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GROWING DEMAND FOR COMPLEMENTARY CARE:

Look around you. Articles abound on cancer patients who live full and meaningful lives. Cancer touches all of us. Within the next decade and a half, it is estimated that one in every two men and one in every three women will get invasive cancer. All of us have family, friends, neighbors – or all of the above – who have experienced cancer. The National Cancer institute estimates that there are now over 9.6 million cancer survivors in the US, a number that is expected to rise as the population ages. Close to two-thirds of people diagnosed with cancer now live at least five years. That’s up from a five year survival rate of 58.8% in the late 1980s and early 1990s (Marcus, A.D., Wall Street Journal, 03/24/04, D1).

A recent article in the New York Times stated that researchers are finally exploring one’s quality of life after a cancer diagnosis. They are asking poignant questions. Who is a cancer survivor? What are the health costs? What are the societal implications? What ethical issues need to be addressed? How often should people be screened for a recurrence? What problems will surface as people age? What can people do to limit their risk of recurrence and aid their healing journey? (Kolata, G., New York Times, 06/01/2004, A1)

Patients are not sitting back quietly and waiting for researchers and physicians to tell them how to pursue their new role of survivorship. They are becoming involved in treatment planning, participating in clinical trials, and pursuing alternative, unconventional, and complementary therapies. When answers are not easily available or when treatment options are limited, they are not hesitant to search for possibilities outside the realm of traditional healthcare as it is seen today.

There are many reasons for using these non-traditional methods. Some people use these modalities to reduce their risk for developing cancer. Others hope to improve their quality of life while undergoing treatment. Some hope that a different approach might actually cure the disease. Regardless of the personal reason, many patients feel that their quality of life is improved. To many, it matters not whether or not a specific complementary therapy procedure is sanctioned by the traditional healthcare industry or covered by insurance.

These practices no longer occur in sweat lodges, far away countries, or ancient villas. They are offered along side traditional medical practices, in office suites, health spas, and strip malls. Practitioners live in the community and have varied credentials and professional training. Some are self-taught and have questionable credentials; others have years of scholarship and advanced degrees. People who use these services might range from your own physician to your closest family member.

What is the actual scope of usage? According to an article published by Burstein in the Journal of Clinical Oncology in 2000, two-thirds of all cancer patients use some form of complementary or alternative health practice. With almost 10 million survivors,
that means that over 6,600,000 people are using these resources. Lafferty found that cancer patients are twice as likely to turn to acupuncture and herbal therapy as are people suffering from other diseases. (Lafferty, et al, Cancer April 1, 2004.)

Virtually all costs are “out of pocket” expenses, which are not covered by most insurance plans. The amount spent is increasing. In 2003, Americans spent 19 Billion dollars on dietary supplements alone, almost five times what was spent in 1998. (The New Yorker, 02/02/04, pp. 64-75.) In 2001 cancer patients in the US spent more than 25 Billion dollars annually on complementary and alternative methods; whereas in 1997, Americans as a whole spent 27 Billion dollars on these procedures. (Hughes, E.F., 2001. Overview of complementary, alternative, and integrative medicine. Clinical Obstetrics and Gynecology, 44 (4), 774-779.)

A nationwide government survey conducted as part of the Centers for Disease Control and Prevention identified the ten most commonly used complementary practices and the approximate percentage of US adults using them. Most Americans reported that they used prayer to aid in their healthcare treatment. They prayed for their own health, they were prayed for by others, and they participated in group prayer. This study also found that 55% of adults said they were most likely to use these therapies because they believed they would help them when combined with traditional medicine. In many instances these therapies were supported by the traditional medical field, as 26% of the practitioners said that the therapies were recommended by conventional, medical professionals. The following chart depicts the ten types of complementary therapy and the percentage of Americans utilizing the procedures.

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prayer for one’s own health</td>
<td>43%</td>
</tr>
<tr>
<td>Prayer by others for the respondent’s health</td>
<td>24%</td>
</tr>
<tr>
<td>Natural products such as herbs and botanicals</td>
<td>19%</td>
</tr>
<tr>
<td>Deep breathing exercises</td>
<td>12%</td>
</tr>
<tr>
<td>Participation in prayer group for own health</td>
<td>10%</td>
</tr>
<tr>
<td>Meditation</td>
<td>8%</td>
</tr>
<tr>
<td>Chiropractic care</td>
<td>8%</td>
</tr>
<tr>
<td>Yoga</td>
<td>5%</td>
</tr>
<tr>
<td>Massage</td>
<td>5%</td>
</tr>
<tr>
<td>Diet-based therapies (Atkins, Pritikin, Zone diets, etc.)</td>
<td>4%</td>
</tr>
</tbody>
</table>
Almost all studies show that people who seek complementary therapies are better educated, of higher socioeconomic status, female, and younger than those who do not. They are more health conscious and utilize more mainstream medical services than people who do not use these therapies. (p. 81, The Oncologist).

Research recently published in the Journal of the American Medical Association reported that Americans visit alternative practitioners more often than primary care physicians. They take herbal remedies, minerals, powders, drinks, teas, pills, and vitamins even though all are unregulated for safety, effectiveness, quality, and actual content.

Many seek these services because they are dissatisfied with traditional medical services and/or their insurance providers. One source of this dissatisfaction is the shrinking amount of time allocated per patient by healthcare providers. Alternative practitioners spend an average of 30 minutes with their clients, or about 4 times the amount of time that physicians now spend with their patients. (Eisenberg DM, Davis RB, Ellner SL, et al. Trends in alternative medicine use in the United States, 1990-1997. JAMA. 1998; 280:1569-1575.)

According to recent studies, less than a half of the people who use complementary or alternative therapies discuss these treatments with their healthcare providers. This lack of communication has potential serious health consequences for patients. Few medical oncologists ask their patients about use of these therapies, and patients are often reticent to initiate the topic themselves. In 1999, Adler and Fosket studied 86 breast cancer patients and found that 72% used complementary therapies. Unfortunately, only 54% of these subjects disclosed that information to their healthcare provider. Reasons cited included anticipation of a negative response, a perceived lack of interest, and an expectation of lack of knowledge.

Patients may be correct in these assumptions! Medical specialists have received little formal training in complementary therapies. Most, however, are eager to learn more and certainly want to have knowledge of their patient’s treatment program. (Adler, S., Fosket, J., 1999. Disclosing complementary and alternative medicine use in the medical encounter: a qualitative study in women with breast cancer. Journal of Family Practice, 48(6) 453-462.)

Renowned hospitals and academic medical centers such as Stanford, Cedars-Sinai Medical Center in LA, and Memorial Sloan-Kettering Cancer Center have integrated complementary care into their clinical services. They offer cancer inpatients massage, acupuncture, and mind-body techniques along with their conventional treatment. More than two dozen leading medical schools and hospitals have established centers to study complementary and alternative medicine, including Harvard, Columbia, and Georgetown.
More than 27 medical schools now offer courses in complementary medicine. Scientific investigation into the efficacy and side effects of these interventions is being undertaken in clinical trials, and major medical meetings (such as that of the American Society for Clinical Oncology) are including these research results. (ACS, p. 19.)

Interest in and funding for complementary therapies is growing among policymakers in Washington. The Office of Alternative Medicine (OAM) began in 1992 within the National Institutes of Health with a $2 million budget. Their original goal was to facilitate and coordinate the evaluation of alternative medical treatment modalities. In 1999 Congress elevated the OAM to the National Center for Complementary and Alternative Medicine and increased the center’s funding to $50 million annually. This budget was expanded to $68.7 million in FY 2000. Their website address is http://nccam.gov. They can be reached by phone at 1-888-644-6226. Their hours are 8:30-5:00 M-F – EST. (ACS, p. 19.)

Some resources exist within HCA. As stated previously, Michelle LeFevre, Director of Marketing, Orthopedics and Sports Medicine at HealthONE Rose Medical Center in Denver, Colorado identified only seven HCA centers that had complementary therapy programs on-site. Many more make referrals for complementary care within their local communities. Patients who participated in the complementary services offered by HCA facilities were referred primarily by Women’s Services and Oncology. Cardiology, orthopedics, sports medicine, psychology, wellness, and the pain center also made referrals. Therapies offered included: Herbal medicine, spiritual practice, healing touch, acupuncture, acupressure, massage therapy, chiropractic, naturopathy, Chinese medicine, guided imagery, homeopathy, and Reiki. Patients were primarily interested in massage therapy and healing touch. Almost a third of the programs reported outside funding from a parent company or affiliated company or from foundations and grants. One of the centers noted that approximately 50% of their funding was subsidized by two foundations established within their community.

Patients are seeking these services. It behooves the healthcare establishment to be well informed. As knowledgeable resources for our patients, we should be aware of the treatment options available and recommend appropriate community resources. We can then act as professionals and as patient care advocates. This will encourage frank discussions of options and lead to best possible treatment outcomes. By educating ourselves we best fulfill the needs of the HCA system and improve satisfaction among its users.
RELEVANT TERMINOLOGY:

Many terms have been used to describe non-traditional medical procedures. They include but are not limited to Alternative Therapy, Homeopathy, Naturopathy, Traditional Chinese Medicine, Complementary Therapy, Functional Therapy, Integrative Therapy, and “CAM” (an acronym which stands for Complementary and Alternative Medicine).

Alternative treatments are used by patients instead of traditional medical care. They involve complete systems of theory and practice that have developed independent of…and usually prior to… traditional medical practices. They often promise a cure when other options have failed. They may be supported by testimonials and anecdotes rather than scientific evidence. Users often shun or disparage conventional medical therapy and practitioners. No alternative treatment has been found to cure cancer.

