SEPTEMBER 2010

NATIONAL INSTITUTES OF HEALTH
NATIONAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE

# Complementary and Alternative Medicine

## Focus on Research and Care

## in this issue



*Complementary and Alternative Medicine: Focus on Research and Care* is the newsletter of the National Center for Complementary and Alternative Medicine (NCCAM), a component of the National Institutes of Health, U.S. Department of Health and Human Services.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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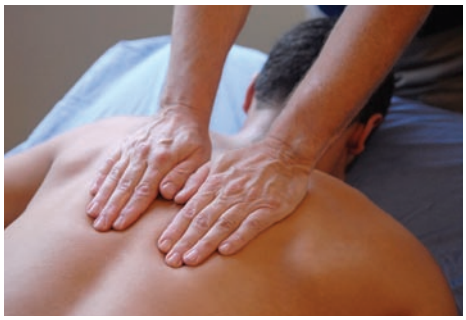
## Massage Therapy As an Option in Supportive Care

Massage therapy, a form of hands-on healing, has been used since ancient times and across many cultures. Today, it's a popular form of complementary and alternative medicine (CAM) in the United States, especially as a supportive therapy to help manage symptoms such as pain, sleep problems, and the negative effects of stress. In the 2007 National Health Interview Survey (NHIS), massage was the fifth-most-used CAM therapy. The NHIS also found that Americans paid about $4.18 billion out-of-pocket for roughly 95.3 million visits to massage practitioners in the year before the survey.



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"The leading reason Americans use CAM is to help relieve pain, especially in musculoskeletal conditions," says Josephine P. Briggs, M.D., Director of the National Center for Complementary and Alternative Medicine (NCCAM). "A growing body of research suggests that certain CAM health practices, including massage, hold promise as supportive, nonpharmacologic

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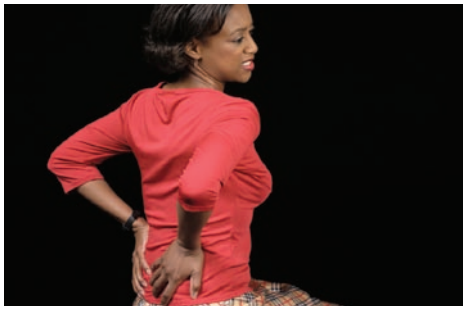
## Hands-On Approaches to the Challenges of Back Pain

"Oh my aching back" is a popular phrase in U.S. culture, and for good reason. Four out of five American adults will experience low-back pain during their lives. For some people, the acute discomfort subsides within a few weeks; for others the pain becomes chronic and debilitating. Unfortunately, far too many patients do not improve, or experience little or no long-term relief, regardless of the treatment approach they choose.



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Low-back pain is the most common cause of work-related disability and a leading contributor to missed days of work. It is the number one condition for which U.S. adults turn to

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**NCCAM Clinical Digest**, a new electronic publication, will launch in fall 2010 (see pg. 3). Subscriptions are free.

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care for difficult symptoms such as chronic pain. That's why research exploring the use of CAM for symptom management is a strategic priority for NCCAM."

Janet Kahn, Ph.D., N.C.T.M.B., is a member of NCCAM's national advisory council, a practicing massage therapist, executive director of the Integrated Healthcare Policy Consortium, and a research assistant professor at the University of Vermont School of Medicine. Dr. Kahn says, "Patients most often use massage therapy as a complementary health care approach, as an approach to maintaining well-being, or for specific complaints. I see massage increasingly recommended by the medical community as part of integrative care plans."

## Potential Applications

Massage has been included in a number of clinical practice guidelines, including the National Cancer Institute's PDQ supportive care treatment summaries (cancer pain, lymphedema); the American Pain Society (fibromyalgia, low-back pain); the American College of Physicians (low-back pain); the American College of Chest Physicians (lung cancer); the American College of Occupational and Environmental Medicine (low-back disorders); and the Commission of the Council on Chiropractic Guidelines and Practice Parameters (fibromyalgia, tendinopathy).

Chronic low-back pain (LBP) is one of the pain conditions for which massage is used, and "one of the most prevalent, expensive, and poorly treated conditions seen by primary care clinicians," says Dr. Briggs. "Treatment approaches are often based on a relatively thin foundation of evidence. Most interventions have not been rigorously tested, and many back pain studies are limited by design issues. Thus, little is known about what treatments are or are not effective."

**Massage has been included in a number of clinical practice guidelines.**

"We have evidence from several studies," she continues, "suggesting that massage is among those CAM therapies that might make useful contributions for managing chronic back pain. We need more insight, however, on the best management strategies for back pain."

Fibromyalgia is another pain condition frequently seen by health care providers, and one in which there often is no universally effective treatment. Studies have found that up to 91 percent of people with fibromyalgia use some form of CAM, and up to 75 percent use massage therapy.

Ruth Werner, president of the Massage Therapy Foundation, is a massage therapist, educator, and author. "I think that the most important message about massage for fibromyalgia," she says, "is that patients

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Photo credit: National Cancer Institute, Rhoda Baer

*Cancer patients who may be interested in massage should first consult their oncologist.*

## To Our Readers

This issue of *Complementary and Alternative Medicine: Focus on Research and Care* will be our last.

Earlier this year, NCCAM conducted a reader survey to hear your perspective on our newsletter and what information you would like to receive from us. You told us you wanted more frequent updates, more information about research findings, and more clinical "news you can use." We listened.

Beginning this fall, you will receive our new monthly electronic publication *NCCAM Clinical Digest* that will summarize the state of the science on CAM and a health condition (diabetes, pain, sleep disorders, etc.)—clinical guidelines, literature searches, research highlights, and information for patients.

For our print subscribers, we hope you will go to nccam.nih.gov/news/subscribe.htm and sign up to receive the *Clinical Digest* via e-mail.

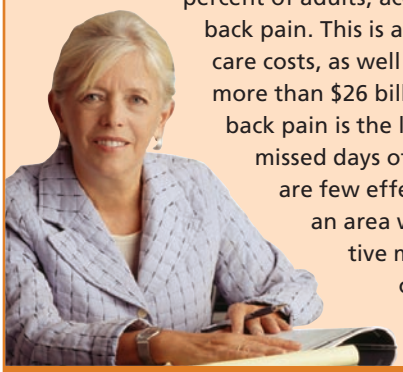
— *The Editors*

### NCCAM Invites Your Comments

NCCAM is in the final stages of its strategic planning process and needs your feedback! A draft strategic plan has been posted on the Web site at plan.nccam.nih.gov, and we invite your comments through September 30, 2010.

The final plan will be available in February 2012. We thank all of our stakeholders for your participation throughout this process, which is helping to shape and articulate the Center's vision and priorities.

