

CHAPTER 11: COMPLEMENTARY HEALING

INTRODUCTION

What is health? Is it the absence of disease and disability or is it something broader?

Consider the following examples.

Mary exercises regularly, eats well, and has no *signs* or *symptoms* of disease. However, Mary always feels unhappy. Is Mary healthy?

John is 50 pounds overweight. He has no signs or symptoms of disease. He has a happy home life. Is John healthy?

Susan lost her left leg to bone cancer when she was a teenager. She now gets around in a wheelchair. She is happily married, has two children, and a job she enjoys. Is Susan healthy?

These examples illustrate the fact that health is more than just the absence of disease or disability. Many factors contribute to your health and well-being.

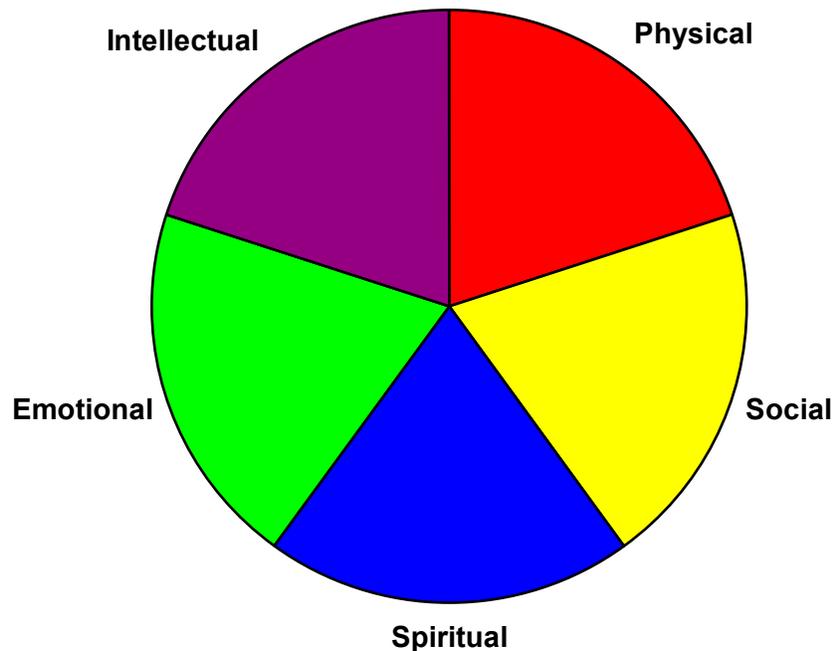
Thus far, this book has focused on the physical aspects of health. This chapter examines health, wellness, and healing more broadly. The purpose is to help you achieve not only physical health, but also an overall sense of wellness in your life.

THE WELLNESS WHEEL

The wellness wheel is a model used to demonstrate the different factors that contribute to a person's complete health (see Figure 1). It is based on ancient Eastern and Native

American concepts. According to this model, five aspects of your life contribute to your sense of well-being – physical, social, spiritual, emotional, and intellectual.

Figure 1: Wellness Wheel



The factors that contribute to each of these areas are:

- **Physical wellness** – lifestyle, fitness, nutrition, adequate sleep, activity level, illness
- **Social wellness** – relationships with family and friends, a sense of community
- **Spiritual wellness** – a sense of purpose, meaning in your life, values, ethics, religious or spiritual practice, philosophy of life
- **Emotional wellness** – feelings, a sense of worth, managing stress
- **Intellectual wellness** – productivity, enjoyable work, alertness, creativity, learning

Each area of wellness can affect your sense of well-being in other areas. For example, if you are unhappy with your work, you may begin to experience physical symptoms such as headaches or stomach upset. Similarly, a physical illness may affect your emotional well-being by causing stress or irritability. These feelings can affect your relationships with family

members and friends. Therefore, wellness involves addressing the health of each area of life that contributes to your overall sense of well-being.

SYSTEMS OF HEALING

Western Medicine

The United States, Canada, and many other industrialized nations primarily utilize a system of healing which is commonly called *western medicine* or conventional medicine. There are two types of doctors who practice western medicine, allopaths (medical doctors or MDs) and osteopaths (osteopathic doctors or DOs). Both MDs and DOs attend four years of medical school that includes classroom study in the sciences of the human body, and practical study of physical examinations, testing, and medical care. After completion of medical school, MDs and DOs must pursue additional training (called post-graduate education) to learn the art of medical practice. In the U.S., 94% of conventional doctors are MDs and 6% are DOs.

Western medicine is based on science and experimental testing. For the most part, western doctors group people into categories (diseases) based on their signs and symptoms. Generally, treatments are put into use after they have been shown to be effective for a specific disease or condition in scientific studies called clinical trials. See *Chapter 8: Clinical Trials* for a description of the clinical trial process.

Complementary and Alternative Medicine

Complementary and alternative medicine (CAM) is a generic term that refers to the many healing systems, philosophies, and practices that fall outside the realm of conventional or western medicine. There are many different types of CAM including:

- naturopathic medicine
- homeopathic medicine
- ayurvedic medicine
- traditional Chinese medicine
- modern Chinese medicine

- chiropractic medicine
- spiritual healing

Different forms of CAM utilize a variety of healing approaches. Examples of common CAM therapies include:

- acupuncture
- massage
- chiropractic manipulation
- craniosacral manipulation
- homeopathic remedies
- herbs
- nutritional supplements
- dietary therapy
- meditation
- visualization
- creative expression – art, dance, music
- biofeedback
- prayer
- movement or exercise – yoga, tai chi, qi gong
- aromatherapy
- crystals

Complementary therapy is used **in addition to** rather than in place of conventional treatment. The combined use of western medicine and CAM is called *integrated medicine*. *Alternative therapy* is treatment used **instead of** conventional treatment. Most people with lung cancer who utilize CAM use it in combination with western treatments. Nevertheless, some people choose to use alternative methods alone or after conventional treatments have failed. Most conventional lung cancer experts strongly advise against using CAM instead of western therapy. However, the choice is yours.

When I first found out I was now stage IV, of course I was initially shocked. I wanted to do everything possible to survive. I recognized that conventional medicine is positive, but they don't have all the answers. Through my research, I [decided] the key to my treatment would be keeping my immune system up. So the first step [for me] was integrated medicine.

– Barbara, diagnosed with stage IV NSCLC in 1999 at age 49

This chapter reviews some popular CAM therapies used by people with lung cancer. Each section notes whether there is scientific evidence to support the use of each treatment or product. Most complementary and alternative therapies have not been studied in a clinical trial setting, which means there is no scientific proof of their effectiveness. The use of many CAM therapies is based on years of experience passed down from one generation to another.

The author takes no position on the effectiveness of CAM treatments. The treatments presented in this chapter are included because they are frequently asked about. The inclusion of a particular CAM treatment does not mean the author endorses the treatment. Similarly, the absence of a particular CAM treatment does not mean the author opposes use of that treatment. The decision about what treatments (western or CAM) to include in your treatment plan is entirely up to you. However, the author encourages you to thoroughly research any form of therapy you are considering before making a decision about whether to include it in your treatment plan.

Before adding any new therapy to your treatment plan, it is very important to discuss it first with all of your health care providers. Different forms of therapy can interact with one another. Some therapies interfere with the beneficial effects of other treatments whether they are western or CAM therapies. For example, certain drugs, foods, herbs, or nutritional supplements may increase the side effects of western treatments or decrease their effectiveness. Some treatment combinations may actually be harmful. Your health care providers can only provide you with the best possible care if they are completely informed about all the treatments you are using. It is your responsibility to keep each of your health care providers informed about all your current treatments.

Many forms of CAM are not covered by health insurance. Check with your insurance company before pursuing a costly therapy that may not be covered under your plan. This will allow you to make an informed decision with respect to your financial situation.

Issues you may want to think about if you are considering complementary healing include:

- Find out about the CAM provider's expertise.
 - How much experience does he or she have?
 - What kind of training has he or she received?
 - Is he or she certified or licensed to practice in their field?
- What is the cost of treatment?
 - Will your insurance cover the cost?
- What do you hope to accomplish? What is likelihood of accomplishing your goals with the treatment you are considering?
- Are there risks associated with treatment?
- Are there side effects from treatment?
- Has the treatment been evaluated in clinical trials? Are there ongoing trials?
- Will the treatment interfere with other forms of treatment you are receiving?

CAM DISCIPLINES

There are many different CAM disciplines. This section presents a brief overview of some of the more popular CAM disciplines used by people with lung cancer.

Ayurvedic Medicine

The word ayurveda comes from two Sanskrit words, ayur meaning life and veda meaning knowledge. Ayurveda was founded in India. It is one of the oldest forms of medicine known to man. Ayurvedic medicine involves detoxification, diet, exercise, herbs, and other techniques to improve mental and emotional health. In ayurveda, good digestion is considered the key to good health.

According to ayurvedic principles, each person has a unique makeup or constitution. Your constitution is determined by the balance of three vital energies in the body called doshas. The three doshas are known by their Sanskrit names of vata, pitta, and kapha. Each dosha has its own role in the body. Health is maintained when the three doshas are in balance. Ayurveda focuses on maintaining health. It does not offer cures for cancers.

