

Complementary and Alternative Medicine

Surveying the Options

By Lauren Gerstmann, MPH

Hippocrates told female patients to chew on willow bark to ease labor pain. If modern patients were to hear that, they might wonder about this seemingly alternative herbal therapy. But today, willow bark extract is used to make aspirin—the most commonly used pain reliever and anti-inflammatory. In 2005, more than one-fifth of U.S. adults reported regular aspirin use, and

almost half of adults over 65 reported aspirin use either every day or every other day.¹

For centuries, people all over the world have used treatments such as herbal remedies, acupuncture, and mind-body therapies to improve health and ward off disease. Depending on how you define these therapies, somewhere between 9 percent and 65 percent of people in developed countries have tried a complementary or alternative technique.² Generally, alternative medicine is care that is used instead of standard medical treatment, while complementary medicine is used in addition to mainstream medical care.

In Western society—which is devoted to a scientific medical model—some of these treatments are considered unproven and risky. Historical skepticism has been changing, however, as scientists, physicians and patients are becoming more interested in more natural treatments. What had been alternative is now becoming mainstream. In 1992, the National Center for Complementary and Alternative Medicine (NCCAM) was created. Part of the National Institutes of Health, the center is devoted to scientific study of treatments that were once considered most unscientific.

NCCAM defines complementary and alternative medicine (CAM) as “a group of diverse medical and healthcare systems, practices, and products that are not presently considered part of conventional medicine.”³ But, as we examine these practices alongside Western techniques—scrutinizing them scientifically—the boundary between “traditional” and “nontraditional” techniques starts to shift. Massage therapy, acupuncture and nutritional guidance are standard therapies at the Zakim Center for Integrative Therapies⁴—part of Dana-Farber/Harvard Cancer Center—the world’s largest comprehensive cancer center. And the UCLA Collaborative Centers for Integrative Medicine is a network of clinics that treat conditions such as pediatric pain, women’s digestive disorders and integrative oncology.⁵ These are just a few of many examples of physicians integrating CAM with traditional (Western) medical treatments.

What Are the Most Common CAM Therapies?

Given that approximately 800 CAM therapies exist, it is helpful to categorize them. NCCAM’s five categories of therapies are described below.

- Whole body systems are complete sets of theories and practices that act independently of traditional Western medicine. These include homeopathy, naturopathy and traditional Chinese medicine.
- Mind-body medicine seeks to improve the mind’s control over the body. Through techniques such as meditation,



biofeedback and hypnosis, mind-body medicine seeks to improve function and reduce symptoms. Increasingly, mind-body medicine is being integrated into traditional Western therapies for chronic pain syndromes, other chronic illnesses and cancer.

- Biologically based practices seek to improve health and wellness with things found in nature (such as herbs, foods and vitamins). The difference between biologically based CAM and traditional medicine is that the efficacy and safety of biologically based CAM practices have not yet been scientifically established.
- Manipulative and body-based practices actively move the body (for example, the way a chiropractor would ➤

¹ Soni A, Statistical Brief #179: Aspirin Use Among the U.S. Non-institutionalized Population, With and Without Indicators of Heart Disease 2005, Medical Expenditure Panel Survey, Agency for Healthcare Research and Quality, July 2007.

² Goldrosen MH and Strauss SE. Complementary and Alternative Medicine: Assessing the Evidence for Immunological Benefits, *Nature Reviews Immunology* 4, 912-921 (November 2004) | doi:10.1038/nri1486.

³ NCCAM website: <http://nccam.nih.gov/health/whatisacam>.

⁴ Dana Farber website: www.dana-farber.org/pat/support/zakim/default.html.

⁵ UCLA Collaborative Centers for Integrative Medicine website: www.ccim.med.ucla.edu/clinical/index.html.

Where Can You Research CAM Therapies?

NCCAM Hotline

Toll-free: 888-644-6226

International: 301-519-3153

Website: <http://nccam.nih.gov>

The hotline and website both provide an enormous volume of information about CAM therapies and up-to-date research results.

