

## Alternative and Complementary Cancer Treatments

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### ABSTRACT

Alternative and complementary therapies differ importantly, and the distinction between the two is crucial for clinical oncologists. "Alternative" or unproven therapies are treatments used independent of surgery, radiation and chemotherapy. They can be dangerous directly and also by delaying patients' receipt of mainstream care. In contrast, complementary

therapies typically are adjuncts to mainstream medicine. They can provide symptom control and noninvasive palliation with minimal side effects, improve patients' well-being and enhance cancer medicine. Complementary therapies represent a desired addition and balance to technologically sophisticated cancer care. *The Oncologist* 1996;1:173-179

The use of alternative and complementary medicine is no longer restricted to a few unusual individuals receiving therapies from unschooled, underground practitioners. What was a covert activity has achieved broad publicity and acceptance. Alternative therapies now affect every facet of the health care system, including managed care, and all specialties of medicine, including oncology [1, 2].

Information about contemporary alternative medicine is readily available. Descriptions, usually positive, appear in all public media including television news magazines and the Internet. Various alternative and complementary treatments are provided in doctors' offices, clinics and hos-

pitals in the United States and internationally. A wide array of products is sold through the mail as well as in health food and grocery stores.

### ALTERNATIVE VERSUS COMPLEMENTARY MEDICINE

The distinction between alternative and complementary therapies is crucial for the practicing oncologist. "Alternative" therapies are treatments offered instead of surgery, radiation and chemotherapy. They can be dangerous clinically and also because they delay some patients' receipt of mainstream care. Although often attended by substantial press coverage, a relatively small percentage of patients adopt alternative cancer treatments in lieu of conventional care.

Complementary therapies are much more common. "Complementary" or "adjunctive" therapies, as the terms imply, are used typically to supplement mainstream medicine or provide palliation with noninvasive treatments that carry minimal or no side effects. Most people who use complementary therapies do so for relief of self-limiting or minor problems, to enhance emotional and physical well-being, or as part of a wellness-oriented lifestyle [3].

The situation in cancer medicine is similar, with most patients using complementary techniques—relaxation therapy is an example—to help control symptoms or enhance quality of life. The efficacy of complementary techniques

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ranges from extremely to modestly effective, to no activity. Harmful effects occur rarely. The phrase “alternative medicine” often is used to encompass complementary techniques as well, blurring important distinctions between them.

## PRACTITIONERS

At least half of alternative practitioners are physicians. With a few notable exceptions such as NCI-trained *Nicholas Gonzales* in New York City, they tend to be family practitioners, generalists and psychiatrists [2, 4]. Many oncologists are not familiar with the alternative and complementary therapies used by their patients. This article describes currently popular alternative and complementary therapies. Figure 1 gives a brief historical overview of some examples of alternative medicine in oncology. Little in the way of evaluation can be presented because very few alternative therapies have been studied with acceptable methodologies, if at all, hence their categorization as “alternative” or “unproven.”

How a particular remedy is used varies by practitioner and patient preference. The same regimen—for example, special diets, prayer, therapeutic touch, herbal remedies—may be offered or self-applied toward symptom control, enhanced well being, palliation, or cure (less often). Like conventional medicine, alternative and complementary medicine is complex, heterogeneous and variably practiced from one practitioner or geographic location to another and inconsistently fruitful.

## MAINSTREAM MEDICINE OPENS ITS ARMS TO ALTERNATIVES

Alternative medicine has made unprecedented inroads in mainstream medicine, including medical schools, academic medical research centers, peer-reviewed medical literature, insurance companies, managed care and the federal government. Many institutions here and in other countries now have alternative medicine research centers. In 1992, an Office of Alternative Medicine (OAM) was established by Congressional mandate at the National Institutes of Health. Some members of Congress had positive personal experiences with alternative medicine and continue to lobby for its acceptance and funding. They share proponent views that the medical “establishment” has failed to adequately investigate promising alternative treatments.