Homeopathy, naturopathy, and traditional Chinese medicine are examples of alternative medical practices. Homeopathy is based on the principle that the same substance that in large doses produces the symptoms of an illness will in very small doses cure it. Homeopaths use dilutions of natural substances from plants, minerals, and animals to stimulate the body’s defense mechanisms in order to treat illness. By ingesting minute quantities, homeopathic remedies stimulate the body’s natural healing responses.

Naturopathy emphasizes health restoration rather than disease treatment. Naturopathic physicians employ a wide range of practices, including diet, acupuncture, herbal medicine, spinal and soft-tissue manipulation, electrical current therapy, and ultrasound.

Traditional Chinese Medicine views illness as an imbalance in the energy flows in one’s mind, body, and spirit. A rebalancing of these aspects can lead to healing. Acupuncture and herbs are used to rebalance the energy flows and boost immunity to increase the body’s self-healing abilities.

Complementary Therapy includes treatments that are used along with conventional cancer care. Functional Therapy and Integrative Therapy mean the same as Complementary Therapy. Occasionally, hospital-based programs use the term “Integrative Therapy”; however, that term does not enjoy the wide usage that “complementary therapy” or “functional therapy” does. (ACS, p. 7.) In this toolbox, no significant differentiation will be made between integrative therapy, functional therapy, and complementary therapy. The terms will be used synonymously.

It is an assumption of this Toolbox that patients and professional who are reading this information support traditional, medical care and choose to use complementary procedures to supplement those services. Because alternative treatments are used instead of traditional medical procedures, they will not be discussed in depth in this toolbox.
Different terms describe the effectiveness of the complementary procedures that have been tested. Proven Treatments include evidence-based, main-stream, standard practices of care. Most often research-based, they are published in reputable journals and have received peer review by other professionals. They have stood the test of time.

Research or investigational treatments are procedures which are being studied in clinical trials. Following these studies, the FDA may or may not approve the treatments, but data to support their position will have been collected and scrutinized. Nontraditional treatments may be unknown to our culture but may have been used in other cultures for thousands of years. Unconventional, questionable, and untested treatments fall outside the definition of proven, conventional therapies. This does not mean they are effective or ineffective—they just have not yet been tested or proven to be effective. Disproven treatments have been tested by evidence-based, main-stream, standard practices of care and found NOT to be helpful. In some instances, they may even be detrimental. (ACS, p.8)

There is no scientific proof that any complementary therapy technique is effective in the treatment of cancer. None have been found to “cure cancer.” There is scientific evidence … and personal testimonials … that these procedures aid in the relief of symptoms and can measurably improve the quality of one’s life.
COMPLEMENTARY THERAPY OPTIONS:

The reasons an individual will initiate a specific complementary program vary greatly. The procedure might be recommended by a friend, advertised on television, or be of personal interest. Few people engage in in-depth research prior to beginning the therapy. These guidelines are designed to provide insight and factual information to patients. Counseling patients in this way let’s them make better and more well-informed choices. It can also help discriminate legitimate from bogus claims.

Whenever there is any question or concern, never hesitate to contact a reputable source of information. This could be a pharmacist, a medical specialist, a registered dietitian, or a doctor of psychology. The hospital librarians or information specialists can search internet references for you. Be persistent in searching for legitimate information.

Later in this toolbox, supplements will be addressed. Many are beneficial; however, some have been proven to cause side effects when combined with prescriptive medications. Just because a product is advertised as “natural” does not mean that it is healthy. Remember, poisonous mushrooms are natural too. Don’t hesitate to contact the manufacturer for more information that what is included on the bottle. When possible, examine reference materials to be sure that they are scientific reports rather than anecdotes, personal stories, or marketing materials.

When deciding which therapies to actually practice, a primary consideration is your personal interest level. Which are most appealing? For example, if you are a musician, there’s a higher likelihood that you will be interested in music therapy than if you are not. Have you ever experienced these therapies in the past? Were they effective?

Try to obtain information about the scientists responsible for the research that supports the type of complementary therapy you wish to use. If a specific therapy is published in the New England Journal of Medicine or the Journal of the American Medical Association it might be more accurate than if you find a magazine while standing in line at the grocery store. Check to see if the study had a “peer review”. That means that the research has been reviewed by other experts in the field. This doesn’t mean that their findings are guaranteed, but it does offer another layer of credibility. Look to see who is funding the research. If a specific pharmaceutical or nutraceutical (supplement) company is funding the research, they might have a vested interest in the results. It doesn’t mean that they are not credible, but it is worthwhile to look at who is funding the research.

When reading research articles, look at the number of people included in the study. How did they measure their outcomes? What type of study was conducted? Was it a case study with just one person, a longitudinal study where people are followed over a long period of time, or a randomized clinical trial where some people received the therapy and others received a placebo or an alternative treatment plan? Ask yourself if
you think the findings apply to you. Was the study done on people of the same gender as you? Was it conducted solely in a laboratory?

Do the results make sense? Could they have happened by chance? In published journal articles there is often an important number called the p-value. This refers to the probability that the results did not happen merely by chance. The smaller the p value, the less likelihood that the results happened by chance. For example, if the p-value is less than .05, it means that there are 5 chances in 100 that the results could have happened by chance; .001 means that there is only a one in 1,000 probability that the results could have happened by chance.

Unfortunately, if something sounds too good to be true, it probably is. If someone offers guarantees, be careful as they might not be legitimate. If a cancer treatment seems easy, it may not be. But even when presented with questionable information about a procedure, you might still try an unproven or untested procedure … even a quackery procedure … and feel that it helped.
SIX PRIMARY CATEGORIES:

For organizational purposes, the complementary procedures described in this Toolbox will be separated into six categories: those which address the mind, the body, the spirit, the creative or expressive arts, lifestyle therapies, and supplements. Many of these categories overlap. It is technically impossible to separate therapeutic procedures that focus solely on the mind without also using the body; or the spirit without also using the mind. Likewise one cannot engage in the expressive arts without also using one’s mind and body. In addition, many practitioners use more than one therapy. Once one engages in the creative arts it often impacts one’s lifestyle. Supplements are often taken to make one feel better and to improve one’s health or at least guard against potential future illness. Supplements may influence both the mind and the body.

These categories are not meant to be comprehensive…. Or exclusive. They are provided primarily as an organizational framework. They are alphabetized and are not listed according to any priority or bias about the level of effectiveness.

A. Those procedures which address the Mind include hypnosis, imagery, meditation, psychotherapy, and support groups.

B. Body therapies include acupuncture, Ayurveda, biofeedback, chiropractic, electromagnetic therapy, massage, Reiki, Tai Chi, therapeutic touch, and yoga.

C. Spiritual counseling includes faith healing, Native-American healing, prayer and spirituality, and Qigong

D. The Creative or expressive arts include journaling, music therapy, art therapy, dance therapy, aroma therapy, horticulture therapy, and humor therapy.

E. Lifestyle Therapies include exercise and physical fitness programs.

F. Dietary supplements include vitamins, herbs, and other ingestible items not already approved as drugs. The following supplements have been selected as samples. The list is not intended to be exhaustive or exclusive. The supplements addressed include aloe, arnica, black cohosh, chamomile, echinacea, evening primrose, ginkgo, pycnogenol, St. John’s wort, and valerian.
THE MIND:

For many years, research suggested that a positive attitude could help fight cancer. Self help books abounded. Cancer websites encouraged people to stay positive because optimism was an important tool in combating the disease. These findings in the 1980s and 1990s left many pessimists in a turmoil. They wanted to be well but couldn’t camouflage their feelings of sadness, depression, anger, and fear over their disease. The knowledge that they were lowering their chances of survival by not being positive was an added burden.

Current findings now indicate that a smiling face isn’t the only way to ensure successful treatment. A person should be encouraged to use the coping skills that were effective prior to their diagnosis. If a person is a natural “grump,” continuing to be a curmudgeon during treatment may be more helpful in improving the immune system and influencing the success of cancer care than artificially wearing a grin.

“Fighting Cancer with a Frown” reported that researchers are currently investigating how different coping styles may affect disease-fighting ability. (WSJ, 04/06/2004, D1) In February 2004, the American Cancer society journal, Cancer, published a report of over 175 patients newly diagnosed with non-small cell lung cancer. The researchers who followed these patients for five years found that a patient’s optimism did not influence length of survival.

Dr. David Spiegel, researcher, psychiatrist, and author of over 350 research publications, has explored the relevance of support networks to cancer survivors. In 1989 his article in Lancet found that women with Stage 4 cancer who participated in a support group survived 36.6 months from entry into the study, compared with 18.9 months for the control group. Unfortunately, other researchers were not able to replicate his findings. Today Spiegel’s research is based on the assumption that people deal with stress in different ways. He stated, “For some patients, this may happen by being uncooperative and unpleasant rather than positive.” (WSJ, ibid.)

Regardless of personality or attitude, cancer patients are choosing mind therapies as a means of more effectively coping with their diagnosis and related issues of treatment and survivorship. Numerous therapies are available. This tool box will address hypnosis, imagery, meditation, psychotherapy, and support groups.

1. Hypnosis

Hypnosis can create a state of deep relaxation, quiet the mind, and leave the unconscious mind open to suggestions that can help to improve health and life style. Numerous reports demonstrate that it can help reduce blood pressure, stress, anxiety, and pain. It can help to control nausea and vomiting caused by chemotherapy. It has been effective in changing negative behaviors such as smoking, alcohol consumption, and overeating. Hypnosis under the care of a trained hypnotherapist is considered safe.
According to a report from the National Institute of Health, there is strong evidence that hypnosis can relieve some pain associated with cancer. (ACS, pp 74-75.)

