



The American Journal of CLINICAL NUTRITION

*A Publication of The American Society
for Nutrition, Inc*

FEBRUARY 2006 • VOLUME 83 • NUMBER 2

WWW.AJCN.ORG

ISSN 0002-9165

EDITORIALS

The innate immune system: friend and foe. *CB Stephensen and DS Kelley* See corresponding article on page 331. **187**

Fast food and sedentary lifestyle: a combination that leads to obesity. *DR Jacobs Jr* See corresponding article on page 362. **189**

REVIEW ARTICLE

The acute and chronic toxic effects of vitamin A. *KL Penniston and SA Tanumihardjo* **191**

ORIGINAL RESEARCH COMMUNICATIONS

Obesity and eating disorders

Associations of body fat and its changes over time with quality of life and prospective mortality in hemodialysis patients. *K Kalantar-Zadeh et al* **202**

Effect of a high-protein breakfast on the postprandial ghrelin response. *WAM Blom et al* **211**

Lipids

Effects of dietary saturated, monounsaturated, and n-3 fatty acids on blood pressure in healthy subjects. *BM Rasmussen et al* **221**

Effect of a low-fat diet on fatty acid composition in red cells, plasma phospholipids, and cholesterol esters: investigation of a biomarker of total fat intake. *IB King et al* **227**

Cardiovascular disease risk

Effects of butter high in ruminant *trans* and monounsaturated fatty acids on lipoproteins, incorporation of fatty acids into lipid classes, plasma C-reactive protein, oxidative stress, hemostatic variables, and insulin in healthy young men. *T Tholstrup et al* **237**

Effect of soy protein varying in isoflavone content on serum lipids in healthy young men. *BL McVeigh et al* **244**

Nutritional status, dietary intake, and body composition

Optimized predictions of absolute and relative amounts of body fat from weight, height, other anthropometric predictors, and age. *I Larsson et al* **252**

Effects of variation in protein and carbohydrate intake on body mass and composition during energy restriction: a meta-regression. *JW Krieger et al* **260**

Carbohydrate metabolism and diabetes

Whole grains, bran, and germ in relation to homocysteine and markers of glycemic control, lipids, and inflammation. *MK Jensen et al* See corresponding CME exam on page 392. **275**

Potato and french fry consumption and risk of type 2 diabetes in women. *TL Halton et al* **284**

Energy and protein metabolism

Methionine kinetics are altered in the elderly both in the basal state and after vaccination. *S Mercier et al* **291**

Vitamins, minerals, and phytochemicals

Human vitamin E requirements assessed with the use of apples fortified with deuterium-labeled α -tocopheryl acetate. *RS Bruno et al* **299**

Absorption of iron from recombinant human lactoferrin in young US women. *B Lönnnerdal and A Bryant* **305**

Absorption of calcium from milks enriched with fructo-oligosaccharides, caseinophosphopeptides, tricalcium phosphate, and milk solids. *E López-Huertas et al* **310**

Pregnancy and lactation

Bone calcium turnover during pregnancy and lactation in women with low calcium diets is associated with calcium intake and circulating insulin-like growth factor 1 concentrations. *KO O'Brien et al* **317**

Growth, development, and pediatrics

Upward weight percentile crossing in infancy and early childhood independently predicts fat mass in young adults: the Stockholm Weight Development Study (SWEDES). *U Ekelund et al* **324**

Immunity

Dose-related effects of eicosapentaenoic acid on innate immune function in healthy humans: a comparison of young and older men. *D Rees et al* See corresponding editorial on page 187. **331**

Cancer

Fiber, sex, and colorectal adenoma: results of a pooled analysis. *ET Jacobs et al* **343**

Continued on Table of Contents inside

SUPPLEMENTS

Living Well to 100: Nutrition, Genetics, Inflammation **397S**

Looking Ahead in Honoring the Past **491S**



The American Journal of Clinical Nutrition

Subscription Room L-2407A, 9650 Rockville Pike, Bethesda, MD 20814-3998 USA
Phone: 301/634-7029 Fax: 301/634-7099 E-Mail: staff@dues.faseb.org

An Official Journal of The American Society for Nutrition, Inc.

- *AJCN* has the highest ISI impact among peer-reviewed nutrition and dietetics journals.
- Each month, *AJCN* provides the very latest original research in human nutrition.



SUBSCRIPTION INFORMATION 2006

Subscription rates include *AJCN* online access!

	USA	INTERNATIONAL	
		Mexico & Canada	Elsewhere
Individual Online	175.00	175.00	175.00
Individual Online & Print	200.00	225.00	250.00
Institutional Online	400.00	400.00	400.00
Institutional Online & Print	415.00	440.00	465.00
Student Online	60.00	60.00	60.00
Student Online & Print	85.00	110.00	135.00

Subscriptions are eligible to claim two missing issues per calendar year. Prepayment on international orders is required. Checks must be in U.S. dollars and drawn on a U.S. bank. International subscriptions are shipped by expedited mail. Students must provide certification. EIN# 84-6036974

TAXES: Canada 7%; Maryland 5%; DC 6%

Name: _____ E-mail: _____

Address: _____

Phone: _____ Fax: _____

Credit Card Number: _____ Expiration Date: _____

Credit Card Type: American Express Visa Master Card

Name as it Appears on the Card: _____ Signature: _____

Bank transfer: Please add \$20 US for each bank/wire transfer.
Bank of America Wire Transfer Department MD 4-301-1630
Flagship Branch, ASCN Account No. 2003610177, Routing No. 0260-0959-3
Bank of America, 10299 Rockville Pike, Bethesda, MD 20852, USA.

