes toward ceiling.

Repeat instructions for non-dominant side.

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Note: Adapted from *Progressive Relaxation Training*, by D. Bernstein and T. Borkovec, 1973, Champaign, IL: Research Press.

The scientific basis for the use of PMR is provided during the first session. Stressors, the impact of stress on the body, and the signs and symptoms of high levels of stress are discussed. Descriptions and demonstrations for achieving tension of each muscle group are given, and persons then practice tensing each of the muscle groups. If difficulty is encountered in achieving tension with the demonstrated method, an alternate method can be tried.

After progressing through all the muscle groups, the instructor asks the patient to identify whether tension remains in any of them. The instructor observes the patient to assess if general relaxation has occurred. Indicators of relaxation are slowed, deeper breathing; arms relaxed and shoulders forward; and feet apart with toes pointing out. Two or three minutes are provided at the conclusion of the session for the patient to enjoy the feelings associated with relaxation.

Terminating relaxation is done gradually. The instructor counts backward from four to one. On the count of four, the patient is instructed to move the hands and feet; on three, the arms and legs; on two, the head and neck; and on one, to open the eyes. An opportunity is provided for the patient to ask questions or discuss the feelings experienced.

Bernstein and Borkovec proposed using 10 sessions to teach PMR. However, in many studies instruction has been limited to fewer sessions with positive results (Peck, 1997; Sloman, Brown, Aldana, & Chu, 1994). A critical factor in determining the number of teaching sessions needed is ensuring that persons have mastered relaxing the muscle groups and have integrated PMR into their lifestyles.

An essential factor in the effectiveness of PMR and other relaxation techniques is daily practice. At least one 15-minute practice session a day is recommended. Schaffer and Yucha (2004) suggest two 10-minute sessions. Helping patients find a time of day to practice relaxation is an important component of instruction. The particular time of day PMR is practiced is not what matters, but it must become a part of the person's daily routine. Often an audiotape of the instructions is provided for home practice. Persons are also instructed to use the relaxation technique anytime they feel tense or before an event that may cause them to become anxious and tense.

### *Posture Relaxation Technique*

Schaffer and Yucha (2004) provide guidelines for achieving muscle relaxation by giving attention to posture. This is a passive form of muscle relaxation as the person does not tense muscle groups, but rather concentrates on relaxing the body. The patient should be sitting or reclining, but not lying flat. The following components are included:

Head is motionless with the nose in the mid-line of the body.

Lips and teeth are slightly parted.

Shoulders are dropped and even in height.

Torso, hips, and legs are kept quiet and positioned in symmetry with the center of the body.

Palms of hands are facing down and fingers are slightly curled.

Feet are held at a 60 to 90 degree angle and pointed away from each other.

Breathing is slow, deep, and quiet.

A modification could be to have the person use this technique in bed when attempting to get to sleep.

## Measurement of Outcomes

A variety of outcomes have been used to measure the efficacy of muscle relaxation techniques. Physiological measurements that are often used include blood pressure and heart rate, body posture, and respiratory rate. Electromyogram readings are occasionally taken to determine the degree of tension in the specific muscle groups. Practitioners need to be alert to underlying pathology or medications that may interfere with reduction in physiological parameters. Also, if a patient does not have an elevated blood pressure or heart rate, few changes will occur with the use of muscle relaxation techniques.

Anxiety is the most frequently used subjective measure. The State-Trait Anxiety Inventory (STAI) of Spielberger, Gorsuch, Luschene, Vagg, and Jacobs (1983) has been widely used. Persons' self-report about feelings of relaxation have been included in many studies because satisfaction is a good indicator of whether a person will continue to use an intervention. Reports of comfort, reduction of pain, and improved sleep are other results that have been used to measure the effects of muscle relaxation techniques.

## Precautions

Although muscle relaxation techniques have been used with multiple populations and have been proven to be an effective therapy for nurses to use, some cautions should be observed. It is important for practitioners to know if patients practice the relaxation techniques on a regular basis as this may affect the pharmacokinetics of medications. Adjustment in doses may be indicated.

Relaxation of muscles may produce a hypotensive state. People are instructed to remain seated for a few minutes after practice. Movement in place and gradual resumption of activities helps in raising the blood pressure. Taking a person's blood pressure at the conclusion of teaching sessions helps in identifying those who are prone to hypotensive states after muscle relaxation.

Some persons with chronic pain have reported a heightened awareness of pain following the tensing and relaxing of muscles. Concentrating on tensing and relaxing of muscles may draw attention to the pain rather than to the muscle sensation. A good assessment of individuals is needed to determine whether negative outcomes are occurring.

## USES

Muscle relaxation techniques have been used to achieve a variety of outcomes in diverse populations. Table 25.2 lists conditions and popula-

**TABLE 25.2** Conditions for Which Muscle Relaxation Techniques Have Been Used

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**Stress Reduction**

- Chronic obstructive pulmonary disease (Chang et al., 2004)
- Depression and anxiety in patients with advanced cancer (Sloman, 2002)
- Hypertension (Sheu, Irvin, Lin, & Mar, 2003)
- Insomnia (Richardson, 2003; Simeit, Deck, & Conta-Marx, 2004)
- Reduction of seizures (Whitman, Dell, Legion, Eibhlyn, & Staatsinger, 1990)

**Pain Reduction**

- Cancer (Sloman, 1995)
- Headache (Fichtel & Larrison, 2001)
- Postoperative (dePaula, deCarvalho, & dos Santos, 2002; Good, Anderson, Stanton-Hicks, Grass, & Makii, 2002)

**Health Promotion**

- Cardiac rehabilitation (Wilk & Turkoski, 2001)
  - Decrease of nausea and vomiting (Molassiotis, Yung, Yam, Chan, & Mok, 2002)
  - Tinnitus (Weber, Arck, Mazurek, & Klapp, 2002)
- 

tions in which these techniques have been used. Their use in health promotion, relief of pain, and reduction of stress in specific conditions will be discussed.

**Health Promotion**

Nursing has been at the forefront in teaching patients about health promotion practices. Although muscle relaxation techniques may not reduce heart rate and blood pressure in those who have readings within the normal range, use of these techniques on a regular basis by healthy persons may help to prevent the development of hypertension. Progressive muscle relaxation was found to decrease both systolic and diastolic blood pressure and heart rate in those with essential hypertension; these indices decreased more as they continued to practice (Sheu et al., 2003; Yung, French, & Leung, 2001). Thus, muscle relaxation techniques can be used in conjunction with hypertensive medications in persons with high blood pressure.

**Pain**

Muscle relaxation techniques have been used extensively in the management of many types of pain. Muscle tension increases the perception of

pain, so lessening anxiety and tension may help in reducing it. Use of these techniques may provide people with a sense of control over their pain. Carroll and Seers (1998) reviewed studies that had used relaxation for the relief of chronic pain. In the nine studies that met the investigators' inclusion criteria, positive findings were found in only four; however, positive results have been reported in numerous other studies (dePaula et al., 2002; Good et al., 2002). Gay, Philippot, and Luminet (2002) reported that persons using the Jacobson relaxation technique required less medication for managing osteoarthritis pain than subjects in the control group.

Muscle relaxation techniques have been used as an adjunct or complementary therapy in the management of pain, particularly with patients who have cancer. Sloman's study (1995) found that 92% of the patients with cancer who were taught PMR reported that relaxation occurred, and 90% noted that they would continue to use the therapy. In a subsequent study, Sloman (2002) reported a reduction in depression and anxiety in patients with advanced stages of cancer.

## **Reduction of Stress**

As noted in Table 25.2, muscle relaxation techniques have been effective in reducing the stress associated with a number of conditions. Wilk and Turkoski (2001) reported that using progressive muscle relaxation as an adjunct therapy helped to reduce blood pressure, heart rate, and state anxiety on patients in a cardiac rehabilitation program. Persons with epilepsy often have high levels of stress because of their fear of having a seizure even though they are on anticonvulsants. Whitman et al. (1990) found a 54% decrease in seizures in persons who practiced progressive muscle relaxation as an adjunct to their anticonvulsant medications. Patients with cancer undergoing chemotherapy had a reduction in nausea and vomiting symptoms with the use of progressive muscle relaxation (Molassiotis et al., 2002). Muscle relaxation techniques can be used both to prevent and decrease stress.

## **FUTURE RESEARCH**

Muscle relaxation techniques, particularly progressive muscle relaxation, have been used singly and in combination with other therapies. A scientific body of knowledge is emerging to guide the use of these therapies in practice, but considerably more research is necessary. The following are several areas in which studies are needed:

1. There is beginning research on the effect that muscle relaxation techniques have on immune function (Gruzelier, 2002; Weber et al., 2002). Further studies about the effect muscle relaxation techniques have on immune function are needed, particularly in conditions such as HIV infection.
2. A combination of therapies has been used in a number of studies. Some studies have used excellent designs to compare the efficacy of each technique. However, numerous other studies fail to differentiate the effects from each therapy. Attention to study design in muscle relaxation studies is needed.
3. Sheu and colleagues (2003) found continuing improvement over a month's period of practice. In the majority of studies, however, the effects of muscle relaxation techniques have been evaluated immediately following administration of the intervention. Longitudinal studies are needed to determine long-term effects.

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## PART V

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# Biologically Based Therapies

### OVERVIEW

Biologically based therapies are the most popular of the complementary therapies. More than 90 million Americans use at least one herbal preparation and many also use nutraceuticals (additives, vitamins, and special diets). It is difficult to page through a magazine or watch television without encountering a reference to nutraceuticals or dietary supplements. The authors have placed aromatherapy in the biologically based category because it uses essential oils, which are naturally occurring plant substances. The National Center for Complementary/Alternative Medicine also places therapies such as laetrile and shark cartilage in this category.

Whereas research on herbs is relatively sparse in the United States, a significant amount has been conducted in other countries, particularly Germany. The chapter on herbal preparations details concerns about their use in the United States, but suggestions are given to increase the safety in the use of herbs. Because of the growing percentage of Americans who use herbal preparations, it is incumbent on nurses to know about common preparations and to assess for a patient's use of herbs.

Although nurses ordinarily will not be in a position to prescribe or recommend specific nutraceuticals to patients, the wide use of this group of biologically based therapies requires that nurses be knowledgeable about them. Much information is available to the public about food



additives, vitamins, and special diets; knowing about a patient's use of these products will assist the health care team in devising a safe and more optimal plan of care. Additionally, knowledge of the patients' use of these preparations allows the nurse the opportunity to determine whether the substances contribute to patients' symptoms or illness.

As with many of the other biologically based therapies, the essential oils found in aromatherapy have a much wider use in other countries than in the United States. Much of the research on essential oils has been conducted in France and England, and it is only within recent years that aromatherapy has been introduced into health facilities in the United States.

Many lists of herbal preparations and other biologically based therapies refer to products common in the Western world. Little attention has been given to those therapies used in other health systems such as Traditional Chinese Medicine and health care systems of indigenous cultures. The increasing number of first-generation Americans from countries that have traditionally used indigenous herbal preparations requires that health professionals expand their knowledge about herbs and other biologically based therapies to avoid drug interactions and other complications.

## CHAPTER 26

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# Aromatherapy

Linda L. Halcón and Jane Buckle\*

Aromatherapy is a recent addition to nursing care in the United States, although it has been accepted as part of nursing in Switzerland, Germany, Australia, Canada, and the United Kingdom for many years. It is particularly well suited to nursing because it takes into account the therapeutic value of sensory experience such as smell and touch in care delivery.

Aromatherapy is an offshoot of herbal or botanical medicine that dates back 6,000 years and was used throughout the world. The renaissance of modern Western clinical aromatherapy occurred in France just prior to World War II; physician Jean Valnet, chemist Maurice Gattefosse, and nurse Marguerite Maury were key figures. The use of synthetic scents in the last few decades is not part of aromatherapy. Eisenberg and colleagues (1998) reported that 5.6% of the 2,055 adults surveyed indicated that they used aromatherapy. Aromatherapy in nursing can be considered part of our botanical heritage (Libster, 2002).