2. Imagery

Imagery is often called a relaxation technique because it can produce a state of mental and physical relaxation. Heart rate can be decreased and blood pressure can be lowered. Some feel that it can actually even alter brain waves, relieve physical pain, and improve the effectiveness of certain medications. Because of the relaxing effects, many feel is allows them to have greater emotional insight and increased control over their lives. Guided imagery has even been successful in helping people to stop smoking and to lose weight. For cancer survivors, it has been effective in managing the nausea and vomiting often associated with chemotherapy. It can relieve stress, facilitate weight gain, combat depression, and lessen pain. ACS, p. 76-77.

There are perhaps as many different types of imagery as there are individuals who use the techniques. Each person can bring to the experience their own specific imaging techniques. Some place the palms of their hands over their eyes, imagine a specific color associated with stress and change that color to one associated with relaxation and calm. Others identify a specific goal and image attaining this goal. Carl Simonton encouraged his patients to imagine their bodies fighting the cancer cells and winning that battle. Still others envision an archetype of Pac Man scurrying through their bodies and eating up all of the cancer cells.

The specifics of the imagery experience are literally up to the individual; each person can utilize the technique in their own way, create their own space of calm, and use the colors they prefer. They may be self taught by books, tapes, and/or videos. They may practice with the aid of a professional therapist. Sessions can be as long as the person wishes.

There is recorded evidence that Tibetan monks in the 13th and 14th centuries meditated to Buddha with the hope that he could cure diseases. Some say the techniques go back to the ancient Babylonians, Greeks, and Romans. The Simontons popularized the technique in their 1978 book entitled Getting Well Again.

Currently imagery is used in clinics and medical centers across the nation. It is often combined with other complementary techniques. Imagery techniques are considered safe, especially under the guidance of a trained health professional. They are best used as complementary techniques, along with conventional therapy.

A review of 46 studies conducted between 1966-1998 found guided imagery to be helpful in managing stress, anxiety, and depression. It was also found to be effective in lowering blood pressure, pain, and the side effects of chemotherapy. Another study showed it to be effective in breast cancer survivors in easing anxiety, including fears about radiation therapy, the equipment, surgical pain, and recurrence of the disease. (ACS, pp 76-77.)
3. **Meditation**

Meditation is similar to imagery as it uses concentration or reflection to relax the body and obtain a sense of calm. It is one of several relaxation techniques approved by an independent panel, convened by the National Institutes of Health, as useful for treating chronic pain and insomnia. They found that meditation can improve one’s quality of life, reduce chronic pain, help relieve anxiety, and lower high blood pressure and cholesterol. It has been found to be helpful in reducing healthcare use, substance abuse, and the symptoms of post-traumatic stress syndrome in Vietnam veterans. (ACS, pp 80-82.)

There are different forms. It usually is done while sitting but there are moving forms of meditation, such as Tai chi, walking in Zen Buddhism, and the Japanese martial art Aikido. Meditation can be self-directed or guided by a healthcare professional.

You might want to select a quiet place, free from distraction. Sit or rest quietly with your eyes closed and try to achieve a feeling of peace. Concentrate on a pleasant sound or focus on your own breathing. The ultimate goal of meditation is to separate yourself mentally from outside distractions. (ACS, pp 80-82.)

4. **Psychotherapy**

Psychotherapy covers a wide range of approaches designed to help people change their ways of thinking, feeling, or behaving. Numerous options for this intervention are available. These include individual therapy, couple and/or family therapy, or group therapy. A variety of clinical psychology methods have been useful, including behavior modification and cognitive therapy. Behavior modification focuses on replacing problematic behavior with more healthy responses. Some cognitive therapies help people re-program harmful messages with positive self-talk. Others attempt to change behavior by addressing repeated, faulty, negative thoughts that affect one’s behavior. Numerous books have been written for patients and professionals by familiar authors, such as Norman Cousins, Bernie Siegel, MD, and Carl Simonton, MD. Psychological support has clearly been shown to enhance quality of life. This has been shown for individual as well as group therapy.

The American College of Surgeons Commission on Cancer developed standards of psychosocial care. (www.nccn.org) They stated that all programs who treat women with breast cancer should offer psychosocial support, either in the hospital, clinic, or through other community resources.

5. **Support Groups**

Therapy groups are always facilitated by a healthcare professional. This might be a licensed counselor, a nurse, psychologist, psychiatrist, or social worker. Support groups may be led by a survivor or a healthcare professional. Occasionally support groups begin informally when a group of friends get together for a coffee or a weekly
walk. As with most therapies, the effectiveness is based partially on the person facilitating the group.

A basic premise of support groups is that people can live healthier, happier lives in the company of others. Just because a person attends or does not attend a support group does not at all infer that they have or do not have support from important people in their lives.

Sharing feelings and experiences can reduce stress, fear, and anxiety, and help to promote healing. There are many types of support groups. Some meet only for a limited time, while others are on-going. Some are based upon commonality of diagnosis or stage of disease. For example, one hospital has a breast cancer self help group, a breast cancer lumpectomy group, a group for advanced breast cancer, as well as a general cancer support group. Some groups are for patients, family members, and/or other caregivers. Some patients benefit from attending more than one support group concurrently.

In our high-tech environment, some people are drawn to the internet for support. Telephone or internet support may be the only available options for geographically isolated or homebound people. Support groups offered over the internet should be approached with caution, as confidentiality cannot be guaranteed and people facilitating the group may not have received adequate training. (ACS, pp. 99-101)
THE BODY:

This section will examine a variety of interventions which are based on altering the physical characteristics of one’s body. This may be accomplished through manual touch, with external devices, or by the alteration of internal voluntary or autonomic reflexes.

Body therapies should be conducted by a well-trained and experienced practitioner. If one chooses to have a massage, or any body therapy, by a novice the experience might be relaxing but there also a risk that damage can occur. Reports of adverse sequelae have been seen from yoga classes, manipulative treatments, and massage. When one faces a diagnosis as serious as cancer, it is highly recommended that all forms of care be performed by a competent and highly trained professional.

1. Acupuncture

Acupuncture (pronounced “AK-yoo-punct-cher) originated in China over 2,000 years ago. Acupuncture is widely accepted as an effective adjunctive treatment for pain and other musculoskeletal and neurologic symptoms. To perform acupuncture, very thin disposable stainless steel needles of varying lengths are inserted through the skin at specific locations called acupoints. These points often correspond to representative internal organs or energy meridians.

Today, trained practitioners may twirl the needles, or apply other physical forces such as heat or a weak electrical current to enhance the effect. Clinical studies have found it to be effective in treating nausea caused by chemotherapy. It also can provide pain relief and in some cases dental or even surgical anesthesia. There is no scientific evidence that acupuncture is an effective treatment for cancer, but it appears to be useful in relieving symptoms related to the disease. There is some evidence that acupuncture can lessen the need for conventional pain-relieving drugs. It can also reduce hot flashes in men treated with hormonal therapy for prostate cancer. (ACS, pp. 108-109.) Recent studies have shown promise in treating cancer related fatigue.

The safety of acupuncture in the arm where lymph nodes have been removed for staging of breast cancer has not yet been established. Consult your healthcare provider before having acupuncture in that arm, as there might be a risk of exacerbating lymphedema.

2. Ayurveda

Ayurveda (ah-yur-VAY-dah) is an integrated approach to the prevention and treatment of illness, which tries to maintain or re-establish the harmony between the mind, body, and forces of nature. Popularized in America by Deepak Chopra, it uses a combination of interventions including changes in lifestyle, herbal remedies, exercise, diet, and meditation. Practitioners of Ayurveda believe that illness results when a
person’s physical, emotional, and spiritual forces are out of balance with each other and
the natural environment. According to Ayurvedic theory, all diseases and other health
problems result from imbalances in the body’s fundamental forces and disharmony with
the natural environment. One of the primary goals of this type of therapy is to restore this
balance and invigorate the body’s biological and spiritual forces.

Practitioners of Ayurveda may combine yoga, dietary programs, herbal remedies,
intestinal cleansing, meditation, massage, breathing exercises, and visual imagery to treat
their patients. An estimated 1,250 plants are used by practitioners. Some of the more
controversial and less common practices include bloodletting, bowel purging, and
inducing vomiting. The diagnosis of illness begins with a very thorough evaluation of the
person’s nails, tongue, lips, and the nine body “doors”: the two eyes, two ears, two
nostrils, mouth, genitalia, and anus. They listen to the lungs and pulse, and take a detailed
history. Their treatment plan considers the complex relationships between emotions,
illness, physical activity, life style, diet, relationships with other people, and even the four
seasons, colors, and the time of day. It is their goal to harmonize all of these factors so
that people can attain health and well being.

Ayurveda may sound too unconventional for you, but according to a report of a
panel convened by the NIH, one clinical study showed that in 79% of the cases, the
health of patients with various chronic diseases improved. The National Cancer Institute
has added several Ayurvedic herbal compounds to its list of potential anticancer agents
and has funded a series of studies. Their decision was based on preliminary laboratory
studies indicating that two Ayurvedic medicines significantly inhibited growth of cancer
cells in a laboratory setting. (ACS, pp. 56-57)

3. Biofeedback

This treatment method uses monitoring devices to help people consciously
regulate physiological processes that are usually controlled automatically by the
autonomic nervous system. These include one’s heart rate, blood pressure, temperature,
perspiration, breathing patterns, and muscle tension. By monitoring and even willfully
changing these patterns, stress can be reduced and muscle tension relieved.