Average Publication Time of 4 Months

Articles accepted for publication in *The American Journal of Clinical Nutrition (AJCN)* are now published, on average, within 4 months of acceptance. Many articles are published within 3 months of acceptance.

CME Credits Now Available through the AJCN

In the September 2005 issue, the *AJCN* inaugurated a new feature of offering Continuing Medical Education (CME) credits as an option to its readers. Each issue of the *AJCN* will usually include 2 CME programs. Detailed instructions on how to complete CME programs can be found at the top of the page before each CME exam. Those who successfully complete a CME program will receive 1 hour of category 1 credit toward the American Medical Association (AMA) Physician's Recognition Award. The Editors hope this feature will enhance the educational purposes of the *AJCN*.

Call for Nominations

The World Food Prize Foundation requests and invites nominations for the 2006 World Food Prize from academic or research institutions, private or public organizations, corporate entities, and governmental units. The World Food Prize, which has been referred to as “the Nobel Prize for Food and Agriculture,” is the foremost international award recognizing individuals who have alleviated suffering, advanced human development, and enhanced health and nutrition by improving the quality, quantity, or availability of food in the world. Nominations are sought for individuals who have made a specific, exceptionally significant achievement at any point along the full range of the food production and distribution chain, in fields including, but not limited to, plant and animal science; water, soil, or natural resource management; food science and technology; nutrition; transportation and distribution; development or relief programs; and policy, economics, finance, or advocacy.

Nominations for the 2006 World Food Prize should be submitted in electronic and hard-copy forms by March 1, 2006, to The World Food Prize Secretariat, 666 Grand Avenue, Suite 1700, Des Moines, IA 50309. E-mail: wfp@worldfoodprize.org. Nominations should include biographical information on the nominee(s), a statement describing the specific achievement, a statement documenting the impact of the achievement, a letter of nomination from the head of the nominating organization, two or more letters seconding the nomination from individuals not associated with the nominating organization, and other supporting documents.

The World Food Prize has previously been conferred upon 24 Laureates from around the globe. This prestigious award is officially presented in a special Laureate Award Ceremony held in Des Moines each year on or near World Food Day in mid-October. Please visit www.worldfoodprize.org for full details on nomination requirements, procedure, and selection criteria.

Call for Applications

Top researchers from across the country have again been invited to apply for 10 incentive grants of \$10 000 each for grant proposals on soy and human health for eventual submission to the National Institutes of Health (NIH).

The United Soybean Board (USB) is once again offering up to \$100 000 in incentive grants to researchers who develop the best research concepts on soy and human health.

This is the seventh year that the incentive grants have been offered. In addition to welcoming proposals dealing with soy protein, isoflavones, etc, funds have been earmarked for at least (but not limited to) two proposals dealing with soybean oil and human health. If oil proposals of high merit are not received, the earmarked funds will be used for other types of proposals.

A simplified application process has been developed that includes an official Application Cover Form and a four-page narrative of the research proposed.

Applications to the program are due by March 15, 2006. Selected applicants will then be required to submit full grant proposals to the NIH to meet the June 1 or October 1 NIH deadline.

For more information, call (888) 772-8449 or send an e-mail inquiry to sarahy@communiqueinc.com.

Calendar of Events

**New to this month's Calendar of Events.*

February 9–11, 2006

33rd Annual Current Topics in Geriatrics, Baltimore, MD. Provided by the Johns Hopkins University School of Medicine, Department of Geriatric Medicine. CME credit available. For further information, contact the Johns Hopkins University School of Medicine, Office of Continuing Medical Education, Turner 20, 720 Rutland Avenue, Baltimore, MD 21205. Phone: (410) 955-2959. Fax: (410) 955-0807. E-mail: cmenet@jhmi.edu. Internet: www.hopkinscme.net.

March 19–24, 2006

7th Winters Research Conferences on Free Radicals in Biology, Les Houches, Haute-Savoie, France. Sponsored by CERLIB. For further information, contact Professor Alain Favier, Hôpital Nord, DBI, Pavillon B, BP 217, 38043 Grenoble Cedex 9, France. Phone: 33 04 76 76 54 84. Fax: 33 04 76 76 56 64. E-mail: imichel@chu-grenoble.fr. Internet: http://www.sante.ujf-grenoble.fr/PHARMA/cerlib/houches2005.html.

