Preface

This supplement of the AJCN presents the scientific reports presented and discussed at the International Conference on Genetic and Environmental Determinants of Copper Metabolism, sponsored by the National Institutes of Health (NIH) and the University of Chile and held at the NIH Stone House, March 17–20, 1996. The purpose of the conference was to critically review genetic and environmental factors that determine copper metabolism, as well as their implications for copper deficiency and excess in humans. The significance of these factors in establishing nutritional recommendations and limits of intake for copper was examined. This approach considers both the nutritional and potentially toxicologic effects of copper. Genetic and environmental factors interact in defining human health risks from both too little or too much copper. The final product of this conference provides an updated scientific basis on which to examine nutritional recommendations and regulations as to the safe range of total exposure of humans to copper.

Copper is essential for the survival of plants and animals. Studies in animals and humans have shown that copper is involved in the function of ferroxidase (ceruloplasmin), superoxide dismutase, protein-lysine 6-oxidase (lysyl oxidase), cytochrome-c oxidase, tyrosinase, dopamine-β-hydroxylase, and several other key enzymes. The essentiality of copper for humans was first shown in malnourished children in Peru. These children presented an anemia refractory to iron therapy and neutropenia and bone abnormalities that were responsive to copper supplementation. Further studies confirmed these findings and established that copper is required for infant growth, host defense mechanisms, bone strength, red and white blood cell maturation, iron transport, cholesterol metabolism, myocardial contractility, glucose metabolism, and brain development. Major alterations in mental development are observed in Menkes syndrome, a genetic condition in which alterations in copper absorption and transport lead to mental retardation and early death.

The acquired deficiency of this nutrient occurs mainly in infants, although it has also been described in older children and in adults receiving copper-free parenteral nutrition. Deficiency is usually the result of inadequate dietary copper intake or is associated with an increase in requirements. Assessment of the adequacy of the diet to fulfill copper requirements should consider the issue of bioavailability. Only 20–40% of ingested copper is absorbed, depending on other factors present in the diet and the physiologic need for copper. Studies using stable isotopes have shown that as dietary copper increases, the fraction absorbed declines and the amount absorbed increases.

Acute toxicity of copper in humans is rare but can occur if the intake is extremely high; in most cases a high intake will result in acute spontaneous vomiting. Toxicity to chronic doses has been less studied. The evidence in humans is derived principally from patients with Wilson disease or liver damage. The accumulation of copper in the liver and brain is associated with altered structure and function. The occurrence of infantile cirrhosis in areas of India, and isolated clusters of cases in Bavaria and Austrian Tyrol, are also related to excessively high copper intakes. The source of copper in these cases was linked to the use of copper utensils for cooking or to the high copper content of water contaminated by corroded materials. These rare instances, which may have a genetic underlying factor (the Tyrolean cases follow a typical Mendelian recessive pattern), and the special cases of Wilson disease in which there is a genetic defect in copper excretion, are the only conditions in humans in which chronic toxic effects can be demonstrated. Wilson disease follows an autosomal recessive inheritance pattern.

The University of Chile [Instituto de Nutrición y Tecnología de los Alimentos (INTA)], through its International University Exchange (IUE) office in Washington in conjunction with the NIH Fogarty International Center (FIC) and the National Institute of Environmental Health Sciences (NIEHS), asked us to serve as cochairs responsible for the scientific program of this international conference. Dr Jorge Litvak (IUE) and Dr Arlene Fonaroff (FIC) were responsible for the local organization in Washington. The meeting congregated 25 speakers and 50 additional scientists from Australia, Europe, and the Americas. The program was supported by funds provided by the University of Chile, the NIH NIEHS, National Institute of Child Health and Human Development (NICHD), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), and the newly created Office of Dietary Supplements. The meeting was sponsored by the Environmental Protection Agency (EPA), the United Nations’ World Health Organization (WHO) International Program on Chemical Safety (IPCS), and the Pan American Health Organization (PAHO). We are grateful to all who made this exciting international scientific exchange possible and most of all to the participants who presented their most recent work and ideas for the benefit of all who are interested in copper metabolism around the world.