The National Library of Medicine (NLM) recently expanded and improved access to articles about alternative medicine. The NLM collection now contains more than 60,000 citations on alternative and complementary therapies. More than two dozen medical schools and hospitals have programs or departments for the study of alternative therapies. CME credits are available to health professionals who

**Figure 1.**

- ▲ A characteristic of alternative medicine is its inconstancy. Typically, an alternative cancer therapy remains popular for a limited period of time, when it is replaced by a new unproven method.

- .....
- ▲ *Dr. Koch's* Glyoxylyde predominated in the 1940s. It gave way to the Hoxsey therapy through the 1950s, and *Dr. Ivy's* Krebiozen remained the most common alternative cancer therapy in the 1960s. Laetril held sway during the following decade, and metabolic therapies took over throughout the 1980s.

1940s	1950s	1960s	1970s	1980s
Glyoxylyde	Hoxsey	Krebiozen	Laetril	Metabolic

*Changeability has been the hallmark of alternative medicine over the last five decades.*

participate in alternative medicine conferences. And many have been held, including recent conferences on the healing power of prayer. Over 30 American medical schools offer courses on alternative medicine, including Georgetown, Columbia, Harvard, Maryland and Wayne State University. Many others provide occasional lectures or ongoing informal programs. Virtually all NIH institutes have funded and still fund research in alternative and complementary medicine.

At least five journals of alternative medicine intended for physicians and other health professionals, but read also by patients, were recently launched. These include the *Journal of Alternative and Complementary Medicine*, edited by *Marc S. Micozzi, M.D., Ph.D.*; *Alternative and Complementary Therapies*, edited by *Nicholas Gonzales, M.D.*; *Alternative Therapies in Health and Medicine*, edited by *Lawrence Dossey, M.D.*, *Mental Medicine Update*, edited by *Robert Ornstein, Ph.D.* and *David Sobel, M.D.*; and the *Alternative Medicine Journal*, edited by *Robert E. Enck, M.D.*, which emphasizes in its promotional material the importance of determining “what types of alternative therapies are working and which are nothing more than quackery.” Nevertheless, the advertising carried by most of these journals is for unproven homeopathic products, shark cartilage, naturopathic remedies and other health food store items oriented toward cancer. Because cancer cure cannot legally be claimed without documentation, these products are said to enhance the immune system, which, it is claimed, produces an environment that destroys malignant diseases.

Insurance companies now offer plans that reimburse alternative practitioners. These plans have been met with great public interest. The “AlternaPath” pilot program of Blue Cross of Washington, which provides access to

acupuncturists and homeopaths, was quickly fully subscribed when offered on a pilot basis. The American Western Life Insurance company offers a “wellness plan” that uses naturopathic rather than conventionally trained physicians as gatekeepers. Naturopathic remedies are tried first; allopathic medicine is used only when necessary.

Other insurers reimburse for specific alternative procedures, such as acupuncture, in their standard plans. Indeed, six states require health insurers to cover acupuncture treatments. Acupuncture is a good example of a former alternative therapy that, for NIH-researched indications such as pain management and substance abuse, is now widely accepted by mainstream medicine.

The behavior of physicians toward alternative and complementary medicine also has changed. More than 60% of physicians in one survey referred their patients to alternative or complementary practitioners. Primary care physicians were most likely to do so.

### THE GROWING POPULARITY OF ALTERNATIVE CANCER MEDICINE

Alternative medicine is extremely popular with the public, with better educated people using it more often than others. A national telephone survey found that 34% of Americans visited alternative practitioners in 1990, spending \$13.7 billion on these visits. Americans made more visits to alternative practitioners (425 million) than to primary care physicians (388 million).

The limited number of investigations conducted in the United States found that substantial proportions of cancer patients use alternative or complementary therapies. An American Cancer Society study of alternative cancer therapy prevalence found that the percentage of cancer patients using questionable methods ranged from a low of 6.4% in the South Atlantic region to a high of 14.7% in the Rocky Mountains [5].

Studies conducted in other countries found similar rates. More than one-fourth of cancer patients in Poland use alternatives, as do 46% of children with cancer in South Australia, and 15% of 949 cancer outpatients surveyed in The Netherlands used alternative or complementary therapies, typically in conjunction with conventional care. Patients who use alternatives are more likely to be women, younger, better educated and affluent across studies conducted internationally.

