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Research Interests

Skeletal muscle plays a central role in many biological functions; thus, alterations in skeletal muscle can have a marked influence on health and disease. The loss of muscle mass with advancing age, resulting from inadequate protein intake or physical inactivity, predisposes the elderly to functional limitations, physical disability, poor quality of life, and death. Sarcopenia (normal loss of muscle mass that is a universal phenomenon of aging) and muscle wasting (the loss of muscle mass caused by disease) results in and leads to metabolic disorders (e.g., insulin resistance) that reduce the ability of older individuals to cope with illness and injury. Thus, *one of my research interests is to understand the role of protein intake and physical activity in the maintenance of muscle mass and function in older adults. A second research interest is the development of multifaceted approaches to investigate the cause of sarcopenia and muscle wasting and to evaluate the effects of different physiologic and/or pathologic perturbations on age-related muscle loss and disability.*

There is still a lot of controversy regarding protein requirements and protein adequacy in the elderly, and this constitutes a research focus for me. In addition, the role of physical activity on protein nutrition status and muscle mass and function is also relevant given that the largest reservoir of protein in the body is skeletal muscle mass. Diseases characterized by insulin resistance (e.g., renal disease and diabetes) impair amino acid uptake and utilization, leading to marked muscle wasting and disability and perpetuating the frailty syndrome. Thus, *a third research interest is to develop, test, and implement diet and physical activity interventions that alone or combined will improve protein nutritional status and muscle mass and function.* This is especially important with respect to underrepresented diverse populations, such as the rapidly growing Hispanic population living in the United States and the Chinese community living near the institution with which I am affiliated.

The long-term goal of my research is to contribute to the understanding of the mechanisms associated with sarcopenia and muscle wasting and to validate the use of preventive and/or therapeutic approaches to reverse the loss of muscle mass. In addition, I am interested in disseminating these research findings widely between scientific and lay audiences.

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