PubMed

Website: www.ncbi.nlm.nih.gov/sites/entrez

A government-sponsored website where you can find publications of specific experimental and clinical trials. If you have questions about a specific treatment, PubMed is a great place to investigate. Potential dangers of specific therapies may show up before potential benefits, which can help you to avoid experimenting on yourself with therapies that might cause harm.

extend a joint or a physical therapist would stimulate a muscle) and are frequently combined with other therapies. Osteopaths, relatively holistic practitioners of Western medicine, frequently use manipulation in treating their patients.

- Energy therapies involve the use of energy fields, of which there are two kinds: biofield therapies and bioelectromagnetic-based therapies. Biofield therapies are intended to affect energy fields that purportedly surround and penetrate the human body. The existence of such fields has not yet been scientifically proven. Some forms of energy therapy manipulate biofields by applying pressure or manipulating the body by placing the hands in, or through, these fields. Examples include qi jong, reiki and therapeutic touch. Bioelectromagnetic-based therapies involve the unconventional use of electromagnetic fields, such as pulsed fields, magnetic fields, or alternating-current or direct-current fields. (Please note: This area is especially experimental.)

What Role Can CAM Play in Promoting Health?

CAM can play a significant role as adjunct therapy for chronic illness. Additionally, some herbal remedies (or nutraceuticals) show promise as therapy for many conditions, and may even have potential to stimulate or support the immune system. (See *Current Nutraceutical Research*, Page 30.) Biofeedback, meditation and hypnosis may mediate the stress of caregiving. These types of CAM also may alter the perception of pain, making it easier to handle. This area—mind-body techniques to boost coping skills and to help with stress or pain management—is one of the least controversial uses of CAM. As Dr. Anne Harrington, medical historian and author of “The Mind-Body Cure” says, “I think it can change [patients’ and caregivers’] relationship to their suffering. And, I do not think that is a small thing.”

It is well documented that stress can reduce the immune response. For example, researchers at Ohio University found that caregivers of Alzheimer patients had four times the level of interleukin-6 (IL-6, a specific protein that is critical to immune response) as their non-caretaking counterparts. Increased IL-6 levels are associated with increased risk for heart disease, arthritis, osteoporosis, type II diabetes and certain cancers. But, is the reverse true? Can reducing stress boost our immune system? Initial data are interesting.

In 2003, researchers from the UCLA Cousins Center for Psychoneuroimmunology found that training adults in tai chi increased their cell-mediated immunity to varicella-zoster virus (which remains in the system after a person has



chickenpox, and can later cause outbreaks of shingles).⁶ But many other studies have not shown an impact on the immune system. While mind-body techniques clearly play a role in immune system functioning, that role has not been defined. Research is still in its infancy.⁷

The same is true for the role of mind-body therapies in pain control. In 1981, Donna Wong and Corinne Baker began developing the now ubiquitous Wong-Baker pain management chart, allowing children to use happy, neutral and sad faces to evaluate their pain.⁸ Today, it is used with adults and children alike, allowing patients to more accurately describe their pain and to become active participants in pain control. In 2007, pain management advocates introduced a National Pain Care Act into the U.S. House of Representatives to address the barriers to proper treatment by improving coordination of pain research, healthcare practitioner education and public awareness.⁹ As patients have become more active in their pain management and advocates have increased awareness of the need for more accessible pain control, the scientific community has turned more attention to CAM therapies.

A 2007 review of CAM therapies for pain management found mixed evidence for the use of acupuncture in fibromyalgia, osteoarthritis and neck pain, as well as mixed evidence for the role of spinal manipulation in lower back pain. The same review, however, found significant evidence that mind-body therapies may play a supportive role in management of pain related to various forms of arthritis.¹⁰ Other studies, not mentioned in the review article, also support the efficacy of mind-body therapies in reducing pain. Results of one intriguing study, published in 2006, suggest that long-term, daily meditation may help calm your brain during sudden pain.¹¹

This is not to suggest that meditation alone can control



pain. At this point, research simply indicates that meditation and other mind-body techniques might help one cope with the sensation of pain. Dr. Harrington cautions care in generalizing results. "It is important to appreciate that this hunger for certainty ... does have the effect sometimes of turning mind-body medicine into a field that ... is driven by promises. Or, that promises prematurely because people ➤

⁶ Irwin MR, Pike JL, Cole JC, Oxman MN, Effects of a Behavioral Intervention, Tai Chi Chih, on Varicella-Zoster Virus Specific Immunity and Health Functioning in Older Adults, *Psychosomatic Medicine*, 2003 Sep-Oct;65(5):824-30.

