

Health maintenance includes non-communicable disease prevention and treatment, as well as weight management. The role that food components, particularly novel ingredients, play in health maintenance requires further research. Researchers and the public rely on Dietary Reference Intakes (DRIs) to guide dietary decisions and public health policy. Research is needed to better define the DRIs that best support health maintenance in all population subgroups, from infants to the elderly. Nutrition across the life cycle is a fundamental issue that requires investigation so that nutrient recommendations will “match” with true physiological needs.

Optimal Bodily Function

Research is needed to determine the roles that nutrition and fitness, both singularly and together, play in maintaining bodily functions, including cognitive, immune, skeletal, muscular, and other functions. Evolving research areas include prevention of disease-related processes, such as inflammation. An emerging and extremely important area is the relationship of diet and the microbiota that inhabit the intestine and are necessary for optimal health. The human microbiota needs to be better defined, and changes due to diet, age, physiological state, and disease, determined. Animal models are also important in defining mechanisms, and in understanding the requirements for optimal health of production animals.

Achieving Energy Balance

Research is also needed to examine the use of a systems approach to achieve energy balance including and integrating environmental, biological, psycho-social, and food system factors. A systems approach is preferable since the standard experimental approach of varying one factor at a time has done little to address the population-wide problem of energy imbalance. A solution-oriented approach that is comprehensive in nature and takes into account the complexities of achieving energy balance must be created. “Shape Up Somerville, MA,” effectively reduced weight gain in high-risk children through a multifaceted community-based environmental change campaign. Shape Up Somerville increased the entire community’s physical activity and healthful eating through physical infrastructure improvements and city-wide policy and programming changes.

