

Celebrating 40 Years of the *Annual Review of Nutrition*

Nutrition is now widely recognized as one of the most exciting and fundamentally important research areas of our time. First published in 1981, the *Annual Review of Nutrition* celebrates 40 years of in-depth coverage of advancements in nutrition science. Nutrition is among the most complex of the life sciences and the social-behavioral sciences. The frontiers are now highly interdisciplinary, spanning fundamental biochemistry, the science that underpins nutrient and food-based dietary guidance, and new developments in eating behaviors and nutrition policies. The guiding principles that have established the *Annual Review of Nutrition* as an important resource for the field include a focus on the topics that are driving the field forward, recruiting established and emerging thought leaders as authors, and staying true to rigorous science. The *Annual Review of Nutrition* focuses on narrative reviews that help guide the field forward, including the identification of gaps in our research knowledge that must be addressed to support evidence-based nutrition practice, policies, and guidance. In these cases, our authors present the current state of knowledge, including what is well supported, what is controversial, and what future research is needed. The reviews are written to be broadly accessible to multiple audiences, including researchers who want to keep abreast of their field or who want an introduction to a new field, as well as students, business people, journalists, policy makers, practitioners, patients, and patient advocates.

The diversity of nutritional science is reflected in the current volume. James provides a personal perspective of global malnutrition and his efforts in translating scientific insight into public health policy. A number of topics in need of further evidence and research are covered in this volume, such as the question of how chronic medication affects our micronutrient status and whether breastfeeding beyond 12 months is beneficial or not. As so often is the case, it all depends on context. The ultimate context for humans is, of course, evolution. Therefore, asking “What did our ancestors eat?” and “How did evolution influence today’s nutritional physiology and pathophysiology?” are timely topics that are discussed by Pontzer & Wood.

As in the past, this year’s volume covers a number of topics that address basic mechanisms of nutritional biochemistry and physiology. Burgess and colleagues bring us up to date on a central metabolic pathway, the tricarboxylic acid (TCA) cycle. Understanding the regulation of the fluxes in and out of the TCA cycle and connected pathways, described as anaplerosis and cataplerosis, might be key to understanding the etiology and potential intervention strategies for chronic disease reduction. Among the anaplerotic sources that refill the TCA cycle are ketone bodies. Puchalska & Crawford address the metabolic and signaling role of ketone bodies in health and disease, pointing out that organ-specific and cell-type-specific effects of ketone bodies are important to consider.

A related question, namely how endocannabinoids and endocannabinoid-like molecules regulate lipid and glucose metabolism and influence feeding behavior, is discussed in the contribution of Khaledur Rahman et al.

Glenny et al. address the design of preclinical rodent cancer models to study underlying mechanisms and to develop new clinical treatment options. Watts & D'Abramo make us aware that with the increased use of zebrafish in the study of biomedical questions, the need for developing standard reference diets for zebrafish is overdue.

For most of us, food is available 24/7, with the risk of eating too much, eating in an unbalanced composition, or eating at the wrong time. The role of timing (for example, whether intermittent fasting has cardiometabolic benefits or not) is the topic of the contribution of Varady and colleagues. The influence of timing is also under debate in critical care nutrition, as described in the contribution of McKeever et al. Two contributions deal with sleep: One addresses the relationship between sleep and diet (Zuraikat et al.); the other, between sleep and obesity (Dashti & Ordovás). Both cases may be chicken-and-egg problems—cyclical relationships whereby one factor influences the other.

The problem of disentangling cause and association remains the key challenge, not only in all aspects of nutrition, but also in almost all scientific disciplines. We need to move from correlation to causality and we need to develop mechanistic models that we can test and validate. The *Annual Review of Nutrition* will continue to serve as the premier journal accompanying the field of nutrition on this path.

Rudi Balling and Patrick J. Stover, Co-Editors



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