⁷ Goldrosen MH, and Strauss SE, Complementary and Alternative Medicine: Assessing the Evidence for Immunological Benefits, *Nature Reviews Immunology* 4, 912-921 (November 2004) | doi:10.1038/nri1486.

⁸ Wong D. Wong on Web at www3.us.elsevierhealth.com/WOW/faces.html.

⁹ Although it has been endorsed by 37 representatives and is supported by more than 100 organizations, it has not yet been scheduled for debate. See GovTrack.us. H.R. 2994—110th Congress (2007): National Pain Care Policy Act of 2007, *GovTrack.us (database of federal legislation)* <www.govtrack.us/congress/bill.xpd?bill=h110-2994> (accessed April 25, 2008) and www.theacpa.org/documents/Pain%20Care%20Act%202007.pdf and <http://www.painfoundation.org/page.asp?file=action/NPCPA.htm>.

¹⁰ Khatta M, A Complementary Approach to Pain Management. *Topics in Advanced Practice Nursing eJournal*. 2007;7(1) ©2007 Medscape Posted 05/30/2007 at www.medscape.com/viewarticle/556408_print.

¹¹ Ghitti M, Meditation May Help Brain Handle Pain: Five Months Meditation May Cut Brain's Pain Response, Study Shows. *WebMD Medical News* 8-9-2006 online at www.webmd.com/news/20060809/meditation-may-help-brain-handle-pain.

Examples of Treatment Systems¹²

Ayurveda: A system of medical practice that developed in India thousands of years ago. It aims to integrate and balance the body, mind and spirit, which is believed to lead to contentment and health and to help prevent illness. A chief aim of ayurvedic practices is to cleanse the body of substances that can cause disease, and this is believed to help re-establish harmony and balance.

Holistic: Relating to or concerned with complete systems rather than with the analysis of, treatment of, or dissection into parts. Holistic medicine attempts to treat both the mind and the body, and holistic ecology views humans and the environment as a single system.

Homeopathy: A system of medical practice that treats a disease by administering minute doses of a remedy that would produce symptoms similar to those of the disease in healthy persons.

Integrative Medicine: Also called integrated medicine, this combines treatments from conventional medicine and CAM.

Naturopathy: Avoids drugs and surgery and emphasizes the use of natural agents (such as air, water and herbs) and physical means (such as tissue manipulation and electrotherapy).

Osteopathy: Based on the theory that diseases are due chiefly to loss of structural integrity, which can be restored by manipulation of the parts supplemented by therapeutic measures (such as drugs or surgery).

Psychoneuroimmunology: A branch of medicine that deals with the influence of emotional states (such as stress) and nervous system activities on immune function in relation to the onset and progression of disease.

are so hungry for certainty that sometimes [the field] is not in a position to provide.”

Prakash Nagarkatti, director of the Center for CAM Research on Autoimmune and Inflammatory Diseases (funded by NCCAM to study the potential applications of nutraceuticals to immunology) urges that patients be informed consumers. Since physicians may be less informed about CAM treatments, it is crucial that people do their own research.

Concerns About CAM

Unexamined techniques and therapies should not substitute for Western medicine, especially in a medically vulnerable population. In 1979, when Norman Cousins wrote that he had laughed his cancer away,¹³ the belief in our ability to heal ourselves by controlling our beliefs and emotions was popularized. But, although his story galvanized awareness of holistic medicine, and helped spur the integration of holistic techniques into traditional biomedical therapies,¹⁴ he may unwittingly have caused many to forsake their traditional cancer treatments with devastating, unintended consequences.

