

CAM AT THE NIH

FOCUS ON COMPLEMENTARY AND ALTERNATIVE MEDICINE

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International Research Conference Highlights Progress, New Directions



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Close to 250 posters on research added an important dimension

The North Saskatchewan River Valley in Edmonton, Alberta, Canada, was the panoramic setting for the North American Research Conference on Complementary and Integrative Medicine, held May 24-27, 2006. Close to 650 researchers, health care practitioners, representatives of government agencies and non-government organizations, students, and other attendees came to Edmonton

from 22 countries and 210 institutions to share information and perspectives on complementary and alternative medicine (CAM) and integrative medicine (IM).

The Consortium of Academic Health Centers for Integrative Medicine (CAHCIM), a group of 32 medical centers in North America affiliated with academic institutions, sponsored the conference. CAHCIM's goal is to "make a qualitative difference in people's health by advocating an integrative model of health care, incorporating mind, body and spirit."

Representing the Rich Diversity of CAM

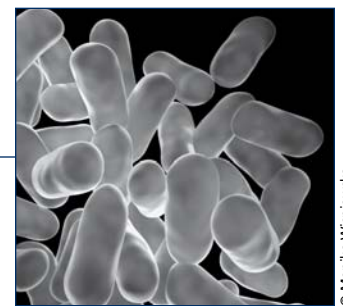
The Edmonton event had over 300 offerings—keynote and plenary addresses,

(continued on pg. 2)

Getting To Know "Friendly Bacteria"

If you go to the supermarket, or look at a health magazine or commercial Web site, chances are you will find products with "probiotics"—certain types of bacteria that are also called "friendly bacteria" or "good bacteria." Probiotics are available as conventional foods and dietary supplements (for example, capsules, tablets, and powders), and in some other forms as well. While some probiotic foods date back to ancient times (fermented foods and cultured milk products), recently interest in probiotics in general has been growing. Americans' spending

on probiotic supplements, for example, nearly tripled from 1994 to 2003.



Lactobacillus bacteria

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What Are Probiotics?

Experts have debated how to define probiotics more specifically. One widely used definition, developed by the United Nations Food and Agricultural Organization and the World Health Organization, calls probiotics "live microorganisms, which,

(continued on pg. 6)

INSIDE

- 9 Research Roundup
- 11 New NACCAM Members
- 11 From the Clearinghouse
- 12 News for Researchers



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International Research Conference Highlights Progress, New Directions

(continued from pg. 1)

oral abstracts, workshops, discussions, symposia, and posters—in five major areas of science: basic science, clinical studies, methodology, health services, and education. NCCAM was one of the conference's funders and participated on the planning committee.



Margaret A. Chesney, Ph.D.

Margaret A. Chesney, Ph.D., Deputy Director of NCCAM and Director of its Division of Extramural Research and Training, delivered one of the keynote addresses. She opened by

discussing why there is intense public interest in CAM and in a new, more integrated medicine. For example:

- The population is aging.
- Information on health has become much more available (e.g., through the Internet).
- The consumer now has a more important role in health care.
- People have complaints about conventional care (e.g., when cures are elusive, side effects are problems, providers have very limited time, or care is fragmented among specialists).
- Many people find CAM and IM appealing (e.g., they feel these offer more “natural” treatment alternatives, emphasize patient-provider relationships, and allow individuals to take more responsibility for their health).

This interest in CAM and IM commands a “bold” research effort, Dr. Chesney said, but caution as well:

- There are many therapeutic claims that are attractive but unsupported by research. To illustrate, she presented an array of advertisements dating back to the 19th century and noted, “The plural of claims is not evidence.”
- Media reports may oversimplify study findings, resulting in headlines that fail to communicate the value of the research.
- Methodological challenges and pitfalls exist in the research endeavor.

“We have a long way to go,” she said, “but there is much to discover, and we have an agenda rich in research challenges.”

Dr. Chesney set forth her vision for continued progress. “Be bold in what you try,” she urged, “cautious in what you claim, and thoughtful about what you do. Express your purpose in a way that inspires commitment, innovation, and courage. We need you to contribute your part to the whole, as we work together to add to the fabric of knowledge about CAM and create a new, comprehensive health care.” Drawing upon the Institute of Medicine’s 2005 report on CAM, she described this care as being based on the best science available, recognizing the importance of compassion and caring, and encouraging people to actively participate in choices that enhance resilience, prevent illness, and improve quality of life.