### WHAT YOUR PATIENTS ARE USING

The OAM groups unconventional medicine into seven categories: 1) diet and nutrition, 2) mind-body techniques, 3) bioelectromagnetics, 4) alternative systems of medical practice (or traditional and folk remedies), 5) pharmacologic and biologic treatments, 6) manual healing methods and 7) herbal medicine. These are summarized briefly below.

### Diet and Nutrition

The belief here, as with many alternatives, is that particular foods enhance the immune system and therefore assist the body to rid itself of cancer. Many alternative cancer clinics include special diets as part of their overall treatments. Up to 61% of British cancer patients use unconventional diets [6]. Conventional medicine has come to recognize that the consumption of fruits, vegetables and fiber, avoidance of excessive fat, and antioxidants in fresh foods can reduce cancer risk. However, alternative anticancer diets go further, its proponents often claiming that a given diet can cure cancer via immune enhancement. Extending claims beyond what research supports is a hallmark of many alternative treatments.

Today's most popular anticancer diet is probably macrobiotics [7]. Initially nutritionally deficient, the diet was enhanced and now derives 50%-60% of its calories from whole grains, 25%-30% from vegetables and the remainder from beans, seaweed and soups. The diet avoids meat and certain vegetables, and promotes soybean consumption. The OAM funded a pilot study of the cancer preventive effects of the macrobiotic diet. The principal investigator is *Lawrence Kushi, Sc.D.*, a researcher on the faculty of the University of Minnesota School of Public Health and the son of one of the founders of macrobiotics.

Scientists at the University of Alabama at Birmingham and the National Institute of Diabetes and Digestive and Kidney Diseases are investigating the potential anticancer properties of genistein, a substance in soybeans, as a possible explanation for Asian versus American women's lower rates of breast and other cancers. A recent article in the *New England Journal of Medicine* concluded that soy versus animal protein significantly decreases total cholesterol, LDL and triglycerides. Possibly the low fat associated with dietary soy products relates to decreased incidence of breast cancer, which is thought to be elevated by fat intake [8].

### Mind-Body Techniques

The notion that we can influence health with our minds and through prayer resonates well with the individualism of American culture, and mind-body medicine is extremely popular in the United States. Some mind-body interventions have moved from the realm of the unconventional into mainstream medicine. Good documentation exists for the effectiveness of meditation, biofeedback and yoga for stress reduction and the control of particular physiologic reactions [9].

Some proponents hold that mental attributes and mind-body work can prevent or cure cancer. This belief has great appeal [10], as do the preliminary studies that appear to substantiate it. Although they may involve small numbers of patients or remain unreplicated, studies suggesting that mental factors or prayer influence the course of cancer are widely

publicized. A 1989 *Lancet* article, suggesting that women with breast cancer who attended weekly support group sessions had double the survival time of women who did not attend [11], has not been replicated despite ongoing efforts.

Another well-known unreplicated example is the San Francisco intercessory prayer study, a prospective, randomized, double-blind study of 393 patients, half of whom were randomly selected to be prayed for by people at a distance [12]. Results were significant ( $p < .0001$ ), suggesting that intercessory prayer had beneficial therapeutic effects and replicated media reports of healing through prayer.

Bernie Siegel, M.D., former surgeon and author of *Love, Medicine, and Miracles*, and other best-sellers, is a leading proponent of the mind-cancer link. He encourages patients to maintain positive attitudes and assume responsibility for their own health, believing that attitude influences survival time. He asks patients to consider why they might “need” their cancer. The implication is that cancer results from unhealthy emotional patterns. A study of his patients co-authored by Siegel, however, found no difference in their length of survival [13]. Because the results did not confirm more than thirteen years of public statements, the *Journal of Clinical Oncology* article received no media attention and even failed to alter proponent claims.

Attending to the psychological health of cancer patients is a fundamental component of good cancer care. Support groups, good doctor-patient relationships and the emotional and instrumental help of family and friends are vital. However, the idea that patients can influence the course of their disease through mental or emotional work is not substantiated and can evoke feelings of guilt and inadequacy when disease continues to advance despite patients’ spiritual or mental efforts.