“To the extent that he made it look easy, you just laughed your way back to health, perhaps that put a burden on people. I think that is the thing that people need to appreciate about this whole world is that it is not just a sunny place ... It is complicated, and there are shadows cast by each of these developments. And we kind of expect that with mainstream medicine, but maybe we expect our mind-body medicine to just be about happy things,” Dr. Harrington says.

Complementary medicine and alternative medicine may supplement and even possibly replace traditional medical techniques, but we should not assume that they are inherently any simpler, safer or more proven.

Dr. Nagarkatti cautions, “I think one of the things I would stress [is that] physicians are not aware to what extent the CAM therapies are so popular.” Additionally, patients may be reluctant or embarrassed to disclose their use of CAM. But, this can be dangerous, as in the case of St. John’s wort, an herbal remedy used to treat depression. Clinical trials showed that St. John’s wort did little to treat true depression, but did in fact interact

¹² References from NCCAM and *The Merriam-Webster Dictionary*.

¹³ Cousins, Norman: *Anatomy of an Illness as Perceived by the Patient*, Bantam Books, 1981 (copyrighted 1979).

¹⁴ Anne Harrington, interviewed by the author, 4/16/08.

Examples of Complementary and Alternative Medicine Techniques¹⁵

Acupuncture/Acupressure: Used in China and other Asian countries for thousands of years, acupuncture aims to restore and maintain health through the stimulation of specific points on the body. Few side effects have been noted when it is administered by an experienced practitioner.

Biofeedback: The technique of making unconscious or involuntary bodily processes (such as heartbeats or brain waves) perceptible to the senses (such as by the use of an oscilloscope) in order to manipulate them by conscious mental control.

Massage: Massage as CAM involves manipulating the muscles and other soft tissues of the body. It does not appear to have side effects if performed by a professional therapist.

Meditation: A variety of techniques or practices intended to focus or control attention that may be religious or secular in principle. Mindfulness based stress reduction (MBSR) is a specific (secular) application of meditation designed to reduce stress and improve health and well-being.

Nutriceuticals: A class of agents advertised as having nutritional value as well as having an effect on biologic functions.

Prayer: Many CAM therapies have a spiritual component, and there is a long history of people praying for their own or others' health. Prayer is probably the most commonly used form of CAM.

Qi Gong: A component of traditional Chinese medicine that combines movement, meditation and controlled breathing. The intent is to improve blood flow and the flow of qi, a proposed vital energy that flows throughout the body.

Reiki: A therapy in which practitioners seek to transmit a universal energy to a person, either from a distance or by placing their hands on or near that person. The intent is to heal the spirit and thus the body.

Tai Chi: A mind-body practice that originated in China as a martial art. A person doing tai chi moves the body slowly and gently, while breathing deeply and meditating. Many practitioners believe that tai chi helps the flow of qi.

Therapeutic Touch: A therapy in which practitioners pass their hands over another person's body with the intent to use their own perceived healing energy to identify energy imbalances and promote health.

dangerously with many prescription medications—limiting the efficacy of everything from heart medications and birth control to HIV and cancer therapies. In addition to interacting with other medications, Dr. Nagarkatti worries that unproven herbal remedies might have their own side effects. He specifically mentions ephedra, a dietary supplement used to enhance energy and to stimulate weight loss that has been linked to heart problems and strokes.

Because of these concerns, Dr. Nagarkatti is part of an

effort to introduce CAM awareness into the medical school curriculum. His goal is to foster patient-physician dialogue. If physicians are aware of current CAM research, they could potentially prescribe CAM remedies to great benefit. For example, he mentions the Age-Related Eye Disease Study (AREDS), a clinical trial sponsored by the National Institutes of Health, which found that high levels of antioxidants and zinc significantly reduce the risk of advanced age-related macular degeneration (AMD) and ➤

¹⁵ References from NCCAM, WebMD, and *The Merriam-Webster Dictionary*.