### DEFINITION

There are many operant definitions of aromatherapy, some of which contribute to common misconceptions. The word *aromatherapy* can lead

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\* (Parts of this chapter authored by Jane Buckle appeared in the fourth edition of *Complementary/Alternative Therapies in Nursing*.)

people to believe it simply involves smelling scents (Schnaubelt, 1999), but this is incorrect. Styles (1997) defined aromatherapy as the use of essential oils for therapeutic purposes that encompass mind, body, and spirit, a broad definition consistent with holistic nursing practice. Although there are many facets of aromatherapy, when nurses use it clinically its purposes should be explicit and its targeted outcomes should be measurable. Clinical aromatherapy in nursing is defined as the use of essential oils for expected and measurable health outcomes (Buckle, 2000).

The definition of essential oils is also very specific. According to Tisserand and Balacs (1995), essential oils are the steam distillates of aromatic plants. Citrus peel oils are usually obtained by expression, however, and carbon dioxide extraction of some essential oils is gaining the acceptance of reputable aromatherapy practitioners and scientists. Essential oils are found in the flowers, leaves, bark, wood, roots, seeds, and peels of many plants. They are highly volatile, complex mixtures of organic chemicals consisting of terpenes and terpenic alcohols, esters, aldehydes, oxides, ketones, phenols, and lactones. There are 100 to 300 separate chemicals in each essential oil, with the proportions of these constituents varying according to plant species, climate, and the extraction process used. The chemistry of an essential oil determines its therapeutic properties; therefore, knowing the part of the plant, the country of origin, and the method of extraction can provide an indication of the essential oil's chemical constituents using readily accessible reference books. Essential oils do not necessarily have the same medicinal properties as the plants from which they are derived because they are more concentrated and contain only the lipophilic and lighter weight molecules present in the plants.

## SCIENTIFIC BASIS

The pharmacologic activity of essential oils occurs through the olfactory, respiratory, and integumentary systems; however, all body systems can be affected once essential oils reach the circulatory and nervous systems. The many different molecules in each essential oil act as olfactory stimulants that travel via the nose to the olfactory bulb, and from there nerve impulses travel to the limbic system of the brain. Of the limbic system regions, the amygdala and the hippocampus are of particular importance in the processing of aromas. The amygdala governs emotional responses. Similar to diazepam (Valium), *Lavandula angustifolia* (true lavender) is thought to reduce the effect of external emotional stimuli by increasing

gamma aminobutyric acid (GABA) that inhibits neurons in the amygdala, producing a sedative effect similar to diazepam (Tisserand, 1988). The hippocampus is involved in the formation and retrieval of explicit memories. This is where the chemicals in an aroma or an essential oil trigger learned memory. Inhaled essential oils also reach the lungs and enter the bloodstream through the respiratory system.

Topically applied essential oil preparations are absorbed rapidly through the skin; some have been used to enhance the dermal penetration of pharmaceuticals (Williams & Barry, 1989). Massage can enhance dermal penetration through heat and friction. Essential oils are lipotropic (fat soluble) and are excreted from the body through respiration, kidneys, and insensate loss.

## INTERVENTION

Essential oils can be applied to the body through inhalation, topical methods, or ingestion. Nursing scope of practice does not include ingestion. The compounds within an essential oil find their way into the bloodstream however they are applied (Tisserand & Balacs, 1995). Inhaled aromas have the fastest effect, although compounds absorbed through massage can be detected in the blood within 20 minutes (Jager, Bauchbauer, Jirovetz, & Fritzer, 1979). The choice of application method depends on the nurse's knowledge and practice parameters, the available or desired time for the action to occur, the targeted outcome, the chemical components of the essential oil, and the preferences and psychological needs of the patient. It would appear that the effects of inhaled essential oils do not last as long as topically applied essential oils; however, it is difficult to analyze exactly what impact touch has in outcomes of aromatherapy.

### Inhalation

When people are ill the sense of smell can be heightened or altered and familiar pleasant aromas can make a person feel more secure. Although essential oils are not always pleasant smelling, direct inhalation through the olfactory system is one of the simplest and most direct application methods. With this method, one to five drops of an essential oil can be placed on a tissue or floated on hot water in a bowl and then inhaled for 5 to 10 minutes. More indirect inhalation techniques include the use of burners, nebulizers, and vaporizers that can be operated by heat, battery, or electricity and may or may not include the use of water.

Larger, portable aroma systems are available commercially to provide controlled release of essential oils into rooms of any size.

Inhalation effects are also experienced when essential oils are used in a bath. Four to six drops of the essential oil are dissolved first in a teaspoon of milk, rubbing alcohol, or carrier oil (cold-pressed) and then placed in the bath water. Because essential oils are not soluble in water, they would float on the top of the water if used undiluted, giving an uneven and possibly too concentrated treatment. Before a person relaxes in the bath for approximately 10 minutes, the water should be vigorously agitated. Essential oils can also be dissolved in salts, such as Epsom salts, which can be soothing to muscles and joints. One such recipe consists of one tablespoon of baking soda, two tablespoons of Epsom salts, and three tablespoons of sea salt with four to six drops of essential oils mixed throughout. The salts should be added to the bath water just before immersion.

## Topical Applications

Essential oils are absorbed through the skin by diffusion, with the epidermis and fat layer acting as a reservoir before the components of the essential oils reach the dermis and the bloodstream. Compresses are a useful method for applying essential oils to treat skin conditions or injuries topically. To prepare a compress, add four to six drops of essential oil to warm water. Soak a soft cotton cloth in the mixture, wring it out, and apply the cloth to the affected area, contusion, or abrasion. Cover the compress with plastic wrap to retain moisture, place a towel over the plastic wrap, and keep it in place for up to 4 hours. The use of hot or very warm water can enhance the absorption of at least some of the components of essential oils.

Massage also can facilitate absorption of essential oils. Aromatherapy using touch can enhance communication with patients. To create a mixture for massage, dilute one to two drops of an essential oil in a teaspoon (5 ml) of cold-pressed vegetable oil, cream, or gel. The amount of essential oil absorbed from a full body massage using a 1% to 5% dilution will normally be 0.002 ml to 0.3 ml (Tisserand & Balacs, 1995).

Essential oils should not be used undiluted on mucous membranes; even on intact skin they are generally used in concentrations of only one to five percent, seldom exceeding 10%. They can be used diluted in pessaries and suppositories to treat conditions such as vaginal infections. For yeast infections (*candidiasis*), a 5% solution in carrier oil can be applied to a tampon and inserted in the vagina. Only essential oils high

in alcohols, such as tea tree, are appropriate in pessaries as alcohols are unlikely to cause skin irritation. Tampons should be changed regularly.

## General Guidelines for Use of Essential Oils

There are some general guidelines for use of essential oils that nurses can use for patient education and in practice. These include:

- Store essential oils away from open flames; they are volatile and highly flammable.
- Store essential oils in a cool place away from sunlight; use amber or blue colored glass containers. Essential oils can oxidize in the presence of heat, light, and oxygen, changing their chemistry and their actions.
- Essential oils can stain clothing—beware!
- Keep essential oils away from children and pets.
- Use essential oils from reputable suppliers.
- Close the container immediately after use.
- Care is needed when using essential oils with persons who have a history of severe asthma or multiple allergies.

Despite the relative safety of essential oils when used properly, sensitization and skin irritation can occur. Inform patients what to do in the case of a reaction.

## Measurement of Outcomes

The methods for measuring aromatherapy treatment effects will depend on the problem for which essential oils are used. For example, if lavender is used to promote sleep, outcomes would be chosen to determine if insomnia decreased. For psychological conditions such as depression or anxiety, a variety of validated questionnaire measures are available and can be correlated with physiological measures such as cortisol levels or skin temperature. For infectious disease outcomes, standard laboratory tests can be used to measure the effect of treatment on microbial load. Digital photography provides an easily accessible way to measure wound or lesion size changes. Other useful measures could include pain scales, quality of life scales, or tests of cognitive performance. Using established

measurement tools where possible is helpful in facilitating interpretation and comparing the effects of essential oils with those of other approaches.

## Precautions

Aromatherapy is a very safe complementary therapy if it is used with knowledge and within accepted guidelines. Nurses should not administer essential oils orally as this is outside a nurse's scope of practice, and poisonings have been documented (Jacobs & Hornfeldt, 1994). If an essential oil gets into the eyes, rinse it out with milk or carrier oil first and then with water. A list of contraindicated essential oils can be found in training manuals; both novices and more experienced practitioners should consult these lists. Essential oils that are high in phenols tend to be aggressive and should not be used undiluted on the skin or for long periods of time. Some essential oils should not be used during early pregnancy and should be used cautiously in later pregnancy. Nurses need to be aware of essential oils that can cause photosensitivity, such as bergamot (*Citrus bergamia*) (Clark & Wilkinson, 1998), and should provide appropriate patient education and protection when they are used.

Many essential oils have been tested by the food and beverage industry for use as flavorings (Opdyke, 1977), and other research has been carried out by the perfume industry. Most of the essential oils commonly used in clinical aromatherapy have been given GRAS (generally regarded as safe) status. They are very concentrated and potent compounds, however, and in most cases must be diluted in carrier oils for topical use. Tea tree (*Melaleuca alternifolia*) and lavender (*Lavandula angustifolia*) are among the few exceptions to this rule. These essential oils can be used (100%) on minor cuts, abrasions, and burns.

Some essential oils are contraindicated in persons with estrogen-dependent tumors, hypertension, seizures, or pregnancy. Extra care is needed when using essential oils with patients receiving chemotherapy because they may affect the absorption rate of certain chemotherapeutic drugs (Williams & Barry, 1989). Other essential oils can potentiate (or decrease) the effects of barbiturates or antibiotics, may cause dermal irritation, or are contraindicated in the presence of ultraviolet light. Some components of essential oils have been found to be carcinogenic or teratogenic (Tisserand & Balacs, 1995). It cannot be assumed that all essential oils are safe because they are "natural."

Product identity confusion is another potential threat to safety. Essential oils should not be confused with herbal extracts, which are completely different chemical mixtures and cannot be used interchangeably. Besides their chemical dissimilarities, herbal extracts and teas are usually taken

internally whereas essential oils are not. Also, essential oils are volatile and herbal extracts are not. Nurses share responsibility for ensuring product integrity when essential oils are used in clinical practice. Chemical testing of those used in patient care should be incorporated into ongoing institutional quality assurance/quality control programs.

Perhaps one of the greatest risks in aromatherapy is using an incorrect essential oil for a particular health outcome. This could stem from a nurse's lack of knowledge about plant taxonomy, a system that classifies plants according to their similarities. Many essential oils have familiar common names such as lavender, rose, and rosemary, but it is important to know the full botanical name. For example, lavender is a common name that covers three different kinds of lavender and a number of hybrid plants. The botanical name will give the genus and the species (rather like a surname and a first name, respectively). The genus of lavender is *Lavandula*, and all lavenders begin with this word. *Lavandula angustifolia* is possibly the most widely used and researched essential oil and is recognized as a relaxant. The other two species used in aromatherapy have very different properties. *Lavandula latifolia* (spike lavender) is a stimulant and expectorant; *Lavandula stoechas* is antimicrobial and not safe to use for long periods of time because it contains a large percentage of ketones that can build up and produce toxicity. Another example of a common herb with potential for confusion is marjoram, which is the common name for *Thymus mastichina* (actually a thyme) and *Origanum marjoranum* (the "real" marjoram). Nurses who use aromatherapy clinically must know the full botanical name of an essential oil (Table 26.1) and must understand the basics of plant taxonomy (Table 26.2).