## From the Director



In May 2010, NCCAM held a workshop to discuss better management strategies for chronic back pain. At the meeting, we asked for a show of hands of people who have experienced this troubling, and often debilitating, condition. Every hand in the room went up.

This may not have been a scientific sample, but it did underscore what the surveys are telling us: that a large segment of the U.S. population (more than 25 percent of adults, according to one survey) is living and coping with back pain. This is a condition that affects quality of life, health care costs, as well as our Nation's economy. Americans spend more than $26 billion each year in treatments for back pain, and back pain is the leading cause of work-related disability and missed days of work. Back pain is a condition for which there are few effective, long-lasting treatment options. This is an area where we believe complementary and alternative medicine (CAM) approaches show promise and can make a difference.

As health care providers, your experience likely reinforces these facts. Patients visit your offices desperate for something that can help. Often they receive potent painkillers that come with bothersome side effects. Other times, they are referred for surgery, which may not be effective. Options are limited.

In 2007, the American College of Physicians and the American Pain Society issued joint guidelines for the treatment of back pain, and included several CAM approaches to be considered among the treatment options, including spinal manipulation, acupuncture, and massage.

At NCCAM, we're looking at how these manual therapies and other nondrug approaches might alleviate the pain and suffering that accompanies back pain. The science in this area is promising, and I'm eager to continue to explore this important research area in order to give providers and patients more choices in the management of this troubling condition.

*Josephine P. Briggs, M.D.*
*Director*

### Selected Resources


Chou R, Qaseem A, Snow V, et al. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Annals of Internal Medicine.* 2007;147(7):478-491.

Deyo RA, Mirza SK, Martin BI. Back pain prevalence and visit rates: estimates from U.S. national surveys, 2002. *Spine.* 2006;31(23):2724-2727.

Luo X, Pietrobon R, Sun SX, et al. Estimates and patterns of direct health care expenditures among individuals with back pain in the United States. *Spine.* 2004;29(1):79-86.

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Photo credit: Rick Glase

*Ruth Werner*

have good days and bad days. Their tolerance for depth, speed, and pressure in massage can vary greatly day to day; the therapist must always stay within individual pain tolerance. Patients with fibromyalgia live with an 'invisible' condition. Massage as practiced by a therapist who is sensitive to their diffuse pain and their feedback can help them not only with pain, stress, and sleep, but through listening and through understanding their situation."

The scientific evidence on massage for fibromyalgia is limited. A review published in July 2010 included six randomized controlled trials and two single-arm studies. This review concluded that there is modest evidence of short-term benefit from massage therapy for fibromyalgia, but noted that the evidence is not conclusive, there were unsolved methodological issues in all the studies, and additional rigorous research is needed.

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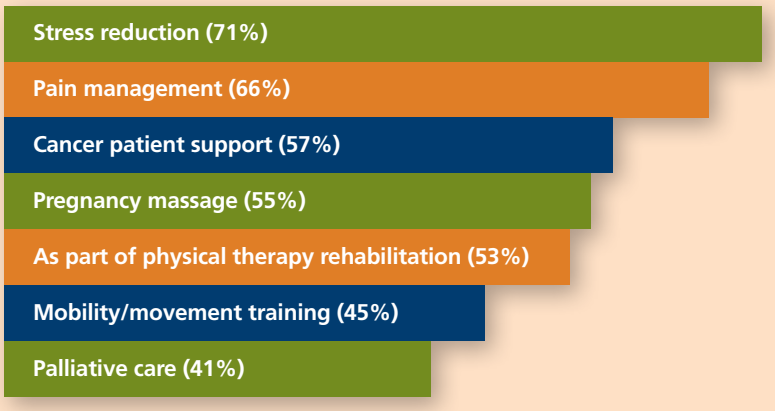
*Fibromyalgia involves widespread pain and tender points.*

## Massage and Integrative Care in Hospitals

According to an American Hospital Association survey, the number of hospitals offering CAM grew from 7.7 percent in 1998 to 37.3 percent in 2007. Of the hospitals offering CAM, about 71 percent offered massage therapy. Hospitals offered massage most often for:




*Survey reported in* "2010 Massage Therapy Industry Fact Sheet," *American Massage Therapy Association.*

Among other diseases/conditions in which massage is used to help manage symptoms is cancer. Many people with cancer (survey figures vary widely) have used at least one form of CAM, and they do so to address symptoms such as pain and fatigue; manage side effects from treatment; lessen depression, anxiety, and sleep problems; and support quality of life.

Martha Brown Menard, Ph.D., C.M.T., is a massage therapist, researcher, and author who focuses most of her work on cancer patients and survivors. She finds massage useful "throughout the continuum [in cancer], including to address the side effects of treatment such as pain and range of motion—even years after treatment—and to help with sleep. Manual lymphatic drainage* can be very helpful with lymphedema following breast cancer treatment. Massage can also help with some of the adhesions and restrictions in scar tissue."

"Patients with **any** kind of chronic pain," she continues, "tend to tense up and tighten their muscles around the pain, feel anxious, and have more trouble with restorative sleep. That sets up a cycle that will make the pain worse. If you can use massage to break that cycle, it really helps.... I think that the biggest impact of massage is on anxiety, however. When you can manage anxiety, you can manage a lot of other symptoms as well."

Several lines of evidence from both observational studies and randomized trials suggest that massage may provide short-term relief of pain from a variety of cancer-related symptoms. While not definitive, this body of work indicates the need for further investigation of massage as a reasonably safe non-pharmacologic CAM approach.

### Research Directions

"Massage is a subject that merits investigation," says Dr. Briggs. "It is also a good example of an area where the application of research on CAM therapies to the problems of pain is potentially valuable. The long history of massage, its popularity, and

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* Manual lymphatic drainage is a technique used to reduce lymphedema (swelling caused by a buildup of lymph fluid in tissue). Massage is used to move the fluid away from areas where lymph vessels are blocked, damaged, or removed by surgery, in order to remove extra fluid. Another name for this technique is manual lymphedema therapy.

## Spotlight on Two Members of NACCAM

The National Advisory Council for Complementary and Alternative Medicine (NACCAM) advises and consults with the Director of NCCAM on matters relating to the Center's research and functions. Two members are profiled below.

Photo credit: Atina Delfino, San Francisco State University

*Adam Burke, Ph.D., M.P.H., L.Ac.*

Photo credit: Nancy Turret

*M. Katherine Shear, M.D.*

**Adam Burke, Ph.D., M.P.H., L.Ac.,** *is a professor in the Department of Health Education and director of the Institute for Holistic Health Studies at San Francisco State University; he is also a licensed acupuncturist and a teacher of meditation. Dr. Burke holds advanced degrees in social psychology and health education from the University of California, and received his acupuncture training in San Francisco and in Sichuan, China. Among his other commitments, Dr. Burke has been co-chair of the Alternative and Complementary Health Practices section of the American Public Health Association, chair of the California Acupuncture Board, and a National Institutes of Health (NIH)-funded investigator.*

### How would you describe the level of interest in CAM in your professional community?

There is a growing interest in CAM in the public health community. One survey, conducted at the American Public Health Association annual meeting, revealed that over half of the 153 public health professionals surveyed personally used one or more CAM methods in their own lives. We also learned that they frequently incorporated CAM principles and practices into their work.