In addition to Dr. Chesney, other keynote speakers were:

- **Brian M. Berman, M.D.**, professor of family medicine at the University of Maryland School of Medicine and director of its Center for Integrative Medicine. Dr. Berman described his journey from carrying out pilot research to a major clinical trial of acupuncture for osteoarthritis (most of this work was funded by NCCAM or its predecessor, the NIH Office of Alternative Medicine).
- **Richard Davidson, Ph.D.**, an NCCAM grantee who is professor of psychology and psychiatry at the University of

CAM at the NIH:

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Wisconsin-Madison and director of the Keck Laboratory for Functional Brain Imaging and Behavior. Dr. Davidson spoke about meditation and its possible influence on the brain, including his research on Buddhist monks who are longtime meditators.

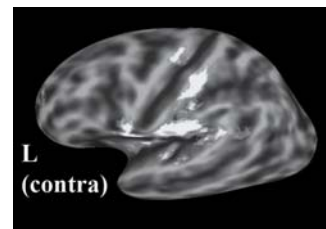
- **Peter Lipsky, M.D.**, chief of the Autoimmunity Branch in the Intramural Research Program, National Institute of Arthritis and Musculoskeletal and Skin Diseases, NIH. Dr. Lipsky described his research on thunder god vine (*Trypterygium wilfordii hook F*), a traditional Chinese remedy that is showing some potential benefit in studies for rheumatoid arthritis.
- **David Moher, Ph.D.**, director of clinical research and the Chalmers Research Group at the Children's Hospital of Eastern Ontario Research Institute, and Faculty of Medicine, University of Ottawa. Dr. Moher offered his perspective on challenges in generating, synthesizing, and reporting evidence on CAM.

Focus on Research Findings

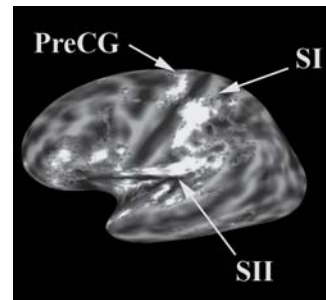
All abstracts (brief summaries) of the conference's sessions, presentations, and posters are posted on the Web site of the journal *Alternative Therapies in Health and Medicine*, www.bridgehealth.com/cahc_content/index.html. Here are a few examples from this diverse collection. An asterisk (*) indicates that work was supported fully or partially by an NCCAM grant.

- **Basic Science Content Area.** Vitaly Napadow, Ph.D., of the Martinos Center for Biomedical Imaging, Massachusetts General Hospital, presented a pilot study of acupuncture for carpal tunnel syndrome (CTS). He found interesting changes not only in CTS symptoms but in brain activity (observed through fMRI, functional magnetic resonance imaging—a noninvasive tool used to observe functioning in the brain or other organs by detecting changes in chemical composition, blood flow, or both; see images at right). Initially, Dr. Napadow's

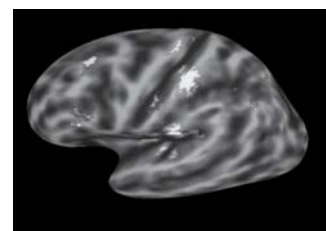
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Healthy Controls



CTS Patients at Beginning of Study



CTS Patients After Acupuncture

Nonpainful stimulation of right-hand finger 3 produced hyperactivation in the left primary sensorimotor cortex in Dr. Napadow's study participants with carpal tunnel syndrome. After acupuncture, this hyperactivity was reduced.



Executive committee members of CAHCIM and the Academic Consortium of Complementary and Alternative Health Care gathered in Edmonton. *Back row:* Adam Perlman, Don Warren, Brian Berman, David O'Bryon, Kathleen Healy, David Eisenberg; *Middle row:* Reed Phillips, Aviad Haramati, Bradley Jacobs, Janet Kahn, Jan Schwartz, Mary Jo Kreitzer, Rita Benn, Victor Sierpina; *Front row:* Pamela Snider, Susan Folkman, John Pan, Anne Nedow, Liza Goldblatt.

team saw differences between the brain responses of CTS patients and healthy controls when they received nonpainful stimulation of their fingers. After a few

weeks of acupuncture treatment, however, the CTS patients experienced improvements not only in their grip strength, symptoms (such as pain, numbness, and tingling), and nerve function at the wrist, but in how their brains processed nonpainful stimuli to the fingers.