Bo Lönnerdal
Ricardo Uauy

Award Nominations for 1999 Invited

The ASCN is soliciting nominations for the annual awards to be presented at the 39th Annual Meeting in Washington, DC, April 17–21, 1999. Nominees need not be members of the Society, and nominations may be made by anyone.

The Robert H Herman Memorial Award in Clinical Nutrition is given to a clinical investigator whose research has contributed significantly to the advancement of clinical nutrition in the biochemical and metabolic aspects of human nutrition. A cash award, travel funds, and inscribed plaque are provided by the Robert H Herman Memorial Fund established by the Society and Mrs Yaye Herman.

The Novartis Company EV McCollum Award is given to a clinical investigator who is perceived as a current, major, creative force who actively generates new concepts in nutrition and sees to the execution of testing to validate these concepts. A cash award, travel funds, and inscribed plaque are provided by The Novartis Company.

The Danone Institute Award for Excellence in Medical/Dental Nutrition Education is presented in recognition of an outstanding career in medical or dental nutrition education. The nominee’s efforts should be recognized nationally or internationally. Nomination depends on acknowledged excellence in nutrition teaching or nutrition education research that extends beyond the local institution and includes innovations in medical or dental nutrition education. A cash award, travel funds, and inscribed plaque are provided by The Danone Institute.

The Norman Krutchen Memorial Award in Nutrition and Development is given to a young investigator who will be 45 years old or younger at the time the award is presented for a substantial body of independent research in the field of nutrition and development with potential relevance to improving child health. A cash award, travel funds, and inscribed medal are provided by Abbott Laboratories, Ross Products Division.

Nominations must be received by November 13, 1998. Contact ASCN Secretariat, 9650 Rockville Pike, Bethesda, MD 20814-3998. (301) 530-7110. E-mail: secretar@ascn.faseb.org.

Nominations Requested for ILSI Award

The North American Branch of the International Life Sciences Institute is soliciting nominations for the 1999/2000 Future Leader Awards, which recognize promising nutrition and food scientists with $30,000 in research grants over a 2-year period. Nominations are due June 1, 1998, and the awards will be announced in December 1998. For information contact Michael Shireffs, ILSI North America, 1126 Sixteenth Street, NW, Washington, DC 20036. (202) 659-0074. Fax 202-659-3859. Email: mshireffs@ilsil.org.

IVACG Launches E-mail Discussion

The International Vitamin A Consultative Group recently launched an e-mail discussion group concerning vitamin A deficiency. To subscribe send an e-mail to MAJORDOMO@LISTS.ILSI.ORG. In the body of the message type SUBSCRIBE VITAMINALIST then leave one space and type your e-mail address. Direct questions about the discussion group to Laurie Aomari or Maribel Flewitt at the IVACG Secretariat. (202) 659-9024. Fax 202-659-3617.

A.S.P.E.N. Releases Nutrition Resources


Hermes to Present Award for Research on Minerals

In spring 1999 Hermes Arzneimittel will grant a DM 15,000 award to advance worldwide research in vitamin E. Before November 15, 1998, papers should be sent in triplicate, not bound, and written in either English or German with a copy of the author’s curriculum vitae, a short summary in German, and a list of previous publications to Professor Dr med H-W Koepppe, Heilmannstrasse 7, D-81479 Munich, Germany. Papers that have been published previously, submitted for publication, or awarded any prize are not eligible.
Calendar of Events

*New to this month’s Calendar of Events.