### Bioelectromagnetics

Bioelectromagnetics is the study of living organisms and their interactions with electromagnetic fields. Therapists use the low-frequency portion of the electromagnetic spectrum, claiming that magnetic fields penetrate the body and heal damaged tissues, including cancers. The Director of the Institute of Biophysics in Horb, Germany, asserts that magnetic fields can cure a wide variety of ailments, including malignant diseases [14]. Groups in the United States also study the benefits of magnetic fields, but no peer-reviewed publications could be located for any cancer-related claims in bioelectromagnetics.

The OAM funded a pilot effort to examine the effectiveness of bioelectromagnetics in treating cancer. The study, ongoing at the City of Hope Medical Center in Los Angeles, involves inserting cathodes and anodes directly into animal tumors and maintaining direct current in the tumor. This

preliminary effort is based on a technique widely used in China to treat cancer in humans.

### Traditional and Folk Remedies

This category includes ancient systems of healing that often are based on concepts of human physiology different from those accepted by modern Western science. Two of the most popular healing systems are traditional Chinese medicine and India’s Ayur Veda, popularized by best-selling author *Deepak Chopra, M.D.*

“Ayur Veda” from the Sanskrit words “ayur” (life) and “veda” (knowledge), is a 5,000-year-old healing technique based on the classification of people into one of three predominant body types. There are specific remedies for disease and regimens to promote health for each body type. Ayur Veda has a strong mind-body component, stressing the need to keep consciousness in balance, using yoga, meditation and other techniques. Approximately ten Ayur Veda clinics in North America served an estimated 25,000 patients in the past ten years [15]. The number of cancer patients among them is not documented.

Traditional Chinese medicine is distinguished by its focus on chi, the life force, which flows through postulated energy channels known as meridians. Traditional Chinese medicine relies on exercise techniques such as Qi Gong and Tai Chi, which are excellent complementary therapies, to strengthen and balance chi. In addition, traditional Chinese medicine uses a full herbal pharmacopeia with remedies for most ailments, including cancer. Chinese herbal teas, philosophy and relaxation techniques are soothing and appealing to many patients with cancer who use them as complementary therapies. Many studies are under way to evaluate the potential benefits of Chinese herbal remedies. Acupuncture, with no side effects and little expense, relieves pain and nausea for many cancer patients.

### Pharmacologic and Biologic Treatments

This class of treatments remains highly controversial. Probably the best known and most popular pharmacologic therapy today is antineoplastons, developed by *Stanislaw Burzynski, M.D., Ph.D.*, and available at his clinic in Houston, Texas. Despite laboratory investigation by a respected scientist who concluded that antineoplastons do not even exist; despite visiting Canadian scientists’ reports of no apparent benefit, and despite a failed NCI clinical trial, public interest remains high. Interest is elevated, perhaps, by publicity received not only from constant radio and television appearances by *Dr. Burzynski* and his patients, but also from the headline-producing indictment of *Dr. Burzynski* in late November, 1995, following a U.S. Postal Service and FDA raid of his Houston clinic.

That raid proved to be a public relations bonanza for *Dr. Burzynski*, as it engendered televised visits to Congress of his desperate patients and repeated opportunities for well-publicized claims of government suppression of what patients call their “cancer cure.” Perhaps some insight into this cure may be gleaned from *Dr. Burzynski’s* failure to take advantage of a Food and Drug Administration IND. That IND permitted a clinical trial at the Burzynski Research Institute in Houston. Over the past several years, despite claims of thousands of cures during this time, few patients have been placed on this trial. It would not be difficult to replace the rhetoric with data, and one must wonder why *Dr. Burzynski* has failed to take advantage of this legitimate and easily managed opportunity.

Immunoenhancement therapy (IAT) was developed by the late *Lawrence Burton, Ph.D.*, and offered in his clinic in the Bahamas. *Burton’s* therapy is based on balancing four protein components in the blood. This injected therapy, like antineoplastons, relies on strengthening the patient’s immune system. Documentation of IAT’s efficacy remains anecdotal. The clinic has continued to operate following *Burton’s* death, but seems to have declined in popularity, possibly because of the rise of other alternatives such as shark cartilage.