■ **Clinical Studies Content Area.** Sat Bir A. Khalsa, Ph.D.,* of Brigham and Women's Hospital, Boston, performs research on sleep disorders and the functioning of the autonomic nervous system. A major area of his work is yoga. Historically a spiritual discipline, yoga is also being used to address some medical disorders (in which cases it is called yoga therapy). There is evidence for the theory that chronic insomnia (chronic trouble in initiating and maintaining sleep) may not be an actual sleep disorder, but rather a disorder of hyperarousal—in these disorders, a person has a high level of arousal of his mind and body, usually associated with sustained activation of the sympathetic nervous system and the hypothalamic-pituitary-adrenal axis. There is also evidence that yoga reduces this type of activation and arousal. Like meditation and relaxation exercises, yoga might help insomnia, in part by inducing a response that opposes the “fight or flight” response. In a small pilot study published in 2004, Dr. Khalsa found significant improvements in most sleep-related outcome measures in participants with chronic insomnia who had practiced a 30- or 45-minute Kundalini yoga treatment once daily for 8 weeks. One of Dr. Khalsa's current studies is a randomized, controlled clinical trial comparing yoga as an insomnia treatment with relaxation exercises and with sleep hygiene (habits that affect a person's quality of sleep).

Three other researchers also presented in the symposium on yoga: Bradley Jacobs, M.D., M.P.H., of the University of California-San Francisco's Osher Center for Integrative Medicine; Kavita

New Findings on Americans' Use of CAM

The findings below are based on data from the 2002 National Health Interview Survey of over 31,000 American adults (nccam.nih.gov/news/report.pdf; the CAM supplement was funded by NCCAM).

Patterns of Herb Use

Paula Gardiner, M.D., of Harvard Medical School's Osher Institute, presented new findings about people who use herbs for health purposes. The survey participants who used herbs were more likely than other participants to be uninsured, female, and more highly educated; to live in the West; to use prescription or over-the-counter medications; and to identify their race/ethnicity (R/E) as “Non-Hispanic Other.” The people who used herbs **less** tended to identify their R/E as “Non-Hispanic Black” and to live in the South or Midwest. The herbs most commonly used were echinacea (41 percent), ginseng (25 percent), ginkgo (22 percent), and garlic (20 percent). Herbs were used most commonly for head or chest cold (30 percent), musculoskeletal conditions (16 percent), and stomach or intestinal illness (11 percent). Seventy-two percent of the people who used herbs also used prescription medications. More than half of the people who used both an herb and a prescription medication did not tell a conventional health care provider about this.

Use by People With CVD

Gloria Yeh, M.D., and Russell Phillips, M.D., also of the Osher Institute, found that 36 percent of the participants who had cardiovascular disease (CVD, or diseases of the heart and circulatory system) used CAM—a rate similar to that in the general population. Among these CAM users with CVD, 23 percent used mind-body therapies (MB) such as meditation, yoga, tai chi, and others. They used MB most commonly for musculoskeletal complaints (24 percent), anxiety/depression (23 percent), and stress/emotional health/wellness (16 percent). Only 13 percent used MB for their CVD specifically, but 94 percent of them felt that MB for that use was helpful. Using MB for mental health treatment and stress management may also have cardiac benefits.

Social Factors

According to this study's authors, studies indicate that CAM use is linked to factors such as gender, R/E, and socioeconomic position (SEP)—more specifically, women, non-Hispanic whites, and people of higher SEP are more likely to use CAM. Maria Chao, Dr.P.H., and colleagues at the Richard and Hinda Rosenthal Center for Complementary Medicine, Columbia University, analyzed more closely the interplay among those social factors. They found that SEP influenced how likely it is that a person will use CAM, regardless of the person's gender. While SEP also plays a role in whether a person of specific R/E will use CAM, that influence is not as strong.

Chandwani, M.D., M.P.H., University of Texas-M.D. Anderson Cancer Center; and Jost Langhorst, M.D., Kliniken Essen Mitte, Essen, Germany.

■ **Methodology Content Area.** A panel of five IM program directors from three countries presented models of IM programs with research components. They were Shay Pintov, M.D., of Assaf Harofe Hospital, Tzrifin, Israel; Dorit Gamus, M.D., of Sheba Medical Center, Tel-Hashomer, Israel; Gustav Dobos, M.D., of Kliniken Essen Mitte, Essen, Germany; Mary Hardy, M.D.,* of the UCLA Center for Dietary Supplement Research on Botanicals, Los Angeles; and Moshe Frenkel, M.D.,* University of Texas Medical Branch, Galveston. They discussed experiences and challenges in designing and carrying out research projects in IM primary care and hospital settings, working with multidisciplinary teams of both CAM and conventional practitioners, selecting treatments, and related areas.

■ **Health Services Content Area.** Jennifer Hamilton, Ph.D., of the University of Medicine and Dentistry of New Jersey, presented results of a pilot study on the key organizational features of family medicine practices that have integrated CAM. Hamilton and her team observed and conducted interviews at five practices in New Jersey and Pennsylvania. In those practices, they found that a conventional physician trained in multiple therapies most often provided assessment for or treatment with CAM therapies. Overall, the degree to which CAM was integrated into these family medicine practices varied, and local and state laws, insurance issues, patient characteristics, and the style in which a practice was managed often influenced this variability.