## Credentialing

Currently there is no recognized national certification exam for aromatherapists and no governing body. The Aromatherapy Registration Council, a nonprofit entity that was established in 2000, administers a national exam and can provide the public with a list of registered practitioners. Nurses and health professionals wishing to use aromatherapy in their practice should check with their licensing bodies and their state board of nursing. There are many different courses available and health professionals should choose one that is relevant to their clinical practice. The largest professional organization is the National Association of Holistic Aromatherapy (NAHA). There are no requirements at this time for a person administering aromatherapy to be certified or accredited. The length of training in aromatherapy ranges from one weekend to several years. Any person, not necessarily just health professionals, can enroll in



**TABLE 26.1** Common and Botanical Names of Essential Oils Commonly Used in Aromatherapy

Common Name	Botanical Name
Basil	<i>Ocimum basilicum</i>
Chamomile, German	<i>Matricaria recutita</i>
Chamomile, Roman	<i>Chamaemelum nobile</i>
Clary sage	<i>Salvia sclarea</i>
Eucalyptus	<i>Eucalyptus globulus</i>
Fennel	<i>Foeniculum vulgare</i>
Geranium	<i>Pelargonium graveolens</i>
Ginger	<i>Zingiber officinale</i>
Lavender, true	<i>Lavandula officinalis</i>
Lemongrass	<i>Cymbopogon citratus</i>
Neroli	<i>Citrus aurantium var. amara</i>
Palmarosa	<i>Cymbopogon martinii</i>
Peppermint	<i>Mentha piperita</i>
Rose	<i>Rosa damascena</i>
Rosewood	<i>Aniba roseodora</i>
Sage	<i>Salvia officinalis</i>
Sandalwood	<i>Santalum album</i>
Ylang-ylang	<i>Cananga odorata</i>

**TABLE 26.2** Examples of Plant Taxonomy for Two Common Essential Oils

Example 1:	Common name	neroli
	Botanical name	<i>Citrus aurantium var. amara flos</i>
	Family	Rutaceae
	Genus	<i>Citrus</i>
	Species	<i>aurantium</i>
	Variety	amara
	Part	flos (flower)
Example 2:	Common name	lavender
	Botanical name	<i>Lavandula angustifolia</i>
	Family	Lamiaceae (was Labiatae)
	Genus	<i>Lavandula</i>
	Species	<i>angustifolia</i>
	Part	flowering plant

the educational programs. The American Holistic Nurses Association can provide a list of accredited courses.

## USES

Many health outcomes that fall within the domain of nursing practice can be addressed with essential oils, either alone or combined with other approaches (Table 26.3). The pharmacologically active components in essential oils work at psychological and physical levels. Essential oils can increase or decrease sympathetic activity in humans, affecting blood pressure, plasma adrenaline, and plasma catecholamine levels (Haze, Sakai, & Gozu, 2002). The effect of odor can be relaxing or stimulating, depending on the individual's previous experiences in addition to the chemistry of the essential oil used; therefore, it is important to explore patient preference when selecting essential oils for therapeutic purposes.

Nurse midwives have long incorporated essential oils into their practice, notably to reduce pain and aid relaxation during and after childbirth (Burns, Blamey, Ersser, Barnetson, & Lloyd, 2000). In long-term care and hospital settings, essential oils are increasingly used to help reduce agitation in patients with dementia (Bowles, Griffiths, Quirk, & Croot, 2002; Gray & Clair, 2002), promote sleep and reduce nighttime sedation (Hardy, Kirk-Smith, & Stretch, 1995), and promote wound healing (Kerr, 2002). Other patient conditions for which aromatherapy has been used include acute or chronic pain (Buckle, 1999), fatigue and nausea (Tate, 1997), infection control (Gravett, 2001), and mood and cognition (Ilmberger et al., 2002; Morris, 2002). Public health nursing topics addressed in the literature include using essential oils in the treatment of head lice (Veal, 1996) and as an aid to smoking cessation (Rose & Behm, 1994).

There is also considerable and growing international literature on the use of plant essential oils against pathogenic microorganisms (Table 26.4). The role of essential oils in the treatment and prevention of infectious diseases has begun to be explored in the United States, with important implications for patient health as well as institutional disinfection and hygiene (Harkenthal, Reichling, Geiss, & Saller, 1999). Methicillin-resistant *Staphylococcus aureus* (MRSA) and other microorganisms have been found to be sensitive to tea tree oil (*Melaleuca alternifolia*) (Caelli, Porteous, Carson, Heller, & Riley, 2000), and preliminary work suggests that essential oils may be effective in other difficult to treat infections (Sherry & Warnke, 2002).

### Aromatherapy and Children

Aromatherapy is one of the complementary therapies most used for children and adolescents (Simpson & Roman, 2001). The use of aromather-

**TABLE 26.3** Essential Oils Used for Health Problems and Application Methods**Pain Relief**

Migraine: peppermint, lavender (T)

Osteoarthritis: eucalyptus, black pepper, ginger, spike lavender, Roman chamomile, rosemary, myrrh (T)

Rheumatoid arthritis: German chamomile, lavender, peppermint, frankincense (T)

Low back pain: lemongrass, rosemary, lavender, sweet marjoram (T)

Cramps: Roman chamomile, clary sage, lavender, sweet marjoram (T)

General aches and pains: rosemary, lavender, lemongrass, clary sage, black pepper, lemon eucalyptus, spike lavender

**Gynecological**

Menopausal symptoms: clary sage, sage, fennel, aniseed, geranium, rose, cypress

Menstrual cramping: Roman chamomile, lavender, clary sage (T)

Premenstrual syndrome: clary sage, geranium, rose (T)

Infertility with no physiological cause: clary sage, sage, fennel, aniseed, geranium, rose (T)

**Cardiovascular**

Borderline hypertension: ylang-ylang, lavender

Transient hypotension caused by some antidepressants: rosemary, spike lavender

**Urinary**

Cystitis: tea tree, palma rosa (T especially sitz bath)

Water retention: juniper, cypress, fennel (T)

**Gastrointestinal**

Irritable bowel syndrome: Roman chamomile, clary sage, mandarin, cardamom, peppermint, mandarin, fennel, lavender

Constipation: fennel, black pepper (T)

Indigestion: peppermint, ginger (I)

**Infection**

Bacteria including MRSA, VRSA: tea tree, lavender, peppermint

Other bacteria: eucalyptus, naiouli, sweet marjoram, oregano, tarragon, savory, German chamomile, thyme, manuka

Viral: ravansara, palma rosa, lemon, eucalyptus smithii, melissa, rose, bergamot

Fungal: lemongrass, black pepper, clove, caraway (T); geranium, tea tree (particularly good for toenail fungus; apply undiluted daily to nailbed for several months)

**Pediatrics**

Behavioral problems: mandarin, lavender, Roman chamomile, rose (I, T)

Colic: Roman chamomile, mandarin (T)

Diaper rash: lavender

Sleep problems: lavender, rose, mandarin

Autism: rose can help multihandicapped children interact socially

TABLE 26.3 (continued)

**Respiratory**

Bronchitis: ravansara, eucalyptus globulus, eucalyptus smithii, tea tree, spike lavender (I)

Sinusitis: eucalyptus globulus, lavender, spike lavender, rosemary (I)

Mild asthma: lavender, clary sage, Roman chamomile (I)

**Dermatology**

Mild acne: tea tree, juniper, cypress, naiouli (T)

Mild psoriasis: lavender, German chamomile (T)

Diabetic ulcers: lavender, frankincense, myrrh (T)

**Oncology**

Nausea: peppermint, ginger, mandarin

Post-radiation burns: lavender, German chamomile, Tamanu carrier oil

**Older Adults**

Memory loss: rosemary, rose, peppermint, basil

Dry flaky skin: geranium, frankincense

Alzheimer's disease: rosemary, lavender, pine, frankincense

**Palliative Care**

Spiritual: rose, angelica, frankincense

Physical: lavender, peppermint, lemongrass, rosemary

Emotional: geranium, pine, sandalwood

Relaxation: lavender, clary sage, mandarin, frankincense, ylang-ylang

Pressure ulcers: lavender, tea tree, sweet marjoram, frankincense

**Care of the Dying**

Rites of passage: choose selection of patient's favorite aromas or frankincense, rose

Bereavement: rose, sandalwood, patchouli, angelica, frankincense, myrrh

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T = topical application

I = inhalation

No designation = can be administered either topically or by inhalation

apy with babies and children presents unique risks and opportunities. We recommend a conservative approach in light of the heightened sensitivity of the very young. Despite the plethora of aromatherapy products on the market for babies, it is recommended that essential oils be used cautiously, if at all, in infants except for specific purposes. Some aroma therapists recommend using hydrolats, the alternate distillation product containing the water-soluble plant components, with infants. As with essential oils, however, it is important to consider the chemistry of the

**TABLE 26.4** The Antimicrobial Action of Essential Oils: Selected Examples from the Literature

Microorganism	Essential Oil(s)	Research Studies
<i>Staphylococcus aureus</i>	tea tree, true lavender, peppermint, thyme	Hammer, Carson, & Riley (1999) Halcón & Milkus (2004) Caelli et al. (2000)
<i>E. coli</i> 0157:H7	oregano, thyme	Burt & Reinders (2003)
<i>Pseudomonas aeruginosa</i>	lemon, melissa	Larrondo, Agut, & Calco-Torras (1995)
Ringworm	lemongrass	Wannisorm, Jarikasesem, & Soontormtanasart (1996)
<i>Candida albicans</i>	tea tree	Jandourek, Vaishampayan, & Vazquez (1998)
HIV	rose, hyssop	Mahmood et al. (1996)
<i>Herpes simplex</i> viruses	sandalwood	Benencia & Courreges (1999)
Haemophilus influenza	thyme, lemongrass	Inouye, Takizawa, & Yamaguchi (2001)

hydrolat and its likely effect on the body of an infant. If dermal applications are used, they should not exceed concentrations of 1% for infants up to 6 months and 2% percent up to 2 years. Oral applications or instillations in the nose are contraindicated for young children and have resulted in serious complications, including coma (Tisserand & Balacs, 1995). Peppermint and some eucalyptus oils should not be used in children under 6 years of age. Menthol, a major constituent of peppermint oil, has been found to produce severe neonatal jaundice in babies with G6PD deficiency (Olowe & Ransome-Kuti, 1980), and peppermint oil has provoked life-threatening glottal spasms in children (Melis, Janssens, & Bochner, 1990). Many accidental poisonings of children have been reported, illustrating the importance of keeping essential oils out of reach in bottles with integral drop dispensers (less than 5 cc of some oils can be fatal) and of knowing their safety profiles.

Despite cautions, essential oils have been used to treat infants and children successfully and safely. Alexandrovich, Rakovitskaya, Kolmo,

Sidorova, and Shushunov (2003) found that a fennel seed oil emulsion worked well in treating infantile colic without apparent side effects. Buckle (2003) recommends true lavender (*Lavandula angustifolia*) as the safest essential oil for children. A few other essential oils considered safe for children include Roman chamomile (*Chamaemelum nobile*), rose otto (*Rosa damascena*), ginger (*Zinziber officinali*), ylang-ylang (*Cananga odorata*), *Eucalyptus smithii*, mandarin (*Citrus reticulata*), and melissa (*Melissa officinalis*). Although little research has been published, essential oils are being used in pediatric oncology settings for nausea and fatigue (spearmint, ginger, mandarin). They have also been used in community settings to treat head lice (tea tree) and to help with ADHD (melissa). Much more research is needed, but nurses who are knowledgeable about essential oils can introduce them in pediatric practice and remain within safety guidelines.

## FUTURE RESEARCH

There is a large body of unpublished research on the therapeutic effects of essential oils, much of it proprietary studies conducted by the food, cosmetics, and flavoring industries. There is also a large volume of scientific research published in languages other than English, notably from Japan, China, and European countries. Despite a growing body of research in English-speaking countries, there remains a dearth of studies in English. As with herbal medicine, investigations of aromatherapy are fraught with unanswered methodological questions. Some questions unique to aromatherapy include:

1. What is a good control condition for aroma?
2. Should aroma and touch be evaluated separately when both are used?
3. Should only single essential oils be used and not blends?
4. Can research methods be designed to accommodate adaptogens such as essential oils?