March 20–22, 2006

Seventh Advances in Pediatric Nutrition, Baltimore, MD. Sponsored by the Johns Hopkins University School of Medicine, Department of Anesthesiology and Critical Care Medicine. CME credit available. For further information, contact the Conference Coordinator, Johns Hopkins University School of Medicine, Office of Continuing Medical Education, Turner 20, 720 Rutland Avenue, Baltimore, MD 21205-2195. Phone: (410) 955-2959. Fax: (410) 955-0807. E-mail: cmenet@jhmi.edu. Internet: www.hopkinscme.net.

March 31–April 1, 2006

Endocrinology and Metabolism: An Update for the Primary Care Physician, Baltimore, MD. Provided by the Johns Hopkins University School of Medicine. CME credit available. For further information, contact the Johns Hopkins University School of Medicine, Office of Continuing Medical Education, Turner 20, 720 Rutland Avenue, Baltimore, MD 21205-2195. Phone: (410) 955-2959. Fax: (410) 955-0807. E-mail: cmenet@jhmi.edu. Internet: www.hopkinscme.net.

April 1–5, 2006*

Experimental Biology 2006, San Francisco, CA. Sponsored by the Federation of American Societies for Experimental Biology. For further information, contact the Office of Scientific Meetings, FASEB, 9650 Rockville Pike, Bethesda, MD 20814-3998. Phone: (301) 634-7010. Fax: (301) 634-7014. E-mail: eb@faseb.org. Internet: http://www.faseb.org/meetings/eb2006/default.htm.

April 21, 2006

Johns Hopkins Head and Neck Cancer Conference: An Update on Research and Clinical Care of the Whole Person, Towson, MD. Sponsored by the Johns Hopkins University School of Medicine, Department of Otolaryngology–Head and Neck Surgery. CME credit available. For further information, contact the Conference Coordinator, Johns Hopkins University School of Medicine, Office of Continuing Medical Education, Turner 20, 720 Rutland Avenue, Baltimore, MD 21205-2195. Phone: (410) 955-2959. Fax: (410) 955-0807. E-mail: cmenet@jhmi.edu. Internet: www.hopkinscme.net.

May 1–2, 2006

IANA 2006 Symposium on Nutrition and Alzheimer's Disease/Cognitive Decline, InterContinental Hotel, Chicago, IL. Sponsored by the International Academy of Nutrition and Aging (IANA) and the Rush Institute for Healthy Aging, Rush University Medical Center. For further information, contact Martha Westbrook, 1645 W Jackson Ste 675, Chicago, IL 60612. Phone: (312) 942-3350. Fax: (312) 942-2861. E-mail: martha_westbrook@rush.edu. Internet: www.crha.rush.edu/IANA2006Symposium.

June 21–23, 2006

Gut Microbiology: Research to Improve Health, Immune Response and Nutrition, Aberdeen, United Kingdom. Organized by the Rowett Research Institute, Aberdeen, United Kingdom and the Institut National de la Recherche Agronomique, Clermont-Ferrand-Theix, France. For further information, contact Vera Smith, RRI-INRA Secretariat, Rowett Research Institute, Greenburn Road, Bucksburn, Aberdeen AB21 9SB, United Kingdom. Phone: 44 1224 712751 ext 3260. Fax: 44 1224 716687. E-mail: v.smith@rowett.ac.uk. Internet: www.rowett.ac.uk/RRI-INRA2006.

June 23–25, 2006*

Building Leadership Skills in Food and Nutrition Essential for National Development, Mysore, India. Sponsored by the Central Food Technological Research Institute, United Nations University, International Union of Nutrition Sciences, International Nutrition Foundation, Tufts University, and others. The following 2 training courses will be held in association with the symposium: Enhancing the Efficiency of Nutritional Investigations (June 19–22, 2006) and Metrological Concepts for Strengthening Food and Nutritional Measurements (June 26–30, 2006). For further information, contact Dr V Prakash, Director, Central Food Technological Research Institute, Mysore 570 020, India. Phone: 91 821 251 7760. Fax: 91 821 251 6308. E-mail: prakash@cftri.com or nutrileader@cftri.com.

July 1–5, 2006

12th International Symposium on Viral Hepatitis and Liver Disease, Paris, France. Sponsored by Schering, Roche, and BMS. For further information, contact ISVHLD 2006 c/o MCI France, 11, rue de Solférino, 75007 Paris, France. Phone: 33 53 85 82 68. Fax: 33 53 85 82 83. E-mail: isvhld2006@mcigroup.com. Internet: www.isvhld2006.com.

October 6–8, 2006

Third Madras Diabetes Research Foundation (MDRF)–American Diabetes Association (ADA) Postgraduate Course on Diabetes, Chennai, India. Hosted by the Madras Diabetes Research Foundation. For further information, contact Dr V Mohan or Dr Rema Mohan, Madras Diabetes Research Foundation & Dr Mohan's Diabetes Specialities Center, No. 4 Conran Smith Road, Gopalapuram, Chennai 600 086, India. Phone: 91 44 28359048, 91 44 28359051, 91 44 28353351. Fax: 91 44 28350935. E-mail: mvdsc@vsnl.com. Internet: www.mdrf-ada.com and www.drmoahnsdiabetes.com.