

Vitamin D and Protein Work Together to Increase Muscle in Aging

Loss of muscle mass, called sarcopenia, is a public health problem. It has several effects including weakness, loss of stability, and a reduction in resting energy metabolism. This study examined the beneficial effects of vitamin D in combination with leucine and whey on preservation of muscle mass during a weight loss diet. In a recent study, 80 obese individuals over 55 year of age were included were randomly assigned into two groups: whey protein, leucine and vitamin D group or a control product with an equal number of calories. All participants had their body weight, BMI, waist circumference, muscle strength and physical functioning assessed at baseline, week 7 and week 13 of the study. Dual-energy X-ray absorptiometry (DXA) was used to measure appendicular muscle mass and overall body composition. Appendicular muscle mass is defined as the lean mass in both arms and legs, excluding the bone. Hand grip strength was determined using an isometric hand grip dynamometer while seated. Physical performance was measured with a 400-meter walking test, a 4 meter gait speed test and a chair stand test, which is comparable to a squat test to measure leg strength. All participants received a diet of 600 Calories below their estimated energy needs, and attended a resistance training session 3 times weekly supervised by a qualified personal trainer for the 13 weeks of the study. A serving of the participant's supplement was administered daily, with a second serving given within 5-10 minutes after each training session. Each serving contained 20.7g of whey protein, 2.8g leucine and 800 IU vitamin D3. Dietary intake was evaluated by the use of a 3-day food record at baseline, week 7 and week 13. Both intervention and control groups experienced a decrease in body weight (p

Although these findings show that a combination of whey, leucine and vitamin D do in fact support muscle mass and strength in obese older individuals during intentional weight loss, there are several limitations to this study that are important to address. First, the fact that whey, leucine and vitamin D were not measured individually makes it is impossible to determine the effects of each component. Also, the relatively low dose of vitamin D is unlikely to provide an obese individual with healthy vitamin D levels. Lastly, the effect of vitamin D in muscle function would be better determined by measuring the vitamin D status at baseline and study completion.

Verreijen, A. et al. A high whey protein-, leucine-, and vitamin D-enriched supplement preserves muscle mass during intentional weight loss in obese older adults: a double-blind randomized controlled trial. *The American Journal of Clinical Nutrition*, 2015.