■ **Education Content Area.** Keturah Faurot, P.A., M.P.H., of the University of North Carolina at Chapel Hill, presented results of a study of dietary supplement

counseling in 34 community pharmacies throughout central North Carolina. The pharmacists in the study considered counseling about dietary supplements to be part of their professional responsibility; 82 percent had discussed supplements with patients in the preceding month. However, they also felt the major barrier to counseling was lack of knowledge about supplements—including a lack of training in pharmacy school, inadequate continuing education, and inadequate evidence about the use of supplements. The researchers concluded that in order to provide supplement counseling, pharmacists need quality training and reliable patient education materials in this area.

■ **Americans' Use of CAM.** Several researchers presented new findings from the 2002 National Health Interview Survey component on Americans' use of CAM (see box on pg. 4).

■ Ten student researchers were selected, through masked peer review, for Young Investigator Awards (see box at right).

"It Exceeded Our Hopes"

Susan Folkman, Ph.D., is chair of CAHCIM and led the conference's organizing committee. She is also professor of medicine and director of the Osher Center for Integrative Medicine, University of California-San Francisco. She commented, "The number of people who attended exceeded our expectations, even our hopes.... Our keynote speakers' cumulative message was that good research requires great care and skill, imagination, fortitude, and many years of hard work. Many young investigators reported that they were truly inspired by these talks.... I [also] heard many people comment on how much stronger the science was now than it was 4 or 5 years ago."

The conference Web site is www.imconsortium-conference2006.com. A selection of speakers' slides is available at www.imconsortium-conference2006.com/speaker_files.php. ❖

Young Investigator Awards 2006 North American Research Conference on CAM

Ali Benhaddou-Andaloussi,
University of Montreal

Jianghong Fan, University
of Manitoba

Keturah Faurot, University
of North Carolina

Jennifer Hamilton,
University of Medicine and
Dentistry of New Jersey-
Robert Wood Johnson
Medical School

Bradley Johnston,
University of Alberta

Leila Kozak, Bastyr
University

Isabelle Marc, Laval
University

**Elizabeth Kimbrough
Pradhan,** University of
Maryland School of
Medicine

Shelly Vik, University of
Calgary

Gregory Wong,
Georgetown University
School of Medicine



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Bruce R. Rosen, M.D., Ph.D., Professor of Radiology, Harvard Medical School, and Director of the Martinos Center for Biomedical Imaging at Massachusetts General Hospital, spoke at NIH on April 26, 2006, as part of the NCCAM series *Distinguished Lectures in the Science of Complementary and Alternative Medicine*. His lecture, “Neurobiological Correlates of Acupuncture: Modern Science Explores Ancient Practice,” is archived on the Web at www.videocast.nih.gov (click on “Past Events” and use the search function).

Getting To Know “Friendly Bacteria”

(continued from pg. 1)

when administered in adequate amounts, confer a health benefit on the host.” (Microorganisms are tiny living organisms—such as bacteria, viruses, and fungi—that can be seen only under a microscope.) Probiotics are not the same thing as **prebiotics**—nondigestible food ingredients that selectively stimulate the growth and/or activity of bacterial species already in people’s colons. When probiotics and prebiotics are mixed together, they form something else, a **synbiotic**.

Some conventional foods containing probiotics are yogurt, fermented and unfermented milk, miso, tempeh, and some juices and soy beverages. In those foods, and in probiotic supplements, the bacteria may have been present originally or added during preparation. Most often, they come from two groups of bacteria, *Lactobacillus* or *Bifidobacterium*. Within each group, there are different species (for example, *Lactobacillus acidophilus* and *Bifidobacterium bifidus*), and within each species, different strains (or varieties).

Scientific understanding of probiotics and their potential for preventing and treating health conditions is at an early stage, but moving ahead. In November 2005, a conference that was cofunded by NCCAM and convened by the American Society for Microbiology explored this topic (the report is at www.asm.org/academy/index.asp?bid=43351).

A Balance of Bacteria

Why this interest in probiotics? It starts on a universal scale; the world is full of microorganisms (including bacteria), and so are people’s bodies—in and on the skin, in the gut, and in other orifices. They take up residence in babies soon after birth. Friendly bacteria are vital to proper development of the immune system, to protection against agents that could cause

disease, and to the digestion and absorption of food and nutrients. Each person’s mix of bacteria varies. Interactions between a person and the microorganisms in his body, and between the microorganisms themselves, can be crucial to the person’s health and well-being.

