

SYMPOSIUM

Progress in Complementary and Alternative Medicine Research

Yale Research Symposium on Complementary and Integrative Medicine

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Integrative Medicine at Yale and the Yale Center for Continuing Medical Education (CME†) sponsored the Yale Research Symposium on Complementary and Integrative Medicine in March 2010 at the university's School of Medicine. Delivering the keynote address, Dr. Josephine P. Briggs, Director of the National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH), highlighted recent progress made in the field of complementary and alternative medicine (CAM).

Complementary and alternative medicine (CAM) encompasses a wide range of therapies, systems, and products that are used along with or in place of conventional medical care. According to the National Center for Health Statistics, approximately 38 percent of adults and 12 percent of children in the United States are using some form of CAM [1]. The most common CAM therapies include non-vitamin and non-mineral natural products, deep breathing exercises, meditation, chiropractic or osteopathic manipulation, massage, and yoga

[1]. Though scientific evidence supports the utility of some CAM therapies, key questions regarding safety and efficacy prevent many of these treatments from being adopted into mainstream care. Those that are adopted must present some evidence of safety and effectiveness and are often combined with conventional healthcare, resulting in a field known as integrative medicine [2].

Given the popularity of CAM, many medical schools have begun to address it in their curricula, establish CAM research

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†Abbreviations: CME, Yale Center for Continuing Medical Education; NCCAM, The National Center for Complementary and Alternative Medicine; NIH, National Institutes of Health; CAM, complementary and alternative medicine; GEM, Ginkgo Evaluation of Memory; FDA, Food and Drug Administration.

centers, and form CAM interest groups. Integrative Medicine at Yale, established in 2007, is an interest group at the university's School of Medicine that provides a forum for Yale students, faculty, and clinicians to research and discuss CAM therapies. In March 2010, Integrative Medicine at Yale and the Yale Center for Continuing Medical Education (CME) brought together more than 170 clinicians, researchers, and students for the Yale Research Symposium on Complementary and Integrative Medicine.

In her keynote address, Dr. Josephine P. Briggs, Director of the National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH), observed that many of the large, prospective clinical studies funded by NCCAM in recent years have not yielded positive results. For example, the Ginkgo Evaluation of Memory (GEM) study, published in 2009, found that regular use of *Ginkgo biloba* did not slow cognitive decline in older adults with normal cognition or mild cognitive impairment, as compared to placebo [3]. Similar rigorous NCCAM-funded studies of using St. John's Wort for treating major depression [4], glucosamine and chondroitin for treating osteoarthritis [5,6], and echinacea for preventing and treating the common cold [7] also found these popular CAM therapies to be ineffective.

Despite the negative outcomes of recent studies, Briggs noted the importance of NCCAM-sponsored investigations. While efficacy testing may not always lead to novel treatments, it does inform the public and has an effect on CAM use patterns. Sales of echinacea products, for example, substantially declined following publication of NCCAM's echinacea trial in July 2005 [8]. Briggs reported that a similar decline in sales of *Ginkgo biloba* products is expected due to publication of the GEM study. NCCAM also has made it a priority to disseminate reliable, up-to-date information about CAM therapies on its Web site in an effort to further increase the public impact of NCCAM-funded research.

In addition to supporting clinical investigations, NCCAM has worked to increase

knowledge of the quality and safety of CAM products currently on the market. Briggs highlighted a 2008 NCCAM-funded study that found that one in five U.S.- and Indian-manufactured Ayurvedic supplements purchased online contains detectable amounts of arsenic, mercury, and lead [9]. This finding prompted the Food and Drug Administration (FDA) to issue an alert about Ayurvedic products, helping to increase public awareness of natural product safety issues. Additionally, to ensure the quality and safety of herbal and other natural products used in research, NCCAM's Product Integrity Working Group rigorously investigates all CAM products to be used in NCCAM-funded studies.

Many new horizons have opened as CAM research matures and several CAM-related research areas have yet to be explored. According to Briggs, promising avenues of future CAM research include determining the molecular targets of quercetins, curcumin, polyphenols, and other dietary small molecules; the active components of traditional Chinese medicines; the anti-inflammatory effects of omega-3 fatty acids at clinically significant concentrations; the effects of pre- and probiotics on the human microbiome; the neuroscience of mind-body interventions; the benefits of yoga and tai-chi for maintaining balance and avoiding falls in elderly patients; and the contribution of mind-body practices to symptom (especially pain) management.

Briggs concluded by emphasizing that NCCAM is dedicated to encouraging an open and informed dialogue between health-care practitioners and their patients regarding CAM. Indeed, given CAM's popularity among patients, NCCAM's effort to strengthen the science of CAM may be most valuable if it helps to improve patient care in clinical settings.

REFERENCES

1. Barnes PM, Bloom B, Nahin RL. Complementary and Alternative Medicine Use Among Adults and Children: United States, 2007. National Health Statistics Reports, No. 12. Hyattsville, MD: National Center for Health Statistics; 2008.

2. National Center for Complementary and Alternative Medicine (NCCAM), National Institutes of Health. NCCAM Publication No. D347 [Internet]. Cited 12 June 2010. Available at <http://nccam.nih.gov/health/whatiscam/D347.pdf>.
3. Snitz BE, O'Meara ES, Carlson MC, et al. Ginkgo biloba for preventing cognitive decline in older adults: a randomized trial. *JAMA*. 2009;302(24):2663-70.
4. Hypericum Depression Trial Study Group. Effect of *Hypericum perforatum* (St. John's wort) in major depressive disorder: a randomized controlled trial. *JAMA*. 2002;287(14):1807-14.
5. Clegg DO, Reda DJ, Harris CL, et al. Glucosamine, chondroitin sulfate, and the two in combination for painful knee osteoarthritis. *N Engl J Med*. 2006;354(8):795-808.
6. Sawitzke AD, Shi H, Finco MF, et al. The effect of glucosamine and/or chondroitin sulfate on the progression of knee osteoarthritis: a report from the glucosamine/chondroitin arthritis intervention trial. *Arthritis Rheum*. 2008;58(10):3183-91.
7. Turner RB, Bauer R, Woelkart K, et al. An evaluation of *Echinacea angustifolia* in experimental rhinovirus infections. *N Engl J Med*. 2005;353(4):341-8.
8. Ferrier GKL, Thwaites LA. US consumer herbal and herbal botanical supplement sales. *Nutrition Business Journal*. 2006.
9. Saper RB, Phillips RS, Sehgal A, et al. Lead, mercury, and arsenic in US- and Indian-manufactured Ayurvedic medicines sold via the Internet. *JAMA*. 2008;300(8):915-23.