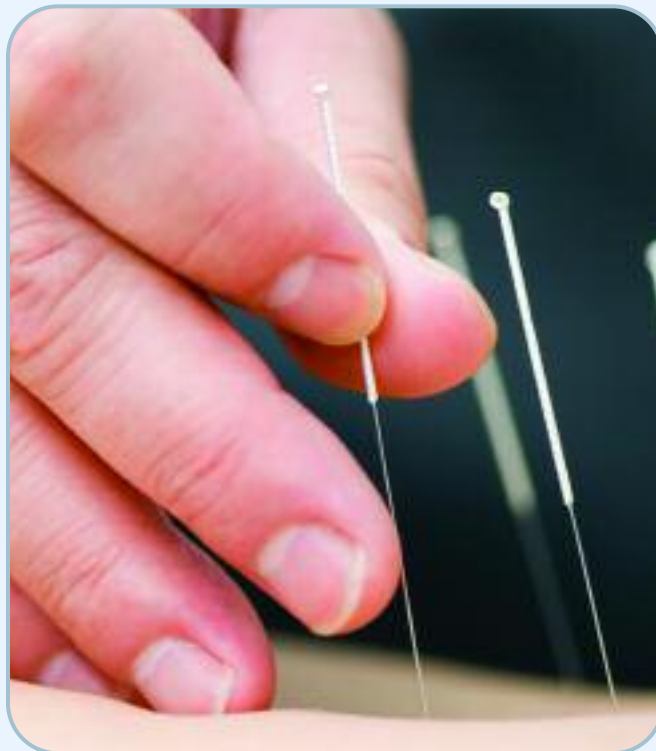
Current Nutraceutical Research

Prakash Nagarkatti, director of the Center for CAM Research on Autoimmune and Inflammatory Diseases, leads a group that uses animal models to learn how to prevent or arrest inflammation when the immune system breaks down. His lab is specifically looking at resveratrol, a compound in the skin of red grapes, as a possible therapeutic aid in multiple sclerosis. His center is also looking at the anti-inflammatory mechanisms of the herb American ginseng in colitis and the actions of a compound from hemp in treating autoimmune hepatitis. He is very optimistic that with scientific study, these compounds may complement or even replace traditional therapy. “Our goal is, for example, that compounds like resveratrol that we can identify ... might complement the existing treatment modality—so that you could take the existing low dose, but along with the extract, you could potentially feel very well and you might find significant relief from pain and aches.” He adds: “The other possibility is that once we have identified the mechanism ... we could purify the resveratrol in large quantities or we could synthesize the molecules that mimic resveratrol in the lab or in an industrial setting,” making it possible to synthesize a more natural anti-inflammatory that would not carry the same risks or have the same side effects as some of the more commonly used and prescribed anti-inflammatories. But, he cautions that research is still experimental, and patients should consult with their physicians before deciding on any course of treatment.¹⁶

its associated vision loss.¹⁷ Previously, there had been no treatment. “Lots of nutraceuticals have introduced those ingredients, and it really does help our patients.” Other studies have examined Chinese herbal remedies, and found indications that they can complement treatment of dysmenorrhea (a condition in which young women experience severe pain with menstruation) and may even complement treatment of type II diabetes.¹⁸

Where Does All This Leave Us?

Complementary and alternative medicine is not a discrete entity. Rather, it is a patchwork of therapies, techniques and medical models, each of which needs to be individually evaluated. If you are currently using traditional medical therapies, some CAM remedies might complement your care. But, ultimately, you need to do your own research and work with your physician to determine the safest and most effective treatment for *you*. ■



¹⁶ Prakash Nagarkatti, interviewed by the author 4/9/2008.

¹⁷ National Eye Institute: Results of the Age-Related Eye Disease Study online at: www.nei.nih.gov/amd.

¹⁸ Zhu X, Proctor M, Bensoussan A, Smith CA, Wu E, Chinese Herbal Medicine for Primary Dysmenorrhea, *Cochrane Database of Systemic Reviews*. 2007; Issue 4. Article No. CD005288.