Tools to Advance Nutrition Research

NUTRITION RESEARCH NEEDS

The following 5 tools are essential for advancing nutrition research to the next level in the 21st century. The development of new, impactful tools will enable researchers to more effectively quantify dietary intake and food waste, and to determine the usefulness of setting nutrition standards, such as Dietary Reference Intakes (DRIs) and the Dietary Guidelines. Without development of these tools, cutting-edge, translatable research in nutrition science will not occur.

Omics

Omics (especially genomics, proteomics and metabolomics) will enable us to determine how specific nutrients interact with genes, proteins and metabolites to predict the future health of an individual. Sometimes referred to as personalized nutrition, omics hold the keys to major nutrition breakthroughs in chronic disease and obesity prevention. Omics provide information on how well nutrients are digested, absorbed, metabolized and utilized by an individual. Moreover, omics will lead to new biomarkers that reveal both a person's nutritional status and health status.

Bioinformatics

Bioinformatics is an interdisciplinary field that utilizes computer science and information technology to develop and enhance techniques to make it easier to acquire, store, organize, retrieve, and use biological data. Bioinformatics will enable nutrition researchers to more efficiently manage, analyze and understand nutrition data, and make connections between diet and health that were not previously possible. Databases are necessary to gain the full benefits of bioinformatics, as they make nutrition data easily accessible in a machine-readable format.

Databases

Food and nutrient databases are essential to track and observe trends related to the nutrition and health of individuals. Databases link food and supplement composition and intake data to health outcomes. Nutrient databases should be expanded to cover more foods and their bioactive components, including non-essential nutrients. Nutrition data must also be incorporated into databases related to novel research areas, such as nutrigenomics and the microbiome, to adequately link these areas with nutrition. Data collection must be improved with enhancements such as photographic food intake documentation; direct upload of food composition and sensory characteristics (if not proprietary) from food manufacturers; and biological sample collection.

Biomarkers

Intake, effect and exposure biomarkers allow us to determine and monitor the health and nutritional status of individuals and subpopulations, such as ethnic and racial minorities. Biological markers that are responsive to diet and nutrition will help assess disease progression and variability in response to treatment, while improving early diagnosis and prevention. Biomarkers must continue to be developed and verified to accurately track food and nutrient intake given our rapidly changing food supply.

Cost effectiveness analysis

Cost effectiveness analysis is a tool used to calculate and compare the relative costs and benefits of nutrition research interventions. Cost effectiveness analysis helps to determine the most cost effective option that will have the greatest benefit to public health.

ASN EST. 1928
American Society for Nutrition
Excellence in Nutrition Research and Practice
www.nutrition.org