Ayurvedic practitioners are not licensed in the United States, and ayurvedic practice is not regulated by state or federal agencies. At this time, the ayurvedic medical degree (from ayurvedic medical schools in India) is not recognized in the U.S. or Canada. American ayurvedic schools are typically part-time certification courses that take one to two years to complete.

Chiropractic Medicine

Chiropractic medicine concerns itself with the relationship between the nervous system and the health of the body. This form of medicine is based on the fact that the nervous system controls the function of every *cell*, tissue, organ, and system of the body. Chiropractic principles state the functions of the body can be disturbed by misalignments in the spinal column or backbone (made up of 24 bones called vertebrae). A misalignment of one of the backbones is called a vertebral subluxation. Vertebral subluxations are corrected using spinal adjustments in an attempt to restore normal body function.

Chiropractors (chiropractic physicians) usually obtain a bachelor's degree before attending a school of chiropractic medicine to earn a DC degree (doctor of chiropractic medicine). All 50 states and the District of Columbia regulate chiropractic medical practice. Most DC programs are structured around a four-year academic schedule.

Licenses are granted to chiropractors who meet the educational requirements of their state and pass a state-approved board examination.

Homeopathic Medicine

Homeopathic medicine was developed in the early 1800s by Dr. Samuel Hahnemann, a German doctor and pharmacist. This form of medicine treats the whole person rather than

just the symptoms he or she is experiencing. This is called a *holistic medicine* approach. Homeopathy is based on the principle of treating like with like. This is called the principle of similars. Homeopathic remedies are made from extremely small amounts of animal, vegetable, or mineral substances that are used to stimulate the body's natural healing systems. Homeopathic remedies are regulated by the Food and Drug Administration (FDA) and are manufactured by established pharmaceutical companies under strict guidelines. Symptoms are considered a positive finding. There is no attempt to suppress symptoms as there is in western medicine.

Homeopathic training programs vary from 2-day seminars (designed for licensed health care professionals) to 4-year programs. In the United States, the American Board of Homeotherapeutics certifies MDs or DOs who meet their educational standards and pass both oral and written exams. Successful candidates are awarded the designation of diplomate in homeopathy (DHt).

There is no legal licensing or governmental regulation of homeopathic practitioners in the U.S. or Canada. Most state laws either do not address homeopathy or assume that it belongs under the supervision and jurisdiction of medically licensed doctors. A few states such as Arizona formally state that homeopathy belongs only under the jurisdiction of licensed medical doctors. Other states allow homeopathy within the scope of practice for specific health professionals such as acupuncturists. However, laws vary widely from state to state.

Naturopathic Medicine

Naturopathic medicine blends natural, non-toxic therapies with current advances in the study of health. The basis of naturopathy is the belief that the body has the ability to heal itself. Naturopathic doctors use many different forms of therapy to assist the body in its ability to heal itself including diet, exercise, nutrition, massage, acupuncture, homeopathic remedies, herbal medicines, nutritional supplements, and others. The focus is on whole-patient wellness, disease prevention, and self-care. Naturopathic medicine attempts to find the underlying cause of a person's condition rather than focusing solely on treatment of symptoms.

Naturopathic doctors (NDs) attend a 4-year, post-bachelor's degree naturopathic medical school. NDs are educated in the same basic sciences as MDs, but focus on holistic (mind and body) and nontoxic approaches to therapy. There is a strong emphasis on disease prevention and optimizing wellness. NDs are trained in clinical nutrition, acupuncture, homeopathic medicine, botanical medicine, and psychology. Licensed naturopathic doctors take rigorous professional board exams. As of this writing, 12 states and four Canadian provinces allow the practice of naturopathic medicine: Alaska, Arizona, Connecticut, Hawaii, Kansas, Maine, Montana, New Hampshire, Oregon, Utah, Vermont, Washington, British Columbia, Manitoba, Ontario, and Saskatchewan. Puerto Rico and the U.S. Virgin Islands also have licensing laws for naturopathic doctors.

Traditional Chinese Medicine

Traditional Chinese medicine (TCM) is a healing system that was developed in China over 3,000 years ago. TCM is based on the idea that the laws of nature can be used to understand the workings of the human body. TCM principles state the body is similar to the universe at large in that it is subject to constant battling between opposing forces such as heat and cold, dampness and dryness, masculinity and femininity, joy and sadness, etc. Health is a state of balance between the opposing forces in the body and disease is the result of imbalances. Imbalances manifest themselves in the body as too much or too little activity in particular organs or systems. Chinese medicine describes a vital energy called *qi* (pronounced chee) that travels through body along internal pathways called *meridians*. Imbalances in the body can cause blockages in the flow of qi. TCM practitioners use acupuncture, therapeutic massage (*tui na*), and herbal remedies to help restore the flow of qi and bring the body back into harmony and wellness.

Over 40 states have laws requiring licensure for acupuncturists; requirements for licensure vary according to state law. Many acupuncture schools do not require candidates to have an undergraduate degree. However, other schools give strong preference to people who have earned a bachelor's degree. In states that do not recognize acupuncturists as licensed medical practitioners, acupuncturists may be required to work under the supervision of another medical professional such as an MD, DO, or ND. In a few states, the practice of acupuncture is restricted to medical doctors or their equivalent.

Dispensing herbal medicines is not currently regulated by federal or state laws. Many herbs are available over-the-counter at health food stores, nutrition stores, and via the Internet.

Resources for Finding Qualified CAM Practitioners

The laws and regulations for the oversight of CAM are highly variable from one state to another. Many areas of CAM remain unregulated. Therefore, clients of CAM must be careful to choose qualified, experienced practitioners. The following organizations are useful resources to help you learn about the philosophy, education, training, and licensure requirements (if applicable) for various CAM practitioners. Many of these organizations can also help you locate a practitioner in your area.¹

Acupuncture and Oriental Medicine Alliance

Telephone: 253-851-6896

Internet: www.aomalliance.org

The Acupuncture and Oriental Medicine Alliance (AOMA) works to support the development of acupuncture and oriental medicine. AOMA maintains an active patient referral service of over 10,000 state-licensed and nationally certified acupuncture and oriental medicine practitioners via fax, phone, and the Internet. They support acupuncture and oriental medicine at the state and federal level to provide inclusion in research and health benefits. AOMA provides information regarding the benefits of acupuncture and oriental medicine, and works to insure that all practitioners who use acupuncture and oriental medicine modalities in their practice do so using sound, professional, clinical-based standards.

Alternative Medicine Foundation

Telephone: 301-581-0116

Internet: www.amfoundation.org

The Alternative Medicine Foundation is a nonprofit organization formed to provide evidence-based research resources for health care professionals, and responsible and reliable information for patients and consumers about the integration of alternative and conventional medicine. Current projects include the development of global information databases available via the Internet. HerbMed[®] is an interactive, evidence-based herbal formulary and TibetMed[®] is an interactive, community information resource on Tibetan medicine. The Alternative Medicine Foundation develops and distributes public information materials and resource guides.

¹ Listings are from the National Library of Medicine, Special Information Services, Directory of Health Organizations. Listings are Internet accessible at: dirlin.nlm.nih.gov.

American Association of Acupuncture and Oriental Medicine

Telephone: 888-500-7999 (toll free)

Internet: www.aaom.org

This association was established in 1981 as the unifying force for American acupuncturists who are committed to high educational standards and an ethical, well-regulated profession to ensure the safety of the public. As the umbrella organization representing the acupuncture profession in the U.S., AAAOM assisted in the formation of both the National Commission for the Certification of Acupuncturists (NCCAOM) and the National Council of Acupuncture Schools and Colleges (CCAOM) in 1982.

American Association of Naturopathic Physicians

Telephone: 866-538-2267

Internet: www.naturopathic.org

The American Association of Naturopathic Physicians (AANP) is an association of practitioners who are trained as specialists in natural medicine and are licensed or eligible for licensure in states that license naturopathic physicians. They treat disease using botanical medicine, oriental medicine, herbal medicine, homeopathy, physical medicine, exercise therapy, counseling, and acupuncture. AANP lobbies to increase the place of naturopathic medicine on the national health care agenda, supports associations in their efforts to obtain licensing, and promotes research agendas among federally recognized colleges.

American Association of Oriental Medicine

Telephone: 888-500-7999 (toll-free)

Internet: www.aaom.org

The American Association of Oriental Medicine (AAOM) was formed in 1981 as a professional organization dedicated to supporting and promoting acupuncturists in the United States. AAOM goals are: to protect and promote the philosophy, science, and art of acupuncture and oriental medicine; establish and maintain the practice of acupuncture and oriental medicine as a separate and distinct primary care healing art and profession; educate legislators, regulators, and the public regarding the nature and scope of the field; and develop and maintain standards of education and professional competence. Staff answers inquiries, distributes publications, and makes referrals to other sources of information.

American Chiropractic Association

Telephone: 800-986-4636 (toll-free)

Internet: www.amerchiro.org

The American Chiropractic Association (ACA) improves the public's awareness and utilization of chiropractic medicine and conducts chiropractic survey and statistical studies. Chiropractors practice, "the science and art which utilizes the inherent recuperative powers of the body and the relationship between the musculoskeletal structures and functions of the body, particularly of the spinal column and the nervous system in the restoration and maintenance of health."

