CONTENTS

ARTICLES

Recent Advances in Nutritional Sciences
Regulation of the Insulin Gene by Glucose and Fatty Acids. Vincent Poitout, Derek Hagman, Roland Stein, Isabella Arnter, R. Paul Robertson, and Jamie S. Harmon ......................................................... 873

Biochemical, Molecular, and Genetic Mechanisms
Triglyceride-Rich HDL₃ from Patients with Familial Hypercholesterolemia Are Less Able to Inhibit Cytokine Release or to Promote Cholesterol Efflux. Inger O. Ottestad, Bente Halvorsen, Trude R. Babstal, Kari Otterdal, Grethe I. Borge, Frank Brostad, Anne M. Myhre, Leiv Ose, Marit S. Nenseter, and Kirsten B. Holven .............................................................. 877
Polyunsaturated Fats Attenuate the Dietary Phytol–Induced Increase in Hepatic Fatty Acid Oxidation in Mice. Toru Hashimoto, Naoto Shimizu, Toshinori Kimura, Yoko Takahashi, and Takashi Ide ......................................................... 882
Human Mammary Epithelial Cells Express CYP27B1 and Are Growth Inhibited by 25-Hydroxyvitamin D-3, the Major Circulating Form of Vitamin D-3. Carly M. Kemmis, Sally M. Salvador, Kelly M. Smith, and JoEllen Welsh .......... 887
Trans-10,cis-12, Not cis-9,trans-11, Conjugated Linoleic Acid Inhibits G1-S Progression in HT-29 Human Colon Cancer Cells. Han Jin Cho, Eun Ji Kim, Soon Sung Lim, Mi Kyung Kim, Mi-Kyung Sung, Jong-Sang Kim, and Jing Han Yoon Park .................................................................... 893

Nutrient Physiology, Metabolism, and Nutrient-Nutrient Interactions
Differential Effects of Isoflavones, from Astragalus Membranaceus and Pueraria Thomsonii, on the Activation of PPAR xen, PPARγ, and Adipocyte Differentiation In Vitro. P. Shen, M. H. Liu, T. Y. Ng, Y. H. Chan, and E. L. Yong .......... 899
Sesamin Is One of the Major Precursors of Mammalian Lignans in Sesame Seed (Sesamum indicum) In Vitro and in Rats. Zhen Liu, Niina M. Saarinen, and Lilian U. Thompson ......................................................... 906
Dietary Fibers Affect Viscosity of Solutions and Simulated Human Gastric and Small Intestinal Digesta. Cheryl L. Dikeman, Michael R. Murphy, and George C. Fahey Jr. ......................................................... 913
Demonstrating Zinc and Iron Bioavailability from Intrinsically Labeled Microencapsulated Ferrous Fumarate and Zinc Gluconate Sprinkles in Young Children. Stanley H. Zlotkin, Claudia Schauer, Seth Owusu Agyei, Julian Wolfson, Melody C. Tondeur, Kwaku P. Asante, Samuel Newton, Robert E. Serfass, and Waseem Sharieff 920
The Production of 10-Hydroxystearic and 10-Ketostearic Acids Is an Alternative Route of Oleic Acid Transformation by the Ruminal Microbiota in Cattle. Thomas C. Jenkins, Amer A. AbuGhazaleh, Sharon Freeman, and Evanne J. Thies 926
Dietary Lycopene Downregulates Carotenoid 15,15′-Monooxygenase and PPAR-γ in Selected Rat Tissues. Susan Zaripheh, Takayuki Y. Nara, Manabu T. Nakamura, and John W. Erdman Jr. ......................................................... 932
The Modified-Relative-Dose-Response Values in Serum and Milk Are Positively Correlated over Time in Lactating Sows with Adequate Vitamin A Status. Rebecca L. Sturles, Jiakang Li, and Sherry A. Tanumihardjo ......................................................... 939
Administration of Equol-Producing Bacteria Alters the Equol Production Status in the Simulator of the Gastrointestinal Microbial Ecosystem (SHIME). Karel Decroos, Ellen Eeckhaut, Sam Possemiers, and Willy Verstraete ......................................................... 946
**Nutrient Requirements and Optimal Nutrition**