May 1–2, 1998
International Symposium on the Health Effects of Dietary Chromium. Sponsored by the Jean Mayer USDA Human Nutrition Research Center (HNRC) at Tufts University, the USDA Beltsville HNRC, and the Chromium Information Bureau. Contact Stanley Miguel, SGM Associates, Inc., PO Box 107, Inglewood, NJ 07618. Fax 812-867-6160. E-mail: sgmi@evansville.net. Internet: http://www.chromium.edu. For information on presenting abstracts, contact Richard Anderson, USDA Beltsville HNRC, Building 307, Room 224, Beltsville, MD 20705-2350. (301) 504-8091. Fax 301-504-9062. E-mail: anderson@307.hnrc.usda.gov.

May 3–8, 1998
HPLC ’98—22nd International Symposium on High Performance Liquid Phase Separations and Related Techniques, Regal Waterfront Hotel, St. Louis. Contact Janet Cunningham, Barr Enterprises, PO Box 279, Walkererville, MI 49102. (301) 898-3772. Fax 301-898-5596. E-mail: Janetbarr@aol.com.

May 4–6, 1998
Fifth International Symposium on Functional Medicine: Functional Medicine Applications to Disorders of Gene Expression, Mauna Lani, HI. An optional 1-d course, “The Fundamentals of Functional Medicine,” will be held May 3, 1998. Sponsored by the Institute for Functional Medicine. CME credits are available. Registrations were due April 1, 1998. Contact Michelle Shepard or Carrie Murzik, Corporate Communications, 5800 Soundview Drive, PO Box 1729, Gig Harbor, WA 98335. (253) 851-3943.

May 6–9, 1998
Third International Conference on Dietary Assessment Methods, Arnhem, Netherlands. Contact Conference on Dietary Assessment Methods, L de Groot/W de Maar, Department of Human Nutrition, Wageningen Agricultural University, Bomenweg 2, 6703 HN Wageningen, Netherlands. 31 317 482577. Fax 31 317 483342. E-mail: lisseette.degroot@et3.voad.wau.nl.

May 7–9, 1998
Enzymes, Receptors, and Drugs in Obesity and Atherosclerosis, Toronto. Contact HH Markle, Department of Laboratories, Centenary Health Centre, 2867 Ellesmere Road, Scarborough, Ontario, Canada M1E 4B9. (416) 281-7251. Fax 416-265-8781. E-mail: hvm@myna.com. Internet: http://www.clinitox.com/erdoa.

May 21–24, 1998
First Conference of the International Coenzyme Q10 Association, Boston. Abstracts were due February 15, 1998. Contact Flint Beal, Neurology Service, Warren 408, Massachusetts General Hospital, Fruit Street, Boston, MA 02114. (617) 726-8463. Fax 617-724-1480.

May 31–June 3, 1998
XIII International Symposium on Drugs Affecting Lipid Metabolism, Florence, Italy. Organized by the Giovanni Lorenzini Medical Foundation, Houston. Abstracts were due February 10, 1998. Contact DALM ’98, Fondazione Giovanni Lorenzini Medical Science Foundation, Via Appiani 7-20121 Milan, Italy. 39 2 29006267. Fax 39 2 29007018. E-mail: lorenzfio@icil04.cilea.it. In the US and Canada, contact DALM ’98, Giovanni Lorenzini Medical Foundation, Houston, TX. (713) 797-0401. Fax 713-796-8853. E-mail: njackson@bcm.tmc.edu.

June 1–5, 1998
Third Congress of the International Society for the Study of Fatty Acids: Fatty Acids and Lipids from Cell Biology to Human Disease, Cité Internationale Conference Center, Lyon, France. Contact Michel Lagarde, INSETECH-Secretariat ISSFAL, BP 2132, 69601 Villeurbanne Cedex, France. Fax 33 4 7243 8524. E-mail: michel.lagarde@insa-lyon.fr.

June 11, 1998*

June 11–12, 1998*
International Symposium on Probiotics and Prebiotics, Kiel, Germany. Contact Jürgen Schrezenmeir, Institute for Physiology and Biochemistry of Nutrition, Federal Research Center, Hermann-Weigmann-Strasse 1, D-24103 Kiel, Germany. 49 431 609 2461. Fax 49 431 609 2472. E-mail: schrezenmeir@hafm.de.