### What do you see as one or two pressing health problems for Americans right now, and do you think CAM could be of help?

The Centers for Disease Control and Prevention report that chronic illnesses, such as heart disease and diabetes, are among the most common and costly health problems in the United States. These conditions account for significant disability, reduced quality of life, and over 70 percent of deaths annually. Given the critical role lifestyle plays in chronic disease prevention—including proper diet, exercise, and stress management—it makes sense to develop innovative health promotion programs, especially with younger populations, to increase adoption of healthy lifestyles in the general public.

I believe that CAM has a potential role in promoting positive health behaviors, thereby helping to reduce the personal suffering and national economic costs of preventable chronic disease. The majority of CAM philosophies and practices recognize that our health is dramatically influenced by our life choices.

### How do you see mind-body practices being integrated in your institution?

San Francisco State University has a comprehensive undergraduate program in holistic health studies, housed in the College of Health and Human Services. Experiential learning is a central theme in our courses, and training in mind-body methods specifically, including meditation, imagery, and biofeedback, is a key element. We view these methods as tools our students can use to be more effective in their own lives, and for use with patients in their future careers.

**M. Katherine Shear, M.D.,** *is the Marion E. Kenworthy Professor of Psychiatry and director of the Bereavement and Grief Research and Training Program at Columbia University, in New York City. Dr. Shear received her M.D. degree from Tufts University School of Medicine. Among her many commitments, she co-chairs the Psychotherapy Committee of the American College of Psychiatry and the Public Information Committee of the American College of Neuropsychopharmacology. Dr. Shear's professional interests center on mood and anxiety disorders and on bereavement, and she has led a number of NIH-sponsored research studies on these conditions.*

### How do you define grief?

Grief is the painful psychological response that follows the loss of a close friend or family member. Even when it is very painful, grief is a natural reaction that helps people adjust to life without the person who died. Close relationships help regulate our physical and psychological well-being. In other words, our relationships affect our bodies as well as our minds, and when someone close dies, the loss affects us physically and mentally.

### How would you describe the level of interest in CAM in your professional community?

There is considerable interest in CAM modalities among bereavement

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'common sense' all point in this direction."

Reviews of the scientific literature to date have largely been based on a limited number of clinical studies that have been very small, uncontrolled, or with other flaws in design or reporting. Also, it is difficult to "mask" massage, and it is challenging to develop comparison treatments that do not overlap with existing massage techniques. More standardization and consistency (for research purposes) in treatment regimens and in the language about massage are needed and have been called for. Among current areas of interest are ways to meet the challenges in clinical studies; longer-term assessment of massage; and dose-response studies.

## Ask About Credentials

Before beginning any CAM therapy, it is important to talk to the practitioner about education, training, licenses, and certifications.

Most states (43 at this writing, plus the District of Columbia) regulate the profession of massage therapy, through a license, certification, or registration. Specific requirements for training, testing, and continuing education may vary. One detailed listing of state regulations on massage is at www.amtamassage.org/about/lawstate.html. In some areas, regulation may be by local ordinance.

In addition to massage therapists, some other health care providers, such as chiropractors and physical therapists, have training in massage.

## Using Massage Safely

Massage has few serious risks when administered appropriately by a well-trained massage professional. Side effects may include temporary discomfort, bruising, swelling, and a sensitivity or allergy to massage oils. Among cautions are that:

- Open communication and information-sharing among the patient and all members of the care team is very important for safe and best use of massage.
- In cancer, practices that should be avoided include massage of areas with the following: known tumors; predictable sites for metastasis; acute deep venous thrombosis; fractured or weakened bones; open wounds, hematomas, or skin breakdown; stents and other prosthetic devices; and soft tissue following radiation therapy when the skin is sensitive.
- Vigorous massage should be avoided by people with bleeding disorders or low blood platelet counts, and by people taking blood-thinning medications such as warfarin.
- Massage should not be done in any area of the body with blood clots, fractures or weakened bones, open or healing wounds, skin infections, or where there has been a recent surgery.
- Women who are pregnant should consult their health care provider before using massage therapy.

Dr. Kahn finds massage to be "an incredibly rich field for research. On the one hand, you have at least preliminary indications of massage prompting a wide range of effects, from fairly sustained pain reduction for people with chronic back pain, to relief of nausea and anxiety in cancer patients, to improved weight gain in premature infants. The range of effects and consistent data on massage for stress reduction suggests fruitful investigation into possible underlying mechanisms. At the same time, findings that massage provides relief for multiple forms of musculoskeletal pain call for more research focused particularly on tissue-level effects."

At the preclinical level, there is some early evidence that massage and other manual therapies engage physiological processes that are important in pain. Among avenues being investigated are the following:

- Massage may facilitate the relaxation response by shifting the balance of sympathetic and parasympathetic nervous system response.
- Massage may shift neurochemistry through stimulating release of serotonin, endorphins, or other chemicals, and may inhibit the secretion of cortisol.
- Massage may cause beneficial biomechanical changes in the soft tissue, connective tissue, and/or at the cellular level.
- Massage may invoke pleasurable sensations in the brain, thus pre-empting pain signals (the "gate control theory").
- Massage may involve other aspects of patient-practitioner interaction and the therapeutic context involved in pain or in emotion regulation.

### Tailoring Massage Treatments Safely

According to NCCAM's fact sheet on massage therapy, massage has few serious risks when used appropriately and delivered by a well-trained therapist who is familiar with issues in the patient's condition(s) and able to modify treatment accordingly. For more information on the safe use of massage, see box above.

*References for this article are posted at nccam.nih.gov/news/newsletter/2010_september/massagerefs.htm.*

# Get the Facts

Information for Consumers

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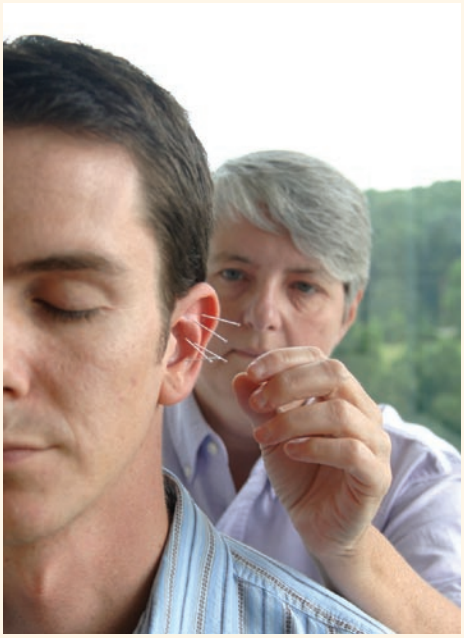
## Terms Related to Complementary and Alternative Medicine



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*Acupuncture*

Many Americans use complementary and alternative medicine (CAM) in pursuit of health and well-being. The 2007 National Health Interview Survey (NHIS), which included a comprehensive survey of CAM use by Americans, showed that approximately 38 percent of adults use CAM.