Biofeedback is one of several relaxation methods that have been approved by an
independent panel, convened by the NIH, as a useful complementary therapy for treating
chronic pain and insomnia. There is no scientific evidence that biofeedback can influence
the development of progression of cancer. (ACS, pp. 59-61)

There are at least five different ways to measure body functions for biofeedback
purposes. An electromyogram measures muscle tension and can help heal muscle injuries
and relieve chronic pain. Thermal biofeedback provides information about skin
temperature, which is a good indicator of blood flow. Electrodermal activity shows
changes in perspiration, which is used in treating anxiety. It is not surprising that
measurable changes can be seen with alteration in emotional state such as pain, fear, and
anxiety. Breathing patterns can also be monitored to promote relaxation.
One tremendously useful biofeedback tool is the heart rate monitor, which measures heart rate while exercising. By exercising with a monitor, one can obtain information about cardiovascular effort and thereby improve their training and fitness.

Biofeedback can promote relaxation, improve urinary incontinence, and treat migraines. It can also be helpful in retraining muscles after injury, or teaching new muscles to take over. Biofeedback is considered a safe technique and requires little formal training or special effort. It does require a trained and certified professional to monitor the equipment and interpret changes. (ACS, pp. 59-61)

4. **Chiropractic**

Chiropractic (kie-roh-PRAC-tic) is commonly used to treat lower back pain, due to muscle or skeletal problems. Chiropractic is based on the idea that the body seeks to maintain a balance among its systems and organs. When that balance is altered, it can be physically realigned by manipulations to the spine. The chiropractor attempts to restore proper alignment through physical manipulation of the vertebrae.

The art of chiropractic medicine was practiced by priest healers in ancient Egypt. More than 55,000 licensed chiropractors are currently practicing in the United States. It is considered relatively safe and effective in the short-term treatment of low back pain. People with cancer should consult their physician before undergoing any type of therapy that involves manipulation of joints or the spine for the treatment of cancer pain. (ACS, pp. 120-121.)

5. **Electromagnetic Therapy**

Electromagnetic therapy involves the use of electrical and magnetic energy to diagnose or treat disease. Practitioners claim that disease and illness occur when electromagnetic frequencies, charges, or fields of energy within the body are not balanced. By applying electronic devices – usually outside the body, these imbalances can be corrected. Electromagnetic therapy encompasses several types of therapy. It may use zapping machines, radio waves, magnets, microwaves, and crystals.

The effects of magnetism and energy forces have been examined since the time of the Greek and Roman empires. Since the mid 1800s, countless electronic machines have been applied to a long list of ailments. Some of the physical interventions have become part of mainstream medicine. Ultrasound and electrical stimulation, for example, are widely used by physical therapists to improve muscle and connective tissue healing. Others such as magnetism, crystals, and “energy healing” remain unproven. In general, these techniques are safe. (ACS, pp. 128-130)

6. **Massage**

The manipulation, rubbing, and kneading of the body’s muscle and soft tissue has been found to be effective in reducing stress, anxiety, and pain. It can relieve joint pain and stiffness and increase mobility. Massage has been used extensively in rehabilitati
injured muscles. Some feel that massage reduces their blood pressure, relieves insomnia, provides relief for migraines, and eases depression. Most importantly, it can make people feel better.

There is some evidence that it can stimulate nerves, improve concentration, increase blood flow and the supply of oxygen to cells, and help circulation of the lymph system. Some practitioners claim that it raises the body’s production of endorphins (chemicals believed to improve overall mood.)

Hippocrates described massage as an effective therapy for sports and war injuries. Chinese texts dating back to 2700 BC recommend massage to treat paralysis, chills, and fever. It is generally considered to be a safe treatment when conducted by a trained, licensed professional. It is a valuable adjunct to cancer therapy in the management of lymphedema and post-surgical rehabilitation. (ACS, pp. 141-142)

Massage therapists sometimes voice concern that deep tissue massage might cause cancer to spread. There is no actual date in this regard suggesting that manipulation of cancer cells encourages metastases. In rare instances, injuries to skin, muscle, and bone have been reported with deep tissue massage.

7. **Reiki**

Reiki (“Ray-kee”) is a form of hands-on treatment used to manipulate energy fields within and around the body, to liberate the body’s natural healing powers. Reiki is a Japanese word meaning “universal life energy.”

Proponents claim that when the energy paths of the body are blocked or disturbed, the result can be illness, weakness, and pain. Reiki can realign and strengthen the flow of energy, decrease pain, ease muscle tension, speed the healing of injuries and burns, improve sleep, and generally enhance the body’s natural ability to heal itself.

The history of Reiki is uncertain; some say it dates back to Tibet more than 2,500 years ago. There are many success stories about Reiki’s power to refresh the spirit, speed healing, and increase well being. Some cancer patients have claimed it reduced the intensity and frequency of nausea and vomiting, and improved pain management.

In June of 1999, the Center for Integrative Medicine at George Washington University submitted two research proposals to NIH to investigate the potential of Reiki and guided imagery in the treatment of patients with breast cancer. Although considered safe, it would be advisable to consult with one’s physician before allowing manipulation of body parts (ACS, pp. 155-156)

8. **Tai Chi**

Tai Chi is an ancient Chinese form of exercise which is based upon learning a series of gentle but deliberate postures, or forms. Tai Chi relies on technique rather than speed or strength and therefore is gentle. There is a meditative focus on breathing while performing the postures. This form of therapy is particularly suited to the elderly and
people with chronic conditions such as arthritis or cancer. It has been shown to reduce stress, improve blood pressure, and improve muscle strength, balance and flexibility. Clinical trials have found that Tai Chi improves posture, balance, flexibility, tone, muscle mass, stamina, and strength in older adults and may help prevent falls and fractures. (ACS, pp. 102-103)

9. Therapeutic Touch

In this technique, the hands are used to direct human energy for healing purposes. The treatment is based on the belief that the patient’s energy field can be identified and re-balanced by a healer. Harmful energy is believed to cause blockages in the patient’s normal energy flow. Proponents claim that therapeutic touch removes those blockages in the patient’s energy field that cause illness and pain. There is no scientific evidence that therapeutic touch is useful in treating measles, Alzheimer's, AIDS, asthma, autism, multiple sclerosis, comas, and cancer. It might make the person feel better, though.

Therapeutic touch is generally considered to be a safe treatment. Over 100 colleges and universities in 75 countries teach Therapeutic Touch. It is promoted by many professional nursing organizations and practiced by nurses in at least 80 hospitals in the United States and Canada. Some studies have found therapeutic touch to be effective in wound healing and headaches. Unfortunately, few well-designed research studies have proven the effectiveness of therapeutic touch; however, many self reports acclaim its effectiveness. (ACS, pp. 158-160.)

10. Yoga

Yoga is one of the oldest mind-body systems in existence, as it was first practiced in India over 5,000 years ago. It is a form of nonaerobic exercise that involves a program of precise posture and breathing activities. In ancient Sanskrit, the word “yoga” means “union.”

For some, yoga is a way of life based on the Hindu philosophy that combines ethical standards, dietary guidelines, physical exercise, and meditation to create a union of mind, body, and spirit. Yogis, who are masters and teachers of yoga, have claimed that they can obtain heightened senses, overcome hunger and thirst, and develop almost total control over physiological processes such as heartbeat and respiration.

There are different variations and aspects of yoga – including Hatha, Shiva, and even power yoga…to mention a few. Power yoga includes a dimension of aerobic exercise. Newest editions, like Bikram yoga, are done in heated environments, or with specific devices, such as Pilates. Modern yoga classes have little if any spiritual implications and use the techniques as a means of stretching, enhancing physical fitness, lowering stress, and improving core strength.

Yoga can be effective in the treatment of some symptoms associated with chronic diseases and can lead to increased relaxation and physical fitness. Research has shown that it can be used to control physiological functions such as blood pressure, heart rate, respiration, metabolism, body temperature, and even brain waves.
According to a report to the National Institutes of Health, there is also some evidence that yoga may be useful as an aid to help relieve symptoms associated with cancer, asthma, diabetes, drug addiction, high blood pressure, heart disease, and migraine headaches. It may help to control cholesterol levels when used with diet and exercise. For example, randomized clinical trials have shown it is more effective than wrist splinting in relieving some symptoms and signs of carpal tunnel syndrome. (ACS, pp. 104-105.)
THE SPIRIT:

The specifics of spiritual therapy may encompass as many different types of treatment as there are personal faiths. It can range from a single individual’s personal belief in a higher power… to faith healing … to culturally diverse beliefs such as those practiced in the Native American healing rituals and in Qigong.

1. Faith Healing

Faith healing is founded on the belief that certain people, places, or beliefs can cure and heal. It assumes that disease can be cured through a close connection to a Higher Power. Extremes of faith healing can vary from “miraculous cures” to improved peace of mind, reduction of stress, and the relief of pain. ACS, pp. 67-68.

“Since the dawn of time, healers have sought to achieve reconciliation between this world and the spaces beyond our universe, in order to obtain healing and communication with the powers beyond us….For the Native American shaman the vehicle to the gods is the sweat lodge, the rhythm of drums, the pain of ordeal, and the arrows of the magic plants. The Huichol ingest peyote, the tracks of the little deer. Tibetan healers mediate the fate of their patients by ritually transforming themselves into Tantric deities capable of influencing the passage of time. African priests also become gods, often demonstrating their omnipotence by handling burning embers. In the high Andes of Peru traditional healers divine the future and diagnose ailments by reading the coca leaves, a sacred practice reserved only for those who have survived a lightening strike. In such traditions there is no rigid separation between the sacred and the secular, and thus every act of the healer becomes a prayer for the entire community, every ritual a form of collective preventive medicine.” (Davis, W. The Power to Heal: Ancient Arts & Modern Medicine, pp 11-12.)

2. Native American Healing

Native American Healing combines herbal medicine, religion, spirituality, and rituals to treat medical and emotional problems. There are about 500 Native American Nations with differing practices; however, they have some basic rituals and healing practices in common, – including taking herbal remedies, purifying the body, using sweat lodges, drinking special teas, smoking sacred plants, dancing, and praying.