Interest in shark cartilage as a cancer therapy was spurred by a 1992 book by *I. William Lane, Ph.D.*, *Sharks Don’t Get Cancer*, and by a television special that displayed apparent remissions in patients with advanced cancer treated with shark cartilage in Cuba. According to mainstream scientists, however, the molecules of active ingredients in the “food supplement” shark cartilage sold at health food stores are too large to permit absorption. They decompose into inert ingredients and are excreted. Despite lack of positive evidence, shark cartilage pills and suppositories are widely publicized and available in health food stores throughout the country. The OAM attempted to investigate the effectiveness of shark cartilage against cancer, but the study stalled because the shark cartilage received by OAM was found to be contaminated. Bovine cartilage is also under study for its potential anticancer properties [16].

Another well-known biologic remedy, Cancell, is especially popular in the Midwest and Florida. Proponents claim that it returns cancer cells to a “primitive state” where they can be digested and rendered inert. FDA laboratory studies reveal that Cancell is composed of common chemicals, including nitric acid, sodium sulfite, potassium hydroxide, sulfuric acid and catechol. The FDA found no basis for proponent claims of Cancell’s effectiveness against cancer.

Popular metabolic therapies are banned in the United States but are readily available in Tijuana, Mexico. One of the best known is the *Gerson* clinic, where treatment is

based on the notion that toxic products of cancer cells accumulate in the liver, leading to liver failure and death. *Gerson’s* treatment aims to counteract liver damage with low-salt, low-fat, high-potassium diets and coffee enemas. The hills around Tijuana are dotted with similar clinics, each offering its own version of metabolic cancer therapy.

Pharmacologic and biologic therapies appear and vanish quickly. A new approach, offered by a doctor in Mexico, involves injections of sheep placenta. Last year a farmer in Iowa was convicted of practicing medicine without a license. He sold uterine tissue from his cows, said to cure cancer.

### Manual Healing Methods

Manual healing includes touch and manipulation techniques. Osteopathic and chiropractic doctors were among the earliest groups to use manual methods. Some chiropractors today claim to cure major illnesses with their manipulations.

Hands-on massage is an excellent adjunctive technique for cancer patients and others for its stress-reducing benefits. But one of the most popular manual healing methods, “therapeutic touch,” involves no direct contact despite its name. Instead, healers move their hands a few inches above a patient’s body and remove “blockages” in the patient’s energy field. Developed by a nursing professor emeritus at New York University, therapeutic touch is taught at most American nursing schools. There are occasional reports of cancer “cures.” Although numerous critics in mainstream medicine deride its fundamental premises, therapeutic touch is widely practiced by nurses in the United States and other countries.

### Herbal Medicine

Herbal remedies typically are part of traditional and folk healing processes with long histories of use. Herbs come from Asia, Europe, Africa and North America, as herbal medicine is found in most areas of the world. Although many herbal remedies are claimed to have anticancer effects, only a few have gained substantial popularity as alternative cancer therapies.

Essiac is a popular herbal cancer alternative in North America. It was popularized by a Canadian nurse, *Rene Caisse* (Essiac is *Caisse* spelled backwards), but was developed initially by a native Canadian healer. Essiac is comprised of four herbs: burdock, turkey rhubarb, sorrel and slippery elm. Researchers at the NCI and at Memorial Sloan-Kettering Cancer Center found that it has no anticancer effects. A problem with Essiac is that *Caisse* never revealed its formula, so several competing firms sell different versions, each claiming to be the true recipe. Essiac is widely available in health food stores.

Isador, a derivative of mistletoe, is a popular cancer remedy in Europe, where it has been used as a folk treatment for centuries. Isador grows at the tops of trees in the United



States as well as in Europe, and it is available in many mainstream European cancer clinics. European governments fund ongoing studies of Iscador's effectiveness against cancer.

The FDA does not examine herbal remedies for safety and effectiveness and most have not been formally tested for side effects. Recent reports in the literature describe severe liver and kidney damage from a limited number of herbal remedies, including chaparral tea [17]. These reports underscore the fact that "natural" products are not necessarily safe or harmless.