Molybdenum Kinetics in Men Differ during Molybdenum Depletion and Repletion. Janet A. Novotny and Judith R. Turnlund 953

Leucine Is Not a Good Choice as an Indicator Amino Acid for Determining Amino Acid Requirements in Men. Jean W-C. Hsu, Wantanee Kriengsinyos, Linda J. Wykes, Mahroukh Rafii, Laksiri A. Goonewardene, Ronald O. Ball, and Paul B. Pencharz 958


**Nutrition and Disease**

High Cholesterol Intake Modifies Chylomicron Metabolism in Normolipidemic Young Men. Thais B. César, Maria Rita M. Oliveira, Carlos H. Mesquita, and Raul C. Maranhão 971


Consumption of Bing Sweet Cherries Lowers Circulating Concentrations of Inflammation Markers in Healthy Men and Women. Darshan S. Kelley, Reuven Rasooly, Robert A. Jacob, Adel A. Kader, and Bruce E. Mackey 981

Fish Oil Increases Bile Acid Synthesis in Male Patients with Hypertriglyceridemia. Iris J. A. M. Jonkers, Augustinus H. M. Smelt, Hans M. G. Princen, Folkert Kuipers, Johannes A. Romijn, Renze Boverhof, Ad A. M. Maslee, and Frans Stellato 987

Diets Rich in Conjugated Linoleic Acid and Vaccenic Acid Have No Effect on Blood Pressure and Isobaric Arterial Elasticity in Healthy Young Men. Mariamme Raff, Tine Tholstrup, Kristen Sejrsen, Ellen M. Straaunp, and Niels Winberg 992

Excessive Weight Gain during Pregnancy Increases Carcinogen-Induced Mammary Tumorigenesis in Sprague-Dawley and Lean and Obese Zucker Rats. Sonia de Assis, Mingyue Wang, Shruti Goel, Aaron Foxworth, William Helferich, and Leena Hilakivi-Clarke 998

Baseline Plasma C-Reactive Protein Concentrations Influence Lipid and Lipoprotein Responses to Low-Fat and High Monounsaturated Fatty Acid Diets in Healthy Men. Sophie Desroches, W. Roodly Archer, Marie-Eve Paradis, Olivier Dériaz, Patrick Couture, Jean Bergeron, Nathalie Bergeron, and Benoît Lamarche 1005


Reduced Ornithine Transcarbamylase Activity Does Not Impair Ureagenesis in Otc<sup>spf-ash</sup> Mice. Juan C. Marini, Brendan Lee, and Peter J. Garlick 1017

**Nutritional Epidemiology**


**Nutritional Immunology**

Carotenoids from In Ovo or Dietary Sources Blunt Systemic Indices of the Inflammatory Response in Growing Chicks (Gallus gallus domesticus). Elizabeth A. Koutsos, Juan Carlos García López, and Kirk C. Klasing 1027

**Methodology and Mathematical Modeling**

Total Body Protein Mass: Validation of Total Body Potassium Prediction Model in Children and Adolescents. ZiMian Wang, Stanley Heshka, Jack Wang, and Steven B. Heymsfield 1032

Assessment of Low-to-Moderate Intensity Physical Activity Thermogenesis in Young Adults Using Synchronized Heart Rate and Accelerometry with Branched-Equation Modeling. Dylan Thompson, Alan M. Batterham, Susan Bock, Claire Robson, and Keith Stokes 1037
Ingestive Behavior and Neurosciences

Long-Term Administration of Green Tea Catechins Improves Spatial Cognition Learning Ability in Rats. Abdul M. Haque, Michio Hashimoto, Masamori Katakura, Yoko Tanabe, Yukihiko Hara, and Osamu Shido .................................................. 1043

2005 IUNS E. V. McCollum Award Lecture and Commentary


See Commentary on page 1050

Commentary. Noel W. Solomons .................................................................. 1050

See related article on page 1048

Symposium

Food Fortification in Developing Countries

Overview of Experimental Biology 2005 Symposium: Food Fortification in Developing Countries. Jere H. Haas and Dennis D. Miller ................................................................. 1053

New Approaches for Designing and Evaluating Food Fortification Programs. Lindsay H. Allen ............................................. 1055