Defining CAM is difficult, because the field is very broad and constantly changing. NCCAM defines CAM as a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine. Conventional medicine (also called Western or allopathic medicine) is medicine as practiced by holders of M.D. (medical doctor) and D.O. (doctor of osteopathy) degrees and by allied health professionals, such as physical therapists, psychologists, and registered nurses. The boundaries between CAM and conventional medicine are not absolute, and specific CAM practices may, over time, become widely accepted.

This fact sheet presents terms and definitions excerpted from the National Health Statistics Report, *Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007*, and is intended to provide a brief introduction to CAM terminology.

**Acupuncture**—Acupuncture describes a family of procedures involving stimulation of anatomical points on the body by a variety of techniques. American practices of acupuncture incorporate medical traditions from China, Japan, Korea, and other countries. The acupuncture technique that has been most studied scientifically involves penetrating the skin with thin, solid, metallic needles that are manipulated by the hands or by electrical stimulation.

**Alexander technique**—Alexander technique is a movement therapy that uses guidance and education on ways to improve posture and movement. The intent is to teach a person how to use muscles more efficiently in order to improve the overall functioning of the body. Examples of the Alexander technique as CAM are using it to treat low-back pain and the symptoms of Parkinson's disease.

**Ayurveda**—Ayurveda is a system of medicine that originated in India several thousand years ago. In the United States, Ayurveda is considered a type of CAM and a whole medical system. As with other such systems, it is based on theories of health and illness and on ways to prevent, manage, or treat health problems. Ayurveda aims to integrate and balance the body, mind, and spirit (thus, some view it as "holistic"). This balance is believed to lead to contentment and health and to help prevent illness. However, Ayurveda also proposes treatments for specific health problems, whether they are physical or mental. A chief aim of Ayurvedic practices is to cleanse the body of substances that can cause disease, and this is believed to help reestablish harmony and balance.

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**Biofeedback**—Biofeedback uses simple electronic devices to teach clients how to consciously regulate bodily functions, such as breathing, heart rate, and blood pressure, in order to improve overall health. Biofeedback is used to reduce stress, eliminate headaches, recondition injured muscles, control asthmatic attacks, and relieve pain.

**Botanica**—A botanica is a traditional healer who supplies healing products, sometimes associated with spiritual interventions.

**Chelation therapy**—Chelation therapy is a chemical process in which a substance is used to bind molecules, such as metals or minerals, and hold them tightly so that they can be removed from a system, such as the body. In medicine, chelation has been scientifically proven to rid the body of excess or toxic metals. For example, a person who has lead poisoning may be given chelation therapy in order to bind and remove excess lead from the body before it can cause damage.

**Chiropractic care**—This care involves the adjustment of the spine and joints to influence the body's nervous system and natural defense mechanisms to alleviate pain and improve general health. It is primarily used to treat back problems, headaches, nerve inflammation, muscle spasms, and other injuries and traumas.

**Chiropractic manipulation**—Chiropractic manipulation is a form of health care that focuses on the relationship between the body's structure, primarily of the spine, and function. Doctors of chiropractic, who are also called chiropractors or chiropractic physicians, use a type of hands-on therapy called manipulation (or adjustment) as their core clinical procedure.

**Curandero**—A curandero is a type of traditional folk healer. Originally found in Latin America, curanderos specialize in treating illness through the use of supernatural forces, herbal remedies, and other natural medicines.

© Getty Images

*Meditation*

**Deep breathing**—Deep breathing involves slow and deep inhalation through the nose, usually to a count of 10, followed by slow and complete exhalation for a similar count. The process may be repeated 5 to 10 times, several times a day.

**Energy healing therapy**—Energy healing therapy involves the channeling of healing energy through the hands of a practitioner into the client's body to restore a normal energy balance and, therefore, health. Energy healing therapy has been used to treat a wide variety of ailments and health problems, and is often used in conjunction with other alternative and conventional medical treatments.

**Espiritista**—An espiritista is a traditional healer who assesses a patient's condition and recommends herbs or religious amulets in order to improve physical or mental health or to help overcome a personal problem.

**Feldenkrais**—Feldenkrais is a movement therapy that uses a method of education in physical coordination and movement. Practitioners use verbal guidance and light touch to teach the method through one-on-one lessons and group classes. The intent is to help the person become more aware of how the body moves through space and to improve physical functioning.

**Guided imagery**—Guided imagery involves a series of relaxation techniques followed by the visualization of detailed images, usually calm and peaceful in nature. If used for treatment, the individual will visualize their body free of the specific problem or condition. Sessions are typically 20-30 minutes in length, and may be practiced several times a week.

**Hierbero**—A hierbero or yerbera is a traditional healer or practitioner with knowledge of the medicinal qualities of plants.

**Homeopathy**—Homeopathy is a system of medical practices based on the theory that any substance that can produce symptoms of disease or illness in a healthy person can cure those symptoms in a sick person. For example, someone suffering from insomnia may be given a homeopathic dose of coffee. Administered in diluted form, homeopathic remedies are derived from many natural sources—including plants, metals, and minerals.

**Hypnosis**—Hypnosis is an altered state of consciousness characterized by increased responsiveness to suggestion. The hypnotic state is attained by first relaxing the body, then shifting attention toward a narrow range of objects or ideas as suggested by

the hypnotist or hypnotherapist. The procedure is used to effect positive changes and to treat numerous health conditions including ulcers, chronic pain, respiratory ailments, stress, and headaches.

**Massage**—Massage therapists manipulate muscle and connective tissue to enhance function of those tissues and promote relaxation and well-being.

**Meditation**—Meditation refers to a group of techniques, most of which started in Eastern religious or spiritual traditions. In meditation, a person learns to focus his attention and suspend the stream of thoughts that normally occupy the mind. This practice is believed to result in a state of greater physical relaxation, mental calmness, and psychological balance. Practicing meditation can change how a person relates to the flow of emotions and thoughts in the mind.



*Medicinal herbs*

**Native American healer or medicine man**—A Native American healer or medicine man is a traditional healer who uses information from the "spirit world" in order to benefit the community. People see Native American healers for a variety of reasons, especially to find relief or a cure from illness or to find spiritual guidance.

