

Effects of essential amino acid supplementation on frailty in older persons

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Frailty is an increasingly prevalent healthcare problem in today's aging population. Inadequate nutrition, particularly a low protein intake reduces muscle mass and has been identified as one of the main causes of sarcopenia, further contributing to frailty. Our daily protein intake required is made up of Essential Amino Acids (EAA) that has been shown to be primarily responsible for stimulating muscle protein synthesis. This study aims to investigate the effects of EAA supplementation on frailty in older persons. A systematic electronic database search was performed using PubMed, identifying 10 randomized controlled trials and studies. The results were analyzed and compared to ascertain the effectiveness of the EAA supplementations on improving physical frailty status in terms of lean muscle mass and physical performance indices. Across these studies, EAA consumption were found to increase basal muscle protein synthesis, whole-body lean muscle mass and even other benefits of decreasing insulin resistance and reducing serum TNF- α (an inflammatory marker). Interestingly, Leucine (one of the nine EAAs) has been shown to have the greatest anabolic potential for protein synthesis. Overall, these results explain that EAA supplementation has been effective in improving physical frailty status in older adults and that there is the potential for this response to EAA not to remain as an acute anabolic one, but to be sustained over time. Future research into the ideal dosage, composition and mode of consumption of EAA supplementation can have implications and be incorporated into the treatment of frailty in the elderly.

Biography

Kimberly Tan Yuen Ling is currently an undergraduate medical student from the Yong Loo Lin School of Medicine, Singapore. She has a budding interest in research on aging, frailty and nutrition.

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