Native American Healing has been practiced in North America for thousands of years. One recent clinical trial examined 116 people with a variety of ailments. 80% showed some benefit after a 7 to 28 day intensive healing experience. Five years later, 50 of the original participants said they were cured of their diseases while another 41 said they felt better. Only nine showed no change; 5 were worse, and 2 had died. (ACS, pp. 84-86)
3. **Prayer and Spirituality**

National surveys suggest that many Americans believe in the healing power of prayer. Using US Census Bureau data and information obtained from a national household telephone survey of 2,055 households, there were 62 million users of prayer in the United States in 1998. Seventy-five percent of these individuals used prayer for wellness or to prevent future illness and to maintain health and vitality. McCaffrey et al stated, “…prayer for health concerns is a highly prevalent practice. Prayer is most often directed toward wellness and used in conjunction with conventional medical care. People who use prayer for health concerns report high levels of perceived helpfulness but rarely discuss their use of prayer with their physicians. Physicians should consider exploring their patients’ spiritual practice to enhance their understanding of their patient’s response to illness and health.” (Arch Intern Med/Vol 164, April 26, 2004, pp. 858-862)

4. **Qigong**

Qigong (chee-GUNG) is an ancient form of traditional Chinese medicine that is based on the theory of yin-yang, or the interaction of opposing forces. In the 1990s, the Chinese government began to manage Qigong and made it an official part of the Chinese health plan. In America, classes are offered at health clubs, hospitals, and YMCAs. Instruction is also available through videotapes and printed materials.

This 7,000 year old Chinese system of self-care designed to enhance the natural flow of vital energy in the body. It has not been found to be effective in treating cancer but it may enhance one’s quality of life. Proponents believe that disease, injury, and stress can disrupt the vital energy of life and that by correcting these disruptions, individuals can lead a healthier, less stressful life. The goal of Qigong is to facilitate the flow of energy through the body through meditation, physical movements, and breathing exercises to enhance the flow of “qi,” the bodies vital energy. The breathing used in Qigong is slow, deliberate, and controlled. Some promoters claim that Qigong can help prevent cancer by improving the oxygen supply to the body and regulating the autonomic nervous system. Many feel that it can strengthen the body and enhance other conventional health care treatments. (ACS, pp. 93-95.)
THE CREATIVE OR EXPRESSIVE ARTS:

1. Aroma therapy

There are two schools of thought as to how aromatherapy works. The first perspective believes that through scent receptors in the nose chemical messages are delivered from the olfactory nerve to the brain’s limbic system. The limbic system monitors heart rate, blood pressure, and respiration. The second perspective suggests that oils are absorbed directly into the system through the skin.

Aroma therapy is either self administered or applied by a practitioner, especially as part of a massage. Oils may be inhaled or applied directly to the skin. Essential oils should never be swallowed, as many of them are poisonous. They may be placed in steaming water, diffusers, or humidifiers. The use of aromatic, perfumed oils dates back thousands of years to ancient Egypt, China, and India.

In Britain, aromatherapy has been used with massage to reduce anxiety, tension, depression, and pain. Inhaled peppermint, ginger, and cardamom oil seem to relieve the nausea caused by chemotherapy and radiation. In another controlled trial, citrus fragrance used in twelve depressed patients made it possible for them to reduce their antidepressant medications. (ACS, pp. 52-52.)

Whether aroma therapy is beneficial because of the olfactory system or because of the absorption into the skin, practitioners and users believe that it is beneficial in helping patients cope with chronic pain, depression, and stress. Unfortunately, there is no scientific evidence that aroma therapy actually prevents disease, yet the feeling one gets when they walk into a home and smell cookies baking is well known. There’s a sense of home, of comfort, and warmth. We cannot minimize the importance of our olfactory system in offering a sense of wellness and health. (ACS, pp. 52-53.)

2. Art Therapy

Many art therapists believe that the act of creating influences brain wave patterns and the chemicals released by the brain. An art therapist may encourage a cancer patient to create an image of their cancer and in this way express feelings about the disease that may be difficult to verbalize. For example, masks can be used to hide one’s feelings… or to express on a mask what’s hidden inside.

The connection between art and mental health was first recognized in the late 1880s. In 1969 the American Art Therapy Association was established which now has over 4,000 members and a credentialing board. Registered art therapists musts have graduate degree training and a background in studio arts and therapy techniques.

Numerous case studies have reported the benefits of art therapy to patients with emotional and physical illnesses. It has helped with burn recovery in adolescent and
young children, eating disorders, reading performance, chemical addiction, childhood grief, and sexual abuse. Studies are currently being done to determine the effectiveness of art therapy in reducing anxiety levels, improving recovery time, decreasing hospital stays, and controlling pain. (ACS, pp. 54-55.)

3. **Dance therapy**

Dance therapy uses movement to improve the mental and physical well being of a person. Clinical reports suggest it is effective in improving self-esteem and reducing stress. Emotionally, dance therapy is also reported to improve self confidence and interpersonal interaction. Some say it strengthens the immune system through muscular action, although there is no scientific support for this claim.

Dance therapy is based on the belief that the mind and body work together. Through dance, it is thought people can identify and express their innermost emotions, bringing those feelings to the surface, to ultimately create a sense of renewal, unity, and completeness. Dance has been an important part of ceremonial and religious rites for centuries. Many native American Indians use dance as part of their healing rituals. (ACS, pp. 65-67.)

In 1956, the American Dance Therapy Association was founded; currently there are over 1,200 dance therapists in the US and abroad. A master’s degree is required to be a dance therapist, with advanced level competency awarded to those who have completed 3,640 hours of supervised clinical work. (ACS, pp. 65-67.)

4. **Horticulture Therapy**

Since before recorded time, people have experienced satisfaction in digging in the soil and making things grow. Plants provide beauty and help to purify the air. There is a healing focus and life centeredness in tilling the soil and seeing the fruits of the harvest. For cancer patients undergoing chemotherapy or otherwise immune-compromised, extra caution may be required, as potting soil and the water around cut flowers may harbor bacteria.

5. **Humor Therapy**

Humor has been used throughout history to promote health and cope with illness. As early as the 13th century, some surgeons used humor to distract patients from the pain of the operation. It is thought that laughter increases breathing, oxygen use, and heart rate, which stimulates the circulatory system. Many hospitals use volunteer groups who visit patients for the purpose of providing opportunities for laughter.

As the song states, “Just a spoonful of sugar makes the medicine go down.” Laughter and humor therapy are often used to add levity to a situation. Laughter can provide some pain relief, encourage relaxation, and reduce stress. It helps put life’s struggles and trials into a better perspective. (ACS, pp. 72-73.)
6. **Journaling**

Oprah Winfrey stated, “Keeping a journal will change you life in ways that you’d never imagine.” Although thousands of people journal, little has been published on its effectiveness in helping people deal with cancer. Many people say it helps them to be focused, to order their day, to cope with stress, to provide a benchmark as to where they have been and where they are going, and to provide an unedited report of their feelings.

Writing one’s reactions to medical conditions that are happening on a daily basis can provide an opportunity for understanding these situations on a deeper and more personal level. Often patients are reticent to describe these feelings to others either because they lack the words to convey the depth of their observations, or because they are embarrassed to speak openly. Written dialogue provides an opportunity to tap a deeper wisdom that is not accessed through the spoken word.

Journaling can take whatever form the person wishes. It can be composed on paper, a word processor, a tape recorder, or even a videotape. It may include drawings, doodles, and scribbles. It may be written in prose or poetry…or just randomized thoughts. It may be formally kept on a daily basis or written sporadically. Whatever form it takes, it must be kept confidential. If the writer feels that it will be shared with others, the flow of information will be altered. Worrying about what someone thinks or will say about one’s journal entries defeats the whole purpose of journaling.

7. **Music therapy**

Like most of the expressive arts, music therapy is customized for the interests of the participant. It may include listening to music, music improvisation, song writing, music performance, lyric discussion, imagery, and learning through music. It can be used in all walks of life…in cancer centers, in one’s home, in hospices, on the street corner…anywhere people can benefit from its calming and soothing effects.

Music has been used in medicine for thousands of years. Ancient Greek philosophers believed that music could heal both the body and the soul. Native American Indians have included singing as part of their healing rituals for centuries. During WWII the US Veterans Administration used music to help soldiers suffering from shell shock. In 1944 Michigan State University established the first music therapy degree program in the world. Today over 70 colleges and universities have degree programs that are approved by the American Music Therapy Association. There are over 5,000 professional music therapists working in healthcare settings in the United States. (ACS, pp. 82-83.)


One of the earliest quotations of the importance of music is attributed to Confucius, who in the 5th century BC stated, “Music produces a kind of pleasure which human nature cannot do without.” Music can be found in the mundane…. And spectacular of life.
Music therapy is considered safe when used as a complementary therapy. Scientific studies have shown that music therapy when used along with antiemetic drugs to relieve nausea and vomiting can be effective in easing these physical symptoms. Clinical trials have shown it to help reduce heart rate, blood pressure, breathing rate, insomnia, depression, and anxiety. No one knows exactly how music benefits the body. The music may act as an actual distraction to take the focus away from pain and anxiety…or it may provide a topical relief. Whatever the reason, it can produce a calming effect for the soul. (ACS, pp. 82-83.)
LIFESTYLE THERAPIES:

1. Exercise and Physical Fitness

Look around you. There is an overabundance of sedentary living in our country, and we are paying the price. Inactivity has a profound impact on health. It contributes to obesity, type II diabetes, heart disease, and depression. Arthritis and sleep disorders, sedentary lifestyle and obesity are also important risk factors for many types of cancer.