This bacterial “balancing act” can be thrown off in two major ways:

1. By antibiotics, when they kill friendly bacteria in the gut along with unfriendly bacteria. Some people use probiotics to try to offset side effects from antibiotics like gas, cramping, or diarrhea. Similarly, some use them with the intent to ease symptoms of lactose intolerance, a condition in which the gut cannot digest significant amounts of lactose, the major sugar in milk.
2. “Unfriendly” microorganisms such as disease-causing bacteria, yeasts, fungi, and parasites can also upset the balance. Researchers are exploring whether probiotics could halt these unfriendly agents in the first place and/or suppress their growth and activity in conditions like:

- Traveler’s diarrhea
- Irritable bowel syndrome
- Inflammatory bowel disease (e.g., ulcerative colitis and Crohn’s disease)
- Infection with *Helicobacter pylori* (*H. pylori*), a bacterium that causes most ulcers and many types of chronic stomach inflammation
- Tooth decay and periodontal disease
- Vaginal infections
- Stomach and respiratory infections that children acquire in daycare
- Skin infections.

Other Aspects To Explore

Another part of the interest in probiotics stems from the fact there are cells in the digestive tract connected with the immune system. One theory goes that if you alter the microorganisms in a person’s intestinal tract (as by introducing probiotic bacteria), you can affect his immune system’s defenses.

Some other areas of research interest in probiotics are

- What is going on at the molecular level with the bacteria themselves and their interactions with the body (such as the gut and its bacteria). Advances in technology and medicine are making it possible to study these areas much better than in the past.
- Issues of quality. For example, what happens when probiotic bacteria are treated or are added to foods—is their ability to survive, grow, and have a therapeutic effect altered?



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Worldwide, almost 2 million children under 5 years old die from diarrhea each year

- The best ways to administer probiotics for therapeutic purposes, as well as the best doses and schedules.
- Probiotics' safety. Among the issues, besides those connected with quality, are that:
 - Probiotic products taken by mouth are manufactured and regulated as foods, not drugs. Their quality (e.g., their identity, potency, purity, and shelf life) can vary—even from lot to lot or bottle to bottle.
 - Some microorganisms have a long history of use as probiotics without a conclusive risk to people. Probiotics' side effects, if any, tend to be mild and digestive (such as gas or bloating). However, more serious effects have been seen in some study participants. Probiotics might theoretically cause systemic infections, unhealthy metabolic activities, excessive immune stimulation, or gene transfer (insertion of genetic material into a cell).

- More information is especially needed on probiotics' safety for young children, elderly people, and people with compromised immune systems.
- Probiotics' potential to help with the problem of antibiotic-resistant bacteria in the gut.
- Whether they can prevent unfriendly bacteria getting through the skin or mucous membranes and traveling through the body (e.g., when a person has burns, shock, trauma, or suppressed immunity).

Do Probiotics Work?

According to the conference report, some uses for which there is some encouraging evidence from study of specific probiotic formulations are as follows:

- To treat diarrhea (this is the strongest area of evidence, especially for diarrhea from rotavirus)
- To prevent and treat infections of the urinary or reproductive systems, such as urinary tract infections and bacterial vaginosis
- To treat irritable bowel syndrome
- To reduce recurrence of bladder cancer
- To shorten how long an intestinal infection lasts that is caused by a bacterium called *Clostridium difficile*
- To prevent and treat pouchitis (a condition that can follow surgery to remove the colon)
- To prevent and manage atopic dermatitis (eczema) in children.

An NCCAM call for research (cosponsored with the NIH Office of Dietary Supplements) also briefly talks about effectiveness, with a focus on pediatrics:

Probiotics have traditionally been thought to be useful in the treatment of various gastrointestinal diseases. One of the primary areas of research in children has been in the treatment and prevention of diarrhea.... Some studies in adults show a reduction of symptoms associated with irritable bowel syndrome. Newer areas of research

(continued on pg. 8)

Examples of NCCAM-Supported Research on Probiotics

- Researchers at Tufts University are conducting a preliminary study on whether yogurt has the potential to reduce growth problems related to diarrhea and malnutrition in weaning infants.
- An Ohio State University team is studying whether *Lactobacillus* could potentially boost infants' immune systems and help ward off diarrhea-causing infections.
- At the Mayo Clinic College of Medicine, researchers are examining probiotics for possibly decreasing the levels of certain substances in the urine that can cause problems such as kidney stones.
- Researchers at the Johns Hopkins University are investigating whether probiotics could have a role in treating fatty liver disease (a chronic condition in which fat accumulates in the liver).
- A group at New England Medical Center Hospitals in Boston is studying probiotics for treating an antibiotic-resistant type of bacteria that causes severe infections in people who are hospitalized, are in nursing homes, or have weakened immune systems. ❖



Calendar of Events

This calendar lists events on CAM in which NCCAM or other components of NIH are sponsors or participants and includes information available at press time.

