

# Office of Dietary Supplements Update

National Institutes of Health  
U.S. Department of Health and Human Services

## ODS Surveys Dietary Supplement Education in Academia

From October through the end of January, ODS conducted a comprehensive survey on dietary supplement education in the nation's academic institutions. The purpose was to learn the extent to which any significant, focused instruction on dietary supplements and their role in health and disease is being provided to graduate and health-professional students in departments or schools of nutrition, food science, medicine, nursing, dentistry, pharmacology and pharmacy, kinesiology and exercise science, and complementary and alternative medicine.

disciplines were asked to complete the survey instrument. Given the formal, comprehensive nature of the endeavor, permission to conduct the survey was obtained from the U.S. Office of Management and Budget. Survey administration and data collection were designed and implemented by Lockheed Martin Information Technology, a contractor. The entire project has been coordinated by Dr. Mary Frances Picciano, ODS Senior Nutrition Research Scientist and Dr. Paul Thomas, ODS Scientific Consultant.

All schools in the United States offering degree programs in each of these

Surveyed faculty were asked to describe the instructional methods they use

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## ODS to Conduct Course on Dietary Supplements

ODS has designed a 5-day intensive practicum to provide fundamental knowledge of dietary supplements to faculty, PhD students, and post-docs at academic institutions; healthcare practitioners; and other professionals with biomedical degrees. Titled *Current Issues and Recent Developments in Dietary Supplement Research*, the practicum has three main goals:

(1) provide participants with a thorough overview and grounding about issues, concepts, controversies, and unknowns about dietary supplements and supplement ingredients (a crosscutting

theme will be the importance of scientific investigations to evaluate the efficacy, safety, and value of these products for health promotion and disease prevention and treatment),

(2) provide participants with information, ideas, and resources so that they will be more likely to provide some or more instruction about dietary supplements at their academic institutions, and (3) instill interest among students and investigators attending the practicum to consider undertaking research on dietary supplements.

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[HTTP://ODS.OD.NIH.GOV](http://ods.od.nih.gov)

## News for Researchers

ODS collaborates on funding initiatives across NIH and with other agencies through mechanisms such as Requests for Applications (RFAs) and Program Announcements (PAs). Several are highlighted below. For further information on them and other ODS-funded opportunities, visit [http://dietary-supplements.info.nih.gov/Funding/PAs\\_and\\_RFAs.aspx](http://dietary-supplements.info.nih.gov/Funding/PAs_and_RFAs.aspx).

NOTE: NIH has instituted a new process for submitting R01 grant applications. Go to <http://era.nih.gov/ElectronicReceipt> for details.

### **Chronic Fatigue Syndrome (CFS): Pathophysiology and Treatment (PA-07-263)**

CFS is a debilitating and complex syndrome involving multiple body systems, characterized by profound fatigue that is not improved by bed rest. Neither a specific cause(s) nor any specific diagnostic test(s) has been identified. This initiative would fund interdisciplinary research that takes a systems perspective to enhance knowledge of the disease process and improve the diagnosis, treatment, and quality of life of all persons with CFS. The integration of basic research with clinical observations is encouraged, as is research within or across scientific disciplines and institutions.

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### **Survey of Supplement Education (continued from page 1)**

to provide instruction on dietary supplements (e.g., a course, seminar, or one or more lectures in a course) and to provide ODS with materials describing each program's content (such as syllabi, goals and objectives, assignments, and readings). Other questions asked respondents to identify what resources would be of value for incorporation into teaching activities about supplements and the factors working against providing more (or any) instruction on this topic.

ODS will use the survey responses for several purposes, including (1) publishing a report about the nature and extent of dietary supplement education in the United States at the post-baccalaureate level, (2) identifying information and resource needs that ODS can provide or develop, (3) establishing networks with an important group of stakeholders to ODS, and (4) helping to determine the content of a one-week intensive practicum on dietary supplements that ODS will conduct for the first time in May 2007 (see related article).

Over time, ODS hopes to promote, expand, and enhance high-quality instruction to strengthen knowledge and understanding of dietary supplements. This survey will provide a basis for knowing where to start. Another goal for this broad ODS initiative is to expand the cadre of research scientists qualified by training and career development to undertake investigations on dietary supplements, with particular emphasis on young investigators, minorities, and women.

In effect, the survey is soliciting input from academic faculty so that together we may provide more and better education about supplements to students and possibly even encourage some of them to pursue research in this area.

## New ODS Staff

### **Cindy Lentino, BA**

Cindy is a part-time Program Assistant working with Dr. Rebecca Costello on various projects, which include coordinating the production of the *Annual Bibliography of Significant Advances in Dietary Supplement Research*. She received her B.A. in Biology at Texas A&M University and is pursuing an M.S. in Exercise Science & Nutrition at The George Washington University.