June 11–12, 1998
Maternal Nutrition: New Developments and Implications, Paris. The symposium will be conducted in French and English. AMA Category 1 and ADA continuing education credits pending. Contact Biocommunication, 18 rue des Blancs Manteaux rue d’Amsterdam, F-75004 Paris, France. 33 1 4274 6753. Fax 33 1 4804 0711. E-mail: mpia@worldnet.fr. Internet: http://www.cerin.org/matern.nutr.
June 14–16, 1998*

The American Diabetes Association’s 58th Annual Scientific Sessions, Chicago. Onsite registration available. For information call (800) 924-2432 or (415) 924-2282. Fax 415-882-5493.

June 18–20, 1998*

Treatment of Obesity and Eating Disorders, Cambridge, MA. CME course sponsored by Harvard Medical School and Tufts University School of Medicine and endorsed by the North American Association for the Study of Obesity. Contact Susan Klug Branco, Beth Israel Deaconess Medical Center, Center for the Study of Nutrition Medicine, 1 Autumn Street, 1st Floor, Suite 1-B, Boston, MA 02215. (617) 632-0724. Fax 617-632-7825.

June 20–25, 1998*

FASEB Summer Conference—Behavioral and Metabolic Sub-phenotypes in Obesity: Genetic and Molecular Aspects, Pathophysiology and Therapeutic Implications, Snowmass Village, CO. Abstracts were due May 1, 1998. Contact Jean-Pierre Després, Lipid Research Center, CHUL Research Center, 2705 Laurier Boulevard, TR-93, Sainte-Foy, Quebec, Canada G1V 4G2. (418) 654-2133. Fax 418-654-2145. E-mail: jean-pierre.despres@crchul.ulaval.ca.

June 22–25, 1998

International 15th Pujo Symposium: Physical Activity in the Prevention and Treatment of Obesity and Its Metabolic Co-Morbidities, Kuopio, Finland. Contact the Kuopio Research Institute of Exercise Medicine, Haapaniementie 16, FIN-70100 Kuopio, Finland. 358 17 288 4422. Fax 358 17 288 4488. E-mail: pujosymposium@uku.fi. Internet: www.uku.fi/conf/pujos.

July 18–19, 1998*

Endocrinology and Diabetes Update, Grand Traverse, MI. CME course sponsored by the University of Michigan Office of Continuing Medical Education. Contact Laura Castellanos, Office of Continuing Medical Education, Department of Medical Education, The University of Michigan Medical School, The Towsley Center for Continuing Medical Education, Box 0201, Ann Arbor, MI 48109-0201. (734) 763-1400. Fax (734) 936-1641.

August 30–September 2, 1998

Ninth International Congress on Nutrition and Metabolism in Renal Disease, Vienna. Abstracts were due March 28, 1998. Early registrations are due May 15, 1998. Contact Springer Verlag KG, Congress-Secretariat, Ninth International Congress on Nutrition and Metabolism in Renal Disease, PO Box 89, Sachsenplatz 4-6, A-1201 Vienna, Austria. 43 1 330 24 15 238. Fax 43 1 330 24 26 260.

August 30–September 4, 1998

Eighth International Congress on Obesity, Paris. Abstracts were due February 16, 1998. Contact Conferences-ICO’98, 120 Avenue Gambetta, 75020 Paris, France. 33 1 4364 7777. Fax 33 1 4031 0165. E-mail: converge@iway.fr.

September 3–5, 1998


September 4–6, 1998

Endocrinology of Obesity: Basic, Clinical and Therapeutic Aspects, Venice, Italy. An official satellite meeting of the Eighth International Congress on Obesity. Contact The Organizing Secretariat, OSC Bologna, Via Santo Stefano 30, 40125 Bologna, Italy. 51 224232. Fax 51 226855. E-mail: infoosc@osc.dsn.it.

