

Volume 16 Number 5 May 2025



Editor

Steven A. Abrams, MD Dell Medical School at the University of Texas, Dell Pediatric Research Institute Austin, Texas 78723

Associate Editors

Sean H Adams, PhD Center for Alimentary and Metabolic Science Department of Surgery University of California, Davis, School of Medicine Clinical Laboratory Building, Rm 3006 4625 2nd Ave. Sacramento, CA 95817

Namanjeet Ahluwalia, PhD, DSc

US Department of Health and Human Services (HHS) Nutrition Monitoring Advisor, NHANES, NCHS, CDC 331 Toledo Road Hyattsville, MD 20782

Andrew A. Bremer, MD, PhD, MAS Office of Nutrition Research, 6705 Rockledge Drive, Suite 730, MSC 7992, Bethesda, MD 20892

Hassan S Dashti

Department of Anesthesia, Critical Care and Pain Medicine Massachusetts General Hospital, Harvard Medical School 185 Cambridge St. 5700 S2 Boston, MA 02210

Catherine Field, PhD

University of Alberta Department of Agricultural, Food & Nutrition Science 4-126a Hrif East Edmonton, AB T6G 2E1 Canada

Lisette de Groot, PhD, MSc Wageningen University Division of Human Nutrition PO Box 8129 6700 EV Wageningen The Netherlands

Manuscript Submission

Manuscripts should be submitted using the online manuscript submission system at http://www.editorialmanager.com/advnutr/.

Publication information: Advances in Nutrition * (ISSN 2161-8313), an official publication of the American Society for Nutrition, is published monthly by Elsevier Inc. For 2025, volume 16 (12 issues) is scheduled for publication.

Copyright © 2025 American Society for Nutrition. Published by Elsevier Inc. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

Funding body agreements and policies:

Elsevier has established agreements and developed policies to allow authors whose articles appear in journals published by Elsevier, to comply with potential manuscript archiving requirements as specified as conditions of their grant awards. To learn more about existing agreements and policies please visit http://www.elsevier.com/fundingbodies

Permissions:

For information on how to seek permission visit www.elsevier.com/permissions

Author inquiries: You can track your accepted article at http://www.elsevier.com/trackarticle. You are also welcome to contact Customer Support via http://service. elsevier.com.

Language (usage and editing services): Please write your text in good English. Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's WebShop http://webshop.elsevier.com/languageediting/ or visit our customer support site http://support.elsevier.com for more information.

Editorial Office: Advances in Nutrition, Dell Medical school at the University of Texas, Dell Pediatric Research Institute Austin, Texas 78723

American Society for Nutrition Board of Directors 2024–2023: Naima Moustaid-Moussa, President; Kevin Schalinske, Past President; Sarah L. Booth, Vice-President; Keith West, Vice President-Elect; April J. Stull, Treasurer; Robert Bertolo, Treasurer-Elect; Laura Murray-Kolb, Secretary; Alison Brown, Director-at-Large, Food & Nutrition Policy; Christine P. Stewart, Director-at-Large, Global Nutrition; Virginia A. Stallings, Director-at-Large, Medical Clinical Nutrition; Anna Thalacker-Mercer, Director-at-Large, Nutrition Science Mechanism; Angela Odoms-Young, Director-at-Large, Nutrition Science Translation; Heather Eicher-Miller, Director-at-Large, Nutrition Population Science, Mary Ann Johnson, Association of Nutrition Departments and Programs; Shalene McNeill, Sustaining Partners Roundtable; Anupama "Anu" Chawla, NBPNS Representative; Liliana Aguayo, Early Career Nutrition Representative; Paul Coates, ASNF President; John E. Courtney, ASN Chief Executive Officer.

Typeset by TnQ Books and Journals Pvt Ltd, Chennai, India.

Grace S Marquis, PhD McGill University, Macdonald Campus School of Dietetics & Human Nutrition CINE Building 21,111 Lakeshore Road Ste Anne de Bellevue, QC H9X 3V9 Canada

Kimberly O. O'Brien, PhD Cornell University Division of Nutritional Sciences 230 Savage Hall Ithaca, NY 14853

Prof. Dr. Lukas Schwingshackl Group Leader – Evidence-Based Nutrition Sciences Medical Center – University of Freiburg Institute for Evidence in Medicine Breisacher Str. 86 · 79110 Freiburg Germany

Robert J Shulman, MD Baylor College of Medicine 1100 Bates St Houston, TX 77030

Nutrient Information Editor

Nancy D Turner, PhD Department of Food Science and Human Nutrition Michigan State University G.M. Trout FSHN Building 469 Wilson Road, Room 204 East Lansing, MI 48824

Editorial Board

Carlo Agostoni, MD University of Milano, Chair, Pediatric Area, De Marchi Clinic, Milano, Italy Office of Nutrition Research, Bethesda, United States

Jaclyn L. Albin, MD University of Texas Southwestern Dallas, Texas, USA

Zulfiqar Bhutta Aga Khan University, Pakistan Hospital for Sick Children in Toronto,

Canada Michael Conlon, PhD

CSIRO Food and Nutrition Division, Australia

Cindy Davis, PhD National Institutes of Health, Bethesda MD

Heather Eicher-Miller, PhD Purdue University, West Lafavette, IN

Xiang Gao, MD, PhD The Pennsylvania State University, State College, PA

Kristine Koski, PhD McGill University, Sainte-Anne-de-Bellevue, QC, Canada

James McClung, PhD USARIEM, Natick, MA

Megan McCrory, PhD Boston University, Boston, MA

Sabrina Noel, PhD, RD University of Massachusetts Lowell, Lowell MA

Magali Rios-Leyvraz Independent Consultant, Université de Fribourg, Switzerland

Andrew Shao, PhD ChromaDex Los Angeles, CA

Ashley Vargas

National Institutes of Environmental Health Sciences, USA