## CARDS Database Expanded

The Computer Access to Research on Dietary Supplements (CARDS) database provides information on dietary supplement-related projects funded by the federal government since fiscal year (FY) 1999. CARDS has been updated to include projects funded by the Institutes and Centers of the NIH in FY2005 and of the United States Department of Agriculture in FY2003. CARDS contains approximately 6,000 records of federally funded research projects on dietary supplements. Access the CARDS database at [http://dietary-supplements.info.nih.gov/Research/CARDS\\_Database.aspx](http://dietary-supplements.info.nih.gov/Research/CARDS_Database.aspx).

## Advances in Dietary Supplement Research

- *The association of calcium and vitamin D with risk of colorectal adenomas.*
- *Effects of long-term vitamin E supplementation on cardiovascular events and cancer: a randomized controlled trial.*
- *Chitosan supplementation and fat absorption in men and women.*

What do the titles of these published research papers have in common? They are among the 25 judged by a group of internationally recognized scientists as representative of good studies on dietary supplements published in scientific journals in 2005 and reflecting the accumulating scientific evidence on these products. Abstracts of the 25 studies have been published by ODS in its publication, *Annual Bibliography of Significant Advances in Dietary Supplement Research 2005*.

In their introduction, ODS bibliography editors Rebecca Costello and Leila Saldanha noted that while overall study quality has been improving, the actual dietary supplement products used are often not described in sufficient detail that would enable other researchers to confirm the findings. ODS makes available a set of resource documents and guidelines for adequately characterizing test materials used in natural-products research on its web site at <http://dietary-supplements.info.nih.gov/Research/ProductQualityResources.aspx>.

The Annual Bibliography has been issued by ODS since 1999. Each issue is available in its entirety in PDF format on the ODS web site at [http://dietary-supplements.info.nih.gov/Research/Annual\\_Bibliographies.aspx](http://dietary-supplements.info.nih.gov/Research/Annual_Bibliographies.aspx).

## Events: Past and Upcoming

January 19-21, 2007

### **Scripps Center for Integrative Medicine, 4th Annual Conference. Natural Supplements: An Evidence-Based Update**

San Diego, CA

Drs. Joseph Betz and Rebecca Costello spoke at a session titled *A Systematic Approach to Study the Effects of Natural Supplements on the Coagulation System*.

April 28-May 2

### **Experimental Biology Annual Meeting**

Washington, DC

<http://www.eb2007.org>

Dr. Christine Swanson will present at this meeting. ODS will also be exhibiting here. Stop by to learn more about us, meet our staff, and pick up some of our materials.

May 3

### **Council for Responsible Nutrition, Day of Science**

Washington, DC

<http://www.crnusa.org>

Dr. Paul Coates will give a presentation titled *Role of Meta-Analysis in Evidence-Based Reviews*. Dr. Joseph Betz's talk is titled *Identification, Characterization and Ensuring Product Quality for Clinical Trials*.

**News for Researchers** (continued from page 1)

### ***In Utero Exposure to Bioactive Food Components and Mammary Cancer Risk (PA-07-178)***

The prenatal period is critical in the development of the mammary gland, where it is in a largely undifferentiated state and particularly vulnerable to a host of environmental forces. Inappropriate nutritional status or exposure to environmental chemicals and the accompanied alteration in growth and endocrine homeostasis may permanently change the fetus' structure, physiology, and metabolism, thereby predisposing it to various diseases in later life. Applications are encouraged that apply new high-throughput genomic, epigenomic, proteomic, and metabolomic technologies to determine how dietary exposures in utero influence adult breast cancer susceptibility.

### ***Nutrition and Diet in Causation, Prevention, and Management of Heart Failure (PA-07-139)***

Applications are being sought on the role of nutrition and diet in the causation, prevention, and treatment of cardiomyopathies and heart failure. Basic, translational, and applied interdisciplinary research applications in animals or humans are of interest. The overall goal is to develop a science base for preventive approaches in high-risk individuals and for rational nutritional management of patients in various stages of heart failure.

### **Dietary Supplement Course (continued from page 1)**

Practicum attendees will hear from presenters drawn primarily from ODS, NIH, academia, and federal agencies. Sessions will address, for example, supplement use and reasons for use; the rules and regulations governing supplements; contrasts between bringing foods, drugs, and supplements to market; ingredient characterization and quality control; methodologies employed to evaluate the efficacy, safety, and health effects of foods and supplements; conducting studies on supplements; the use of science to develop advice and public policies about these products; and communicating scientific information about supplements to various audiences.

For one day, participants will leave the classroom and head to the U.S. Congress and another Washington DC location to visit with representatives of stakeholder groups that study, advocate, regulate, or educate about dietary supplements. These groups will include Congress, supplement industry trade associations, professional nutrition societies, consumer-advocacy groups, non-profit advisory bodies, and media. On another afternoon, participants will meet to learn, by instruction and practice, the purpose and value of several databases that inform users about research on dietary supplement ingredients, identify the contribution of dietary supplements to total nutrient intakes from all sources, and provide data on the nutrient content of specific foods.