September 2006

Meeting of the National Advisory Council for Complementary and Alternative Medicine:

September 8. *Location:* Neuroscience Center Building, 6001 Executive Blvd., Rockville, Maryland. See nccam.nih.gov/about/advisory/naccam.

October 2006

Distinguished Lectures in the Science of Complementary and Alternative Medicine:

October 25, 11 a.m. "Natural Products: Challenges and Opportunities." *Speaker:* Ram Sasisekharan, Ph.D., Professor of Biological Engineering, Massachusetts Institute of Technology. *Location:* Masur Auditorium, Building 10, NIH, Bethesda, Maryland. This event will also be Webcast at www.videocast.nih.gov and archived there for later viewing. ❖

Getting To Know "Friendly Bacteria"

(continued from pg. 7)

include systemic immune responses (including atopic eczema) that accompany food-related allergies in children. In addition, there is some evidence that probiotics enhance antibody response to vaccines, and decrease occurrence of respiratory and ear infections. Other potential indications for use in children include the treatment of inflammatory bowel disease, necrotizing enterocolitis, small bowel bacterial overgrowth, juvenile rheumatoid arthritis, and vaginitis, as well as the prevention of mother-baby transmission of HIV, recurrent urinary tract infections and tumors preceding the development of cancer. (www.grants.nih.gov/grants/guide/pa-files/pa-06-426.html)

The conference panel also noted that in studies of probiotics as cures, any effectiveness was usually low; a strong placebo effect often occurs; and more research (especially in the form of large, carefully designed clinical trials) is needed in order to draw firmer conclusions.

Advice to Consumers

If you are a consumer who is thinking about using a probiotic product as complementary and alternative medicine (CAM), consult your health care provider first. No CAM therapy should be used in place of conventional medical care or to delay seeking that care. Also, if you use a probiotic product and experience an effect that concerns you, contact your provider. You can read research on this CAM therapy's effectiveness and safety through the resources PubMed and CAM on PubMed. Keep in mind that effects from one strain of probiotics do not necessarily hold true for other strains, or even for other preparations of the same strain.

In sum, there is limited evidence supporting some uses of probiotics. Better scientific understanding is needed of these tiny forms of life and their effects on people.

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Research Roundup

"Research Roundup" presents several examples of NCCAM-funded research recently published in peer-reviewed journals listed in the National Library of Medicine's PubMed database (www.ncbi.nlm.nih.gov/entrez).



CAM Use High Among Adolescents

Karen M. Wilson, M.D., M.P.H., and colleagues from the University of Rochester conducted the first national survey of CAM use among adolescents in the

United States. They analyzed responses from 1,280 adolescents aged 14 to 19 and found that 79 percent had used at least one form of CAM during their lifetime. Females used CAM more than males. The forms of CAM most commonly used were home remedies (such as honey and lemon, or special teas), faith healing or prayer specifically for health, herbal remedies (such as echinacea or St. John's wort), and massage therapy. Among all participants almost 30 percent had used one or more dietary supplements, and almost 10 percent had used supplements along with prescription medications in the preceding month. Many of the supplements the teens reported using were related to attempts to change body shape (e.g., creatine and weight-loss products).

The authors urged that health care providers be aware of CAM and dietary supplement use by their adolescent patients, because of the lack of standardization in supplements, as well as their potential for safety risks and interactions with prescription medications. *Journal of Adolescent Health*, April 2006

Contents of Black Cohosh Products May Vary

Black cohosh (*Actea racemosa*) is an herb native to North America that is becoming more widely used in the United States for health purposes, primarily for menopause-related symptoms. Dr. Bei Jiang and colleagues at Columbia University, the City University of New York, and the Chinese Academy of Sciences recently analyzed the chemical components of 11 black cohosh products available in the United States. They found that four contained an Asian species of black cohosh—which is cheaper and easier for producers to find—either alone or in combination with North American black cohosh. Compared with the species cultivated in North America, the Asian variety has different chemical properties, is used in traditional Chinese medicine to treat different conditions, and may have different effects on the body. The remaining seven products contained only North American black cohosh, but with different proportions of the main chemical components.



Black cohosh

© Thomas G. Barnes @ USDA-NRCS PLANTS Database/Barnes, T.G. & S.W. Francis. 2004 Wildflowers and ferns of Kentucky. University Press of Kentucky.