American Institute of Homeopathy

Telephone: 703-246-9501

Internet: www.homeopathyusa.org

The primary interests of the American Institute of Homeopathy are homeopathy and homeopathic therapeutics. Staff provides consulting, reference, translating, and document services; conducts summer schools; holds an annual conference; and sells books.

Ayurvedic Institute

Telephone: 505-291-9698

Internet: www.ayurveda.com

The Ayurvedic Institute was established in 1984 to promote the traditional knowledge of Ayurveda. The online *Resource* page has information about ayurvedic medicine and practices.

Council on Chiropractic Education

Telephone: 480-443-8877

Internet: www.cce-usa.org

The Council on Chiropractic Education (CCE) is recognized by the United States Secretary of Education as the accrediting body for programs and institutions offering the doctor of chiropractic degree. CCE works to ensure the quality of chiropractic education in the United States through accreditation, educational improvement, and public information. Through the accreditation process, CCE certifies the quality and integrity of chiropractic programs and institutions. CCE responds to inquiries; distributes publications; and makes referrals to other sources of information.

National Center for Homeopathy

Telephone: 877-624-0613 (toll-free)

Internet: www.homeopathic.org

The National Center for Homeopathy (NCH) is a national, nonprofit membership organization for the promotion of homeopathy through education, publication, research, and membership services. Homeopathic information and education is provided to promote public awareness and to educate the public, both lay and professional, through courses, seminars, and publications, as well as the support of homeopathic research and correlated subjects.

National Center for Complementary and Alternative Medicine,

National Institutes of Health

Telephone: 888-644-6226 (toll-free)

Internet: www.nccam.nih.gov

The mission of the National Center for Complementary and Alternative Medicine (NCCAM) includes supporting research on complementary and alternative medicine, training researchers in CAM, and disseminating information to the public and professionals on which CAM modalities work, which do not, and why. NCCAM's areas of focus include: supporting clinical and basic science research projects in CAM by awarding grants across the country and around the world; awarding grants that provide training and career development opportunities for pre-doctoral, post-

doctoral, and career researchers; and sponsoring conferences, educational programs, and exhibits. NCCAM operates an information clearinghouse to answer inquiries and requests for information on CAM.

National Center for Complementary and Alternative Medicine Clearinghouse

Telephone: 888-644-6226 (toll-free)

Internet: www.nccam.nih.gov/nccam

The National Center for Complementary and Alternative Medicine Clearinghouse serves as the communications arm of NCCAM and handles inquiries on complementary and alternative medicine. The clearinghouse serves the public, patients, and health professionals by: providing information; locating other information sources; and creating health information materials. The clearinghouse does not serve as a referral agency for various alternative medical treatments or individual practitioners. Staff answers a hotline and, in response to requests, mails out health education materials on complementary and alternative medicine.

National Certification Commission for Acupuncture and Oriental Medicine

Telephone: 703-548-9004

Internet: www.nccaom.org

The National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM) is dedicated to: establishing entry level standards of competency for the safe and effective practice of acupuncture, Chinese herbology and other oriental bodywork therapy; evaluating applicant qualifications; offering national board examinations and certifying practitioners of acupuncture, Chinese herbology, and oriental bodywork therapy who meet these standards of competency.

COMPLEMENTARY HEALING AND CANCER

When a person has cancer, western medicine views the cancer as the primary problem in the body that is causing disease. Practitioners of alternative medical disciplines often have a slightly different view. According to alternative medical philosophies, cancer occurs because there are underlying problems in the body that have allowed the cancer to occur and grow. Therefore, whereas western medical treatments focus primarily on killing the cancer cells in the body, alternative therapies tend to focus on restoring and supporting overall health to enable the body to fight the cancer to the best of its ability using its own defenses. While some CAM practitioners advocate using only CAM treatments for cancer, many others believe CAM is best used in conjunction with western treatment for cancer. This integrated philosophy uses the principles of both western and alternative medicine. Western treatments

are used to kill or eliminate cancer cells while alternative therapies help the body fight the cancer using its own defense mechanisms.

Another philosophical difference between western treatments and CAM disciplines is the attention given to the person as a whole. Traditionally, western medicine has focused on the physical aspects of health and disease. Alternative medical disciplines are based on a holistic approach that takes into account all aspects of wellness, not just the physical realm. The holistic approach is based on the belief that there are complex interactions between the mind, body, and spirit. According to a holistic philosophy, one cannot be physically well unless he or she is also healthy mentally, spiritually, socially, and intellectually. According to this philosophy, a balanced, peaceful mind and spirit are as essential to health as physical well-being. In recent years, western medicine has begun to integrate non-physical aspects of health into treatment plans. However, the primary focus continues to be on physical health and disease.

The decision about whether to use western therapy alone, CAM therapy alone, or an integrated treatment approach is entirely up to you. However, it is important to fully understand all your options before making treatment decisions. While there are many extensively educated, highly trained alternative medicine practitioners who want nothing more than to help their patients achieve health and wellness, as with any other profession, there are a few whose motives may not be as altruistic. Many CAM therapies have not been studied in controlled, clinical trials. In the absence of clinical trial information, consumers of CAM therapies must depend on other sources of information including that offered by their practitioners, the word of other people who have used the treatment, background information available in books and other reference materials, and the recommendations of other professionals who have knowledge of and experience with the treatment.

Your treatment decisions may well be some of the most important decisions you will ever have to make because lung cancer is a potentially life threatening disease. It is important to choose carefully and make choices that are consistent with your personal goals and beliefs.

Common Concepts

Different complementary and alternative therapies often share common reasons for their use. This section briefly describes some of the common concepts you are likely to encounter if you are investigating the use of CAM therapies as part of your cancer treatment plan.

Optimizing Immune Function

The immune system has an important role in the body's response to cancer. Specialized white blood cells known as T lymphocytes (T cells), natural killer cells, and macrophages seek out and destroy cancer cells. Some lymphocytes also produce anti-cancer chemicals known as cytokines, which include interleukin and interferon. Many complementary and alternative cancer treatments focus on supporting and maximizing the functions of the immune system. In this way, CAM treatments attempt to optimize the body's natural ability to heal itself from cancer. Many products are available that claim to enhance immune function and help fight cancer.

Mind/Body Interactions

In general, CAM disciplines support the philosophy that the spectrum of health and disease is the result of complex interactions between the mind and body. Therefore, many complementary therapies for cancer focus on not only physical health, but also on your mental and emotional well-being.

Detoxification

Many complementary therapies are based on the idea that toxins (poisons) in the environment make their way into the body and contribute to the cancerous process. The goals of detoxification treatments are to remove toxins from the body, restore normal function, and eliminate the negative effects of toxins.

Nutrition

As discussed in *Chapter 12: Nutrition and Lung Cancer*, the food you eat provides the energy required for all body functions. It also provides the building blocks needed to heal damaged tissues and construct healthy new tissues. In other words, "You are

what you eat.” Many complementary therapies focus on providing your body with the best possible nutrition to optimize normal functions and help the body heal itself from cancer.

STRESS REDUCTION AND EMOTIONAL, MENTAL, AND SPIRITUAL HEALTH

Several studies conducted in recent years suggest ongoing stress can suppress normal immune function.¹⁻¹⁴ Scientific evidence supports the concept that health and disease are influenced not only by physical factors but also by emotional, mental, spiritual, and social factors as well. The complementary healing techniques presented in this section focus on stress reduction and/or your emotional and mental well-being to support your immune function and overall health. The therapies presented in this section are only a sample of the many healing techniques available; they are arranged in alphabetical order.

Art Therapies

Music, art, dance, movement, and drama therapies utilize the arts and the senses to help achieve stress relief, relaxation, and an overall sense of well-being. These forms of therapy are often collectively referred to as art therapies.

Art therapy uses art media, images, the creative process, and client responses to the created products as reflections of an individual's development, abilities, personality, interests, concerns, and conflicts. Art therapy can help people reconcile emotional conflicts, foster self-awareness, develop social skills, manage behavior, solve problems, reduce anxiety, and increase self-esteem. Art therapy includes painting, sculpting, drawing, and many other forms of art.

I have found that art therapy really makes a difference. When diagnosed with cancer, you can feel as though it is a death sentence and that you will never be able to live without the constant thought of your cancer. When I paint, I can escape. I can lose myself into the world of my painting.

– Dorothy, diagnosed with stage IIA NSCLC in 1999 at age 64

Based on the notion that body and mind are interrelated, dance/movement therapy is defined by the American Dance Therapy Association as, "the psychotherapeutic use of movement as a process which furthers the emotional, cognitive and physical integration of the individual." Dance therapy effects changes in feelings, thinking, physical functioning, and behavior. Dance therapy can provide stress relief, improve body image and self-esteem, decrease fears, provide an outlet for your emotions, decrease body tensions, and reduce chronic pain. There are many forms of dance therapy, which is also sometimes called movement therapy.