## WEB SITE

National Association of Holistic Aromatherapists: [www.naha.org](http://www.naha.org)

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## CHAPTER 27

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# Herbal Medicines

Gregory A. Plotnikoff with Yun Lu

Herbs and related natural products such as spices are the oldest and most widely used form of medicine in the world. The use of herbs for the treatment of disease and the promotion of well-being can be traced back in many cultures at least 2,500 years. However, herbal medicines are not restricted to historical use. Today, in addition to aspirin, digoxin, and antibiotics, numerous plant-derived medications are available including anticholinergic agents, anticoagulants, antihypertensives, and antineoplastic agents. In fact, of the top 150 pharmaceuticals in 1995, 86 contained at least one major active compound from natural sources. These represented only 35 of the estimated 2,000,000 extant plant species (Grifo, 1997).

The most comprehensive and reliable data on the use of herbal medicine comes from the 2002 National Institutes of Health (NIH) survey of 31,044 adults. Use of natural products, including herbs, for medicinal purposes was documented in 19% of the American population and 55% believed that use of complementary and alternative medicines would support health when used with conventional medical treatments (Barnes, Powell-Griner, McFann, & Nahin, 2004). This is significant as in 1999, 36% of people using herbal medicines did so in lieu of prescription medications and 31% used herbal medicines in combination with prescription medications (Johnson, 2000). The 2004 Council for Responsible

Nutrition survey of 1,000 randomly selected U.S. adults documented that 90% looked to health care professionals, including nurses, for guidance in herbal medicine use (Ward, 2005). Thus, herbal medicine warrants significant attention by all nurses.

## DEFINITION

Herbal medicines, or plant-based therapies, continue to occupy a place of central importance in the world's many healing traditions. These include the use of single herbs in many Western traditions and multiple-herb combinations in traditional Asian medical systems. Frequently herbs are part of an overarching belief system that may involve spiritual or metaphysical components. Herbal medicines are often included in the work of shamans and other traditional healers who serve as intermediaries with the spirit world. Herbal medicines are also a tool in traditional Asian medicine and are used like acupuncture to open blocked channels (meridians) for the free flow of qi (life spirit or force).

Herbal medicines, also known as botanicals or phytotherapies, are one component of the range of natural products sold in the United States as dietary supplements. These include fungi-based products (mycotherapies); essential oils (aromatherapies); and vitamin, mineral, and nutritional therapies (nutraceuticals). Since the passage of the Dietary Supplement Health and Education Act of 1994 (DSHEA), these biological modifiers have been available over the counter as dietary supplements. Though neither food nor drug, these substances are still regulated by the Food and Drug Administration (FDA) but with less stringent requirements. Unlike food and drugs, dietary supplements can be sold based on evidence of safety in the possession of the manufacturer and can only be removed from the market if the FDA can prove them unsafe under ordinary conditions of use.

Under DSHEA, herbal medicines can be sold for "stimulating, maintaining, supporting, regulating and promoting health" rather than for treating disease. As dietary supplements rather than drugs, herbal medicines cannot claim to restore normal or correct abnormal function. Additionally, herbs cannot claim to "diagnose, treat, prevent, cure, or mitigate" (DSHEA, 1994). Herbal medicine companies can assert that their product supports cardiovascular health but not that it lowers cholesterol. To do so would suggest that the product is intended for treating a disease (hypercholesterolemia) and is therefore subject to FDA pharmaceutical regulations.

This has raised questions about what constitutes a disease. The FDA originally suggested that a disease is any deviation, impairment, or inter-

ruption of the normal structure or function of any part, organ, or system of the body that is manifested by a characteristic set of one or more signs and symptoms. This definition generated many concerns. "Normal structure" appeared to be normed to a 30-year-old male and therefore did not account for gender or aging. For example, are menopause and menstrual cramps diseases? With no signs or symptoms, is hypercholesterolemia a disease or a risk factor? After significant public outcry, the FDA adopted the definition of disease found in the Nutrition Labeling and Health Act of 1990. Disease is currently considered damage to an organ, part, structure, or system of the body such that it does not function properly (e.g., cardiovascular disease) or a state of health leading to such (e.g., hypertension).

## SCIENTIFIC BASIS

Significant research has been done using Western biomedical/scientific models on numerous single herbal agents. Beginning in 1978, the German government's *Bundesgesundheitsamt* (Federal Health Agency) began evaluating the safety and efficacy of phytomedicines. The health professionals charged with doing so, known as the Commission E, met until 1994 and evaluated 300 herbal medicines. They recognized 190 as suitable for medicinal use. The complete reports have been translated and are available from the American Botanical Council (2000).

Beginning in 1996, significant meta-analyses and review articles of single herb products began appearing on a regular basis in leading Western medical journals. These are readily accessible via the National Library of Medicine's PubMed web site (<http://www.ncbi.nlm.nih.gov/PubMed/>). Compiling data from similar studies for analysis (meta-analysis) is complicated by the fact that many studies published to date have left out important information including naming the specific plant species studied (e.g., echinacea versus *Echinacea purpurea*, *E. pallida*, or *E. augustifolia*), the parts used (stems, leaves, or roots), the form (pressed juice, powdered whole extract, aqueous extract, ethanol extract, or aqueous-ethanol extract), and the formulation (stated proportions of water to alcohol or specifically extracted fractions and concentrations).

Standardization of herbal medicines is crucial both for scientific study and consumer protection. Standardization is equated with reproducibility, guaranteed potency, quality of active ingredients, and documentable effectiveness. However, with herbal medicines, standardization presents several problems. First, the active ingredient may not be known. Second, there may be more than one active ingredient, and third, both content

and activity of an herbal medicine may be related to the means of extraction and processing. This significantly complicates both research and counseling for health professionals and consumers.

An increasing number of health care professionals are studying the effects of these substances. With an increase in the FDA's involvement, we can look forward to a more reliable herb market. Increased knowledge of herbal indications may increase the safety and efficacy of herbal therapies for patients.

## INTERVENTION

### Technique

Herbal medicines and dietary supplements need to be addressed in clinical settings in the same manner one addresses pharmaceutical agents. Every health professional needs to be aware of the wide use of herbal medicines and other dietary supplements. Efficient and effective patient advocacy means including questions on alternative therapies as a standard part of each patient interview. Reasonable questions include: Are you using any herbs? Vitamins? Dietary supplements? Follow-up questions include: What dose? What source? What directions are you following? Why are you taking it? Asking about the source of information can be quite helpful as in, "Are you working with any other health professionals?" As with all good interviewing, listening for understanding rather than agreement or disagreement enhances the therapeutic alliance. In addition to knowing the type of herb used, the dose of each herb, and the intended purpose for each herb, gathering information regarding the duration of herb use will also be helpful in assessing patients and providing safe and effective care.

Unfortunately, professionals often do not ask such questions and patients do not volunteer such information. This "don't ask, don't tell" policy makes no sense in patient care. All health professionals need to create a safe environment that is conducive to patients' open sharing of important information such as herbal use or use of other complementary/alternative therapies without fear of ridicule or other negative responses. "Ask, then ask again" is a practice policy foundational to safe and effective patient care.

### Precautions

A common misconception regarding herbal medicines is that herbs have no side effects because they are "natural." However, herbs do indeed

have side effects and may be toxic or poisonous if not used appropriately. Consider the toxicity of such widely used natural products as coffee, cocaine, and tobacco. Another dilemma is patient use of herbs in lieu of their prescribed medications. Although herbs may be a good option in particular cases and conditions, the decision to decline medications should be based upon fully informed judgments in partnership with a health professional.

Interviewing for herbal medicine use is crucial for identifying those patients at risk for interactions with prescription medications or for excessive bleeding in surgery. Patients with special risks of drug interactions include those taking the following pharmaceutical agents: anticoagulants, hypoglycemics, antidepressants, sedative-hypnotics, antihypertensives, and medications with narrow therapeutic windows such as digoxin and theophylline.

Pregnancy, lactation, breastfeeding, and child care are special topics in herbal medicine use. For these situations, the most authoritative references are cited in Table 27.1. In the absence of clinical trial data, use is guided by historical experience or breast milk analysis. Herbs that increase breast milk production, such as fenugreek, are frequently recommended by International Board Certified Lactation Consultants (IBCLC).

Nursing skills include the ability to counsel. Table 27.2 lists key teaching points regarding herbal medicines. Herbal therapies are only safe if herbs are prepared in the right way, used for the right indication, in the right amounts, for the right duration, and with appropriate monitoring. Potential herb-herb and herb-drug interactions should be considered when patients are using herbal products. The lack of national standards in the collection and preparation of herbal products complicates this field in the United States. Because many herbs have theoretical or

**TABLE 27.1** References for Pregnancy, Breastfeeding, Lactation, and Children

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Romm, Aviva Jill. *The Natural Pregnancy Book*. Berkeley, CA: Ten Speed Press, 2003.

Hale, Thomas W. *Medications and Mother's Milk: A Manual of Lactational Pharmacology* 11th Edition. Amarillo, TX: Pharmasoft Medical Publishers, 2004.

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**TABLE 27.2** Five Key Patient Learning Points

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Just because it is natural does not mean it is safe.  
 Just because it is safe does not mean it is effective.  
 Labels may not equal contents.  
 Self-diagnosis and self-treatment can result in self-malpractice.  
 Herbs are never a replacement for an emergency room.

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actual risks that need to be recognized, it is important for health providers to have reliable and accessible sources of information to prevent adverse herb-related reactions and also to identify and manage complications of herbal therapies; Table 27.3 cites selected reputable herbal references.

All serious adverse reactions should be reported to the FDA through the MedWatch program at 1-800-332-1088 or at <http://www.fda.gov/medwatch>. An example of a complication associated with herbal therapy

**TABLE 27.3** Herbal References and Resources

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American Botanical Council: [www.herbalgram.org](http://www.herbalgram.org)  
 American Nutraceutical Association: [www.americanutra.com](http://www.americanutra.com)  
 The U.S. FDA center for Food Safety and Applied Nutrition—a link to report adverse events: [www.cfsan.fda.gov/~dms/aems.html](http://www.cfsan.fda.gov/~dms/aems.html)  
 National Center for Complementary and Alternative Medicine: [www.nccam.nih.gov](http://www.nccam.nih.gov)  
 Herb Research Foundation: [www.herbs.org](http://www.herbs.org)  
*Herbal Medicine—The Expanded Commission E Monographs* edited by Blumenthal, Goldberg, and Brinckmann. Austin, TX: American Botanical Council, 2000.  
*Nurses Herbal Medicine Handbook*. Published by Lippincott Williams & Wilkins, 2001.  
*HerbalGram* magazine. Published quarterly by the American Botanical Council and the Herb Research Foundation: [www.herbalgram.org](http://www.herbalgram.org)  
*Tarascon Pocket Pharmacopoeia*. Contains a section on herbal and alternative therapies and has a PDA version that may be downloaded for a free trial: [www.tarascon.com](http://www.tarascon.com)  
*Micromedex Alternative Medicine Database*. An authoritative, full-text drug information resource; includes alternative medicine and is one of the most comprehensive resources for herbal medicine: [www.library.ucsf.edu/db/micromedex.html](http://www.library.ucsf.edu/db/micromedex.html)

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is illustrated in the case of the use of *Ma huang* (Ephedra), marketed in the United States until recently as a major ingredient in formulations for weight reduction. Because use of this herb had been linked to numerous adverse cardiovascular events including stroke, myocardial infarction, and sudden death (Haller & Benowitz, 2000), the U.S. Food and Drug Administration banned sales of this herb in April of 2004.

## USES

Given the volume and variety of products, herbal medicine knowledge relevant for nursing practice cannot be summarized quickly. This chapter will now address three leading herbs from an evidence-based perspective. The reader will note that there is a significant range in scientific data available on each and the theoretical risks should be acknowledged and carefully considered both by patients and health professionals. Further, the clinical knowledge related to combining herbal products with prescription and nonprescription drugs is only in the developmental stages; much remains to be known about interactions and side effects.

