
The first chapter of this book covers more than everything you ever wanted to know about the structures, synthesis, and biosynthesis of vitamin E. The next chapter provides the human health implications related to vitamin E and a brief review of the highlights of the new dietary reference intakes for vitamin E developed by the Food and Nutrition Board (1). As a result of the publication of the dietary reference intakes for vitamin E, there is increased awareness in the nutrition community that not all forms of vitamin E are the same and that humans specifically require α-tocopherol, a form that is limiting in the diet. Unfortunately, for decades, the contents of vitamin E in foods have been reported in units of α-tocopherol equivalents (ATE). ATEs blur the distinction between vitamin E–rich foods and α-tocopherol–rich foods. For example, it is shown in Table 8.6 that soybean oil (per 100 g) contains 107 mg ATE but only 8 mg α-tocopherol. Chapter 8 provides a listing of the amounts of the various forms of vitamin E in a goodly selection of foods and provides values from different sources, which allows the reader some indication of the variability in measurements. This listing also emphasizes the relative paucity of vitamin E in fruit and vegetables.

Not only are the methods for vitamin E analysis well described and compared in this book, but other factors that influence the dietary content of vitamin E are covered in chapters that focus on vitamin E as a food antioxidant. A rather interesting chapter covers research that has been conducted to investigate the effects of vitamin E supplementation in cows, sheep, pigs, and chicken for the purpose of improving the quality of meat, milk, and eggs. Another “hot” topic that is covered is the stability of vitamin E during food processing, preparation, and storage and how these factors reduce the vitamin E content of some foods. These are important factors given the labile nature of vitamin E and the controversy over how much dietary vitamin E is actually consumed.

My favorite chapter is the one that covers the prooxidant effects of vitamin E. One of the more interesting debates in the vitamin E community concerns the in vivo role of α-tocopherol as a prooxidant when coantioxidants are limiting. Oil chemists have been studying these phenomena for decades. Strikingly, as discussed in chapter 3, α-tocopherol, but not γ-tocopherol, becomes a prooxidant at high concentrations (>250 ppm) in oils. Such α-tocopherol concentrations are >10 times those found in human plasma or tissues, which suggests that the body limits α-tocopherol accumulation. However, this potent antioxidant phenomenon does not explain why γ-tocopherol concentrations in the body are one-tenth those of α-tocopherol. However, the antioxidant power of γ-tocopherol is clearly beneficial to plants exposed to sunlight and damaging ultraviolet irradiation and is why plants preferentially synthesize high γ-tocopherol-containing oils. Eitenmiller and Lee are to be congratulated for their interesting and well-written book, which contains an amazingly extensive list of reference citations (>1000).

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REFERENCE


This book, a result of a Nestle Nutrition Workshop on micronutrient deficiencies in the first 6 mo of life, contains 16 chapters written by experts in their fields. The first 3 chapters provide excellent background overviews, including up-to-date summary tables. Chapter 1 summarizes biochemical tests for assessing the micronutrient status of both infants and mothers. Chapter 2 highlights uncertainties surrounding the dietary reference intakes of young infants and future research needs; examples for 3 micronutrients of special public health significance in developing countries—vitamin A, iron, and zinc—are provided. Chapter 3 addresses the micronutrient adequacy of the diets of young infants. The paucity of data on the extent to which undernourished women can supply their exclusively breastfed infants with the recommended amounts of the high risk micronutrients, namely, thiamine, riboflavin, selenium and vitamins A, B-6, B-12, and C is highlighted. This adequacy assessment considers both the micronutrient content of breast milk and the volume consumed and involves a discussion of the possible strategies for increasing the delivery of these micronutrients.

Five chapters deal with the etiology, health consequences, and prevention of individual deficiencies of iodine, vitamin A, zinc, vitamin K, or vitamin D during early infancy. A chapter on selenium and vitamin E focuses on host defense and resistance to infection. A chapter on iron emphasizes the relation between maternal deficiency and infant health outcomes, specifically birth weight, prematurity, anemia, and mortality. The multiple
causes of anemia are the focus of a separate chapter. Three other chapters cover the effects of multimicronutrient supplements either during periconception, when the emphasis is on reducing the risk of birth defects, or in later pregnancy, when infant outcomes amenable to prenatal multimicronutrient interventions are highlighted. These interventions can have both positive and negative effects; therefore, a cautionary note is included on the universal use of multimicronutrient supplements under circumstances in which the effects on public health are not well understood. The effects of iron or iodine deficiency during pregnancy and early infancy on mental and psychomotor development are described in another chapter.

Of special interest is a chapter that emphasizes the special micronutrient needs of preterm infants to ensure adequate enteral and parenteral intakes of iron, zinc, copper, selenium, chromium, iodine, and manganese. In addition, there is an important chapter on the role of micronutrient status in modulating fetal and child health in the presence of HIV infection, with emphasis on deficiencies of vitamin A, zinc, and selenium. Inconsistencies in the results of randomized controlled trials of micronutrients in relation to micronutrient supplementation during pregnancy and the risk of vertical transmission are highlighted, as are fetal outcomes such as low birth weight, prematurity, and fetal death; the need for more research is emphasized.

Although the chapters differ in style and approach, this book is a useful integrated resource that provides health professionals with an excellent update of an important and often overlooked area. Micronutrient deficiencies in young infants are difficult to identify because of their often subtle but sometimes irreversible health consequences, a point that is emphasized in the verbatim discussion that follows each chapter.

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This book is one of a series reporting a conference held in Bangkok, Thailand, in November 2003. It consists of an uneven mixture of articles covering a broad range of nutrition topics. These include information and guidelines on the nutrition of general populations, such as over- and undernutrition as global problems; minerals and trace elements in disease; and specific overviews of clinical syndromes, from diagnosis and definition through pathophysiology and treatment. Despite the location of the conference, however, none of the articles focus on nutrition-related issues in specific populations from Asia. Some chapters review inflammatory cytokines in obesity, with comments on insulin resistance and diabetes; the metabolic syndrome as a clinical problem; and fatty acid isomers in lipid metabolism. Although a few chapters are quite detailed and focused, most are brief overviews meant to introduce a topic to a relatively naive reader. Carbohydrate, lipid, and protein metabolism are all covered generally with an admirable focus on human and clinical aspects; there are also several topics related to fluid and electrolyte balance and their relation to disease.

The total volume is only 272 pages and therefore this is but a snapshot of the thinking of some of the prominent experts in these fields. Because the meeting took place in 2003, few references are more recent than 2001–2002, which means that the report will be primarily useful to a reader who desires a broad overview of clinical nutrition at that time rather than a detailed account. A quick review of chapter headings can help the reader determine which topics are included.

Meeting reports such as this are usually most useful to workers in the field and as a way to disseminate to others with similar interests what was presented and discussed at the meeting. This volume follows that pattern and contains the usual mix of straightforward reviews of the authors’ areas of interest with some presentations of controversial new ideas. As a result, the volume is uneven, with 16 different authors and no overriding theme. Instead, the book presents reports that are related distantly, if at all, and contains material requiring different levels of reader expertise for comprehension. In general, however, the writing is clear and understandable, with reasonable and frequent summary diagrams. As meeting reports go, this is a worthy contribution.

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