Music therapy is a highly effective relaxant for many people. Research supports the effectiveness of music therapy in many areas such as physical rehabilitation, facilitating movement, increasing motivation to become engaged in treatment, providing emotional support for clients and their families, and creating an outlet for expression of feelings.

I went into [my cancer] operation listening to John Coltrane on my disc player. Going into the operation, I was calm. When I came out, I wasn't afraid. I used music therapy a lot after my operation. If I was home alone and got scared, I would put on Gregorian chants and I would feel better, calm. It was part of my healing process. It's so wonderfully uplifting and healing.
– Dorothy, diagnosed with stage IIA NSCLC in 1999 at age 64

Drama therapy is defined by the National Association for Drama Therapy as, "the systematic and intentional use of drama/theater processes, products, and associations to achieve the therapeutic goals of symptom relief, emotional and physical integration and personal growth." Drama therapy is an active approach that helps clients tell their stories, solve problems, release their feelings, and extend the depth and breadth of inner experience. Cancer presents many challenges to people that they have never faced before in their lives. Drama therapy can help people work through these challenges.

Art, music, dance, movement, and drama therapists are trained health care professionals. Your cancer care providers can help you find art therapy programs in your area if you are interested in participating in one or more of these therapies. Many people with cancer find these therapies very helpful as part of their overall treatment plan.

For additional information about art therapies, you may wish to contact one or more of the following professional organizations.

- American Art Therapy Association
888-290-0878 (toll-free)
www.arttherapy.org
- American Dance Therapy Association
410-997-4040
www.adta.org
- American Music Therapy Association
301-589-3300
www.musictherapy.org
- National Association for Drama Therapy
202-966-7409
www.nadt.org
- National Coalition of Creative Arts Therapies Associations
201-224-9146
www.ncata.com

Biofeedback

Biofeedback is a treatment technique in which people are trained to improve their health by using signals from their own bodies. All body functions are controlled by the brain, but this control often takes place outside our conscious awareness. Biofeedback techniques teach people how to gain control over specific body functions. Monitoring machines are used to measure body functions. The information gathered from the monitors is provided to the person receiving biofeedback training to help him or her gain mental control over the target body functions.

Biofeedback has been used by people with lung cancer to help control anxiety¹⁵, stress¹⁶, breathing problems^{17, 18}, and pain.^{19, 20} If you are interested in biofeedback training, discuss it with your doctor to make sure it is safe for you. Your doctor or one of the nurses on your cancer care team may be able to refer you to a biofeedback professional. Alternatively, you may try contacting one of the agencies listed below.

- The Association for Applied Psychophysiology and Biofeedback
800-477-8892 (toll-free)
www.aapb.org
- Biofeedback Certification Institute of America
303-420-2902
www.bcia.org

Hypnosis

Hypnotists tell us that hypnosis is a natural state of mind we have all experienced. For example, have you ever been engrossed in a television program or book and failed to hear someone calling you or the telephone ringing? Hypnotists say this experience is similar to a mild hypnotic trance. Another familiar example is when you are driving and suddenly realize you have passed your turn or exit.

In the hypnotic state, you are awake but your mind is not actively analyzing, questioning, rationalizing, or judging. Each of us passes through a hypnotic state as we fall asleep and again when we wake up. In the hypnotic state, people are open to suggestions. This characteristic of the hypnotic state is used to help people control their conscious experiences and behaviors. While movies and television programs sometimes imply that people can be forced to do things through hypnosis, professional hypnotists report that any hypnotic suggestion must be acceptable to the client or else it will have no effect.

I was a dentist and used hypnosis for blood control. I am a strong believer in imaging and hypnosis. I know most people think I am crazy for believing it, but I was a stage IIIB with non-small cell lung cancer and in five weeks with chemo, my two-inch tumor was gone. So yes, I'm a strong believer.

– Richard, diagnosed with stage IIIB NSCLC in 1999 at age 78.

Hypnosis has been used by people with cancer for stress management, pain control, and to manage fears of medical procedures.^{21,22} Some people have had success using hypnosis to control nausea and vomiting associated with chemotherapy.²¹⁻²⁴ Talk to your cancer care providers if you are interested in trying hypnosis. The following organizations may be able to assist you in finding a qualified hypnotherapist in your area. Ask specifically for a therapist who has had experience working with people who have cancer. In some cases, a hypnotherapist may be able to teach you how to hypnotize yourself to help control your symptoms.

- American Association of Professional Hypnotherapists
650-323-3224
aaph.org
- American Council of Hypnotist Examiners
818-242-1159
www.sonic.net/hypno/ache.html
- American Psychotherapy & Medical Hypnosis Association

817-594-7003

apmha.com

- National Board of Certified Clinical Hypnotherapists
800-449-8144
www.natboard.com
- National Guild of Hypnotists
603-429-9438
www.ngh.net

Massage

Massage therapy is the assessment and treatment of the soft tissues (primarily muscle and connective tissues) of the body. Therapeutic massage is used to prevent disability, relieve stress and pain, and promote relaxation and overall health. Massage therapy encompasses a wide range of different techniques, which can affect the circulatory, musculoskeletal, nervous, and respiratory systems. Hydrotherapy (water therapy), stretching and strengthening exercises, breathing instruction, and assessment and correction of posture are also tools that massage therapists regularly employ in their treatment protocols.

I was introduced to massage therapy through hospice when my partner was ill. I saw how beneficial it was. When I was diagnosed with lung cancer and started chemo, I also started massage therapy. I think it does three main things. It was a wonderful reward to my body after having chemo. It relaxed not only my body but my mind. And [because of the first two benefits], I think it helps the body's immune system. When treatment was tough, I had massages twice a week then once a week. Now, five years after diagnosis, I still do it monthly. It's wonderful.
— Dorothy, diagnosed with stage IIIA NSCLC in 1998 at age 68

There are many forms of massage therapy. A brief overview of some common forms of massage therapy is presented on the following pages.

Acupressure

Acupressure is similar to acupuncture but does not use needles. This technique involves pressing on certain points of the body to relieve pain and other symptoms. Acupressure attempts to promote maximal flow of the qi. Chinese acupressure massage is also known by its traditional name tui na.

Bowen Technique

The Bowen massage technique involves a series of gentle moves over the muscles and connective tissues to reset the body and help it heal. The therapist leaves the treatment room for short periods between each set of moves to allow the client time to absorb the bodywork.

Craniosacral Therapy

Craniosacral therapy involves manipulation of the bones of the skull and lower spine (the sacrum). Practitioners of this form of therapy claim it loosens or releases blockages in the body that contribute to pain and abnormal body functions.

Deep-Tissue Massage

Deep-tissue massage uses slow strokes, direct pressure, or friction applied across the grain of the muscles with the fingers, thumbs, or elbows. Deep-tissue massage works deeply into the muscles and connective tissue to release chronic aches and pains.

Lymph Drainage Massage

Lymph drainage massage involves the application of light, rhythmic strokes. This technique is primarily used to help conditions related to poor lymph flow such as inflammation, edema, and *peripheral neuropathy*.

Neuromuscular Massage

Neuromuscular massage is applied to specific muscles. It is often used to increase blood flow, release knots of muscle tension, or release pain/pressure on nerves. Trigger point therapy is a specific form of neuromuscular massage in which concentrated finger pressure is applied to 'trigger points' of muscular pain.

Reflexology

Reflexology is based on a system of points on the hands and feet that are thought to correspond to other areas of the body. The points on the hands and feet are

stimulated by massage techniques to help promote health and healing in the corresponding body part.

Rolfing

Rolfing is a specific type of massage that relies on deep pressure on tissues that cover muscles and internal organs. Rolfing is done to realign different areas of the body that can be pulled out of alignment by gravity such as the head, torso, spine, and legs. Rolfing can be uncomfortable or slightly painful during the treatment.

Shiatsu

Shiatsu is a form of massage that was developed in Japan. It involves finger-pressure massage (much like acupressure), stretching, and elements of western massage. The pressure points along the channels for the flow of qi (the meridians) are the focus of this form of massage. Treatment is intended to unblock these passages and restore the flow of qi. It is believed that blocked meridians can cause physical discomfort and inhibit normal body functions. Shiatsu has been used to relieve stress, anxiety, insomnia, and pain. It is also used to control nausea, vomiting, diarrhea, and constipation.

Swedish Massage

Swedish massage is the most common form of massage practiced in most parts of the U.S. It involves manipulation of the muscles and connective tissues of the body for relaxation and health maintenance. Swedish massage uses five basic massage techniques to relax muscles and body tissues.

Thai Massage

Thai massage therapy is an ancient blend of movements from yoga and acupressure massage. The therapist slowly moves the client's body into traditional yoga poses and integrates acupressure massage.

Trager Therapy

Trager therapy involves a therapist who puts the client through a series of gentle movements while he or she lies on a massage table. There is also an active component to this therapy. The client repeats the movements performed by the therapist later on his or her own. The intent of therapy is to release stress and tension.

There are well over 100,000 massage therapists practicing in the U.S. Training requirements for massage therapists vary from state to state. As of this writing, more than 30 states have licensing regulations for the practice of massage therapy.

Talk with your cancer care providers if you are interested in pursuing massage therapy to be sure it is safe for you. If you have bone metastases, be sure to tell your massage therapist. Your care providers may be able to recommend a massage therapist who works with people who have cancer. You can also consult the following professional massage organizations.