The American College of Sports Medicine and the Centers for Disease Control (CDC) recommended that Americans get 30-60 minutes of aerobic activity every day for optimal health. Physical activity and exercise have become recognized as vital complementary approaches for patients with cancer. For more information, read Dr. Fran Mason’s acclaimed book, The Force: The Proven Way to Fight Cancer Through Physical Activity and Exercise. Published by Ballantine Books in 2001, (and in paperback in 2003) it was recommended reading by the New York Times.

A study published in the Journal of Clinical Oncology 2003 randomized 155 men treated with androgen deprivation therapy for prostate cancer to a resistance training group (3 times per week for 12 weeks) and a control group. When tested, the men in the exercise group had higher levels of upper and lower body muscle fitness, despite having castrate levels of testosterone. In addition, they had improved quality of life and much less fatigue. The compliance rate with the exercise program was over 75%. (Segal, et al J Clin Oncol 21:1653-1659.)

Exercise can enhance recovery from breast cancer therapy and improve one’s enjoyment of life. A recent study looked at levels of aerobic fitness and psychological parameters in women treated for breast cancer. Patients were assigned randomly to a group which participated in a supervised exercise session 3 times per week for 15 weeks using a stationary bike. When retested, the group that exercised improved their cardiovascular capacity (VO2 max) by 17.4%, while the control group declined by 3.4%. Interestingly, the researchers also looked at quality of life parameters – specifically “happiness levels.” The women who exercised reported that they were happy more often during the day. The percentage of time spent “happy” increased by 17.3%. The researchers went so far as to surmise that given a 16 hour waking day, this percentage increase translated into an additional 19 hours of happiness per week! There was a correlation between exercise, improved fitness, and happiness—worthy goals in managing breast cancer…indeed all cancer survivors. (Courneya, et al J.Clin. Oncol. 12:1660-1668.)

You can start or continue your exercise program even when undergoing cancer treatment. Exercise specialists and/or physical therapists with oncology-oriented training can help design a fitness regimen which is effort-based, enjoyable, and safe.
Exercise can have a beneficial effect on body mass and body composition. There is increasing evidence that attention needs to be paid to metabolic factors after cancer is diagnosed. For example, it is now known that women who gain weight after breast cancer is diagnosed have a worse overall prognosis. It is also known that women who have insulin resistance (type 2 diabetes) have a worse cancer prognosis. Exercise and diet can impact favorably on body composition and metabolism and may therefore impact favorably on prognosis.

A landmark study was published in the New England Journal of Medicine in April, 2003. This study, of almost one million men and women confirms that obesity is a significant risk factor for death from cancer. In addition, about 90,000 deaths from cancer could be prevented every year in the United States if all adults could maintain a body mass index of less than 25. (Calle, et al “Overweight, Obesity, and Mortality from Cancer in a Prospectively Studied Cohort of US Adults” NEJM 2003:348, 1625-38.)

So get those gym memberships activated, dust off the hiking shoes, or head to the mountains for a great day of skiing…

2. Nutrition

There is an enormous interest in nutritional practices among people affected by cancer, people who care about those affected by cancer, and people who care about cancer prevention.

There are no dietary “magic bullets.” Adherence to a rigid diet is not necessary for assuring optimal health. Rather, it is important to be sensible and flexible. Make food choices which give you energy, vitality, and enjoyment. Be wary of “fad” diets with testimonial claims for cancer treatment. Consult a registered dietitian rather than the clerk at the health-food store!

When effective cancer treatment went hand in hand with severe side effects, symptoms such as nausea, weight loss, and anorexia were common. Present-day treatments are generally accompanied by excellent supportive care. We have highly effective antinausea treatments, for example. Cancer therapy is more often associated with weight gain than weight loss. Antinausea medications, steroids, antidepressants, and hormonal therapies can all lead to weight gain with appetite stimulation.

Many research studies have examined the relationship between diet and cancer occurrence. There is supportive epidemiologic evidence that diets containing more whole grains, fresh fruits and vegetables, and less fat may protect against certain types of cancer.

While undergoing cancer treatment, there can be changes in taste perception, intestinal upset, or diminished hunger and thirst. It is often necessary to subsist on “comfort foods” which are easy to digest and palatable. Such foods include pudding, scrambled eggs, broth, and milkshakes. Do not neglect hydration (fluid intake). Drink even if you don’t feel thirsty. Water or other liquids will help your blood pressure, kidneys, skin, and digestion.
It is important to maintain a normal weight. Do not use cancer as an “excuse” to gain weight. Weight gain may have a deleterious effect on cancer prognosis. Calories are important. Use the scale as a tool to give you feedback about your energy balance. Make the scale your friend, not your enemy. Maintaining a normal body weight improves prognosis of cancer, reduces risk of acquiring new cancer, and improves general health.

Guidelines for cancer survivors:

**For general nutrition,** The American Cancer Society’s nutrition guidelines recommend a mostly vegetarian diet including five or more servings a day of fruits and vegetables along with regular consumption of breads, cereals, grain products, rice, pasta, and beans. They encourage limiting high fat foods and substituting a diet low in fat and high in plant foods such as fruits and vegetables. (ACS, pp. 348-349)

**Vegetarianism** is the practice of eating a diet consisting mainly or entirely of food that comes from plant sources. Diets vary widely; some include no animal products, while others include eggs, dairy products, and fish. Some studies have linked vegetarian diets to lower risk for heart disease, diabetes, high blood pressure, obesity, and colon cancer. Some physicians point out that a totally vegetarian diet may not provide all the necessary nutrients if it is not well planned. (ACS, pp. 348-350.)

**A macrobiotic diet** consists largely of whole grains, cereals, and cooked vegetables. Dairy products, eggs, coffee, sugar, stimulant and aromatic herbs, red meat, poultry, and processed foods are discouraged. The word “macrobiotic” means “long life.” This type of diet can lower fat intake and increase fiber; however, it can also lead to poor nutrition. The National Institutes of Health Office of Alternative Medicine has funded a pilot study to determine if a macrobiotic diet may prevent cancer. (ACS, pp. 332-334.)

**High soy-protein diets** have been for over 5,000 years. As a protein source, soybean products are promoted as a healthy alternative to eating meat. Soy can be consumed in many forms: tofu, soy milk, soy powder, dietary supplements, and edamame beans. In October of 1999, the FDA agreed to allow health claims to be made about the role of soy in reducing heart disease on food products containing soy protein. Most physicians are reluctant to recommend soy isoflavones to women because only scant information exists on its potential effectiveness. Clinical trials need to be conducted to determine the safe dosage, effectiveness, and potential side effects in both normal breast tissue and breast cancer cells. (S.A. Hu, M.T. Knobf, pp.258-9.) Some physicians state that women who have estrogen receptor positive breast cancer should not eat soy products.
SUPPLEMENTS AND HERBS:

Dietary supplements include vitamins, minerals, herbs, amino acids, and other products that are not already approved as drugs. Botanicals include products such as ginger, garlic, ginkgo biloba, St. John’s wort, and Echinacea. Botanicals may be whole plants, plant parts (stem, roots, flowers, leaves, pollen, or juices). The term herbal refers to the leafy part of the plant. They may be swallowed as tablets, brewed as teas, applied to the skin as gels, salves, or even added to bath salts or made into perfume. May take many different forms including: dried, finely chopped, powdered, capsule, or liquid. (ACS, p. 31.)

Food is the best source of vitamins and minerals. During cancer treatment and recovery, some people have problems eating enough food, so vitamin and mineral supplements may be needed. Most healthcare providers recommend a balanced multivitamin-mineral supplement containing as much as 100% of the “Daily Value” of most nutrients. This term was previously called the “Recommended Dietary Allowance,” or RDA.

Vegetables and fruits contain more than a hundred healthful compounds that cannot be replicated in a small tablet. No pill can be the same as eating healthy fruits and vegetables. Many of the benefits of foods come from the combined effects of several of the nutrients they contain. This cannot be duplicated with any pill. These tablets are called “supplements” because they should be used in addition to a healthy diet, not as a replacement for food.

In 1938 Congress passed the Federal Food, Drug, and Cosmetic Act. Rigorous requirements have been established since then to secure the safety of drugs and to ban false and misleading labels on food, drugs, and medical devices. (ACS, p. 21.) The percentage of the daily value of the Recommended Dietary Allowance (RDA) per serving or tablet were developed more than 40 years ago by the US Food and Nutrition Board to represent standards for the MINIMUM amount of vitamins and minerals needed by a healthy person to prevent nutritional deficiencies and the diseases deficiencies can cause. (ACS, p. 33.) The National Academy of Sciences has developed a new standard known as Dietary Reference Intakes that includes guidelines for the amounts of certain vitamins and minerals needed for good health. These guidelines include the Estimated Average Requirement, the Adequate Intake, the Upper Tolerance Intake, and the Recommended Dietary Allowance. (ACS, p. 33.)

In 1990 the Nutrition Labeling and Education Act required that the food label follow a specific format that provides nutrient content information to the consumer (ACS, p. 24.) In 1994, however, Congress passed a law that deregulated the supplement industry and allowed the production of unproven herbal remedies. Since that legislation, The Dietary Supplement Health and Education Act has become law, which allows the marketing of products, as long as they don’t blatantly lie or claim to have a cure for a specific disease without providing evidence. Currently, there are almost no standards that
regulate how the pills are made. Once produced, there is little scrutiny to ensure that consumers are getting what they anticipated. (The New Yorker, p. 64, 2/2/04.)

