

Effectiveness of exercise and protein supplementation intervention on body composition, functional fitness, and oxidative stress among elderly Malays with sarcopenia

Abstract

Sarcopenia, characterized as muscle loss that occurs with aging, is a major health problem in an aging population, due to its implications on mobility, quality of life, and fall risk. Protein supplementation could improve the physical fitness by increasing protein anabolism, and exercise has a documented evidence of positive effect on functional status among the elderly. However, the combined effect of both protein supplementation and exercise has not been investigated among sarcopenic elderly in the Asian population. Thus, this study aimed to determine the effectiveness of exercise intervention and protein supplementation either alone or in combination for 12 weeks, on body composition, functional fitness, and oxidative stress among elderly Malays with sarcopenia. Sixty five sarcopenic elderly Malays aged 60-74 years were assigned to the control group, exercise group (ExG), protein supplementation group (PrG), or the combination of exercise and protein supplementation group. A significant interaction effect between body weight and body mass index (BMI) was observed, with the PrG (-2.1% body weight, -1.8% BMI) showing the highest reductions. Further, there was a decrease in % body fat (-4.5%) and an increase in fat-free mass (kg) (+5.7%) in the ExG after 12 weeks ($P < 0.05$). The highest increments in lower and upper body strength were observed in the PrG (73.2%) and ExG (47.6%), respectively. In addition, the ExG showed a reduction in superoxide dismutase (SOD) levels, and both interventions did not alter either lipid or protein oxidation. In conclusion, the exercise program was found to improve muscle strength and body composition, while protein supplementation reduced body weight and increased upper body strength, among sarcopenic elderly in Malaysia.

Keyword: Aging population; Asian; Malaysia; Protein supplement; Sarcopenic elderly