- American Massage Therapy Association
847-864-0123
www.amtamassage.org
- Associated Bodywork & Massage Professionals
800-458-2267 (toll-free)
www.abmp.com
- National Certification Board for Therapeutic Massage and Bodywork
800-296-0664
www.ncbtmb.com

Meditation

Meditation is an exercise of the mind. In our usual state, the mind is incessantly bouncing from one thought to another. The stream of thoughts is never-ending in our every waking moment. Most of the thoughts that stream through our head seem to come of their own accord; most people have little control over this process. In meditation, people learn to control their thought processes and quiet the endless stream of thoughts. By quieting the mind, people experience a state of peacefulness and calm. When you are able to control your thoughts, you can choose what to focus your mind on and rid yourself of unpleasant or destructive thoughts. People practice meditation to help relieve stress and relax. For many people, meditation is part of their daily spiritual practice as well.

I practice a kind of American Indian ideology; meditation is just one aspect of it. It all started with my grandfather; he is half Cherokee. As a boy, he taught me how to meditate when we went out in the woods. It lets me know my body. You are basically in touch with your whole body. I usually know when something is wrong before the doctors do. I definitely think mediation has helped me, not only with lung cancer, but also through out my lifetime. It takes a lot of training and practice, but I've been using it since I was a kid.

—John, diagnosed with stage IV NSCLC in 2002 at age 48

Visualization is a form of meditation in which the person focuses on an image in his or her mind. Often, people visualize something they would like to see occur. For example, some people visualize themselves free of cancer or visualize the cancer cells in their body dying. Other people visualize a pleasant place or experience. The choice of what to visualize is entirely up to you. Guided imagery is similar to visualization except someone directs the visualization process. This can be accomplished in person or using recordings.

Visualization and guided imagery are just two examples of the many different meditation techniques available. The Meditation Society of American lists 108 different meditation techniques on their Internet site. While each technique is slightly different, they all share the common goal of quieting the mind. The choice of technique depends largely on your personal preferences and what works best for you. Meditation can be learned from books, tapes, videos, or personal instruction. Meditation requires practice and commitment. However, those who practice meditation regularly find it helpful for maintaining a clear and peaceful outlook on life. Consult with your care providers, friends, family members, or members of your support group for their recommendations about meditation techniques. You can also check at your local library or bookstore; there are many books and other materials available on this topic.

Mind/Body Exercise

Gentle exercise can help improve mood, relieve stress and anxiety, stimulate the immune system, build physical strength, stamina, and flexibility, and contribute to an overall sense of well-being. Holistic medicine involves working with both the mind and the body. Certain forms of exercise are particularly helpful for achieving this unity of mind and body.

Yoga is an ancient practice from India that dates back thousands of years. Yoga originated as one part of an overall spiritual practice that trains the mind to control the body, thoughts, and emotions. There are many different forms of yoga; some are very gentle while others are more rigorous. The most common form of yoga practiced in the U.S. is hatha yoga. Specific forms of yoga include Ashtanga, Bickram, Iyengar, Kundalini, Kripalu, Sivananda, and Viniyoga. In addition to making the body strong and flexible, yoga practitioners say the practice improves respiratory, circulatory, digestive, and hormonal functions, and brings about emotional stability and clarity of mind. Some of us envision yoga as being only for people who are able to bend and twist their bodies in almost unfathomable ways. The truth is that some form of yoga can be practiced by nearly everyone, regardless of your current weight or level of flexibility.

Yoga has been an incredible, incredible boost to helping me deal with my [peripheral] neuropathy from the chemotherapy. Yoga uses certain postures that really involve you hands and feet. I've gained back about 90% of what I had lost from the neuropathy. Yoga is awesome. It is not just an exercise, it's a lifestyle. You get in touch with your incredible strength and power. It becomes spiritual. I've found that you become an inspiration to others in the sense that you gain this calmness about you that people can feel. I will never give this up – I don't care how old I am!

–Barbara, diagnosed with stage IV NSCLC in 1999 at age 49

Qi gong (pronounced chee gung) is derived from traditional Chinese culture. It uses visualization, breathing, body positions, and slow movements to cleanse the body and the mind, restore energy, and strengthen body functions. The practice promotes the circulation of both blood and qi in the body. Qi gong focuses on the use of specific breathing techniques that are intended to open up the meridians allowing energy to flow to all parts of the body healing every organ in its path.

I came about to qi gong by way of a Chinese couple I helped a while ago who in turn led me to a Chinese healer. I was living on Dilaudid™ (a very strong painkiller) - six pills a day. The first day the Chinese healer came over, she placed her hands on me for about an hour. The following day, I only took three painkillers. She came back again and placed her hands on me for an hour, and it lessened my pain again. Through her, I learned the art of meditation and how to apply energy to places that needed healing. I learned to balance my qi. There are over 100 forms of qi gong. The form I use is one that was easier for me. It was something that I felt I could do. It's a way of healing. It is wonderful for restoring and reducing stress. I really do think it helped in my healing. It was marvelous.

–Alice, diagnosed with stage III NSCLC in 2001 at age 58

Tai chi originated in China and has been practiced for thousands of years. Tai chi involves slow gentle movements that are designed to improve health and build muscle tone. The beginning movements of tai chi are relatively simple to perform and are appropriate for almost everyone. This form of exercise increases qi in the internal organs and helps release stress. Once a certain level of training is obtained, the practitioner can learn to move energy to different parts of the body through the different positions and movements. The practice of tai chi improves balance and coordination.

Before beginning any exercise program, discuss it with your doctors to be sure it is safe for you. Most people find the three forms of mind/body exercise presented here are best learned from someone who has studied and mastered these techniques. However, there are also videotapes and DVDs available for beginners. Check with your local library, bookshop, or health store about availability of these materials.

Prayer, Religion, and Spirituality

Prayer and religious and spiritual practices have been shown to have an important role in coping with serious illness including cancer.^{25, 26} Faith in a specific religious or spiritual tradition has also been shown to reduce depression in response to cancer.^{27, 28} Studies also suggest religious/spiritual practice has a positive impact on *quality of life* among people with cancer.²⁹

Religious and spiritual practices are highly personal choices. Research has shown that these practices, regardless of what they are, can help people with cancer accomplish improvement in their overall sense of well-being. Faith, religion, and spirituality and their impact on health and coping are being actively studied.

I have a strong spiritual faith...I believe it is the Lord's will whether I remain here...Apparently, there is a reason I am still here. I am totally amazed that as I went through treatment I did so well. My side effects were minimal. I feel the power of prayer is extremely, extremely powerful. It is like my meditation. It is that and [my] belief in the Lord that has carried me through. My spiritual walk gives me a great deal of peace and contentment, which helps by calming my nerves and whole being. I honestly don't fear death.

– Darlene, diagnosed in 1995 with stage II NSCLC at age 61

Support Groups

Cancer support groups can help people living with cancer in many ways including:

- providing an outlet for expressing your feelings
- reducing feelings of being alone with your cancer experiences
- learning about others' experiences, which may help you make decisions about your own care
- bolstering your sense of hope
- regaining a sense of control over your life

Each of these benefits can help reduce stress, anxiety, and depression while improving your overall sense of well-being, especially among people who have a limited support network.

In addition to local support groups, there are also Internet support groups. Ask your oncology social worker or nurse about support groups in your area. Your community hospital may also have information about local support groups. Other resources for information about cancer support groups include:

- American Cancer Society
800-ACS-2345 (800-227-2345)
- Association of Cancer Online Resources (Internet support groups)
www.acor.org
- Cancer Care
800-813-HOPE (800-813-4673)
- The Wellness Community (local and Internet-based support groups)
888-793-WELL (888-793-9355) or www.thewellnesscommunity.org

NUTRITIONAL SUPPLEMENTS

Chapter 12: Nutrition and Lung Cancer provides basic information about nutrition and how to meet your dietary needs while living with lung cancer. This section gives information about nutritional supplements, that is, vitamins, minerals, and other products that are used to provide additional nutrients beyond those obtained through your diet.

Many products are marketed to people with cancer. It can be challenging to decide what products may be appropriate for you. The Physicians' Desk Reference for Nonprescription Drugs and Dietary Supplements is a good source of information about nutritional

supplements. However, it is written in technical language that can be difficult to understand. The book is available at most public libraries, or can be purchased from your local or online bookstore. If you read something in the book you do not understand, discuss it with your health care provider.

This section reviews some of the products about which the author regularly gets questions. If there is scientific evidence available to support the use of specific products, it is noted. It is important to thoroughly research any product you are considering taking. It is even more important to discuss any products you are considering with your cancer care providers. This is critical to ensure that you will not be taking potentially dangerous combinations of drugs and supplements, and to be certain the therapies you are using do not cancel out or reduce the effects of one another.

People often modify their nutritional intake after being diagnosed with cancer. Some choose to eat only organic foods or to stop eating animal products. Others decide to adopt a specific diet regimen. However you choose the foods you eat, it is important to discuss your diet with your doctors or a nutritionist to be sure you are getting the calories and basic nutrients you need.