**Naturopathy**—Naturopathy is an alternative medical system. Naturopathic medicine proposes that there is a healing power in the body that establishes, maintains, and restores health. Practitioners work with the patient with a goal of supporting this power through treatments such as nutrition and lifestyle counseling, dietary supplements, medicinal plants, exercise, homeopathy, and treatments from traditional Chinese medicine.

**Nonvitamin, nonmineral, natural products**—Nonvitamin, nonmineral, natural products are taken by mouth and contain a dietary ingredient intended to supplement the diet other than vitamins and minerals. Examples include herbs or herbal medicine (as single herbs or mixtures), other botanical products such as soy or flax products, and dietary substances such as enzymes and glandulars. Among the most popular are echinacea, *Ginkgo biloba*, ginseng, feverfew, garlic, kava kava, and saw palmetto. Garlic, for example, has been used to treat fevers, sore throats, digestive ailments, hardening of the arteries, and other health problems and conditions.

**Osteopathic manipulation**—Osteopathic manipulation is a full-body system of hands-on techniques to alleviate pain, restore function, and promote health and well-being.

**Pilates**—Pilates is a movement therapy that uses a method of physical exercise to strengthen and build control of muscles, especially those used for posture. Awareness of breathing and precise control of movements are integral components of Pilates. Special equipment, if available, is often used.

**Progressive relaxation**—Progressive relaxation is used to relieve tension and stress by systematically tensing and relaxing successive muscle groups.



*Tai chi*

**Qi gong**—Qi gong is an ancient Chinese discipline combining the use of gentle physical movements, mental focus, and deep breathing directed toward specific parts of the body. Performed in repetitions, the exercises are normally performed two or more times a week for 30 minutes at a time.

**Reiki**—Reiki is an energy medicine practice that originated in Japan. In Reiki, the practitioner places his hands on or near the person receiving treatment, with the intent to transmit "ki," believed to be life-force energy.

**Shaman**—A shaman is a traditional healer who is said to act as a medium between the invisible spiritual world and the physical world. Most gain knowledge through contact with the spiritual world and use the information to perform tasks such as divination, influencing natural events, and healing the sick or injured.

**Sobador**—A sobador is a traditional healer who uses massage and rub techniques in order to treat patients.

**Tai chi**—Tai chi is a mind-body practice that originated in China as a martial art. A person doing tai chi moves his body slowly and gently, while breathing deeply and meditating (tai chi is sometimes called "moving meditation"). Many practitioners believe that tai chi helps the flow throughout the body of a proposed vital energy called "qi." A person practicing tai chi moves her body in a slow, relaxed, and graceful series of movements. One can practice on one's own or in a group. The movements make up what are called forms (or routines).

**Trager Psychophysical Integration**—Trager Psychophysical Integration is a movement therapy in which practitioners apply a series of gentle, rhythmic rocking movements to the joints. They also teach physical and mental self-care exercises to reinforce the proper movement of the body. The intent is to release physical tension and increase the body's range of motion. An example of Trager Psychophysical Integration as CAM is using it to treat chronic headaches.

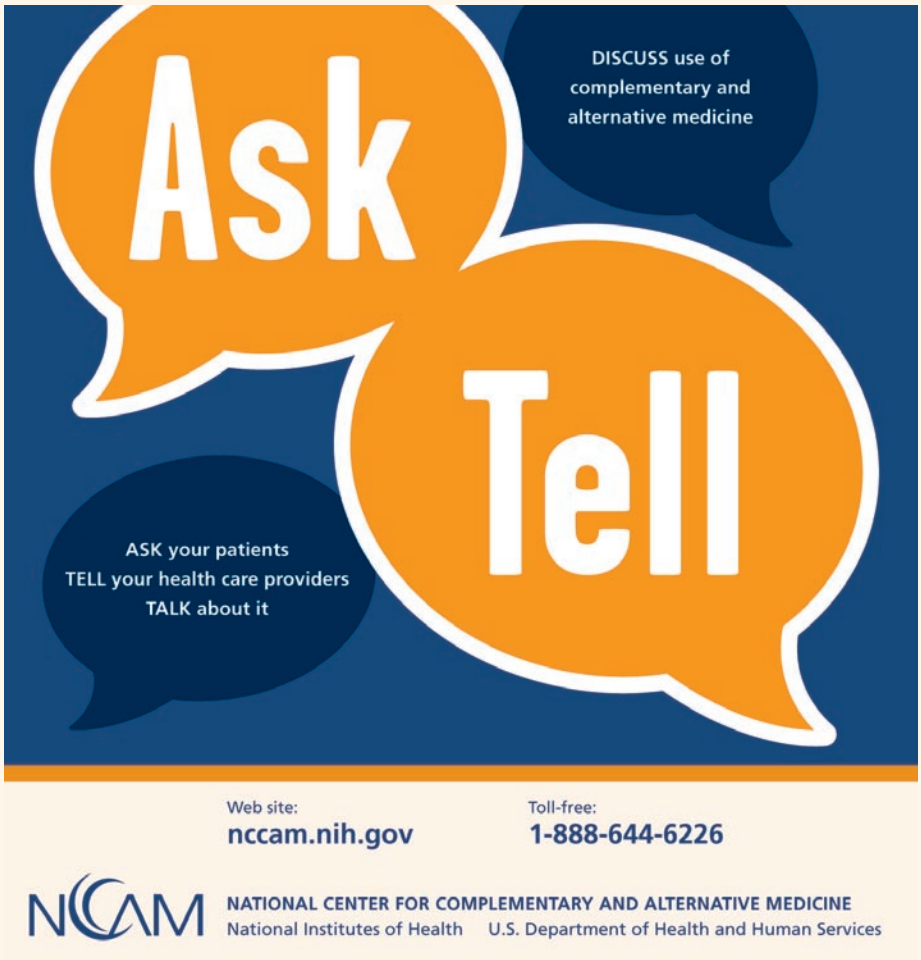
**Yerbera**—A yerbera or hierbero is a practitioner with knowledge of the medicinal qualities of plants.

**Yoga**—Yoga combines breathing exercises, physical postures, and meditation to calm the nervous system and balance body, mind, and spirit. Usually performed in classes, sessions are conducted once a week or more and roughly last 45 minutes.

**Note:** *These terms and definitions are excerpted from the National Health Statistics Report No. 12,* Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007, *published by the National Center for Health Statistics, a division of the Centers for Disease Control and Prevention. This list does not in any way reflect an endorsement of these practices by NCCAM.*

## For More Information

You can learn more about CAM from NCCAM by viewing fact sheets on the A-Z Index of Health Topics at nccam.nih.gov/health/atoz.htm or ordering printed versions from the NCCAM Clearinghouse. The full National Health Statistics report, *Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007*, is available at nccam.nih.gov/news/2008/nhsr12.pdf.