Iron Fortification Technology Development: New Approaches. Haile Mehansho ............................................................... 1059

Biofortification of Staple Food Crops. Penelope Nestel, Howarth E. Bouis, J. V. Meenakshi, and Wolfgang Pfeiffer ............... 1064

The Economics of Food Fortification. Sue Horton ........................................ 1068

Symposium

Food Assistance and the Well-Being of Low-Income Families

Introduction. Sonya J. Jones and Edward A. Frongillo ............................................. 1072

Child Food Insecurity Increases Risks Posed by Household Food Insecurity to Young Children’s Health. John T. Cook, Deborah A. Frank, Suzette M. Levenson, Nicole B. Neault, Tim C. Heeren, Maurine M. Black, Carol Berkowitz, Patrick H. Casey, Alam F. Meyers, Diana B. Cutts, and Mariana Chilton .................................. 1073

Food Stamp Program Participation Is Associated with Better Academic Learning Among School Children. Edward A. Frongillo, Diana F. Iyoti, and Sonya J. Jones ........................................ 1077

Long-Term Food Stamp Program Participation Is Positively Related to Simultaneous Overweight in Young Daughters and Obesity in Mothers. Diane Gibson ........................................................ 1079

Has the WIC Incentive to Formula-Feed Led to an Increase in Overweight Children? Donald Rose, J. Nicholas Bodor, and Mariana Chilton .................................................. 1086

The Modifying Effects of Food Stamp Program Participation on the Relationship Between Food Insecurity and Weight Change in Women. Sonya J. Jones and Edward A. Frongillo ......................................... 1091

Symposium

Calcium-Related Chronic Diseases in Ethnic Minorities: Can Dairy Consumption Reduce Health Disparities?

Low Calcium Intake Among African Americans: Effects on Bones and Body Weight. Robert P. Heaney ................................. 1095

Reducing Hypertensive Cardiovascular Disease Risk of African Americans with Diet: Focus on the Facts. Molly E. Reusser and David A. McCarron ............................................................... 1099


Lactose Intolerance Symptoms Assessed by Meta-Analysis: A Grain of Truth That Leads to Exaggeration. Dennis A. Savaiano, Carol J. Boushey and George P. McCabe .................................................. 1107
**Symposium**

**Optimizing Vitamin D Intake for Populations with Special Needs: Barriers to Effective Food Fortification and Supplementation**

Overview of the Proceedings from Experimental Biology 2005 Symposium: Optimizing Vitamin D Intake for Populations with Special Needs: Barriers to Effective Food Fortification and Supplementation.

Susan J. Whiting and Mona S. Calvo .......................................................... 1114

Critique of the Considerations for Establishing the Tolerable Upper Intake Level for Vitamin D: Critical Need for Revision Upwards. Reinhold Vieth .......................................................... 1117

Barriers to Optimizing Vitamin D Intake for the Elderly. Robert P. Heaney .................................. 1123

Vitamin D and African Americans. Susan S. Harris ................................................... 1126

Strategies to Improve Vitamin D Status in Northern European Children: Exploring the Merits of Vitamin D Fortification and Supplementation. Frances A Tylavsky, Sulin Cheng, Arja Lyytikäinen, Heli Viljakainen, and Christel Lamberg-Allardt .......................................................... 1130

Public Health Strategies to Overcome Barriers to Optimal Vitamin D Status in Populations with Special Needs. Mona S. Calvo and Susan J. Whiting .......................................................... 1135

**Announcements** .................................................................................. 1140

---

**Manuscript submission:** manuscripts must be submitted using the online manuscript submission system at http://submit.nutrition.org. Instructions for the preparation and submission of manuscripts are provided in the “Instructions for Authors” available online at http://submit.nutrition.org. Authors who wish to obtain a print copy of the “Instructions for Authors” should contact the American Society for Nutrition, 9650 Rockville Pike, Bethesda, MD 20814; email: jnutrition@asn.org; telephone 301-634-7985; fax 301-634-7892.

---

Cover image: Woman at Work: Drying Pearl Millet in Ondangwa, Northern Namibia. Copyright © 2002 Koushik Seetharaman, State College, PA. With thanks to Audrey N. Maretski, Stacie Bird, and Deanna Behring for their helpful assistance in providing this photograph.