Vitamins

Vitamins are small chemicals the body needs to carry out many of its essential functions. The body cannot make vitamins from scratch. Therefore, vitamins or their precursors must be supplied through your diet or nutritional supplements. A list of vitamins is shown in Table 1. Fat-soluble vitamins (shown in purple) can be stored by the body. Water-soluble vitamins (shown in blue) are not stored and must be supplied frequently through the diet to keep up with the body's needs.

Table 1: Vitamins

Vitamin	Other Names	Actions/Sites of Body Most Affected
A	retinol carotenoids* beta-carotene*	eyes and skin tissue & bone growth reproduction
B1	thiamine	nervous system skin essential for energy production
B2	riboflavin	skin essential for energy production
B3	niacin	skin nervous and digestive systems cell reproduction
B5	pantothenic acid	essential for energy production red blood cell production hormone production
B6	pyridoxine	nervous system fat metabolism and protein production
B9	folic acid	genetic material production red and white blood cell production
B12	cyanocobalamin	red blood cell production nervous system
C	ascorbic acid	physical stress relief immune system red blood cell production
D	calciferol	bone formation & repair teeth
E	tocopherol	red blood cell production anti-clotting fat metabolism
K	phylloquinone menaquinone	blood clotting bone health calcium absorption & metabolism
H	biotin	protein and fat metabolism B vitamin metabolism

*Vitamin A precursors - converted into vitamin A by the body

Lung cancer and its treatments can affect your appetite and interfere with eating in several different ways (see *Chapter 10: Supportive Care* and *Chapter 12: Nutrition and Lung Cancer* for additional information). If you are having problems eating a healthy, balanced diet, you may need to supplement your vitamin intake. Consult your doctor and/or a nutritionist to see if you need supplemental vitamins, which ones are needed, and what dosage to take. It is very important not to take supplemental vitamins without first discussing it with your doctors. Fat-soluble vitamins, which are stored in the body, can be toxic if taken in excessive

amounts. Some vitamins may interact in a negative way with treatments or cause nutritional imbalances if taken in large amounts.

Many recent and currently ongoing studies are examining the role of vitamins in lung cancer prevention. However, the effects of specific vitamins on lung cancer that has already developed have not been thoroughly evaluated in clinical trials. Currently, most lung cancer experts agree that a multivitamin may be important if you are not getting adequate vitamins from your diet. However, there are no studies to date showing that vitamins affect your long-term *prognosis*.

Minerals and Trace Elements

Minerals and trace elements are substances found in foods that are essential for normal body function. Minerals and trace elements cannot be manufactured by the body. They must be supplied from your diet or nutritional supplements. While the body must have minerals and trace elements to function normally, the amounts needed vary widely. Table 2 shows some minerals and trace elements necessary for normal body functions.

Table 2: Minerals and Trace Elements

Name	Chemical Symbol
— Major Minerals —	
calcium	Ca
iron	Fe
magnesium	Mg
phosphorus	P
sodium	Na
potassium	K
sulfur	S
— Trace Elements —	
cobalt	Co
copper	Cu
chromium	Cr
fluoride	F
iodine	I
manganese	Mn
molybdenum	Mo
selenium	Se
silicon	Si
zinc	Zn

Some minerals and trace elements have been considered to have a potential role in lung cancer prevention or as supplements to lung cancer therapy. These supplements are briefly reviewed on the following pages.

Calcium

Calcium is the most abundant mineral in the human body. Every cell of the body contains calcium. The majority of calcium in the body is in the bones and teeth.

Calcium has many important functions in the body. Inside cells, calcium is a necessary component or cofactor for many enzymes. Enzymes are proteins that propel many of the chemical reactions that take place continuously in the body. Examples of the many other body functions that involve calcium include blood clotting, nerve impulse conduction, muscle contraction, maintenance of blood pressure, regulation of the heart beat, and bone formation and healing.

Many foods contain calcium. Dairy products are among the best sources of calcium in the diet. People who do not drink milk or eat many dairy products, or otherwise do not get enough calcium from their diet may require calcium supplements.

A new calcium product called coral calcium has recently been introduced. As the name implies, coral calcium is made from sea coral. It is rich in calcium and contains up to 70 other minerals. It is available as capsules, tablets, powder, or as 'tea' bags. Coral calcium has the advantage of being better absorbed from the digestive tract than some other forms of calcium on the market. However, claims of 100% absorption are untrue. The actual absorption of coral calcium is around 65-70%. Some marketers of coral calcium claim it protects against cancer. There are no studies to substantiate this claim, nor many of the other claims about coral calcium's curative powers. No controlled studies have shown that coral calcium has any effect on the long-term prognosis of people with cancer of any kind. On June 10, 2003, the Federal Trade Commission (FTC) ordered the marketers of coral calcium to remove advertising from the television and Internet that claims coral calcium is effective for the treatment of cancer and other diseases.

Selenium

Selenium is essential for healthy immune function. It has been found to stimulate the activity of white blood cells, which are important components of the immune system.³⁰ Brazil nuts, yeast, whole grains, and seafood are good sources of dietary selenium.

Research has shown that selenium activates an enzyme called glutathione peroxidase, which may help protect the body from cancer. Selenium has also been shown to have a role in programmed cell death³¹⁻³³, a normal process that goes awry in cancer cells. Blood levels of selenium have been reported to be low in patients with many cancers, including lung cancer.³⁴⁻⁴² One large study of 1,312 Americans who were treated daily with either selenium or an inactive substance for 4.5 years and then followed for an additional two years found a 46% decrease in lung cancer incidence and a 53% drop in deaths from lung cancer associated with supplemental selenium.⁴³

While these studies point toward a role for selenium in lung cancer prevention, the role of selenium in established lung cancer (once you already have the disease) is not yet clear.

Zinc

Zinc is a component of more than 300 enzymes in the human body. Enzymes are proteins needed to propel the chemical reactions that keep the body functioning. Zinc is important in wound repair, fertility, tissue growth, and immune function. Oysters, meat, eggs, seafood, black-eyed peas, tofu, and wheat germ are all good sources of zinc.

Some lung cancer patients have been reported to lose excessive amounts of zinc in the urine. In one trial, supplementing such patients with zinc led to an improvement in some aspects of immunity.⁴⁴ However, there have been no studies to examine whether supplemental zinc helps prevent lung cancer or improve survival in patients already diagnosed with the disease.

Other Nutritional Supplements and Products

Many other nutritional supplements have been given consideration with respect to their role in lung cancer. A brief review of some common supplements and what we know about them is presented in this section.

Coenzyme Q10 (Ubiquinone)

Coenzymes are substances required by enzymes to propel specific chemical reactions in the body. Coenzyme Q10 (coQ10) is present in every cell of the body. It helps with several vital chemical reactions, especially those involved with energy production. CoQ10 is found in foods such as organ meats (heart, liver and kidney), beef, soy oil, sardines, mackerel, peanuts, and other foods. In addition to being derived from the diet, CoQ10 is also made by the body.

CoQ10 proponents claim it has many health benefits including protection against heart disease, Parkinson's disease, Huntington's disease, and brain aging. Claims have also been made that CoQ10 has a role in protecting against genetic damage that can lead to cancer. Normal cell processes produce substances called free radicals. Free radicals can damage cells and their genetic material. The body neutralizes free radicals with a variety of compounds that are collectively known as *antioxidants*. CoQ10 is one example of the antioxidants used by the body to neutralize free radicals and keep them from damaging cells. One study found an increased incidence of CoQ10 deficiency in people with cancer compared to people without cancer.⁴⁵ CoQ10 has been shown to have anti-tumor and immune stimulating effects in laboratory animals. However, large-scale studies in people with cancer have not been conducted to determine if these laboratory observations hold true for humans with cancer. At this time, there is no conclusive evidence that CoQ10 has any effect on the prognosis of people with lung cancer.

Citrus Pectin

Modified citrus pectin (MCP) is a product made from the peel and pulp of citrus fruits. It is modified to make it more easily absorbed in an active form into the body. A component of MCP has been shown in laboratory studies to inhibit the proteins

on the surface of cancer cells that allow them to stick to new sites or blood vessels. MCP has also been shown to inhibit prostate cancer and melanoma (skin cancer) in laboratory animals, and to cause a reduction in the size of cancerous colon tumors in mice.⁴⁶ However, there have been no controlled clinical trials to prove or disprove that MCP has an effect on cancer cells in humans.

Glutamine

The tissues of the body are largely made up of proteins. Amino acids are the building blocks for proteins; there are over 20 different amino acids. Glutamine is the most abundant free amino acid in the human body. It can be manufactured by all cells of the body, but is primarily manufactured by muscle cells. Some of the many functions of glutamine in the body include:

- main fuel source for several types of immune cells and the cells of the intestine
- essential for gene production for cell division
- essential for protein production
- important for various immune functions
- antioxidant activity to prevent free-radical damage to cells

Cancer cells have been shown to utilize glutamine at a rapid rate. The role of glutamine in people with cancer is being actively investigated. On a theoretical level, supplemental glutamine may be helpful for people with cancer because it supports immune function and has antioxidant activity. On the other hand, supplying too much glutamine may give cancer cells an advantage by providing cancer cells with the glutamine they require for continued growth and replication. Preliminary studies in cancer patients are being conducted using an enzyme that breaks down glutamine. The idea is that starving cancer cells of glutamine may actually cause them to die. Scientists are working to find answers to these questions, but currently, the answers are unclear.