Chronic illness, surgery, and use of prescription medications are three situations in which herbal medicine reviews by nurses are important. Echinacea does stimulate the immune system, but this is not necessarily a positive effect. Ginkgo biloba's pharmacologic activity places people at risk in surgery. Saint John's wort is effective for mild to moderate depression but can render many prescription medications ineffective or even toxic. Readers should be aware that many herbs have a sufficient evidence base and potential as alternatives to Western medicine. However, herbal medicine in the United States is a very broad and multicultural phenomenon; it is difficult to know all products used by or all products of potential benefit to patients. Readers should be aware that there are reputable clinical resources readily available for informed decision making (see Table 27.3).

### **Echinacea (*Echinacea augustifolia*, *E. pallida*, *E. purpurea*)**

Echinacea is the leading herbal medicine used in the United States. North American gardens commonly contain Echinacea, also known as the purple coneflower. It was traditionally used by Native Americans and early settlers as a remedy for infections and for healing wounds. In vitro research suggests an immunostimulatory effect principally by macrophage, polymorphonuclear leukocyte and natural killer cell activation (Barrett, 2003).



Monocyte secretion of tumor-necrosis factor-alpha (TNF- $\alpha$ ) is particularly stimulated (Senchina et al., 2005).

Echinacea is promoted in the United States for the prevention and treatment of the common cold. In Europe, it is used topically for wound healing and intravenously for immunostimulation. Several methodologically valid clinical studies have been published in recent years with unimpressive results, suggesting that Echinacea is not effective for the treatment or prevention of upper respiratory illness for adults (Melchart, Walther, Linde, Brandmaier, & Lersch, 1998; Yale & Liu, 2004) and for children (Taylor et al., 2003). However, three other clinical studies have shown positive results in adults (Dorn, Knick, & Lewith, 1997; Goel et al., 2004; Yale & Liu, 2004).

Echinacea has a good safety profile but has been associated (very infrequently) with gastric upset, rashes, and severe allergic reactions. Echinacea is not recommended for persons with allergies to members of the *Asteraceae* family (formerly termed *Compositae*), which includes ragweed, daisies, thistles, and chamomile. More importantly, nonspecific immunostimulation may exacerbate preexisting autoimmune disease or precipitate autoimmune disease in genetically predisposed persons (Lee & Werth, 2004). Tumor necrosis factor-alpha and interleukin-1 are pro-inflammatory cytokines, and recent evidence demonstrates that anti-TNF and anti-interleukin-1 therapies are effective for autoimmune diseases including Crohn's disease and rheumatoid arthritis. Echinacea cannot be recommended for people with other chronic immunologic diseases, including multiple sclerosis, lupus, and HIV.

The LD<sub>50</sub> of intravenously administered echinacea juice is 50 ml/kg in mice and rats. Regular oral administration to mice at levels greater than proposed human therapeutic doses has failed to demonstrate toxic effects (Mengs, Clare, & Poiley, 1991). However, one study has suggested that repeated daily doses suppress the immune response (Coeugniet & Elek, 1987). The German government's Commission E recommends that use be limited to 8 weeks. Use of Echinacea for more than 8 weeks is associated with higher risk of neutropenia (Blumenthal et al., 1998).

### **Ginkgo (*Ginkgo biloba*)**

Ginkgo is the number one selling herb in Europe for improvement of blood rheology and enhancement of cognition. Clinically, ginkgo is used for circulatory problems such as peripheral artery disease (Pittler & Ernst, 2005), impotence (Sikora, 1989), and "cerebral insufficiency" (Kleijnen & Knipschild, 1992a). Commission E also approves its use for dementia syndromes with memory deficits, disturbances in concentration,

depressive emotional conditions, dizziness, tinnitus, and headaches. European studies published in 1994 and 1996 demonstrated its effectiveness in slowing or reversing dementia (Hofferberth, 1994; Kanowski, Herrmann, Stephan, Wierich, & Horr, 1996). A study published in 1997 confirmed these findings for patients with Alzheimer's disease and multi-infarct dementia in an American trial with 309 subjects (LeBars et al., 1997).

Recently, intriguing data have been published that suggest possible use in Parkinson's disease (Ahmad et al., 2005; Kim, Lee, Lee, & Kim, 2004) and diabetic retinopathy (Huang, Jeng, Kao, Yu, & Liu, 2004). Additionally, there is interest in its use for cognitively intact seniors (Mix & Crews, 2002), cell phone users (Ilhan et al., 2004), and stressed adults (Walesiuk, Trofimuk, & Braszko, 2005). However, larger trials are still needed to confirm such therapeutic benefit.

Ginkgo's leaf extracts are used in Europe both orally and intravenously for treatment of Alzheimer's dementia, multi-infarct dementia, peripheral vascular disease, and vertigo (Kaufmann, 2002; Li, Ma, Scherban, & Tam, 2002). Ginkgo's mechanism of action is believed to be its *in vitro* antioxidative, vasodilatory, antiplatelet, and neuromodulatory properties (Watanabe et al., 2001). It is more effective than beta-carotene and vitamin E as an oxidative scavenger and inhibitor of lipid peroxidation of cellular membranes (Pietschmann, Kuklinski, & Otterstein, 1992) and stimulates the release of nitric oxide (Chen, Salwinski, & Lee, 1997). Ginkgo is also a potent antagonist of platelet activating factor (Engelsen, Nielson, & Winther, 2002) and thus inhibits platelet aggregation and promotes clot breakdown. Ginkgo in the CNS inhibits production of pro-inflammatory cytokines and upregulates anti-inflammatory cytokines (Jiao, Rui, Li, Yang, & Qiu, 2005). These properties may result in neuroprotective and ischemia re-perfusion protective effects (Oyama, Chikahisa, Ueha, Kanemaru, & Noda, 1996; Sener et al., 2005; Shen & Zhou, 1995).

Side effects with ginkgo are uncommon. They include gastrointestinal discomfort, headache, and dizziness. Because of its anti-platelet effect, however, there is a risk of significant bleeding when ginkgo is used with anticoagulants and other antiplatelet agents (Bebbington, Kulkarni, & Roberts, 2005; Matthews, 1998; Rosenblatt & Mindel, 1997; Rowin & Lewis, 1996). Ginkgo should be discontinued 10 days prior to surgery and not restarted until the surgical wound has healed sufficiently to allow for aspirin use.

### **Saint John's Wort (*Hypericum perforatum*)**

Saint John's wort, one of the world's top selling herbs, has been used for centuries in Europe as a sedative and as a balm for skin injuries. Since

1996, it has been widely promoted in the United States as a wonder drug for depression or as “nature’s Prozac.” Today, it is often used to treat mild to moderate depression, anxiety, and sleep disorders.

In vitro studies have shown that *Hypericum* extract inhibits the neuronal uptake of the neurotransmitters serotonin, noradrenaline, dopamine, gamma-aminobutyric acid (GABA), and L-glutamate (Muller, Rolli, Schafer, & Hafner, 1997). No in vivo MAO-inhibiting activity has been demonstrated with *Hypericum*.

A 1996 review of 23 randomized trials involving 1,757 patients with mild to moderate depression documented that *Hypericum* extracts are significantly better than placebo and similarly effective as tricyclic antidepressants. Overall, 55.1% of subjects responded to Saint John’s wort and 22.3% responded to placebo (Linde et al., 1996). These studies have been criticized for not standardizing the diagnosis of depression or the dose of the herb’s presumed active ingredient, hypericin. Additionally, the studies were short in duration and enrolled small numbers of subjects. It should be noted, however, that hypericin may not be the active ingredient in Saint John’s wort; several constituents such as pseudohypericin and hyperforin have pharmacologic effects.

In a review of 35 double-blind, randomized trials, Saint John’s wort demonstrated a much more favorable side-effect profile than tricyclic antidepressants and a slightly better profile than selective serotonin reuptake inhibitors in patients with mild to moderate depression. Dropout rates are quite low: among 17 observational studies of 35,562 subjects, the rate ranged from 0% to 5.7% (Knuppel & Linde, 2004).

One 6-week randomized, double-blind comparison study of fluoxetine and Saint John’s wort in 161 geriatric patients demonstrated nearly identical response rates and declines in the Hamilton Depression Scale scores (Harrer, Schmidt, Kuhn, & Biller, 1999). The Institute of Clinical Pharmacology in Berlin noted that even in high doses, Saint John’s wort was well tolerated (Kerb et al., 1996).

The most serious toxicity associated with St. John’s wort is the negative interactions with prescription drugs. Saint John’s wort is a potent ligand for the nuclear receptor that regulates the expression of cytochrome P450 (CYP) 3A4, the hepatic enzyme involved in the metabolism of more than 50% of all prescription drugs (Moore et al., 2000). These include oral contraceptives, idinavir, cyclosporine, theophylline, digoxin, and warfarin. Hence, the use of Saint John’s wort can be life threatening for people requiring prescription medications. Because of its long half-life, the herb should be discontinued at least 5 days prior to initiation of the above medications, and close monitoring of drug levels may be indicated. Additional theoretical concerns include the risk of photosensitivity or

the precipitation of a serotonergic crisis with other prescription antidepressants.

## FUTURE RESEARCH

Before herbal medicines are more widely accepted by the conventional allopathic medical system, more randomized, double-blind, placebo-controlled trials are needed in the United States. The NIH National Center for Complementary and Alternative Medicine (NCCAM) has funded and will continue to fund such clinical trials of herbal therapies. Promising understudied areas for herbal therapies include the following:

1. numerous herbs for peri-menopausal hot flash management,
2. milk thistle for hepatoprotection in the setting of hepatotoxic agents,
3. feverfew to augment breast milk production,
4. numerous medicinal mushrooms for adjunctive cancer therapy.

Additionally, significant efforts are needed to identify the most promising herbal supports for chemotherapy and radiation therapy as well as for asthma and heart disease.

Western medicine has yet to explore the potential benefits from the world's many healing traditions that use customized combinations of herbs. To research these will require a new paradigm, one that accounts for potential synergy and counterbalancing activities of multiple ingredients. Although intriguing preliminary data exist for many dietary supplements, the historic paucity of funding mechanisms in these areas has meant that scientific support for the use of many commercial products lags significantly behind consumer marketing efforts.

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# Functional Foods and Nutraceuticals

Bridget Doyle and Melissa Frisvold

In the 21st century the focus of the relationship between eating habits and health is changing from an emphasis on health maintenance through recommended dietary allowances of nutrients, vitamins, and minerals to an emphasis on the use of foods to provide better health, increase vitality, and aid in preventing disease and many chronic illnesses. The connection between food and health is not new. Indeed, the adage “Let food be your medicine and medicine your food” was supported by Hippocrates (trans. 1932). Today, the philosophy that supports the paradigm of nutraceuticals as functional foods is once again at the forefront.

Despite this ancient wisdom, the use of nutraceuticals and functional foods remains in its infancy in the Western world. It was not until the late 1970s that the trend toward improved physical fitness and overall well-being began. At that time, scientific evidence began to stress the importance of a balanced diet low in saturated fat, sodium, and cholesterol and higher in fiber. Currently, the use of nutraceuticals, including additives to certain conventional foods, phytochemicals, functional foods, dietary foods and supplements, and medical foods is growing at an astronomical rate. In the past several years, the Food and Drug Administration has worked to examine the possible connections between nutritional

products and disease states, including calcium and osteoporosis, sodium and hypertension, lipids and cardiovascular disease, lipids and cancer, and dietary fiber and cardiovascular disease (Gardner, 1994).