### NCCAM Clearinghouse

**Web site:** nccam.nih.gov
**Toll-free in the U.S.:** 1-888-644-6226
**TTY (for deaf and hard-of-hearing callers):** 1-866-464-3615
**E-mail:** info@nccam.nih.gov

The NCCAM Clearinghouse provides information on CAM and NCCAM, including publications and searches of Federal databases of scientific and medical literature. Please note that NCCAM does not provide medical advice, treatment recommendations, or referrals to practitioners.

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complementary medicine approaches. In fact, according to the 2007 National Health Interview Survey, more than 14 million U.S. adults had used CAM for back pain or problems.

"Clearly, this is a symptom that really matters," says NCCAM Director Josephine P. Briggs, M.D. "People want solutions—they want adequate pain control and they want to be able to return to normal activities," she continues. "There is growing evidence that CAM approaches can play a role in relieving back pain. Thus, NCCAM is working with other NIH institutes and centers to strengthen its portfolio of research on back pain, with NCCAM focusing particularly on nonpharmacologic (nondrug) management."

Manipulative and body-based practices, such as spinal manipulation and massage, are the most common nonpharmacologic CAM approaches used for back pain. In spinal manipulation, a clinician such as a chiropractor or an osteopath uses the hands to apply controlled force to a joint, to relieve pain and increase range of motion. Close to 9 percent of adults in the United States used chiropractic or osteopathic manipulation in 2007.

### Studying Hands-On Therapies for Pain

Just more than 10 years ago, manipulative and body-based procedures were simply not on the research map, according to William Meeker, D.C., M.P.H., president of Palmer College of Chiropractic, West Campus, in San Jose, California. "Compared with some of the other areas of CAM—such as natural products and acupuncture—I think manipulative therapies really came from behind. Chiropractors had been saying 'we need to study manipulative therapies' for decades, as did osteopaths and physical therapists. But it wasn't a research topic."

Dr. Meeker and fellow researcher Daniel Cherkin, Ph.D., senior scientific investigator at the Group Health Center for Health Studies in Seattle, Washington, both feel that NCCAM has played a major role in promoting the development of scientifically rigorous approaches to evaluations of CAM therapies, including manipulative therapies.

**More than 14 million American adults use CAM for back pain or problems.**

"NCCAM's goal has been to determine the safety and effectiveness of specific manual therapies for specific conditions," says NCCAM program officer Partap S. Khalsa, D.C., Ph.D. "The field's maturity is quite variable," he says. Spinal manipulation is the most studied, whereas fewer studies have been done on massage. And finally, movement therapies—such as tai chi and yoga, Alexander technique, and Feldenkrais—have been explored to varying degrees.

For back pain, research to date shows spinal manipulation can provide mild-to-moderate relief from chronic low-back pain. Gert Bronfort, D.C., Ph.D., vice president of research at Northwestern Health Sciences University in Bloomington, Minnesota, and colleagues published a review of studies on spinal manipulative therapy for chronic low-back pain in 2008, finding moderate evidence that "spinal manipulative therapy with strengthening exercise is similar in effect to prescription nonsteroidal anti-inflammatory drugs with exercise in both the short term and long term." The researchers concluded that "spinal manipulation and spinal mobilization are at least

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### Bringing Back-Pain Researchers to the Table

Researchers studying chronic low-back pain are searching for new and better methods, models, and approaches. A May 2009 NIH Workshop on Back Pain reinforced the notions that:

- Chronic back pain is a symptom of multiple conditions requiring better and more specifically targeted management strategies.
- To create better and more informative clinical trials, we must know more about the natural history of chronic back pain and its many causes.

To delve more deeply into these issues, NCCAM and a number of other NIH institutes and centers convened a workshop entitled "Deconstructing Back Pain" on May 10 and 11, 2010. The researchers and clinicians who gathered together discussed many topics:

- Identifying what types of future studies are needed to better understand chronic back pain
- Assessing new interventions and management strategies for back pain as a chronic condition
- Evaluating the usefulness of existing datasets and ongoing cohort studies and how they might apply to future studies of chronic back pain
- Determining what study designs should be used to look at the natural history of back pain.

The workshop discussion will help inform and guide the further development of NCCAM's strategic approach to this major public health problem.

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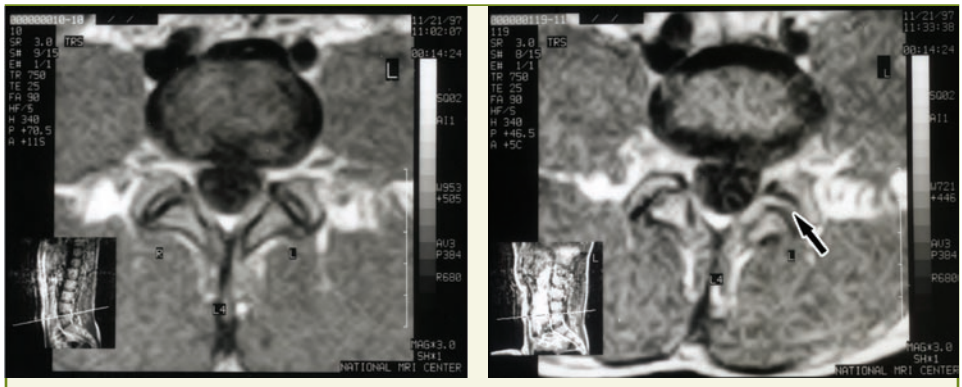
as effective as other efficacious and commonly used interventions."

Additionally, the United Kingdom Back Pain Exercise and Manipulation trial assessed the effectiveness of physical treatments for back pain in primary care. Subjects were randomly assigned to groups receiving usual care, usual care plus exercise, usual care plus manipulation, and usual care plus manipulation and exercise. All groups improved over time, with the largest clinical benefit experienced by the group that had combined manipulation and exercise interventions.

Meanwhile, joint guidelines from the American College of Physicians and the American Pain Society included spinal manipulation as one of several treatment options, also including acupuncture and massage, for patients with back pain that doesn't improve with self-care. In an accompanying review of the evidence, the authors wrote that they "found good evidence" that spinal manipulation is "moderately effective for chronic or subacute (more than 4 weeks' duration) low-back pain."





### A Study of Spinal Manipulative Therapy

These two MRI (magnetic resonance imaging) images depict a region in the spine **before** (left) and **after** (right) **a spinal manipulation**, in an NCCAM-funded study. A spinal disc is toward the top of each image (see oval shape), and its two associated vertebral joints are toward the bottom. At left, when spinal segments are hypomobile (i.e., less mobile, whether from disease, lack of exercise, or another cause), connective tissue adhesions—"like small areas of glue," says the lead investigator—may develop in the zygapophyseal (Z) joint space. At right, after manipulation, the left spinal joint is more "open" (at arrow). The small rectangle in each frame depicts the location in the spine.