Nonetheless, several preliminary studies suggest glutamine may be helpful in terms of limiting some of the side effects of cancer therapy. Swishing a glutamine solution in the mouth has been shown in one small study to help reduce mouth sores that can occur with chemotherapy and/or radiation therapy.⁴⁷ However, another study using ingested glutamine failed to show any benefit.⁴⁸ Studies are also being conducted to examine whether ingesting supplemental glutamine can help prevent the nerve damage (peripheral neuropathy) that can occur with some chemotherapy drugs. One study found glutamine may be protective against this potentially dose-limiting side effect, but results were not conclusive.⁴⁹ Research continues into the possible uses of glutamine to prevent or minimize side effects of cancer therapy.

IP-6

IP-6 is a naturally occurring molecule in the cells of all mammals. IP-6 is also known as phytic acid and inositol hexaphosphate. The theory behind the use of IP-6 as an anti-cancer agent is that the administration of IP-6 leads to increased cellular levels of IP-3, which is an important regulator of cell growth and proliferation. Several studies performed in animals have shown that IP-6 has anti-cancer activity.⁵⁰⁻⁵³ However, carefully controlled clinical trials in people with cancer have not been reported. Without clinical trial data, it is impossible to know with certainty whether IP-6 will prove to be beneficial as an anti-cancer agent.

Melatonin

Melatonin is a hormone released by a small gland in the brain. Melatonin is best known as the hormone that regulates our sleep cycle, but it has other functions as well that have led to interest in melatonin's potential role in cancer prevention and treatment. Melatonin is a powerful antioxidant. It acts as a scavenger of free radicals and regulates the level of specific antioxidant enzymes. Melatonin also affects the immune system. Studies have shown melatonin can enhance immune responses and correct immunodeficiency states that may follow acute stress, viral diseases, or drug treatment.⁵⁴⁻⁵⁷ Melatonin has been shown to have anti-cancer effects in laboratory animals, and has shown some potential as an anti-cancer agent in preliminary studies in humans. Melatonin has been most widely studied in women with breast cancer.

It has been studied to a lesser extent in people with brain, colorectal, blood, liver, lung, kidney, pancreas, prostate, and skin cancers. There have been reports of slowed disease progression and improvements in cancer-related weight loss and quality of life.⁵⁸⁻⁶⁴ While these initial, small studies show some promise, the potential role of melatonin in cancer care and more specifically, in the care of people with lung cancer, is still being investigated.

Noni Juice

Noni fruit (*Morinda citrifolia*) grows in the tropics and is particularly plentiful in Tahiti. Noni juice has been reported to have many health benefits including anti-cancer properties. Proponents of noni juice have reported that chemicals contained in the juice may help suppress tumor growth by stimulating the immune response to cancer cells.⁶⁵ Studies in animal models have shown some support for this theory.⁶⁶ However, clinical studies to prove this theory in humans have not yet been conducted.

Shark and Bovine Cartilage and Extracts

In the 1970's, researcher Dr. Judah Folkman proposed inhibiting new blood vessel formation (*angiogenesis*) as a potential mechanism to treat cancer. Scientists theorized that tumors must establish their own blood supply to live, grow, and spread. However, at least one study has shown that some lung tumors are able to exploit the rich blood supply already present in the lungs without growing new blood vessels.⁶⁷ In the 1980's, researchers discovered substances in shark and bovine (cow) cartilage that prevented blood vessel formation in the laboratory. For the past twenty years, interest in angiogenesis inhibitors has flourished among people with cancer and researchers.

Shark and bovine cartilage powders, capsules, and liquids are widely available and marketed by many manufacturers. The quality and purity of shark and bovine cartilage preparations are not under the oversight of the FDA. Most researchers agree there are several active substances in shark and bovine cartilage that can inhibit angiogenesis and may act via other mechanisms to prevent cancerous tumor growth

and *metastasis*. The concentration of these substances in different shark and bovine cartilage products is highly variable.

While several new antiangiogenic drugs such as angiostatin and endostatin have been developed by pharmaceutical companies and are currently being tested in clinical trials, the utility of shark and bovine cartilage for anti-cancer therapy remains controversial and study data is conflicting. Some preliminary studies have shown promising results in terms of laboratory response and prolonged survival⁶⁸⁻⁷¹, others have not shown benefits from treatment with shark cartilage.⁷²⁻⁷⁴ Aeterna Laboratories has developed a purified shark cartilage extract called Neovastat™ (AE-941) that is currently in phase III clinical trials among people with non-small cell lung cancer. Results are expected in 2005.

Soy

Soybeans and soy products contain isoflavones, chemicals that are similar in structure to the hormone estrogen. For this reason, isoflavones are sometimes called phytoestrogens ('phyto' meaning plant). Genistein and daidzein appear to be the most potent isoflavones in soy products and have been reported to have many effects in the body. There are other active substances in soy in addition to isoflavones such as protease inhibitors, phytates, saponins, phytosterols, and lecithin. Genistein has been shown to have anti-cancer effects in some animal models.^{75, 76} However, there have been some studies that have shown an increased risk of lung and other cancers in other animal models treated with genistein and/or daidzein.^{77, 78} In short, the efficacy of soy supplementation, either from the diet or as a nutritional supplement, for the treatment of cancer is not yet clear. There are many soy supplements available in a variety of forms including powders, milk, capsules, and tablets.

Sun's Soup²

Sun's Soup and Selected Vegetables are the names of several different mixtures of vegetables and herbs that have been promoted as treatments for cancer and many other medical conditions. The original formulation contained shiitake mushroom (*Lentinus edodes*), mung bean, *Hedyotis diffusa* (also known by the Chinese herbal name Bai Hua She She Cao), and barbat skullcap (*Scutellaria barbata*; also known by the Chinese herbal name Ban Zhi Lian). Some varieties of these products are reported to also contain soybean, red date, scallion, garlic, leek, lentil, Hawthorn fruit, onion, ginseng, Angelica root, licorice, dandelion root, senega root, ginger, olive, sesame seed, and parsley.

According to the National Cancer Institute (NCI), “The use of Selected Vegetables/Sun's Soup as a treatment for human cancer has been investigated in only a limited manner. All available resources ... [including] the published reports of two clinical studies have identified fewer than 50 treated patients.” The results from these studies are available on the NCI Internet site at cancer.gov/cancerinfo/pdq/cam/vegetables-sun-soup. While results from two small studies involving 27 people with lung cancer appeared promising, it is not possible to draw scientific conclusions from such a small sample of patients. NCI recommends, “Additional larger, well-designed clinical studies that test identical formulations of vegetables and herbs are necessary to determine more clearly whether Selected Vegetables/Sun's Soup can be useful in the treatment of non-small cell lung and other types of cancer.”

HERBS AND BOTANICALS

Herbs and botanicals are plant-derived substances used for the prevention or treatment of disease. Chinese medicine, naturopathy, ayurveda, and many folk remedies make use of herbs and botanicals. Herbal and botanical preparations may contain a dried mixture of the whole plant or parts of the plant such as the stems, leaves, flowers, or roots. Botanicals can be administered in pill or capsule form, but are also sometimes dispensed as loose material

² Information about Sun's Soup is derived from the National Cancer Institute PDQ Internet site at cancer.gov/cancerinfo/pdq/cam/vegetables-sun-soup.

that is made into a tea. Teas are most commonly used by traditional Chinese medicine practitioners.

This section provides a brief review of some of the most common herbs and botanicals used by people with lung cancer. It is important not to take any herbs, botanicals, or other supplements without first discussing it with each of your cancer care providers.

Astragalus

Astragalus membranaceus has been used by Chinese medicine practitioners for thousands of years. The dried root of the plant is usually used in formulas and remedies. Astragalus proponents state the herb enhances immune function, promotes wound healing, and combats generalized weakness. There is some laboratory evidence using animal models supporting the immune-enhancing effects of astragalus.⁷⁹⁻⁸¹ However, large-scale studies to determine whether astragalus has beneficial effects for people with lung cancer have not been performed.

Chinese Herbal Remedies

Traditional Chinese medicine practitioners usually dispense herbal remedies that are a mixture of herbs specifically selected to meet a patient's unique medical situation. More than 5,000 Chinese herbs have been categorized and classified according to the various properties they possess. In China and in parts of the U.S. with large populations of people of Chinese heritage, prescriptions for herbal remedies can be filled in herbal pharmacies. However, herbal pharmacies in the U.S. are not subject to the same regulations and oversight as conventional pharmacies that dispense prescription drugs. As Chinese medicine has grown in popularity in the U.S., many Chinese medicine practitioners and some herb manufacturers have begun selling and marketing herbal therapies with preset formulas. Many of these products are produced with great care to insure the quality and purity of the herbs. Nevertheless, unfortunately, there have been instances when these formulas were found not to contain the quantity or quality of the herbs that were supposed to be in the remedy. There have also been cases in which marketed remedies contained contaminants such as unwanted prescription drugs, toxins, or microbes. If you decide to take any herbal formulas,

it is important to get your products from reputable Chinese medicine practitioners or from manufacturers that use scrupulous production practices.

