

# Complementary and Alternative Medicine



People have used complementary and alternative medicine (CAM) practices for thousands of years in pursuit of health and well-being. However, rigorous, well-designed clinical trials for many CAM therapies are often lacking; therefore, the safety and effectiveness of many CAM therapies are uncertain. The National Center for Complementary and Alternative Medicine (NCCAM) is sponsoring research designed to fill this knowledge gap by building a scientific evidence base about CAM therapies—whether they are safe, whether they work for the conditions for which people use them and, if so, how they work.

CAM therapies and medical systems are widely used and available in the United States. They include diverse products and practices such as dietary supplements and botanicals, traditional Chinese medicine, acupuncture, mind-body medicine, and therapeutic massage.

## Today

- Millions of Americans use CAM for health concerns and general wellness and spend tens of billions of dollars each year on such care. The 2007 National Health Interview Survey found that 38% of adults and 12% of children had used CAM in some form during the 12 months prior to the survey. The survey also revealed that Americans spent \$33.9 billion out-of-pocket on CAM practices and products.
- In 1999, NCCAM was established as the arm of the NIH to rigorously evaluate the safety and efficacy of CAM therapies, train researchers to conduct CAM research, and provide information to the public and health care professionals. Since its inception, NCCAM has funded more than 2,500 research projects to learn about how CAM therapies work as well as their safety and efficacy.

The following examples illustrate important research findings that inform the choices the public and practitioners are making regarding the use of CAM.

- In a study with over 3,000 participants, researchers supported in part by NCCAM found that the dietary

supplement *Ginkgo biloba* was ineffective in reducing the development of dementia and Alzheimer's disease in older people. The trial, known as the Ginkgo Evaluation of Memory (GEM) study (<http://nccam.nih.gov/research/results/gems/>), is the largest clinical trial ever to evaluate ginkgo's effect on the occurrence of dementia.

- Studies have shown that spinal manipulation can provide mild-to-moderate relief from low-back pain and appears to be as effective as conventional medical treatments. Results from one trial that examined long-term effects in more than 600 people with low-back pain suggest that chiropractic care involving spinal manipulation is at least as effective as conventional medical care for up to 18 months.
- Using state-of-the-art imaging technology, NIH documented the power of the mind to activate certain parts of the brain to block pain signals, providing important information on how the placebo effect works.
- In one of the largest clinical trials to date to test the safety and efficacy of acupuncture, NIH-supported researchers found that acupuncture significantly reduced pain associated with osteoarthritis of the knee when used as a complement to conventional therapy. Other studies and reviews demonstrated that acupuncture provides relief for vomiting and nausea from chemotherapy, shows possible effect for tension headaches, and that acupuncture and simulated acupuncture can both provide relief for those suffering from low-back pain.
- Results from a long-term NIH-supported study revealed that people who took the dietary supplements glucosamine and chondroitin (alone or in combination) for osteoarthritis of the knee had outcomes similar to those experienced by people who took the drug celecoxib or placebo. This study, part of the Glucosamine/Chondroitin Arthritis Intervention Trial (GAIT) (<http://nccam.nih.gov/research/results/gait/>) assessed the safety and effectiveness of the supplements over two years.

- People with fibromyalgia may benefit from practicing tai chi according to a study in 66 people. Study participants who practiced tai chi had a significantly greater decrease in total score on the Fibromyalgia Impact Questionnaire. In addition, the tai chi group demonstrated greater improvement in sleep quality, mood, and quality of life.
- NIH also learned that so-called “natural” therapies may not always be safe or effective. For example, the FDA banned the U.S. sale of dietary supplements containing the herb ephedra, which was often used in weight-loss products, citing that they posed an unreasonable risk of injury or illness—particularly cardiovascular complications—and a risk of death. Kava, an herb that has been widely used for insomnia, stress, and anxiety, has been linked to liver damage. Other botanical products, such as St. John’s wort, which is used for depression, may interact with certain drugs and affect how the body processes a drug, making it less effective. And, research regarding Ayurvedic medicine products purchased via the Internet revealed that nearly 21% of the Ayurvedic medicines tested contained detectable levels of lead (most common), mercury, or arsenic.
- NCCAM will continue to conduct research to understand what CAM practices and products people use, the reasons why they do so, and whether these choices are discussed with all health care providers to ensure safe and coordinated care. For example, a subset of data from the GEM study showed that nearly 75% of the study participants took at least one prescription drug and one dietary supplement; about 33% used three or more prescription drugs and three or more supplements; and 10% percent combined five or more prescription drugs with five or more dietary supplements. This highlights the need for health care providers to ask and patients to tell about CAM use. NCCAM is supporting this effort through an ongoing health education campaign—Time To Talk (<http://nccam.nih.gov/timetotalk/>)—which encourages patients and providers to openly discuss CAM use.
- Through the CAM research supported by NIH, Americans will have the scientific evidence they need to support the integration of a variety of CAM therapies into conventional medical settings. The full realization of this vision requires that standardized CAM modalities be developed and tested rigorously across a range of doses in a variety of patient populations, and that credible information on the safety and effectiveness of these therapies be disseminated to the public and practitioners.

## Tomorrow

NIH is poised to make major discoveries in understanding CAM therapies and to use this information to expand the horizons of health care.

- There is limited information about the safety of many natural products, including data about toxicity or interactions with drugs or other natural products. Claims that these products have fewer side effects or are “safer” than conventional drugs are generally unproven and sometimes wrong. Understanding their interactions and safety are important research pursuits.
- The 2007 National Health Interview Survey revealed that the most common reason Americans use CAM is for treatment of pain, so studies on chronic pain are a vital component of NCCAM’s research portfolio. CAM-related research on chronic pain includes acupuncture for carpal tunnel syndrome, natural products and massage for osteoarthritis of the knee, and spinal manipulation for low-back pain.

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**National Center for Complementary and Alternative Medicine (NCCAM) website: <http://nccam.nih.gov/>**