### CANCER RESEARCH AT THE OAM

Congress mandated the creation of an NIH Office of Alternative Medicine in 1992. As outlined in the Senate bill, the purpose of this office is "to facilitate the evaluation of alternative medical treatment modalities" to determine their effectiveness, and to help integrate effective alternatives into the medical mainstream. The OAM maintains information about ongoing research. Virtually every NIH institute has funded and continues to support studies concerning alternatives relevant to its primary mission. Current support from 17 Public Health Service agencies totals more than \$13 million. The National Institute of Drug Abuse and the National Heart, Lung and Blood Institute spend more on alternative therapy research than do the other institutes.

The OAM has funded 45 pilot studies, including several on cancer; results are not yet available. The OAM also has funded ten university-based centers for research in alternative medicine. One, located at the University of Texas Health Science Center in Houston, is responsible for the study of alternative cancer therapies.

### TALKING WITH PATIENTS ABOUT ALTERNATIVE THERAPIES

A significant minority of cancer patients uses alternative therapies. It is likely that many more adopt therapies such as massage, acupuncture or herbal teas for strictly complementary purposes. It is vital that oncologists enable patients to feel comfortable talking about alternatives in order to learn what their patients are receiving in addition to mainstream treatment. The possible harms, benefits and interactions of therapies adopted by patients require evaluation [18].

It is helpful also to understand patients' motives for using alternative or complementary therapies. Inadequate pain management, for example, which remains a problem in oncology medicine, often motivates patients to seek more effective and less toxic alternatives to conventional options. Nonsedating techniques such as acupuncture may be useful.

### WHY PATIENTS TURN TO ALTERNATIVE CANCER THERAPIES

Widespread frustration exists concerning establishment medicine and its inability to effectively treat many cancers. Further, chemotherapy's side effects have become increasingly intolerable to a public focused on "natural" products and wanting more gentle and more effective substitutes for mainstream cancer treatments. Table 1 provides some complementary therapies which can help ease the negative side-effects of mainstream cancer treatment.

Perhaps of greatest importance, patients complain about the impersonal nature of modern oncology care. They report insensitive, limited and hurried interactions with oncologists in settings ranging from small suburban hospitals to the best-known comprehensive cancer centers. Provisions frequently are not made for anticipated side effects of chemotherapy, and often patients are not even told to expect these effects. Patients often feel helpless and ignored. Many fail to understand why oncology medicine does not include the non-toxic complementary techniques, standard in other

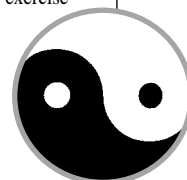
countries, that control pain effectively, reduce stress and alleviate symptoms. The United States is approximately two years behind most European countries in establishing government-level offices of complementary medicine and in offering complementary therapies to augment mainstream oncologic care.

Many patients decline care at major cancer centers and seek out smaller settings that address quality as well as duration of life, and that provide complementary therapies. Some seek alternative care for its more egalitarian approach, for a better practitioner-patient relationship, or in search of better opportunities to make therapeutic decisions and participate in their treatment.

Good communication between oncologist and patient, plus appropriate use of complementary therapies, should reduce patients' frustration and dissatisfaction with oncology medicine, help counteract the perception that only alternative practitioners care about their patients as people, and encourage patients to continue conventional care.

**Table 1.** Complementary therapies to ease the symptoms and stress of mainstream cancer treatment

- ▲ Meditation, biofeedback and other relaxation techniques.
- ▲ Massage and acupuncture.
- ▲ Yoga, qi gong, tai chi and other gentle exercise techniques.
- ▲ Aromatherapy.
- ▲ Selected teas.
- ▲ Individual and group counseling and support.
- ▲ Music, art and movement therapies.
- ▲ Acupuncture for pain and symptom control.



Managed care leaders and alternative medicine proponents call for complementary therapies, and, in some cases, for alternatives as cost efficient and responsive to patients' needs. Optimally, a clinically

responsible balance can be forged between the science and technology of cancer medicine and the comfort that the best of complementary medicine can bring.

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