Chinese herbal remedies are based on the experience of Chinese medicine practitioners over thousands of years. Many people have been helped by the use of herbal remedies.

However, the scientific study of the effectiveness of Chinese herbal remedies is limited outside of China. Laboratory research indicates that some Chinese herbs and formulas have activity against lung cancer cells.^{82,83} One published report from a small study showed a Chinese herbal formula taken in combination with chemotherapy improved survival.⁸⁴ There are no published reports of large-scale clinical trials to determine the effects of specific Chinese herbal formulas among people with lung cancer.

If you decide to take one or more herbal remedies, it is very important to know what herbs are included in the remedy and to provide this information to your cancer care providers. You do not want to take herbs that may interfere with your other treatments or cause potentially dangerous side effects.

Essiac Tea

Essiac tea is a mixture of herbs. The formula contains burdock root (*Arctium lappa*), slippery elm bark (*Ulmus fulva*), sheep sorrel (*Rumex acetosella*), and Turkish or Indian rhubarb (*Rheum palmatum* or *Rheum officianale*). Essiac tea is marketed with other trade names including FlorEssence™, Tea of Life™, and Vitalitea™. Some of the herbs contained in essiac tea have been shown to have anti-cancer effects in laboratory tests. For example, burdock root has been shown to inhibit development of cancer in laboratory animals⁸⁵, and rhubarb extracts have shown activity against cancer cells in the laboratory.⁸⁶ Promoters of essiac tea claim it enhances immune function, reduces tumor size, relieves pain, and extends survival. However, essiac tea has not been tested in clinical trials. Therefore, there is no scientific evidence to prove or disprove the proposed effects of essiac tea.

Green Tea (*Camillia sinensis*)

Green tea is made from the steamed, dried leaves of the *Camillia sinensis* plant. It is also known as Chinese tea. The difference between green tea and black tea is that the leaves

are fermented to make black tea. Green tea contains chemicals called polyphenols that act as antioxidants. Catechins are polyphenol compounds found in green tea that have been studied for their anti-cancer properties. Laboratory studies have shown that catechins may inhibit specific enzymes that could lead to reduced cancer cell division.⁸⁷⁻⁸⁹ However, there have been no clinical trials to show that green tea is of benefit to people with lung cancer. A recent phase II trial conducted among men with prostate cancer failed to show any benefit from consumption of green tea.⁹⁰

Licorice

The dried root of the licorice plant (*Glycyrrhiza glabra* and *Glycyrrhiza uralensis*) has been used in Chinese medicine for thousands of years as an herbal remedy to treat digestive disorders, skin disorders, liver diseases, and to enhance immune function. Glycyrrhizin is considered the primary active ingredient in licorice root. There is some evidence that glycyrrhizin protects against the development of liver cancer, especially among those with chronic hepatitis.^{91,92} However, the effects of glycyrrhizin on lung cancer have not been studied either in the laboratory or among people with the disease.

Licorice root has been known to cause some unwanted side effects including headaches, fatigue, water retention, high blood pressure, diarrhea, and muscle weakness. Licorice root should not be taken by people with kidney problems or high blood pressure. Consult your doctor before taking licorice or any other herb or nutritional supplement.

Milk Thistle

Milk thistle is the common name for the plant *Silybum marianum*. The active ingredient of milk thistle is a chemical called silymarin. The ingredient label on any milk thistle product should list the silymarin content. Most experts state milk thistle extracts should contain 80% silymarin. Milk thistle has been used in Europe since the Middle Ages to treat liver disorders. Silymarin has been shown in laboratory experiments to have potent antioxidant effects.⁹³⁻⁹⁶ It has also been shown to inhibit the growth of specific types of

cancer cells in laboratory experiments including prostate^{97, 98}, skin⁹⁹, and breast cancers.¹⁰⁰ Clinical studies to determine the possible effects of milk thistle on people with lung cancer have not been conducted.

Turmeric

Turmeric root has been used for centuries in Chinese and ayurvedic medicine. Other common names of turmeric include Indian saffron, Indian valerian, jiang huang, radix, and red valerian. Turmeric is from the plant *Curcuma longa*. The active ingredient in turmeric is curcumin. Turmeric and curcumin have been studied extensively over the past several decades and have been found to have many actions including inhibition of several types of cancer cells in the laboratory. This inhibition seems to be the result of curcumin's antioxidant properties and a variety of metabolic actions on the cancer cells.¹⁰¹ Curcumin appears to be safe and non-toxic. Experimental models have shown that curcumin may help prevent metastasis of lung cancer cells in the laboratory.^{102, 103} While all of the laboratory studies appear promising, turmeric has not been tested in clinical trials to determine its effect on people with lung cancer.

ACUPUNCTURE AND RELATED THERAPIES

Acupuncture and related therapies have been practiced for nearly 5,000 years in Asia. Acupuncture is based on the concept that energy or qi flows through the body along specific channels called meridians (see Figure 2). Acupuncture uses very fine needles inserted at specific points along the meridians to restore the flow of qi, treat disease, and relieve symptoms. Acupuncture can be used with heat produced by burning a specific herb called mugwort in a process known as *moxibustion*. Massage therapy that involves manipulation of acupuncture points without the use of needles is called acupressure or tui na. *Cupping* is another type of acupuncture-related treatment. It involves stimulating acupuncture points by applying suction using a metal, wood, or glass jar in which a partial vacuum has been created. This technique causes blood to pool at the cupped site stimulating the acupuncture point without the use of needles.

Acupuncture has been used by many people with cancer to treat several symptoms including chronic pain, nausea and vomiting, anxiety, depression, and others. Studies have shown acupuncture is helpful in controlling chemotherapy-induced and post-operative nausea and vomiting.¹⁰⁴⁻¹⁰⁸ The studies are convincing and led to the National Institutes of Health to state, “acupuncture is a proven effective treatment modality for nausea and vomiting.”¹⁰⁹ Acupuncture has also been used to treat constipation, diarrhea, and loss of appetite. However, there is no conclusive clinical trial data to support the effectiveness of acupuncture for treating these common cancer-related symptoms.

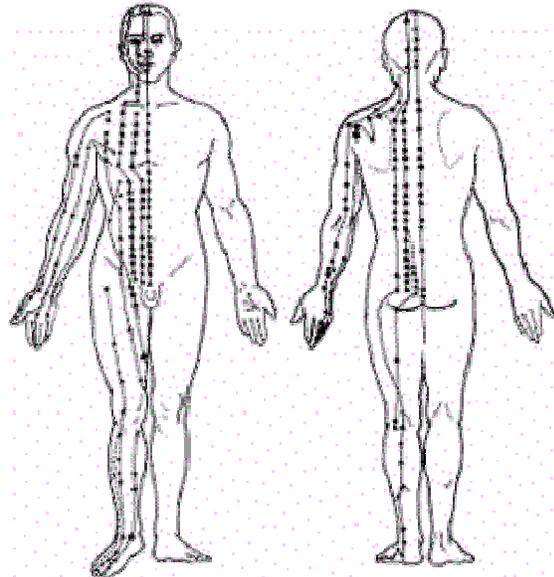


Figure 2: Acupuncture Meridians and Points

There is some experimental evidence that acupuncture affects immune functioning in people with cancer.¹¹⁰⁻¹¹⁷ However, there have been no published reports to prove that acupuncture manipulation of the immune system affects cancer progression or prognosis.

Acupuncture has been used to treat many different types of pain, including cancer-related pain. Results from clinical trials have yielded mixed results with some showing apparent benefit^{104, 118, 119} and others not finding this effect. Large-scale clinical trials are not yet available to determine if acupuncture is effective treatment for cancer pain, but reports based on individual experiences have noted benefits.

SUMMARY

Health and disease are part of a continuum and involve many different realms including your physical, mental, spiritual, social, and intellectual well-being. Many health care professionals now believe that effective treatment involves a holistic approach that treats not only physical symptoms but also addresses other aspects of well-being.

There are many different approaches to optimizing your physical, mental, spiritual, social, and intellectual health. Although western medicine is the primary form of treatment for cancer in the United States, other medical disciplines can be used in conjunction with western care such as ayurveda, chiropractic medicine, homeopathy, naturopathy, traditional Chinese medicine, and others.

If you are interested in pursuing any of the topics discussed in this chapter, additional information can be obtained from your local library, bookstore, the Internet, or the *Resource Directory* at the back of this book. Your oncology nurse or loved ones may also be good sources of information on complementary healing approaches. Complementary care practitioners are often very willing to spend time explaining the treatments they offer and the rationale behind the treatments. Remember to discuss any treatment decisions you make with all your cancer care providers to ensure safety and maximize the effectiveness of your treatment approach.

The author is providing information on complementary healing to help you have the information you need to make informed treatment choices. The inclusion or exclusion of any particular treatment or supplement does not constitute an endorsement or a denial of efficacy.

I hope this information contributes to your well-being in every aspect of your life.