NUTRITION RESEARCH NEEDS

The rapid translation of nutrition research advances into evidence-based practice and policy is a priority for ensuring optimal patient care and effective disease management. Nutrition researchers play a key role in bridging the gap between disease prevention and disease treatment by fostering clinical research, providing innovative education for caregivers and patients, and delineating best practices for medical nutrition in primary care settings.

Disease Progression and Prevention

To improve the medical management of disease, research is needed to determine how nutritional factors influence both disease initiation and progression, as well as how nutrition affects a patient's response to therapy. Genetic variations among individuals can result in both positive and negative responses to diets, to specific foods and to novel food components. Two exciting new scientific fields, "nutrigenetics" and "nutrigenomics," are advancing a basic understanding of an individual person's unique response to nutritional factors, and these will lead to "personalized nutrition" for disease prevention and treatment. Nutrigenetics studies the effect of genetic variations on complex nutrient-gene-environment interactions, while nutrigenomics includes studies on the effect of nutritional factors on gene expression (transcriptomics) and thus, on a person's present and future health status.

Research will allow us to better understand and minimize unfavorable impacts of both reduced and elevated nutrient intakes on disease progression and overall health. Disease/mortality response curves are U-shaped for many nutrients (that is, there is an increased risk of adverse outcomes if the nutrient is ingested in either too low or too high amounts). The importance of achieving a proper nutrient balance is seen in the example of chronic inflammation. Chronic inflammation contributes to many chronic illnesses and can result from high intakes of pro-inflammatory omega-6 fatty acids in the face of low intakes of anti-inflammatory omega-3 fatty acids. Research will help to determine the desired intake for essential and non-essential nutrients alone and when combined with other nutrients in the diet.

Nutrition Support for Special Subgroups

Nutrition research is needed to establish the required nutritional needs that best support survival, growth, and development in subpopulations, such as in chronically diseased patients, in children and in older adults. With the success of medical advances, as have been seen with in vitro fertilization and neonatal care, caring for pre-term infants presents a new challenge in early nutritional management. Pre-term infants have special nutrition needs that will greatly impact their future growth and development, as well as their eventual health status as adults.

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