With the developing market of functional foods, it is estimated that consumers in the United States spent over \$18.7 billion on dietary supplements (Nutrition Business Journal, 2003). One can find calcium added to juices, pasta, rice, dry cereals, and chocolate and caramel candy products. Many companies are using soy protein isolates in foods ranging from candy bars and salad dressings to infant formulas. Plant stanols and sterols are being added to margarine-like spreads in an effort to reduce total cholesterol and LDL levels. Common nutraceuticals receiving broad attention include calcium-fortified fruit drinks and candy; soy protein bars fortified with whey protein; soy protein products and high-fiber cereals; and bars providing L-arginine, which may improve vascular functioning. Coverage of all nutraceuticals is beyond the scope of this chapter; however, several selected products are covered in depth. Because the use of nutraceuticals is so prevalent and because their use may impact health and wellness, it is important that nurses know about nutraceuticals and the potential benefits and risks.

## DEFINITIONS

To understand the terms *functional food* and *nutraceuticals*, one must understand the definition of foods. The Food and Drug Administration (FDA) defines foods as “articles used primarily for taste, aroma, or nutritive value” (Federal Food, Drug and Cosmetic Act, 1938, § 210). Historically, the FDA has made several attempts to regulate these products and remove some of them from the market (Kottke, 1998). Functional foods are defined as manufactured foods for which scientifically valid claims can be made. They may be produced by food-processing technologies, traditional breeding, or genetic engineering. Functional foods should safely deliver a long-term health benefit. Accordingly, a functional food may be one of the following:

- A known food to which a functional ingredient from another food is added
- A known food to which a functional ingredient new to the food supply is added
- An entirely new food that contains one or more functional ingredients (Pariza, 1999)

*Nutraceutical* has been defined as “a blend word of nutrition and pharmaceutical, for a substance that may be considered a food or part of a food and that provides medical or health benefits, including the prevention or treatment of disease” (Marshall, 1994, p. 243). These substances pose problems for official medicine regulators. The Japanese, who were among the first to utilize functional foods, have highlighted three conditions that define a functional food:

- It is a food (not a capsule, tablet, or powder) derived from naturally occurring ingredients.
- It can and should be consumed as part of a daily diet.
- It has a particular function when ingested, serving to regulate a particular body process, such as enhancement of the biological defense mechanism, prevention of a specific disease, recovery from a specific disease, control of physical and mental conditions, and slowing of the aging process (PA Consulting Group, 1990).

According to these definitions, unmodified whole foods such as fruits and vegetables represent the simplest form of a functional food. For example, broccoli, carrots, or tomatoes would be considered functional foods because they contain high levels of physiologically active components such as beta-carotene, lycopene, and sulforaphane. Modified foods, including those that have been fortified with nutrients or enhanced with phytochemicals, are also within the realm of functional foods.

## SCIENTIFIC BASIS

During the past century there have been many changes in the types of foods people eat. This reflects the application of scientific findings and technological innovations in the food industry. Although much research has been conducted on nutrition and health and disease, scientific research on the use of nutraceuticals is more limited.

Interest in foodstuffs has generated research to link nutrient and food intake with improvements in health or prevention of disease. More than 200 studies in the epidemiological literature have been reviewed and consistently show an association between a low consumption of fruits and vegetables and the incidence of cancer. The quarter of the population with the lowest dietary intake of fruits and vegetables has roughly twice the rate of cancer compared to those with the highest intake (Shibamoto, Terao, & Osawa, 1997).

Hasler (2002) suggests that claims about the health benefits of functional foods should be based on sound scientific evidence. For example, resveratrol, which is found in red wine and grape juice, appears to benefit health by causing platelet aggregation reduction, with strong evidence to support this assertion. Conversely, the evidence that catechins (found in green tea) reduce the risk of certain types of cancer is moderate. It would indeed be helpful if reliable, evidence-based sources of information were available to the consumer on all nutraceuticals.

Much scientific research has been conducted on the role of the various products added to normal foods to enhance their ability to inhibit or prevent diseases. Many regard dietary intake as the best means of acquiring necessary nutrients (Kottke, 1998). However, supplementation of nutrients is common. The findings of selected scientific research focused on selected nutraceuticals are summarized below.

### **Dietary Plant Stanols and Sterols**

The cholesterol-lowering potential of dietary plant stanols and sterols has been known for many years. Modifying plant stanols and sterols structurally makes them easily incorporated into fat-containing foods without losing their effectiveness in lowering cholesterol (Cater & Grundy, 1998). Dietary plant stanols and sterols inhibit the absorption of cholesterol in the small intestine, which in turn can lower LDL blood cholesterol. Patients using statin drug therapy may see further decreases in their blood cholesterol levels when using plant sterol and stanol esters (Blair et al., 2000). Recent studies of plant sterol and stanol esters in humans have demonstrated, however, that maximum cholesterol lowering benefits are achieved at doses of 2–3 grams per day (Hendriks, Weststrate, van Vliet, & Meijer, 1999; Jones, Ntanios, Raeni-Sarjaz, & Vanstone, 1999; Jones et al., 2000; Maki et al., 2001).

Plant sterols and their esters are Generally Recognized As Safe (GRAS) food-grade substances, indicating there has been a history of safe intake of these products with no demonstrated harmful health effects found in the research (International Food Information Council, 2003). Overall, the Nutrition Committee of the American Heart Association advises that stanols and sterol esters not be used as a preventive measure in the general population with normal cholesterol levels, in light of limited data regarding any potential risks. They may be used, however, for adults with hypercholesterolemia or adults requiring secondary prevention after an atherosclerotic event (Lichtenstein & Deckelbaum, 2001).

## **Glucosamine, Chondroitin Sulfate, and Collagen Hydrolysate**

This combination of nutraceuticals is receiving a great deal of scientific review, particularly their use in the symptomatic treatment of osteoarthritis. Meta-analyses by McAlindon, LaValley, Gulin, and Felson (2000) and Towheed and Hochberg (1997) reviewed clinical trials of glucosamine and chondroitin in the treatment of osteoarthritis. McAlindon and colleagues included 13 double-blind, placebo-controlled trials of greater than 4 weeks' duration, testing oral or parenteral glucosamine or chondroitin for treatment of hip or knee arthritis. All 13 studies were classified as positive, demonstrating substantial benefits in treating arthritis when compared with placebo. Towheed and Hochberg reviewed nine randomized, controlled studies of glucosamine sulfate in osteoarthritis. Glucosamine was superior when compared to placebo in seven random trials. Two of the random trials compared glucosamine sulfate to ibuprofen. In these two trials, glucosamine was superior in one and equivalent in the other.

The literature reflects concern about these specific products. Deal and Moskowitz (1999) underscore that investigators utilizing glucosamine and chondroitin carefully monitor the product manufacturing process because some of the preparations claiming to contain certain doses of these nutraceuticals have significantly less (or none) of the dosages described.

Cost is a factor in the use of these nutraceuticals. The average cost ranges from \$35 to \$60 per month (Deal & Moskowitz, 1999). In their reviews, the authors emphasize that these agents are not FDA-evaluated or recommended for the treatment of osteoarthritis.

## **Coenzyme Q10**

Coenzyme Q10 (CoQ10) is a compound made naturally in the body. It is used by cells to produce energy needed for cell growth and maintenance. It is also used by the body as an antioxidant. Tissue levels of CoQ10 decrease with age. Some studies have suggested that CoQ10 stimulates the immune system and increases resistance to disease (National Cancer Institute, 2002). Several controlled trials of CoQ10 have been performed for the indication of congestive heart failure (CHF), and the results have varied (Khatta et al., 2000). Other therapeutic claims attributed to CoQ10 involve hypertension, impaired immune status, adjuvant therapy for breast cancer, and various neurologic disorders including Huntington's

disease and Parkinson's disease. No outcome data describing clinical benefits from CoQ10 could be found in the literature for these conditions.

## **Probiotics**

Probiotics are microorganism supplements intended to improve health or treat a certain disease. Yogurt is an example of a probiotic food source. The organism must have scientifically proven beneficial physiological effects, be safe for human consumption, remain stable in bile and acid, and be able to adhere to the intestinal mucosa. Probiotics protect the intestinal mucosa by competing with pathogens for attachment sites (Salminen, 1998).

Two controlled studies were completed by Malin, Suomalainen, Saxelin, and Isolauri (1996) with 9 children with juvenile diabetes and 14 children with Crohn's disease. Use of *Lactobacillus* GG therapy for 10 days demonstrated an increased gut IgA immune response. In a double-blind, randomized, placebo-controlled study of 40 individuals with ulcerative colitis, a mixed-organism probiotic prevented flare-ups of chronic pouchitis (Gionchetti et al., 2000). A meta-review of 143 clinical trials involving 7,500+ subjects revealed no adverse events associated with probiotic use (Naidu, Bidlack, & Clemens, 1999).

## **INTERVENTION**

Many people are using nutraceuticals. Therefore, it is important that nurses include them when they obtain the health history of the patient. Table 28.1 presents guidelines for nurses to use in assessing patients. In addition, Table 28.2 lists reputable sites for information pertaining to nutraceuticals.

## **Measurement of Outcomes**

Outcomes of therapy can be assessed in a number of ways, depending on the nutraceutical and the intent of the therapy. For example, blood levels of the nutrient or effect on the target organ (e.g., bone with the use of calcium) could be monitored over time. Also, it is important that potential side effects of the therapy be evaluated in periodic physical assessments and comprehensive histories. Positive or negative changes in subjective health, energy, and symptoms, or those subsequent to changes in nutraceutical use, can also be assessed in individuals as data for toler-

**TABLE 28.1** Guideline: Nutraceutical Assessment Guide for Nurses

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- Screen for nutraceutical use as a routine part of the health assessment interview process. Because surgical complications can arise from nutritional supplement use, their use is often discontinued a few weeks before surgery.
  - Acquire a working knowledge of functional foods and nutraceuticals, which includes benefits/risks, costs, and possible drug interactions.
  - Develop effective communication strategies to ensure that all members of a patient's health care team are aware of nutraceutical use.
  - Explore the reasons for the use of nutritional supplements and functional foods. Can the same benefits be achieved by using another product that is safer or less expensive?
  - Consider the unique health care needs of various populations. It is important that pregnant women, children, the elderly, and populations with certain medical conditions discuss any nutritional supplementation use with their health care provider.
  - Provide educational resources for patients that are easy to access, timely, evidence based, and easy to understand.
  - Remember to consult with and refer patients to nutritionists, a very knowledgeable and accessible resource in this promising and rapidly changing area of health and wellness.
- 

ance as part of cost–benefit evaluation. Good teaching of nutraceutical principles, intended purpose, and dose and effects of functional foods will result in informed use by clients and greater awareness of intended and adverse effects.

## Precautions

As stated previously, it is of paramount importance that nutraceutical use be assessed as part of the health history and nutritional assessment. Safe use must be carefully considered (Zeisel, 1999); safe dosage, drug interaction, toxic side effects due to overdose, or ineffective clearance should be determined.

A consistent concern expressed in the literature is the lack of regulation of nutraceuticals. Dietary supplements are not formally reviewed for consistency in the manufacturing process and there may be variation in the composition of one supplement batch to another (National Cancer Institute, 2002). Hasler (2002) raises concerns about the plethora of “functional” bars, beverages, cereals, and soups enhanced with botanicals that may pose a health risk to certain consumers. Consistent with these concerns, the General Accounting Office (GAO) in 2000 released a report

**TABLE 28.2** Nutraceutical Internet Sites

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**American Dietetic Association**

[www.eatright.org](http://www.eatright.org)

**Mayo Clinic**

[www.mayoclinic.org](http://www.mayoclinic.org)

**National Institutes of Health—National Center for Complementary and Alternative Medicine**

<http://nccam.nih.gov/>

**National Institutes of Health—National Library of Medicine**

[www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)

**National Institutes of Health—Office of Dietary Supplements**

<http://dietary-supplements.info.nih.gov/>

**Natural Medicines Comprehensive Database**

[www.naturaldatabase.com](http://www.naturaldatabase.com)

**U.S. Department of Agriculture—Food and Nutrition Information Center**

[www.nal.usda.gov](http://www.nal.usda.gov)

**U.S. Department of Health and Human Services—Office of Disease Prevention and Health Promotion**

[www.healthfinder.gov](http://www.healthfinder.gov)

**U.S. Food and Drug Administration—Center for Food Safety and Applied Nutrition**

[www.cfsan.fda.gov/~dms/supplmnt.html](http://www.cfsan.fda.gov/~dms/supplmnt.html)

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that raised concerns about the safety of certain foods and the lack of guidance from the FDA to companies on safety information labeling for consumers (Hasler, 2002). Finally, the American consumer often receives information on these products through less than reliable resources such as friends, Internet marketing sites, or vitamin store clerks (Morris & Avorn, 2003). When all of these factors are taken into consideration, a situation with inherent potential risks is created.