Study leader Gregory Cramer, D.C., Ph.D., of National University of Health Sciences, Lombard, Illinois, notes that, in theory, manipulation might "unfix" such spinal segments, help break up the adhesions, lead to fewer degenerative changes, and enhance normal motion. Among the study's goals, he says, are a deeper understanding of spinal manipulation; information to help standardize future clinical trials; and insight on which populations may benefit most from manipulation.

Photo reprinted from *Journal of Manipulative and Physiological Therapeutics*, 23(6), Cramer GD et al., Effects of side-posture positioning and side-posture adjusting on the lumbar zygapophysial joints as evaluated by magnetic resonance imaging: a before and after study with randomization, 380-394, © 2000, with permission from Elsevier.

"It's fair to say that manipulative therapies have been studied as much as or more than any other conservative treatment for back pain," says Dr. Meeker. "The preponderance of evidence shows a clinically significant benefit for a large proportion of patients who seek those therapies. The effect sizes are not huge. We're not seeing dramatic cures, but we are incrementally making people's lives better when treatment is appropriately applied." He continues, "A number of patients do not benefit, and we want to know why. That's a big research question."

## Next Steps in Research

Both Dr. Meeker and Dr. Bronfort credit NCCAM for supporting training of clinical researchers who can study these modalities. In addition, the chiropractic programs at many institutions have become more evidence-based, says Dr. Bronfort. That's good news, because more work needs to be done.

There are still challenges in designing studies of body-based therapies, since blinding clinical trials (i.e., designing trials so practitioners and/or patients cannot identify the treatments being studied) is generally not practical. The practitioners have to know what treatment they are giving. And patients often are familiar with manipulation or massage, so they can tell what treatment they are receiving. Nonetheless, studies to address practical clinical questions are still feasible and important. Since body-based therapies are widely used, the key questions are generally about effectiveness, and trial designs that assess practical outcomes and permit real-world comparisons are of great value.

But, understanding the mechanisms behind what is happening is also key. Researchers at the University

of Iowa have been taking a closer look at the basic biology of the spine, both to understand the underlying mechanisms that cause pain and to explain the impact of manipulative therapies. Studies done in animals suggest that joint manipulation reduces sensitivity to pain by activating specific receptors in the spinal cord that involve serotonin and noradrenaline. Other animal studies by the same research group found that joint mobilization reduces pain induced by chronic inflammation of muscle and joint. Using another animal model, researchers found that mechanical loading altered activation

## What determines whether an individual responds to spinal manipulation?

of the sympathetic nervous system, providing support for the notion that spinal manipulation can influence the autonomic, or involuntary, nervous system. A 2009 animal study helped to explain how manual therapies might affect proprioception, or the perception of muscle movement, specifically related to the spinal column. People with chronic back pain have poor proprioception in their backs.

In clinical studies, sophisticated imaging technologies are being used to look at effects of spinal manipulation on neural function, especially in the brain. And state-of-the-art biomechanics devices are measuring the effects of manipulation with a high degree of precision.

One of the big unanswered research questions is what determines whether an individual responds to spinal manipulation, says Dr. Khalsa. "If we could answer that question with any sort of strong evidence, it would have an enormous impact on both the public and clinicians who have to decide what to recommend," he says. Scientists are looking at biomarkers (chemicals in the body), inflammatory changes, and effects on cytokines and other immune system markers, to find substances that can be used to identify persons who will respond to manipulation.

NCCAM grantees have a long list of research questions they'd like to address. "We still need to elucidate mechanisms and the role of patient expectations and satisfaction following treatment, and how that relates to biological endpoints," says Dr. Bronfort. "It's unlikely there's any one treatment that is the answer to back pain…. We need to understand more about how individual patients are assessed and how some of these CAM therapies can be integrated into a more comprehensive treatment plan."

"We're still in the throes of trying to sort it all out," Dr. Meeker says.

*References for this article are available at nccam.nih.gov/news/newsletter/2010_september/backpainrefs.htm.*

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counselors. There is also a growing interest in CAM among researchers who are studying grief, including complicated grief and its treatment. Complicated grief is a condition in which a person's natural instinctive grief process has been derailed because the individual has concerns about the circumstances or consequences of the death of someone close. Good nutrition, sleep and exercise, as well as CAM-based strategies for stress management—such as meditation, yoga breathing, or tai chi—are of growing importance in therapeutics for people who are bereaved.

### In your practice, have you used integrative approaches to help people dealing with grief or anxiety?

I have used mindfulness breathing in working with people suffering from panic disorder. For example, I worked with a man whose panic was disrupting his life. He would experience a panic attack every day at work and would have trouble thinking and communicating with his boss. He learned mindfulness breathing and practiced it daily. He felt more relaxed and centered and was able to identify and solve problems that he could not think about previously.

I also use mindfulness breathing to help people with complicated grief. Treatment focuses on revitalizing natural grief and helping people work through complicating concerns and behaviors. Mindfulness helps with both processes. Other CAM practices, such as those mentioned above, can help people in both coming to terms with the death and restoring the capacity for joy and satisfaction in their lives.

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Burke A. Characteristics of college students enrolled in an alternative health/complementary and alternative medicine course: a cross-sectional comparison. *Explore: the Journal of Science and Healing.* 2009;5(1):45-50.

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Shear K, Monk T, Houck P, et al. An attachment-based model of complicated grief including the role of avoidance. *European Archives of Psychiatry and Clinical Neuroscience.* 2007;257(8):453-461.

Shear MK, Mulhare E. Complicated grief. *Psychiatric Annals.* 2008;38(10):662-670.

# Research Digest

## Study of Spinal Manipulative Therapy for Neck-Related Headaches Reports Findings on Dose and Efficacy

Previous research suggests that spinal manipulative therapy (SMT) may be helpful for various types of chronic headaches, including cervicogenic headache (CGH), which is associated with neck pain and dysfunction. In a recent randomized controlled trial, NCCAM-funded researchers from Western States Chiropractic College and other institutions evaluated the dose (number of treatments) and relative efficacy of SMT in a group of 80 patients with chronic CGH.

© Matthew Lester

*Spinal manipulation in chiropractic*

The study participants were assigned to an SMT group or a control group, which received light massage. Participants in both groups received treatments from chiropractors in 10-minute sessions either once or twice a week for 8 weeks, for a total of 8 or 16 treatments. Participants who were treated only once a week also had weekly examination visits, which included a discussion of the patient's condition followed by a manual examination, as a control for provider contact/attention. Researchers used pain and disability scales to evaluate the participants' response to treatment once every 4 weeks for 24 weeks. They also asked subjects about the number of headaches experienced.