September 10, 1998*


September 14–17, 1998

Third Asian Conference on Food Safety and Nutrition, Beijing. Sponsored by the International Life Sciences Institute (ILSI), ILSI Focal Point in China, and the Chinese Academy of Preventive Medicine. Abstracts were due December 1, 1997. In China contact Guan Yucong, ILSI Focal Point in China, Room 4-19, 27 Nan Wei Road, Xuan Wu District, Beijing 100050, People’s Republic of China. 86 10 6317 0892. Fax 86 10 6302 2960. E-mail: ccm@ccs.capm.ac.cn and ccm@public.east.cn.net. Outside of China contact Lili Merritt, ILSI, 1126 Sixteenth Street, NW, Washington, DC 20036-4810. (202) 659-0074. Fax 202-659-3859. E-mail: meetings@dc.ilsi.org.

September 15–18, 1998

16th Leeds Course in Clinical Nutrition, Leeds, United Kingdom. Sponsored by the University of Leeds, School of Continuing Education. Contact Samantha Armitage, Course Secretary, Continuing Education Building, Springfield Mount, Leeds LS2 9NG, United Kingdom. 44 113 233 3241. Fax 44 113 233 3240.

September 16–19, 1998

20th ESPEN Congress on Clinical Nutrition and Metabolism, Nice, France. Contact Nice Acropolis, Development Department, 1 Esplanade Kennedy, BP 83, 06302 Nice Cedex 4, France. 33 4 9392 8300. Fax 33 4 9392 8255.

September 26–30, 1998

Fifth Conference of the International Society for Trace Element Research in Humans: Newer Aspects of Trace Element Research, Lyon, France. Contact Trace Element-Institute for UNESCO, 1 place de l’Ecole, BP 7021, 69342 Lyon Cedex 07, France. 33 4 7280 8290. Fax 33 4 7858 8671. E-mail: I101711.2322@compuserve.com or trace.elem.fr for unesco@wanadoo.fr.
October 1–3, 1998*
Lipid Disorders Training Program Basic Course, Baltimore. Sponsored by Johns Hopkins University School of Medicine and the Johns Hopkins Lipid Clinic. CME credit available. Contact Program Coordinator, Office of Continuing Medical Education, Turner 20, 720 Rutland Avenue, Baltimore, MD 21205-2195. (410) 955-2959. Fax 410-955-0807. E-mail: cmenet@som.adm.jhu.edu. Internet: http://www.med.jhu.edu/cme.

October 2–4, 1998

October 16–17, 1998
European Academy of Nutritional Sciences ’98: Nutrition and Adolescence, Madrid. Contact Gregorio Varela-Moreiras, Scientific Secretary, Facultad de CC Exp y Tecnicas, Universidad San Pablo-CEU, Ctra Boadilla, km 5,3, 28668 Boadilla del Monte, Madrid, Spain. 34 1 3520144. Fax 34 1 3510475. E-mail: gvarela@ceu.es.

October 19–22, 1998
The American Dietetic Association Annual Meeting and Exhibition, Kansas City Convention Center, Kansas City, MO. Contact The American Dietetic Association, 216 West Jackson Boulevard, Chicago, IL 60606-6995. (312) 899-0040. Fax 312-899-0008. E-mail: mtgsinfo@eatright.org. Internet: http://www.eatright.org.

October 24, 1998*
Lipid Disorders Training Program Advanced Update, Baltimore. Sponsored by Johns Hopkins University School of Medicine and the Johns Hopkins Lipid Clinic. CME credit available. Contact Program Coordinator, Office of Continuing Medical Education, Turner 20, 720 Rutland Avenue, Baltimore, MD 21205-2195. (410) 955-2959. Fax 410-955-0807. E-mail: cmenet@som.adm.jhu.edu. Internet: http://www.med.jhu.edu/cme.

