Foreword

Rao S. Rapaka · Paul Schnur · David Shurtleff

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Although highly palatable and rich in calories, the Western diet is generally poor in many micronutrients—vitamins, minerals, lipids, and others—that are essential for human health. This dietary imbalance is largely due to the increasing prevalence and consumption of processed food products, which are calorie-rich but micronutrient-poor. It is one reason that the USA and other developed nations are facing an epidemic of obesity associated with micronutrient malnutrition. This paradoxical situation (i.e., the deficiency of excess) is strikingly illustrated by the resurgence of a disease such as rickets (vitamin D deficiency), which is typically associated with economic underdevelopment and malnutrition. It is also becoming increasingly clear that chronic micronutrient deficiencies can produce subtle but persistent damage to multiple organs of the human body, including the brain. Recently published reviews of the extant scientific literature indicate that prolonged deficiencies in minerals such as iron, zinc, and selenium can disrupt brain development and cognitive function. For example, lower-than-normal intake of vitamins (e.g., B₁₂), lipids (e.g., omega-3

polyunsaturated fatty acids), essential metabolites, and enzyme cofactors (e.g., choline and homocysteine) are thought to exert harmful effects on attention, memory, and mood. Furthermore, long-term micronutrient deficits might cause dysregulation of neural networks that are involved in hedonic homeostasis and addictive behavior.

To assess the current state of science with regard to the role of nutrition in addiction, the national Institute on Drug Abuse (NIDA) organized a workshop entitled “Nutrition and Addiction,” June 3–4, 2010. The goal of this exciting workshop was to address the complexity of the issues at hand, identify gap areas, and to formulate future research directions. Internationally recognized experts were invited, and the assembled participants made presentations and provided an update on the current status of research. The resulting discussion identified the research gaps and proposed recommendations for future research endeavors. This present volume is based on the workshop’s proceedings, presentations, and discussions.

We thank the participants for their excellent contributions.

R. S. Rapaka (✉) · P. Schnur · D. Shurtleff
National Institute on Drug Abuse,
National Institutes of Health,
6001 Executive Blvd,
Bethesda, MD 20892, USA
e-mail: rrapaka@nida.nih.gov