Signs of possible fraudulency can be detected. Beware of products that utilize unfounded terminology, such as, “Miracle Cure,” “Break through,” or “New Discovery.” Be cautious when a product claims there are benefits with no side effects or promotes usage for a wide variety of unrelated illnesses. Avoid products that advertise safe treatment based solely on testimonials or that ascribe a secret ingredient or method. (ACS, p. 29.)

More than 100 Investigative New Drug (IND) applications involve studying plant and other natural products for drug indications. More than 2,500 adverse effects of herbs have been reported to the FDA. Most physicians do not recommend high doses of antioxidants during treatment as they may interfere with chemotherapy and radiation therapy. Fruits and vegetables are the best source of naturally occurring antioxidants. Gingko biloba, garlic, feverfew, vitamin E, and ginger can thin blood and prevent abnormal blood clotting – but used with blood-thinning drugs, such as warfarin, heparin, or aspirin, the dietary supplements may cause excessive bleeding. St. John’s Wort can interfere with indinavir and cyclosporine. Although used successfully by many to reduce symptoms of depression, St. John’s Wort can also cause critical problems with persons who have cardiac conditions, and with the drug Digoxin. It should not be used with antidepressants, without physician approval. Licorice can occasionally stimulate the adrenal glands, causing sodium and water retention, hypertension, potassium loss, decreased calcium levels, and increased sensitivity to Digitalis. (Jones, I., Zenith Woman, Fall 2000, p. 10)

Researchers are just beginning to understand the effects of single supplements. A combination of dietary supplements can magnify the effect of a single dose. We still do not know how they interact with one another when multiple supplements are taken, or when they are combined with prescriptive medicines. We do know the benefits of Vitamin C and E… but how do vitamins interface with Black Cohosh? Or St. John’s Wort? Or Pycnogenol? Or Coumadin?

It is wise to look for drugs that the manufacturer followed standards set by the US Pharmacopoeia in formulating the product. Be alert to negative side effects while taking any product. Anything that produces a rash, a feeling of sleeplessness, restlessness, anxiety, GI disturbance (such as nausea, vomiting, diarrhea or constipation), or severe headache should be immediately stopped and the reaction reported to your physician. Over dosage could have serious complications.

Investigate before you buy. Check with your physician. Introduce one product at a time. Be especially cautious of dietary supplements if you are pregnant or breast feeding. Never give a product to a baby or child under 18 without consulting your physician first. Few, if any, of these products have been studied for safety, and their effects on the growing fetus. Children metabolize nutrients and drugs differently from adults and the effects on children are not known.
The German Commission E is a governmental regulatory agency comprised of scientists, toxicologists, physicians, and pharmacists that was established in 1978. The German Commission E has evaluated the usefulness of over 300 herbs, studied literature, conducted clinical studies, reviewed case studies, and prepared monographs listing uses, side effects, and any known drug/herb interactions. They found about 200 herbs to be effective and rejected the rest.

The American Botanical Council (ABS), established in 1988, published an English translation of the Commission E monograph text. Their website states that they are the leading independent, nonprofit, international member-based organization providing education using science-based and traditional information to promote the responsible use of herbal medicine. See the Reference Section for further information.

The following have been selected as sample supplements. The list is not intended to be exhaustive.

1. **Aloe**

   The gel inside the aloe leaves may be effective in treating minor burns and skin irritations. It has been used conventionally for constipation and skin conditions. The main aloe product promoted as a cancer cure is a new, unapproved drug called T-UP (concentrated aloe). It has been promoted, in liquid form to be taken either orally or injected directly into the tumor or bloodstream.

   Aloe injections are illegal in the US but are available in other countries. From 1996 to 1997 T-UP was used orally and by injection for the treatment of cancer, AIDS, herpes, and other autoimmune disorders. In the summer of 1999 the FDA indicted the makers on 20 different charges, including fraud, promoting and selling an unapproved drug, and conspiracy. While aloe may be safely used for minor cuts and burns, more severe skin trauma may require other therapies. (ACS, p. 164-166.)

2. **Arnica**

   Arnica is a perennial plant used for skin wounds, infections, and inflammation. When taken internally, it can irritate the stomach, causing vomiting, diarrhea, and nosebleeds. Commission E – Germany’s regulatory agency for herbs, has approved arnica only for external use in treating injury and effects of accidents, inflammation of the mouth and throat area, and insect bites. It may reduce the effectiveness of high blood pressure medications and increase the risk of bleeding in people who take blood-thinning medications. (ACS, pp. 167-168.)

3. **Black Cohosh**

   Often referred to as the “woman’s remedy”, there is evidence that black cohosh is effective in treating menopausal symptoms, such as hot flashes. The benefits of black cohosh are attributed to chemicals in the plant that resemble and mimic the effects of estrogen. Because some cancers are stimulated by estrogen, some herbalists state that
black cohosh may be dangerous for people who have cancer. Others state it is safe since the herb does not actually contain estrogen.

Black Cohosh has been approved in Germany for more than 50 years and is commonly prescribed. No serious reactions have been reported. A recent study reviewed 8 clinical studies of black cohosh and noted it was effective in relieving menopausal symptoms. The author concluded it was a safe, effective alternative to estrogen for those patients in whom estrogen replacement therapy is either refused or not advised.

Although black cohosh has been a popular herbal remedy for hot flashes, studies completed have not been convincing. Most notably, a placebo-controlled trial failed to show that black cohosh was more effective than a placebo (a pill containing no medicine or supplement). Some studies report that it should not be used for more than six consecutive months. It should be used with caution in individuals with high blood pressure. Women who are pregnant or breast feeding should not take black cohosh. (ACS, pp. 176-177.)

4. **Chamomile**

In traditional folk medicine, chamomile was widely used for a long list of ailments. The Anglo-Saxons believed it was one of nine sacred herbs given to humans by the god Woden. Today it is most commonly used to promote sleep and to soothe gastrointestinal discomfort.

Germany’s Commission E has approved it for gastrointestinal spasms and skin and mucous membrane inflammation. They recommend using it as a tea steeped for 5-10 minutes in hot water 3 or 4 times/day. People with an allergy to ragweed should use it with caution. It may interact with blood thinning medications. (ACS, pp 192-193.)

5. **Echinacea**

Echinacea is promoted mainly as a treatment for colds, the flu, and other respiratory infections. In Germany, Echinacea is a common over-the-counter medication and more than 300 Echinacea products are sold for treating respiratory infections, urinary tract infections, and poorly healing wounds.

Many claim that it boosts the body’s immune system by stimulating the activity of macrophages which can attack cancer cells. Some advocate that it should be used as a supplement to chemotherapy or radiation therapy.

One source stated it was the leading herb supplement sold in the US between 1996 and 1997. Practitioners caution that people taking medications known to cause liver toxicity, such as anabolic steroids, amiodarone (a drug for heart rhythm problems), and the chemotherapy drugs methotrexate and ketoconazole should not take Echinacea. (ACS, pp. 204-205.) It may also decrease the efficacy of immunosuppressant medications. (Cure magazine, p. 53)
6. **Evening Primrose**

Evening primrose is a flowering plant originally native to North America that blooms every other year. Its large yellow fragrant flowers open at dusk and remain open throughout the night. It is promoted as an aid for dermatitis, pre-menstrual syndrome, eczema, inflammation, hyperactivity in children, high cholesterol, asthmatic cough, upset stomach, psoriasis, rheumatoid arthritis, and diabetic nerve disease.

There is very little evidence to support these claims. There is very little evidence that Evening Primrose Oil has any effect on cancer or any other disease. No significant hazards have been identified with taking evening primrose. (ACS, pp. 208-209.)

7. **Ginkgo**

Ginkgo is an extract of leaves from a ginkgo tree, the world’s oldest surviving species of tree, which comes from China, Japan, and Korea.

Ginkgo has shown some benefit in the treatment of mild to moderate dementia. A 1997 controlled human study published in the Journal of the American Medical Association found evidence that ginkgo extract could improve cognition and social function in some patients with mild to moderate forms of dementia resulting from Alzheimer’s disease or multiple heart attacks. It can help improve blood circulation and flow to the brain. Ginkgo is promoted as an aid to memory and concentration. Recent claims include an improvement of memory and vision in the elderly and a slowing of the progression of Alzheimer’s disease or dementia. It has been used successfully for tinnitus, dizziness, motion sickness, and “charley horses” in the lower leg. It has also been beneficial in the treatment of Raynaud’s disease. Chinese herbalists have used the fruit of the ginkgo tree for about 4,000 years as a remedy for asthma, coughs, and allergic reactions.

It is generally considered to be safe; however, it is not recommended for people using aspirin, non-steroidal anti-inflammatory drugs such as ibuprofen or anticoagulants. As with all supplements, it is wise to discuss your supplements with your healthcare provider. (ACS, pp. 218-219.)

8. **Pycnogenol**

The name Pycnogenol is used as a trademark compound extracted from the bark of the European coastal pine tree… and also as the name of a variety of compounds that contain proanthocyanidins taken from a variety of natural sources, such as grape seeds and plants. Proponents claim that Pycnogenol is one of the most powerful antioxidants. Antioxidants are compounds that block the action of activated oxygen molecules, known as free radicals, that can damage cells. Supporters believe that Pycnogenol protects against arthritis, complications from diabetes, cancer, heart disease, and circulatory problems such as swelling and varicose veins.

Evidence from clinical trials does not support the health claims of Pycnogenol; however, interest in proanthocyanidins among medical researchers is growing. More
research is needed to determine if it can have any benefit for people with cancer or any other disease. (ACS, pp. 263-264.)

9. St. John’s Wort

St. John’s wort is a shrub-like perennial plant with bright yellow flowers. It has been used extensively in Europe to treat depression, anxiety, and sleep disorders. In Germany, doctors prescribe it more often than Prozac®, where it is available by prescription only.