The researchers concluded that the varying chemical makeup of black cohosh products may produce different health effects, and that methods are needed to ensure their quality and ingredients. *Journal of Agricultural and Food Chemistry*, May 3, 2006*

(continued on pg. 10)

Miller To Head NCCAM's Planning Office

Heather G. Miller, Ph.D., has been appointed Director of NCCAM's Office of Policy, Planning, and Evaluation (formerly the Office of Science Policy and Operations). In this position, she will serve as senior advisor to the Director of NCCAM on science, science policy, and other strategic issues, and oversee planning, evaluation, and reporting activities at the Center.

Dr. Miller joined NCCAM in 2003 as senior advisor for women's health. Previously at NIH, she was senior advisor to the deputy director of extramural research in the Office of the NIH Director, AIDS coordinator for the National Institute on Alcohol Abuse and Alcoholism, and a program officer at the National Institute of Allergy and Infectious Diseases. Dr. Miller received her doctorate in medical sociology and research methods from the George Washington University. ♦

* Editor's note: A recent review of data by the Medicines and Healthcare Products Regulatory Agency (MHRA) in Britain found that liver problems could result from taking black cohosh. The problems were rare, but potentially serious. The MHRA will now require that labels on black cohosh products in Britain carry an updated safety warning.

Turmeric and Rheumatoid Arthritis Symptoms

More than 2 million Americans suffer from rheumatoid arthritis (RA), a condition in which the body's immune system attacks the joints, causing pain, swelling, stiffness, and loss of function. The herb turmeric has been used for centuries in Ayurvedic medicine (a whole medical system that originated in India) as a treatment for inflammatory disorders, including RA. Janet Funk, M.D., and colleagues at the NCCAM-funded Center for Phytomedicine Research at the University of Arizona created symptoms in rats that mimic those of RA in humans. In a series of experiments, they treated the rats with different preparations and dosages of turmeric extracts. Some received treatment before developing the RA-like symptoms, others afterward. The results (mainly measured in terms of joint swelling) suggested to the authors that an extract processed to contain only curcuminoids (a family of chemicals that is the major component of turmeric; curcumin is one curcuminoid) may be more effective for preventing RA symptoms than a more complex extract containing curcuminoids plus other turmeric compounds (this is similar to commercially available supplements). They also noted that the curcuminoids-only formulas

New Collaboration Agreement



Stephen E. Straus, M.D., Director of NCCAM (second from left), is pictured with three colleagues from the People's Republic of China who, with NCCAM, signed a Letter of Intent on International Collaboration in Complementary, Alternative, and Traditional Medicine Research (nccam.nih.gov/research/oihr/intent.htm). Signed on April 19, 2006, the agreement will foster research collaboration and communication between the United States and China (at levels from individual researchers to large institutions) on traditional Chinese medicine. Pictured are (L to R) **Dr. Zhixiang Shen**, Director, Department of International Collaboration, State Administration of Traditional Chinese Medicine; **Dr. Straus**; **Mr. Hong Sun**, Deputy Director General, Department of Social Development, Science and Technology, Ministry of Science and Technology; and **Dr. Hongxin Cao**, President, China Academy of Chinese Medical Sciences.

appeared safer and more effective at lower doses. Also, the researchers found that the compounds had greater effectiveness when the rats were treated before instead of after the onset of inflammation. The authors identified a need for well-designed preclinical and clinical studies to look further into turmeric for anti-inflammatory use. *Journal of Natural Products*, March 2006

Vitamin C, Vitamin E, and Cancer

A longtime theory has argued that the adequacy of the supply of antioxidant vitamins to people's cells and tissues has a role in cancer's development, progress, and outcomes. A team headed by Ian

Coulter, Ph.D., of the Southern California Evidence-Based Practice Center at RAND, analyzed the literature (selecting 38 studies for detailed review) on whether two antioxidants—vitamin C and vitamin E—prevent, treat, and/or modify the risks for cancer. They concluded that neither of the supplements were effective for these purposes, at the doses and in the populations tested. They noted that there were a few isolated findings of benefit, but these would need to be studied further in order to be confirmed, and the findings from randomized clinical trials were generally negative. *Journal of General Internal Medicine*, July 2006 ❖

Three New Members Join NACCAM

U.S. Health and Human Services Secretary Mike Leavitt has appointed three new members to NCCAM's National Advisory Council for Complementary and Alternative Medicine (NACCAM; nccam.nih.gov/about/advisory/naccam/). The Council is composed of physicians, scientists, licensed CAM practitioners, and representatives of the public. Its members offer advice and recommendations on prioritizing, conducting, and supporting CAM research, research training, and the sharing of health information from NCCAM's research. The new members are as follows:

■ **Silvia Corvera, M.D.**, is professor in the Program in Molecular Medicine and the Department of Cell Biology at the University of Massachusetts Medical School. Dr. Corvera trained as an endocrinologist, and her research focus is greater understanding of type 2 diabetes.

