Principles of Nutritional Assessment by Rosalind S. Gibson

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In this issue we have included reviews of a few books that we thought are important in the field of food, agriculture, nutrition and development. Please read and tell us what you think.

**Title:** Principles of Nutritional Assessment (Second Edition)

**Author:** Rosalind S. Gibson

**Publisher:** Oxford University Press, Inc

**Reviewer:** Kennedy M. Shiundu and Hon. Prof Ruth K. Oniang’o

Principles of Nutritional Assessment gives up-to-date comprehensive, well illustrated and most current ideas in the area of nutritional assessment of populations. Nutritional assessment is an invaluable component of nutritional practice.

The book is broadly divided into 27 chapters with sub-sections. The issues covered range from basic nutritional assessment systems, food consumption at the national and household levels, validity of dietary assessment methods, evaluation of anthropometric indices, laboratory assessment of body compositions and micronutrients, clinical assessment and nutritional assessment of hospital patients.

Nutritional assessment systems have been undergoing revision over the last couple years. Among the common nutritional assessment methods include nutrition surveys, nutrition surveillance, nutrition screening, nutrition interventions and clinical assessments in clinical settings. Gibson has discussed in the book some of the new nutritional assessment techniques such as measurement of nutrients in dried blood spots prepared from a finger-prick blood sample. In addition, for some nutrients, on-site analysis is now possible, enabling researchers and subjects to obtain results immediately. The author equally reserved ample time for comprehensive and critical appraisal of many of the older, established methods in nutritional assessment like nutrition surveys.

Nutritional methods are based on a series of dietary, laboratory, anthropometric and clinical observations. The current practice is now to apply nutritional systems to define multiple levels of nutrients’ status, and not just the level associated with a nutrient deficiency. Apart from the conventional nutritional assessment methods such as dietary and biochemical assessments, there is increasing emphasis on the use of new functional tests to determine these multiple levels of nutrient status, such as functional tests that measure immune function and oxidative stress.

Raw measurements arising from various nutritional assessment methods - on their own - have no meaning unless they are related to, for example, the age or sex of an individual. In this book, Gibson explains that raw measurements derived from each of the four methods are often (but not always) combined to form ‘indices’. Such combinations include height-for-age percentile and nutrient density (i.e., nutrient intake per megajoule). Indices are evaluated at the population level by comparison with predetermined reference limits or cut-off points resulting into indicator concept, a term that relates to their use in nutritional assessment.
The author avers that for optimal utilization of time and resources, the design of nutritional assessment systems is critical. The assessment system used, the type and number of measurements selected, and the indices and indicators derived from these measurements will depend on a variety of factors including study objectives, sampling protocols, calculating sample size, validity, reproducibility or precision, accuracy, random errors, systematic errors or bias, confounding factors, sensitivity, specificity, prevalence, predictive value, ethical issues and additional factors.

The book also provides a detailed account when it comes to evaluation of nutritional assessment indices. These indices can be evaluated by comparison with a distribution of reference values (if available) using percentiles, standard deviations scores (Z-scores), or the percent-of-median. Alternatively, for classifying individuals, the values for nutritional assessment indices can be compared with either predetermined reference limits drawn from the reference distribution or cut-off points. The latter are based on data that relate to the levels of indices to low body stores of the nutrient, impaired function, clinical signs of deficiency, or mortality. Sometimes, more than one reference limit or cut-off point is used to define degrees of malnutrition (e.g., for body mass index).

Principles of Nutritional Assessment is no doubt an excellent piece of work.