

Nutrient reference values - Non-communicable disease endpoints – A conference report

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Nutrient Reference Value : Non-Communicable Disease (NRV-NCD) Endpoints: A Conference Report

Abstract

Nutrition is complex—and seemingly getting more complicated. Most consumers are familiar with “essential nutrients,” e.g., vitamins and minerals, and more recently protein and important amino acids. These essential nutrients have nutrient reference values, referred to as dietary reference intakes (DRIs) developed by consensus committees of scientific experts convened by the Institute of Medicine of the National Academy of Sciences, Engineering, and Medicine and carried out by the Food and Nutrition Board. The DRIs comprise a set of four nutrient-based reverence values, the estimated average requirements, the recommended dietary allowances (RDAs), the adequate intakes and the tolerable upper intake levels for micronutrient intakes and an acceptable macronutrient distribution range for macronutrient intakes. From the RDA, the US Food and Drug Administration (FDA) derives a labeling value called the daily value (DV), which appears on the nutrition label of all foods for sale in the US. The DRI reports do not make recommendations about whether the DV labeling values can be set only for what have been defined to date as “essential nutrients.” For example, the FDA set a labeling value for “dietary fiber” without having the DV. Nutrient reference values—requirements are set by Codex Alimentarius for essential nutrients, and regulatory bodies in many countries use these Codex values in setting national policy for recommended dietary intakes. However, the focus of this conference is not on essential nutrients, but on the “nonessential nutrients,” also termed dietary bioactive components. They can be defined as “Constituents in foods or dietary

supplements, other than those needed to meet basic human nutritional needs, which are responsible for changes in health status (Office of Disease Prevention and Health Promotion, Office of Public Health and Science, Department of Health and Human Services in Fed Regist 69:55821–55822, 2004).¹ Substantial and often persuasive scientific evidence does exist to confirm a relationship between the intake of a specific bioactive constituent and enhanced health conditions or reduced risk of a chronic disease. Further, research on the putative mechanisms of action of various classes of bioactives is supported by national and pan-national government agencies, and academic institutions, as well as functional food and dietary supplement manufacturers. Consumers are becoming educated and are seeking to purchase products containing bioactives, yet there is no evaluative process in place to let the public know how strong the science is behind the benefits or the quantitative amounts needed to achieve these beneficial health effects or to avoid exceeding the upper level (UL). When one lacks an essential nutrient, overt deficiency with concomitant physiological determinants and eventually death are expected. The absence of bioactive substances from the diet results in suboptimal health, e.g., poor cellular and/or physiological function, which is relative and not absolute. Regrettably at this time, there is no DRI process to evaluate bioactives, although a recent workshop convened by the National Institutes of Health (Options for Consideration of Chronic Disease Endpoints for Dietary Reference Intakes (DRIs); March 10–11, 2015; <http://health.gov/dietaryguidelines/dri/>) did explore the process to develop DVs for nutrients, the lack of which result in increased risk of chronic disease (non-communicable disease) endpoints. A final report is expected soon. This conference (CRN-International Scientific Symposium; “Nutrient Reference Value—Non-Communicable Disease (NRV-NCD) Endpoints,” 20 November in Kronberg, Germany; <http://www.crn-i.ch/2015symposium/>) explores concepts related to the Codex NRV process, the public health opportunities in setting NRVs for bioactive constituents, and further research and details on the specific class of bioactives, n-3 long-chain polyunsaturated fatty acids (also termed omega-3 fatty acids) and their constituents, specifically docosahexaenoic acid and eicosapentaenoic acid.