Compared with massage, participants receiving SMT had greater improvements in CGH-related pain and disability, lasting to 24 weeks. These differences were clinically important and statistically significant. The dose effects of SMT treatments (i.e., differences between 8 and 16 treatments) were small but significant. The mean number of headaches reported by SMT subjects decreased by more than half during the study.

The researchers concluded that their findings support SMT as a viable option for treating CGH, but also point out that these findings should be considered preliminary. They suggest additional research to determine whether SMT results for patients with CGH are affected by treatment intensity and duration, use of other therapies, lifestyle changes, and an integrative care approach.

### Reference

Haas M, Spegman A, Peterson D, et al. Dose response and efficacy of spinal manipulation for chronic cervicogenic headache: a pilot randomized controlled trial. *Spine Journal*. 2010;10(2):117-128.

### Additional Resources

Information on chiropractic is available from NCCAM at nccam.nih.gov/health/chiropractic/.

Information on headache is available from MedlinePlus at www.nlm.nih.gov/medlineplus/headache.html.

## Study Finds Shark Cartilage Extract Does Not Improve Lung Cancer Survival

An extract derived from shark cartilage—AE-941—did not improve overall survival in patients with non-small cell lung cancer, according to a study jointly funded by NCCAM and the National Cancer Institute (NCI). Shark cartilage has been reported to have antiangiogenic properties (preventing the growth of new blood vessels around tumors), and preliminary research in animals suggested that AE-491 has antitumor activity. Findings from this study were published in the *Journal of the National Cancer Institute*.

Researchers throughout the United States and Canada, led by investigators from the University of Texas M.D. Anderson Cancer Center, enrolled 379 patients with inoperable, stage III non-small cell lung cancer. All patients received standard radiation and chemotherapy. Patients were randomly assigned to receive either AE-941 or a placebo twice daily during and after radiation and chemotherapy, with approximately half of the participants assigned to each group. Compared with placebo, AE-941 resulted in no significant differences in overall survival, progression-free survival, time to progression, or tumor response rates. Patients who received radiation, chemotherapy, and placebo had a median overall survival of 15.6 months, while those who received radiation, chemotherapy, and AE-941 had a median survival of

14.4 months. AE-941 was found to be well-tolerated.

The researchers concluded that this study, like several smaller clinical trials of shark cartilage preparations in cancer patients, does not support the use of products derived from shark cartilage during cancer treatment.

### Reference

Lu C, Lee JJ, Komacki R, et al. Chemoradiotherapy with or without AE-941 in stage III non-small cell lung cancer: a randomized phase III trial. *Journal of the National Cancer Institute.* 2010;102(12):1-7.

### Additional Resources

Information about cancer prevention and treatment is available at nccam.nih.gov/health/cancer/.

You can read information on CAM for people with cancer in the NCCAM/NCI booklet *Thinking About Complementary and Alternative Medicine: A Guide for People With Cancer* available at www.cancer.gov/cancertopics/thinking-about-CAM.

Information on lung cancer is available from NCI at www.cancer.gov/cancertopics/types/lung.

Information on shark cartilage is available from NCI at www.cancer.gov/cancertopics/pdq/cam/cartilage.

## What Is the NIH Consensus Development Program?

Each year the National Institutes of Health (NIH) organizes several major conferences as part of the NIH Office of Medical Applications of Research Consensus Development Program. These conferences, run by an unbiased panel of experts, provide an independent look at sometimes controversial medical issues.

Consensus conferences, which are free, open to the public, and Webcast, typically last 2½ days. The first day and a half of a conference consists of presentations by invited experts, followed by "town hall forums" for open discussion among the speakers, panelists, and public. The panel then develops a draft statement on the second day, and presents it on the third day for audience commentary. A conference concludes with the panel considering the information presented and making recommendations in its statement.

Each consensus statement serves as a report that evaluates scientific information to resolve a particular issue in clinical practice—answering five to six questions concerning efficacy, risk, and clinical applications, and recommending directions for future research. The consensus and state-of-the-science statements that result are disseminated widely to practitioners, policymakers, patients, researchers, the general public, and the media. Each statement is an independent report of the panel and is not a policy statement of NIH or the Federal Government.

NCCAM recently cosponsored a consensus conference entitled *Preventing Alzheimer's Disease and Cognitive Decline* run by a 15-member panel, with each member representing a different field of medicine, and an additional 21 experts presenting data. This conference gave health care providers, patients, and the general public an assessment of available data on prevention of Alzheimer's disease and cognitive decline (www.consensus.nih.gov/2010/alzstatement.htm).

The next consensus conference is October 27-29, and will consider inhaled nitric oxide therapy for premature infants.

More information on the consensus development program and previous conference statements can be found at www.consensus.nih.gov.

### New Task Force Report Addresses Pain Management in Military Care

A new report, released in June 2010 by the U.S. Army Surgeon General, assesses the state of pain management in service members and their families, and recommends changes. A multidisciplinary, cross-cutting task force, led by Army Medicine, envisions in this report a comprehensive pain management strategy that is "holistic, multidisciplinary, and multimodal… utilizes state-of-the-art/science modalities and technologies and provides optimal quality of life... and builds a full spectrum of best practices, based on a foundation of best available evidence." Among CAM approaches that might be integrated in individualized plans of care, it says, are acupuncture, yoga, chiropractic care, massage therapy, biofeedback, and mind-body therapies. The report is available at www.armymedicine.army.mil/reports/pain_management_task_force.pdf.

### NCCAM Exhibits at Upcoming National Meetings

- **September 30-October 2**
  AARP, Orlando
- **November 6-10**
  American Public Health Association Annual Meeting and Exposition, Denver
- **November 11-13**
  Society for Integrative Oncology Annual International Conference, New York City
- **November 13-17**
  Society for Neuroscience Annual Meeting, San Diego

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## New Resources from NCCAM

The following **new NCCAM publications** are available on the Web and from the NCCAM Clearinghouse (see pg. 2):

- *Antioxidant Supplements for Health: An Introduction* (nccam.nih.gov/health/antioxidants/)
- *Credentialing CAM Providers: Understanding CAM Education, Training, Regulation, and Licensing* (nccam.nih.gov/health/decisions/credentialing.htm)
- *Irritable Bowel Syndrome and CAM: At a Glance* (nccam.nih.gov/health/digestive/IBS.htm)

Visit NCCAM's **"Research Results"** page at nccam.nih.gov/research/results/ for a selection of recently released results from NCCAM-supported research.

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**A special report on NCCAM** has been published in the June 2010 issue of *Journal for Minority Medical Students.* Focusing on research training and featuring several profiles, it is available at nccam.nih.gov/training/NCCAM_Special_Report.pdf.