Dietary protein for the elderly: Impact of age and protein source on nutritive status

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Abstract

Dietary protein is required for growth, maintenance, and health as it supplies indispensable amino acids that are incapable of being synthesized by humans. During early life protein requirements are high in order to support rapid growth while maintaining homeostasis. After reaching adulthood protein requirements reduce to 0.8 g/kg/d, with pregnant women requiring 1.2 g/kg/d during lactation. During the aging process there are multiple changes which occur to the gastrointestinal system that impact the ability to digest, absorb, and metabolize dietary protein. This can include altered dentition, reduced activity and concentration of digestive enzymes, loss of intestinal integrity, and reduction in intestinal transporter populations, leading to suggested intake of 1.0 g/kg/d. Beyond these systemic and metabolic considerations, the nutritional quality and digestibility of dietary protein is highly variable depending on the source such as animal or plant-based. Animal proteins are highly digestible and have amino acid compositions complimentary to human requirements, while plant-based proteins are typically less digestible and typically unable to meet human requirements for one or more amino acids. As the changes that occur to the gastrointestinal tract during aging have implications in digestion and absorption of proteins it becomes essential to understand

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how these factors interact. This presentation will provide an overview of human protein requirements, digestibility of different protein sources, post-prandial amino acid content, and amino acid uptake in elderly conditions.

Keyword: Protein quality, protein requirements, amino acid digestibility, amino acid transport