## USES

Nutraceuticals have been used to promote health and to prevent and treat illness. Nutraceuticals can be used to target deficiencies, establish optimal nutritional balance, or treat diseases. Because heart disease, cancer, and stroke are leading causes of death in the United States, nutraceuticals that have been shown to improve risk-factor profiles would be



desirable. Furthermore, people in the United States and worldwide could benefit from nutraceuticals when there are deficiencies of specific nutrients.

## **Children/Adolescents**

There is a paucity in the literature about nutraceutical use in the child/adolescent population. This is a population with unique nutritional needs because this is the time when growth and development occur at a rapid pace. Not only can nutrition during this time impact current health status, it may have implications for life-long health as well. Consistent with the need for research in this arena, the National Institutes of Health (NIH) currently is conducting a pilot study on probiotics in the prevention and treatment of pediatric illness. Further information on this exciting research initiative can be assessed at the NIH web site listed in Table 28.2.

The American Academy of Pediatrics (2001) conducted a survey of its members to determine attitudes, knowledge, and behaviors about complementary and alternative therapies (CAM) in their clinical practice. Analysis was done based on the response from 745 pediatricians. Few asked their patients or parents about CAM use. Approximately 1 in 5 pediatricians asked specifically about the use of dietary supplements. The findings from this survey will be used to guide the development of educational programs in this area for its members.

## **Women's Health and Nutritional Needs**

Throughout their life span, women have unique nutritional needs that place them at risk for nutrition-related diseases and conditions. Nutrition has been shown to have a significant influence on the risk of chronic disease and on the maintenance of optimal health status. Although food should be the first choice in meeting needs, nutritional supplementation may be necessary (American Dietetic Association, 2001). The following are some examples of increased nutritional needs across the life span:

- An increase in calcium during pregnancy and menopause is necessary.
- Folic acid requirements increase during pregnancy to prevent neural tube defects.
- Iron needs increase during times of menstruation and pregnancy.

Although acquiring these nutrients through food sources would be ideal, supplementation is often necessary. It is also important to remember that intake of certain nutrients over a certain level can be teratogenic. For example, too much Vitamin A in the first trimester of pregnancy can be teratogenic and because many foods are often enriched with vitamins and minerals, it is possible to consume too much.

## FUTURE RESEARCH

Although nutraceuticals have long-standing historical usage, increased interest in these substances to promote health, prevent disease, and treat specific medical conditions is reflected in heightened attention to nutritional science and increased consumption. A consistent theme throughout this chapter has been the need for more research in this area. The following quote from the book, *Complementary and Alternative Medicine in the United States* (Institute of Medicine, 2005), summarizes succinctly what the goal for research in this arena should be: “In terms of medical therapies, a commitment to public welfare is the obligation to generate and provide to health care practitioners, policy makers, and the public access to the best information available on the efficacy of CAM therapies” (p. 169). Consistent with this sentiment and because there is so much interest and hope in this area, interdisciplinary research teams may explore the following questions:

1. Which of the current nutraceuticals should be incorporated on a regular basis to promote health?
2. Are nutraceuticals cost effective?
3. What are the side effects associated with short- and long-term use of specific nutraceuticals?
4. Can we increase research in the use of nutraceuticals in the pediatric population?
5. What are innovative ways to educate health care providers about nutraceuticals?
6. Can we discover more effective methods to educate the American health care consumer about the benefits/risks of nutraceuticals?

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PART VI

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**Perspectives on  
Future Research and  
Practice**

# Perspectives on Future Research and Practice

Ruth Lindquist and Mariah Snyder

Nursing's commitment to the generation of high quality, cost-effective patient outcomes requires that a sound scientific basis for practice be established. Previous chapters have identified existing research related to the therapies reviewed. However, most chapters end with statements that more research is needed. The need for more evidence related to the safety, efficacy, timing, "dose," and specific indications for most therapies is clearly evident. As previously noted, there is a large and growing interest in and use of complementary therapies by the public. In fact, the number of annual visits to providers of complementary and alternative therapies now outnumbers visits to primary care physicians (Institute of Medicine [IOM], 2002). Interest in complementary therapies is encountered in a broad range of health care practice settings. Along with public and patient interest, there is a concomitant increased interest on the part of providers who want to deliver these therapies to patients and who also have an interest in therapies for their own personal use (Lindquist, Tracy, & Savik, 2003). As a result of the growing demand and use of therapies, there is a heightened urgency to expand the evidence base to support their use.

Health providers and researchers are challenged to provide care in the emerging context of an increasing volume and broader range in the

exploration and use of complementary therapies. There is an acute need to know and understand benefits of therapies, as well as a need to ensure the safety and efficacy of complementary therapies and to understand their effects and interactions when used in combination with other complementary and allopathic therapies. In this chapter the need for more evidence for the expanding use of complementary therapies in practice will be discussed; research designs appropriate for the study of complementary therapies will be explored; the overall state of research on complementary therapies will be described; and implications that the state of evidence and expanded use of complementary therapies have for future nursing research, education, and practice will be identified.

### NEED TO EXPAND THE EVIDENCE BASE

The documented growing interest in and use of alternative and complementary therapies and alternative systems of care have caused health care providers to consider the appeal of these therapies to consumers as well as the consideration of their safety and efficacy. With their growing use, there are increases in concern regarding the safety and/or interactions of therapies (for example, the interaction of herbal remedies with prescribed pharmacologic agents), the regulation of these therapies, and the quality of the products and therapies delivered. Scientific data as well as other forms of knowledge are needed by providers to inform their practice; accurate and reliable knowledge is also needed by consumers who wish to make informed decisions regarding their own health practices.

There is a rising interest and indeed a mandate for evidence-based practice. Evidence-based practice integrates the best scientific evidence with clinical expertise and patient preferences. Evidence-based practice (EBP) has been defined by McKibbin (1998) as

an approach to health care wherein health professionals use the best evidence possible, i.e. the most appropriate information available, to make clinical decisions for individual patients. EBP values, enhances and builds on clinical expertise, knowledge of disease mechanisms, and pathophysiology. It involves complex and conscientious decision-making based not only on the available evidence but also on patient characteristics, situations, and preferences. It recognizes that health care is individualized and ever changing and involves uncertainties and probabilities. Ultimately EBP is the formalization of the care process that the best clinicians have practiced for generations. [p. 396]

Nurses and other providers practicing in the context of allopathic care rely on an evidence base. So, too, nurses and other health professionals



are relying on or requiring similar evidence in their use of complementary therapies (IOM, 2002).

It is important that resources to access knowledge be identified, made available, and used by providers. Research findings must be disseminated broadly to practitioners, who need to be informed so that the safety of patients can be protected and the potential benefits of therapies realized. A number of personal data assistants (PDA)-based resources provide access to authoritative information as a resource to professional practice. Databases of research findings (e.g., the Cochrane Database of Systematic Reviews) provide a good resource for synthesized research findings ([www.cochrane.org/reviews/](http://www.cochrane.org/reviews/)). As of 2004, this online source contained 145 reviews related to complementary and alternative therapies. Web sites of government agencies such as the National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (NIH) provide other sources of information on a wide range of complementary and alternative therapies (<http://nccam.nih.gov/health/bytreatment.htm>). Its funding of investigator-initiated research and other programmatic initiatives has begun building a solid foundation from which therapies can be delivered with growing confidence in their safety and efficacy (<http://nccam.nih.gov/research/nccamfunds.htm>). However, there is much work to be done. The ideal evidence base for complementary therapies would support decision making in a broad range of complex patient situations. It would differentiate effects on persons with diverse characteristics and from various cultures, and would outline the potential differing effects and indications for persons suffering the full range of pathologies and medical conditions.

There are legitimate safety concerns related to therapy selection, quality of the product (the purity or technique of delivery), amount administered, dose, timing, duration, and other considerations related to specific therapies such as herbal therapies, nutraceuticals, and supplements. For example, research is needed to identify potentially adverse drug-herb interactions. Research is also needed to provide data to document the relative risks and benefits for therapies such as the use of diet therapy for hypertension (as opposed to standard allopathic pharmacologic therapies), or to consider benefits of the potential reduction of allopathic agents with side effects when used in combination with a complementary therapy.

The growing evidence base can provide much of the needed information for the consumer and provider. However, additional research is needed to determine the beneficial outcomes of complementary therapies. Alternatively, studies are needed to generate findings that protect the public from harm or from needless, costly therapies that have no evidence

to support them, or evidence that clearly shows no benefit. For example, therapies such as the use of laetril to combat cancer caused concern among allopathic providers who feared that the false hope of cure would dissuade patients from seeking legitimate forms of cancer therapy while bleeding fortunes from desperate families, despite the fact that there was no basis for its claims of beneficial effects (Pinn, 2001). Extramural funding opportunities and the peer review system of NIH ensure the continued accumulation of high quality evidence and encourages investigators with ideas, curiosity, and scientific expertise to explore potential therapies for human use.

## RESEARCH DESIGNS FOR COMPLEMENTARY THERAPIES

Most theorists would agree that the most rigorous design to test complementary and alternative therapies is the randomized, placebo-controlled, double-blind design that has long been the standard for testing therapies and advancing fields of inquiry (Duley & Farrell, 2002; Fogg & Gross, 2000; IOM, 2002). However, it is not the only type of design that provides useful information, nor are data generated from research the only available evidence base for practice. Other sources of evidence are also important and contribute to our knowledge and understanding of patients' responses to therapies, both allopathic and non-allopathic.

Consumers may be increasingly reluctant to enroll in clinical trials; therefore alternative study designs and strategies for the conduct of clinical research to advance the field may be necessary (Gross & Fogg, 2001). The Committee on the Use of Complementary and Alternative Medicine by the American Public was commissioned by the Institute of Medicine, the Agency for Health Care Quality & Research, NCCAM, and 15 other agencies and institutes of NIH to study and provide specific recommendations regarding complementary and alternative therapies. As part of their report (IOM, 2002), innovative designs that could be used to provide information about the effectiveness of therapies were identified, including

- *Preference RCTs*: trials that include randomized and non-randomized arms, which then permit comparisons between patients who chose a particular treatment and those who were randomly assigned to it
- *Observational and cohort studies*: studies that involve the identification of patients who are eligible for study and who may receive a specified treatment as part of the study

- *Case-control studies*: studies that involve identifying patients who have good or bad outcomes, then “working back” to find aspects of treatment associated with those differing outcomes
- *Studies of bundles of therapies*: analyses of the effectiveness, as a whole, of particular packages of treatments
- *Studies that specifically incorporate, measure, or account for placebo or expectation effects*: patients’ hopes, emotional states, energies, and other self-healing processes are not considered extraneous but are included as part of the therapy’s main “mechanism of action”
- *Attribute-treatment interaction analyses*: a way of accounting for differences in effectiveness outcomes among patients within a study and among different studies of varying design (p. 3).