October 26–30, 1998
International Course on the Use of Body Composition Techniques in Laboratory and Field Studies, Wageningen, Netherlands. Sponsored by the Graduate School VLAG. Contact P Deurenberg, Wageningen Agricultural University/Landbouwuniversiteit Wageningen, Division of Human Nutrition and Epidemiology, PO Box 8129, 6700 EV Wageningen, Netherlands. 31 317 485108. Fax 31 317 483342. E-mail: paul.deurenberg@staff.nutepi.wau.nl. Internet: http://www.wau.nl/vlag/eduulco.html.

October 29–31, 1998
Nutrition and Immunology, Taj Hotel, Man Singh Road, New Delhi. Contact RK Chandra, Janeway Child Health Centre, St John’s, Newfoundland, A1A 1R8 Canada. Fax 709-778-4191. E-mail: rchandra@morgan.ucts.mun.ca.

November 4, 1998
1998 Certification Examination in Endocrinology, Diabetes, and Metabolism and 1998 Certification Examination in Gastroenterology. The regular registration period for both examinations was January 1 through April 1, 1998. The late fee registration period for both examinations is April 2 through July 1, 1998. Contact Registration Section, American Board of Internal Medicine, 510 Walnut Street, Suite 1700, Philadelphia, PA 19106-3099. (800) 441-2246 or (215) 446-3500. Fax 215-446-3590. E-mail: request@abim.org.

November 5–6, 1998*
Antioxidant and Oxidative Processes in Health and Foods, Amherst, MA. Sponsored by the Department of Food Science, Chenoweth Lab, University of Massachusetts, Amherst. Contact Eric Decker, Department of Food Science, Chenoweth Lab, Box 31410, University of Massachusetts, Amherst, MA 01003-1410. (413) 545-1026. Fax 413-545-1262. E-mail: edecker@foodsci.umass.edu.

February 18–20, 1999
6th International Tutorial Conference of the Research Group on Biochemistry of Exercise: Metabolic Aspects of Human Nutrition at Rest and During Physical Stress, Maastricht, Netherlands. Contact General Secretariat Desire Erkens, NUTRIM PO Box 616, 6200 MD Maastricht, Netherlands. 31 43 3670286. Fax 31 43 3882117. E-mail: techconf@hb.umimaas.nl.

May 2–7, 1999
Tenth International Symposium on Trace Elements in Man and Animals, Evian, France. Contact Arlette Alcaraz, CHU A Michallon, Laboratoire de Biochimie C, 38043 Grenoble Cedex 9, France. 33 4 7676 3754. Fax 33 4 7676 5664. E-mail: cerlib@ujf-grenoble.fr.

June 17–19, 1999*
Eighth European Nutrition Conference, Lillehammer, Norway. Sponsored by the Norwegian Nutrition Society, Federation of European Nutrition Societies, and the European Academy of Nutritional Sciences. Contact Lillehammer Arrangement AS, PO Box 14, N-2601 Lillehammer, Norway. 47 61 251705. Fax 47 61 256515. E-mail: lilharra@sn.no. Internet: http://www.nutrition.uio.no/nse/8thFENS_EANS.

October 7–9, 1999
International Symposium on in vivo Body Composition Studies, Brookhaven National Laboratory, Upton, NY. Contact S Yasumura, Bldg 490, Medical Development, PO Box 5000, Brookhaven National Laboratory, Upton, NY 11973-5000. (516) 344-3606. Fax (516) 344-3511. E-mail: yasumura@bnl.gov.

October 18–21, 1999
The American Dietetic Association Annual Meeting and Exhibition, Georgia World Congress Center, Atlanta. Contact The American Dietetic Association, 216 West Jackson Boulevard, Chicago, IL 60606-6995. (800) 877-1600, ext 4866. Fax 312-899-0008. E-mail: mtgsinfo@eatright.org. Internet: http://www.eatright.org.