Use dates back many centuries and is surrounded with much folklore. The Greeks used it to fight fevers and evil spirits. In England the plant was used to protect a house from evil spirits and to banish witches. It was thought that a person would be protected from death during the following year by putting a piece of the plant under a pillow on St. John’s Eve.

Clinical trials have shown it is effective in treating mild to moderate depression, with fewer side effects than standard antidepressants. In February of 2000, in response to a report in the medical journal, Lancet, the FDA issued a public health alert. The herb may interfere with a number of prescription drugs, including cyclosporine, digoxin, oral contraceptives, indinavir, and antiretroviral medications used by AIDS patients. People taking any of these medications should consult their healthcare physician before taking St. John’s wort. (ACS, pp. 272-274.) It also can alter the metabolism of many chemotherapy drugs, including Camptosar (irinotecan), cyclosporine, warfarin, steroide, and protease inhibitors. In some instances in can increase skin sensitivity to ultraviolet light. (Cure, p. 53)

10. Valerian

The foul-smelling root of Valerian is chopped up and made into tea or extract that is used primarily as a sedative.

At least three controlled human studies have been conducted in the US comparing valerian with a placebo. Results showed that those who took valerian experienced less insomnia and had improved quality of sleep.

Long-term use of valerian is not recommended for insomnia. Valerian should not be taken with alcohol, certain antihistamines, muscle relaxants, psychotropic drugs, sedatives, barbiturates, or narcotics. People with liver or kidney disease should contact their healthcare provider before taking this supplement. (ACS, pp. 282-283.) It can also increase the sedative effect of anesthetics (Cure, p. 53.)
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WEBSITE INFORMATION:

The website for the Office of Alternative Medicine (OAM) is nccam.gov. Their phone number is 1-888-644-6226.


The website for the American Cancer Society is www.cancer.org. ACS also has an online Cancer Survivors Network, reachable at www.acscesn.org.

Information on herbs and botanicals is available through the American Botanical Council, 6200 Manor Rd, Austin, TX 78723 Phone: 512-926-4900 Fax: 512-926-2345 abc@herbalgram.org.

In addition to support groups, Cancervive Phone: 1-800-486-2873 www.cancervive.org provides educational materials, insurance information and assistance, and advocacy.

The Center for Mind-Body Medicine 1-202-966-7338 www.cmbm.org combines modern science with ancient healing. This organization addresses the mental, emotional, social, physical, and spiritual sides of health and illness.

The National Coalition for Cancer Survivorship (NCCS), a survivor-led advocacy organization, 1-877-622-7937 www.canceradvocacy.org offers support to cancer survivors and their loved ones.


Contact www.medscape.com for free access to many journals.

The Lance Armstrong Foundation offers support services for survivors and research grants. Contact them at www.laf.org.

The mission of American Psychosocial Oncology Society is to promote the psychological, social, and physical well being of patients with cancer and their families at all stages of disease and survivorship through clinical care, education, research, and advocacy. Visit their website at www.apos-society.org.
GLOSSARY OF TERMS:

**Adjuvant:** Cancer treatment given after all visible cancer is removed. It is follow-up therapy designed to eliminate microscopic cells which could potentially lead to future relapse.

**Alteration, altered:** Change, different from original

**Anemia:** A decrease in red blood cells which results in a decreased ability for the blood to carry oxygen. This can result in shortness of breath, a pale complexion, weakness, and fatigue.

**Antibiotics:** Drugs that have the ability to stop the multiplication of or to destroy bacteria or fungi; few affect viruses.

**Anticoagulant:** A drug that interferes with the ability of blood to clot. The two most commonly used are heparin and coumadin.

**Antiemetic:** A drug that prevents or reduces nausea and vomiting.

**Atypical:** Irregular or unusual.

**Benign:** A growth that is NOT cancerous.

**Biopsy:** Removal of a sample of tissue that is then examined under a microscope by a pathologist to see if cancer is present. When the entire tumor or lesion is removed, the procedure is called an excisional biopsy. When only a sample of tissue is removed, the procedure is called an incisional biopsy or core biopsy. When a sample of tissue or fluid is removed with a needle, the procedure is called a needle biopsy or fine-needle biopsy.

**Cancer:** A term for diseases in which abnormal cells divide without control or order. Cancer cells can invade nearby tissues and can spread through the bloodstream and lymphatic systems to other parts of the body (metastasize).

**Carcinoma:** Cancer that begins in the lining or covering of an organ.

**Case manager:** A healthcare professional who assists in monitoring the financial aspects of your care, including insurance coverage and discharge planning.

**Chemotherapy:** Treatment with drugs to kill or slow the growth of cancer cells; also used to shrink tumors prior to surgery.

**Chronic:** Long-lasting; not acute.
**High-dose chemotherapy:** The use of high doses of anticancer drugs to kill cancer cells.

**Hormonal therapy:** The use of hormones to treat cancer patients by removing, blocking, or adding to the effects of a hormone on an organ or part of the body. Also called endocrine therapy.

**Hormones:** Substances produced by various glands in the body that affect the function of body organs and tissues.

**Hyperplasia:** An abnormal overgrowth of cells.

**Immune system:** The body’s own natural defense system against infection or disease.

**Immunosuppression:** A condition that occurs when the immune system does not function properly and the patient is more susceptible to infections. This can occur following chemotherapy and radiation therapy.

**Incision:** A surgical cut.

**Incisional biopsy:** Surgical removal of a portion of an abnormal area of tissue or lump.

**Intravenous (IV):** An injection into the vein

**Lesion:** An area of abnormal tissue change.

**Local therapy:** Treatment that affects cells in the tumor and the area close to it.

**Lymph:** The almost colorless fluid that travels through the lymphatic system and carries immune cells that help fight infection and disease.

**Lymph nodes:** Small bean-shaped organs (sometimes called glands); part of the lymphatic system; lymph nodes remove waste from body tissues and filter the fluids that help the body fight infection.

**Lymphatic system:** The system of the body that removes wastes from body tissues and filters the fluids that help the body fight infection. This system includes the bone marrow, spleen, thymus, lymph nodes, and a network of thin tubes that carry lymph and white blood cells. These tubes branch, like blood vessels, into all the tissues of the body.

**Malignant:** Cancer; capable of invading, spreading, and destroying tissue.

**Medical oncologist:** A board-certified doctor who specializes in diagnosing and treating cancer using chemotherapy, hormonal therapy, and biological therapy. A medical oncologist serves as the person’s main caretaker and coordinates treatment provided by other specialists.
**Metastasis:** Spread of cancer from one part of the body to another; cells that have metastasized are like those in the original (primary) tumor.

**Negative:** A lab test result that is normal; failing to show a positive result for the specific disease or condition for which the test is being done.

**Neoadjuvant therapy:** Treatment given before the primary treatment. Neoadjuvant therapy can be chemotherapy, radiation therapy, or hormone therapy.

**Nutritionist or dietitian:** A health professional with specialized training in nutrition, who can offer help and choices about the foods one should eat.

**Oncologist, medical oncologist, or cancer specialist:** A doctor who uses chemotherapy or hormonal therapy to treat cancer.

**Oncology nurse:** A nurse with special training in caring for cancer patients.

**Palpable:** Perceptible by touch; able to be felt.

**Palliation:** Act of relieving a symptom without curing the cause.

**Physical therapist:** A health care professional who teaches strategies to help maintain and restore physical movement often lost after an illness or injury.

**Positive:** A lab test result that reveals the presence of a specific disease or condition for which the test is being done. For example, when a breast cancer tests come back, “positive” it means there is cancer.

**Primary care doctor:** A doctor who usually manages a patient’s health care. Many insurance providers require that a patient see a primary care physician before they can see any specialist (including a surgeon, oncologist, or physical therapist).

**Prognosis:** Possibility of recovery; prediction of the course or outcome of the disease.

**Psychologist:** A specialist who can talk with you and your family about emotional and personal matters, and can help you make decisions.

**Radiation:** Energy carried by waves or by streams of particles. Various forms of radiation can be used in low doses to diagnose cancer and in high doses to treat cancer.

**Radiation oncologist:** A doctor who uses radiation therapy to treat cancer.

**Radiation therapist:** A health professional who gives radiation treatments.
**Radiation therapy:** The use of high-energy radiation from x-rays, neutrons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external beam radiation therapy) or from materials called radioisotopes. Radioisotopes produce radiation and are placed in or near the tumor or in the area near cancer cells. This type of radiation treatment is called internal radiation therapy, implant radiation, interstitial radiation, or brachytherapy. Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiotherapy.

**Radiologist:** A doctor who uses ultrasounds, x-rays, mammograms, MRIs, CT Scans, and bone scans for the diagnosis and treatment of cancer and other medical conditions.

**Recurrence:** Reappearance of cancer at the same site (local recurrence), near the original site (regional recurrence), or in other areas of the body (distant recurrence).

**Risk factors:** Conditions that increase a person’s chance of getting a disease; risk factors do not cause cancer; rather, they are indicators, linked with an increased risk.

**Screening:** Checking for disease when there are no symptoms.

**Social worker:** A licensed and certified professional skilled in talking with patients and their family members about emotional and/or physical needs; an excellent resource for support.

**Stage or staging:** Classifying cancer according to its size and whether or not it has spread to other parts of the body.

**Standard:** Usual, common, customary.

**Surgeon or surgical oncologist:** A doctor who performs biopsies and other surgical procedures such as removing a lump (lumpectomy), a breast (mastectomy), or sampling of lymph nodes.

**Surgery:** An operation.

**Systemic:** Affecting the entire body.

**Tumor:** An abnormal growth of tissue; tumors may be either benign (not cancerous) or malignant (cancerous).