Another important area that continues to challenge investigators involves the placebo effect and placebo/attention control groups (Gross, 2005). The placebo effect has been studied in areas of pain and analgesia, neuroimmunology, fear, anxiety, and pharmacotherapy and may have the capacity to stimulate dramatic healing (Harrington, 1997). The power of placebos should not be underestimated (Turner, Deyo, Loesser, Von Korff, & Fordyce, 1994). Placebo effects may lead to improvements in well over 50% of subjects in trials of medical therapies. Methods to manage placebo effects must be carefully considered in research on complementary therapies. In addition, when assessing the overall effects of a therapy, the impact of the healer him- or herself must be considered in terms of what the healer or the therapeutic relationship adds to the outcome (Quinn, Smith, Ritenbaugh, Swanson, & Watson, 2003).

Complementary therapies are often administered in the context of other therapies. This makes it challenging to differentiate the effects of the complementary therapies from those of other therapies simultaneously given, at the same time dissecting out effects of other concomitant disease processes and their treatments. There is a need for studies on the cost effectiveness of complementary therapies, and for research that compares complementary therapies with each other and with other conventional therapies (IOM, 2002). Studies of therapies relevant to aging populations, populations at varied developmental stages, and those having varied cultural backgrounds are also needed. These populations present challenges for the design, recruitment, and implementation of studies. Elderly subjects often have multiple comorbidities and may be taking multiple medications. Language and lack of cultural understanding may pose barriers to the inclusion of new immigrants. Access to young children, adolescents,

vulnerable adults, and their unique ethical issues may also be perceived as barriers to the inclusion of these groups.

There are other outcomes sought by health care consumers. That a therapy is shown to have beneficial health effects is not the only legitimate reason for its use. Therapies may have cultural significance or be intricately tied with healing traditions; therapies may lead to patients' peace of mind; they may meet patient and family expectations, or lead to their increased satisfaction. In considering the use of complementary therapies, the costs, risks, and value to recipients must be carefully weighed.

### **CURRENT STATE OF RESEARCH ON COMPLEMENTARY THERAPIES**

As previously noted, chapter authors have identified the need to generate more research in order to provide more knowledge to guide practice. Specific research challenges include the need for data-based decision support resources for the combination of therapies. There is a need for research to be conducted with special populations including children, frail elders, and the critically ill. Research is needed to study the effects of complementary therapies in specific health conditions or disease states. Clearly, research lags behind the public's appetite for the therapies; knowledge of the putative mechanisms of action, the qualities of therapies, and the predictability of outcomes is uneven across therapies. The IOM report, *Complementary and Alternative Therapies in the United States* (IOM, 2004), provides perhaps the most comprehensive, authoritative, and up-to-date summary of the research and knowledge base in the field. The report provides an assessment of what is known about complementary and alternative therapies and their use; it also proposes research methods and priorities for research and product evaluation.

Insistence on the use of standard conventions of scientific inquiry has been helpful in increasing the amount of evidence that has been systematically obtained to provide information for decision making in complementary therapies. However, there is a lack of information on the appropriate dose and timing of interventions and for whom the interventions may have the most beneficial effects. A solid evidence base for complementary therapies would support decision making in broad and complex patient situations. Complementary therapies may have different effects on people of diverse ethnic backgrounds and demographic characteristics. So, too, they may have potentially different indications and effects in persons suffering differing pathologies or medical conditions. The lack of such information is limiting to practitioners who rely on a

more fully developed evidence base and may hinder the full integration of the use of complementary therapies in practice.

The National Center for Complementary and Alternative Medicine (NCCAM), established by Congress in 1999, has as its mission the exploration of “complementary and alternative healing practices in the context of rigorous science, training CAM researchers, and disseminating authoritative information to the public and professional community” (NCCAM, 2005, p. 2). As previously mentioned, the NCCAM site (<http://nccam.nih.gov>) provides updated online information about the research conducted in the area of these therapies. It also provides a listing of clinical trials, alphabetized by the name of the therapies, further organized by the five domains of complementary and alternative therapies (the same NCCAM domains that organize the chapters in the five sections of this book). The work of this Center promises to increase the scientific evidence base and improve the context and delivery of therapies in years to come.

Studies have been done that have small sample sizes; meta-analyses can be conducted on such studies to synthesize findings to estimate effect-size of therapies when examined across studies. More of this type of work is also needed in addition to basic research.

## **IMPLICATIONS FOR NURSING RESEARCH, EDUCATION, AND PRACTICE**

There is a great need for nurses and scientists in other disciplines to develop ongoing programs of research related to complementary therapies. As primary care providers, nurses are in a good position to address patients' requests and the need for complementary therapies. Nurses have a vested interest in generating information that can be used to build the knowledge database underlying the use of therapies that may benefit patients. They may also generate data that refute the use of therapies or reveal adverse risk/benefit ratios. Nurses have conducted research on a number of complementary therapies. Most doctorally prepared nurses are schooled in both qualitative and quantitative designs. This gives them an understanding of multiple ways to approach designs of complementary therapies. The need for the expansion and dissemination of evidence and access to it has particular significance for the discipline of nursing and underlies recommendations for future directions in nursing research, education, and practice.

### **Implications for Nursing Research**

The need to generate information that can be used to provide complementary therapies in an informed manner is compelling for nurse scientists.

Specialized clinical expertise of nurse researchers can be used to select therapies to test and to target outcomes of importance to their patient populations. Specialized clinical knowledge has the potential to enhance the identification of instruments that are sensitive enough to assess potential effects of therapies (subjective, objective, or behavioral).

The *Research Teams of the Future* program of the National Institutes of Health (NIH) is an initiative to harness and extend advances in science through interdisciplinary research (NIH, 2004). In keeping with this program, interdisciplinary collaborations between nurse investigators and investigators from other disciplines who bring strengths from basic science, genetics, complementary therapies, or clinical practice may lead to growth of the knowledge base and its breadth, depth, and relevance, which should ultimately improve the quality of care for patients.

Broadening frames of references to include global perspectives and information from around the world will ensure an appropriate and comprehensive view of the field. The World Health Organization (2002) has launched a global strategic initiative to assist countries in blending complementary therapies with the countries' established health care systems. Such global initiatives should serve as catalysts in making information available to practitioners worldwide, and should move the field of complementary/alternative medicine forward. New, emerging, and continually refined technologies aid in the dissemination of information. Electronic means of posting new knowledge, warnings, or updated information on clinical trials speeds the availability of information and literally has the potential to bring a world of information to bear on practice—but only if this mode is utilized. Electronic publishing reduces the time to publication and increases accessibility of research findings. The mandate set by medical publishers (DeAngelis et al., 2004) to enroll in a registry of clinical trials if investigators desire to publish the results of their clinical trials in highly distinguished medical journals is also a step in the right direction.

Clinical research is costly. However, nurse-investigators' grant-writing skills and tireless efforts to pursue needed funds for investigative work pay off in the generation of advances in the field. Design skills that permit nurse investigators to effectively test interventions and advance clinical knowledge in the use of complementary therapies are critical. However, research conducted in non-clinical settings, including surveys of public use of complementary therapies, is also important. Nursing research is also needed to focus on the costs, relative cost benefits, and ethical issues surrounding access to and delivery of therapies.

## **Implications for Nursing Education**

The implications of the increasing public use and the expanding knowledge base underlying complementary therapies has significance for nurs-

ing education. Nurses must become familiar with the wide range of practices in complementary therapies in order to safeguard the public and their patients. Nurses are often asked for advice regarding therapies. Curricula must therefore provide them with a general, working understanding of therapies and patient use, and knowledge about information resources for reference or for referral for patients' use (Chlan & Halcón, 2003). Further, the IOM report (IOM, 2004) recommends that all health professional schools incorporate information related to complementary therapies at all levels so that they may "competently advise their patients" about these therapies (p. 8). Nurses must prepare to access needed information electronically, to interpret information, and to apply that information to a range of patients and complex conditions. Well-honed critical thinking skills need to be informed by the best available knowledge base. Student nurses must explore the use of complementary therapies in patient histories and physicals so that the potential effects of the therapies on patients may be adequately determined. A case example of a CRNA who was prepared in a graduate curriculum that familiarized students with broad health care practices including complementary therapies illustrates the value of such a curriculum.

In a county hospital where patients with a broad range of cultures and health practices are frequently encountered, a former graduate student reported that a patient presented for biopsy with her "healer." None of the anesthesia care providers were willing to incorporate the desire of the patient to have her healer in the operating room during the surgical procedure. The former student, familiar with a range of complementary therapies and having developed a level of comfort in the spectrum of health practices and choices from his curricular experience, accommodated the patient and agreed to provide anesthesia in the presence of the healer, who practiced a healing method with her hands throughout the surgery. The former student reported afterward that he had never experienced a case during which he had administered so little anesthesia and during which the patient's blood pressure remained so stable.

Exposure of health professional students to the public's interest in therapies and the broad range of therapies that are considered complementary will benefit them in their future practice. Such exposure can prepare nurses to expect, understand, and become more sensitive to cultural practices and preferences for and uses of culturally based complementary therapies. Knowledge of cultural practices helps to interpret findings in the physical assessment of patients. For example, moxibustion and coining, health-related practices used by some Southeast Asian cultures, leave marks on the body from rubbing or burning. Without health care profes-

sionals' appreciation of such cultural practices, these marks on patients' bodies are likely to be interpreted as some form of abuse.

## **Implications for Nursing Practice**

Nursing is a practice discipline. The potential for nurses to encounter the use of complementary therapies by patients is significant and growing. Effective dialogue regarding the broad range of therapies available and used by patients requires clear and frank communication between providers and patients so that the integration of allopathic and complementary/alternative therapies can be safe and beneficial, leading to the achievement of mutually identified desired outcomes. With an exchange of information, patient education, and appropriate management of therapies, adverse or untoward effects of incompatible therapies and side effects of therapies may be prevented, detected early, or identified and effectively managed.

In practice, it is clear that the relationship between patient and provider must be a partnership. Patient disclosure of therapies used may help to elucidate any contributions of these therapies to the presenting condition; the potential of therapies to aid the patient can also be better evaluated. In the context of the patient-provider relationship, information can be exchanged to inform patients of potential risks and benefits of both allopathic and non-allopathic remedies. Patients' practices and preferences can be discussed and factored into the plan of care.

Health care providers have responsibilities to provide the public with guidance in use; to share information; to interpret scientific information; and to contribute to the knowledge base through investigation, research utilization, and patient counseling. Making optimal use of available knowledge and methods to disseminate research electronically and making information available at the point of care are important.

Nurses in practice settings are in key positions to assess patient needs and to administer complementary therapies judged, from the evidence base, to be beneficial. Nurses administer the therapies or refer patients to qualified providers to receive specific therapies. Boards of nursing across the United States have taken positions regarding nurses' use of complementary therapies in practice (Sparber, 2001). In Minnesota, the Board of Nursing recognizes that nurses are providers of complementary therapies and that they have been administering these therapies for hundreds of years. The State Practice Act is permissive of nurses' inclusion of complementary therapies. Recommendations of the Board for nurses' use of complementary therapies include, among other things: the willingness and consent of the patient and/or family, competence in administra-



tion of therapies, safe administration of therapies, and the sharing of the use of complementary therapies with other members of the health care team (Minnesota State Board of Nursing, 2003).

Teamwork, the exchange of information across providers, patient referral to specialized complementary care providers, and sharing experience of therapies between disciplines ensure that the care provided to the patient is coordinated across disciplinary lines. However, practice guidelines are clearly needed to set competency standards for appropriate use of complementary therapies (IOM, 2004).

Imagine the future with a new culture of care: one that is open and that offers patient-centered care, where care is viewed from the lens of the patient experience and couples the best of Western medicine with the best of available non-allopathic remedies. The exploration of therapeutic options includes the consideration of allopathic and non-allopathic remedies by patients and their providers, followed by the evaluation of the outcomes of the therapies selected. With the explosive increase in the use of complementary therapies, there will be new and interesting therapies explored and adopted based on evidence that supports their efficacy. Imagination aside, new information regarding the health practices of immigrant groups, increased global sharing of healing practices, and the public's appetite for new ways to achieve better health, to effect cures, or to forestall aging, all guarantee that the future of nursing practice will be interesting.

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