The first intensive practicum is scheduled for May 21-25 on the main campus of the NIH for faculty and graduate students in academic departments of nutrition and food science (department chairs will receive a letter of invitation). Future practicums will be open to graduate and health-professional students and faculty in departments or schools of medicine, nursing, dentistry, pharmacology and pharmacy, kinesiology and exercise science, and complementary and alternative medicine. There is no charge to attend the practicum, but participants will be responsible for their travel, accommodations, and meals. The ODS web site will provide details about future dates the practicum will be offered and the application and registration process.

## **ODS Involved in Activities on Vitamin D**

The sunshine vitamin is enjoying a renaissance of interest. The most recent recommended dietary allowance (RDA) for vitamin D was issued in 1997 based on its roles in maintaining adequate calcium metabolism and good bone health. Since that time, evidence has accumulated that this nutrient is also involved in cardiovascular health, immune and neuromuscular function, and the regulation of cell growth; that many people may have lower than optimal blood levels of this nutrient (particularly during the winter months); and that amounts larger than the current upper safe level of intake may not be as toxic as previously thought. However, many uncertainties remain.

In 2003, ODS sponsored a conference with the National Institute of Child Health and Human Development titled *Vitamin D and Health in the 21st Century*:

*Bone and Beyond*. The proceedings of were published in the December 2004 *American Journal of Clinical Nutrition*. In an effort to provide a timely reevaluation of vitamin D research and monitoring activities, ODS has partnered with other federal agencies on subsequent activities that will come to fruition this year. These activities include:

- Sponsoring an evidence-based review by the federal Agency for Healthcare Research and Quality (AHRQ) on the association between specific blood concentrations of 25-hydroxyvitamin D and bone health outcomes as well as the safety of the vitamin above currently recommended intakes.
- Funding the development of standard reference materials for 25-hydroxy vitamin D2 and D3 by the National Institute for Standards and Technology.

- Supporting the collection of new population data on vitamin D status as part of the National Health and Nutrition Examination Survey (NHANES) conducted by the National Center for Health Statistics.

- Funding the U.S. Department of Agriculture to develop analytical methods to assess vitamin D2 and D3 in foods and dietary supplements.

- Assembling a federal vitamin D planning committee to formally review the AHRQ report and develop a conference based on the report, followed by a smaller workshop to identify research needs and priorities.

Dr. Patsy M. Brannon, a professor of nutrition at Cornell University, has joined ODS on a temporary basis to coordinate and oversee our vitamin D activities.

## Recent Publications by ODS Staff

- *Paul M. Coates and John A. Milner.* Bioactive components in foods and supplements for health promotion. Chapter 70 in *Present Knowledge in Nutrition*, Ninth Edition, edited by Barbara A. Bowman and Robert M. Russell. ILSI Press, Washington, DC. Pages 959-967.
- Claudine Kavanaugh, Harold Seifried, Kathleen Ellwood, *Elizabeth Yetley, Christine Swanson,* and John Milner. A research agenda for biomarkers as indicators of cancer risk reduction following dietary manipulation. *Journal of Nutrition* 136(10):2666S-2667S, October 2006.
- Jeanene J. Fogli-Cawley, *Johanna T. Dwyer,* Edward Saltzman, Marjorie L. McCullough, Lisa M. Troy, and Paul F. Jacques. The 2005 Dietary Guidelines for Americans Adherence Index: development and application. *Journal of Nutrition* 136(11):2908-2915, November 2006.
- Lindsay Reaves, Lyn M. Steffen, *Johanna T. Dwyer,* Larry S. Webber, Leslie A. Lytle, Henry A. Feldman, Deanna M. Hoelscher, Michelle M. Zive, and Stavroula K. Osganian. Vitamin supplement intake is related to dietary intake and physical activity: the Child and Adolescent Trial for Cardiovascular Health (CATCH). *Journal of the American Dietetic Association* 106(12):2018-2023, December 2006.

Multivitamin/mineral supplements and chronic disease prevention. Supplement to *The American Journal of Clinical Nutrition*, January 2007, Volume 85, Number 1. This issue contains papers prepared from the May 15-17, 2006 ODS-sponsored NIH State-of-the-Science conference to assess the available evidence on the safety and efficacy of vitamin/mineral dietary supplements to help prevent chronic diseases. The papers include the following:

- *Paul M. Coates, Johanna T. Dwyer,* and *Anne L. Thurn.* Introduction to State-of-the-Science Conference: Multivitamin/mineral supplements and chronic disease prevention. Pages 255S-256S.
  - *Elizabeth A. Yetley.* Multivitamin and multimineral dietary supplements: definitions, characterization, bio-availability, and drug interactions. Pages 269S-276S.
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