■ **Bruce G. Redman, D.O.**, is clinical professor in the Department of Internal Medicine and chair of the Comprehensive Cancer Center Data Monitoring Committee at the University of Michigan. He is also an advisor to the U.S. Food and Drug Administration and an executive officer of Southwest Oncology Group. Dr. Redman's research focuses on new approaches to cancer treatment that work with the immune system's responses.

■ **Danny D. Shen, Ph.D.**, is professor and chair of the Department of Pharmacy at the University of Washington. He also directs the Pharmacokinetics Laboratory within the Clinical Research Division of the Fred Hutchinson Cancer Research Center. Dr. Shen's research focuses on interactions in the body between medications and herbal supplements, and on drug delivery to the central nervous system. ❖



The NACCAM met on June 8, 2006. *Back row:* Ted Kaptchuk, Tieraona Low Dog, Danny Shen, Bruce Redman, Lloyd Mayer (ad hoc member), David Hillis; *Middle row:* Carlo Calabrese, Jeannette Ezzo, Stefanie Vogel, Joe Pickar, Bala Manyam; *Front row:* Joan Fox, Deborah Cotton, Margaret Chesney (Acting Chair), Silvia Corvera; *Not pictured:* Jonathan Davidson, Alan Leshner, Robert Fullilove III, Larry Walker.

New from the Clearinghouse

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

■ **New Herbs at a Glance** fact sheets:

- Bilberry*
 - Flaxseed and Flaxseed Oil*
 - Garlic*
 - Ginger*
 - Green Tea*
 - Horse Chestnut*
 - Kava*
 - Licorice Root*
 - Red Clover*
 - Saw Palmetto*
 - Valerian*
- (nccam.nih.gov/health/herbs/ata glance.htm)

■ **Tai Chi for Health Purposes** (nccam.nih.gov/health/taichi/)

■ **A Spanish version of 10 Things To Know About Evaluating Medical Resources on the Web** (nccam.nih.gov/espanol/internet/)



CAM on PubMed has a new address—please change your bookmark to nccam.nih.gov/camonpubmed/. This service, developed jointly by NCCAM and the National Library of Medicine, includes a free, searchable database of abstracts of articles on CAM from scientific and medical journals, and in some cases links to the articles' full text. ❖

CAM at the NIH:

Focus on Complementary and Alternative Medicine

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NATIONAL CENTER FOR COMPLEMENTARY
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News for Researchers

NIH has begun requiring that grant applications be submitted via the Web portal Grants.gov (www.grants.gov) using Form SF 424 (Research and Related, or R&R, application). At least 2 weeks before submitting an application, institutions must register with Grants.gov, and principal investigators with eRA Commons. These changes are being phased in by grant mechanism (type of grant). For more information, see era.nih.gov/electronicreceipt.

Funding Opportunities

NCCAM has a new Web page for active funding announcements, including those below, at nccam.nih.gov/cgi-bin/grants/funding.pl.

PA-06-396 and PA-06-397: New Technologies for Liver Disease STTR and SBIR

Sponsors: NCCAM and seven other components of NIH. These opportunities—part of an NIH-wide

initiative on liver disease—will enlist members of the small business research community in developing new approaches (including from CAM) to diagnosing, treating, and preventing liver disease.

PAR-06-312: Biology of Manual Therapies

Sponsors: NIH (including NCCAM) and the Canadian Institutes of Health Research. These awards will support projects designed to gain insight on the mechanics of the body's response to manual therapies, such as chiropractic manipulation and massage therapy.

FIRCA-BB and FIRCA-BSS: International Research Collaborations—Basic Biomedical and Behavioral, Social Sciences

Sponsors: NCCAM and selected other components of NIH. This initiative seeks to establish collaborative research programs between NIH-funded investigators and others who are knowledgeable about indigenous medicine practices. ❖

NCCAM Exhibits at Upcoming National Meetings

- Society for Neuroscience Annual Meeting, October 15-18, Atlanta
- AARP National Event and Expo, October 26-28, Anaheim
- American Association for the Study of Liver Diseases Annual Meeting, October 28-30, Boston
- Society for Public Health Educators Annual Meeting, November 2-4, Boston
- Annual Biomedical Research Conference for Minority Students, November 9-11, Anaheim