

Effects of whey protein supplement in the elderly submitted to resistance training: Systematic review and meta-analysis

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It is accepted resistance training promotes increased muscle strength and skeletal muscle mass. In the aging context, resistance training has a special importance after 60 years old, when changes in body composition are accelerated due to the aging process (Csapo & Alegre 2015). Whey protein is available as a dietary supplement claimed for building muscle mass. Considering the rapid rate of digestion, this supplement provides fast supply of amino acids that can be absorbed by the muscles to repair and rebuild muscle tissue (Chen *et al.*, 2014). We performed this systematic review to map the evidence and analyze the effect of whey protein supplementation in the elderly submitted to resistance training. We performed a systematic review following the PRISMA-statement guidelines (Liberati *et al.*, 2009). The review protocol is registered at PROSPERO (CRD42014014317). A comprehensive search on Medline, LILACS, EMBASE and the Cochrane Library for relevant publications was conducted until August 2015. The terms used in the search

were: "Resistance Training"; "Whey protein"; "elderly". Results: A total of 632 studies were screened. Five studies were included composing a sample of 391 patients. The supplement whey protein was associated with higher total protein ingestion 9.40 (95% CI 4.03 to 14.78), and with an average change in plasma leucine concentration, mean difference in plasma leucine concentration ranging from 406 μ mol/L to 490 μ mol/L compared with the control group ($p < 0.05$, $I^2 = 74\%$). The supplementation was also associated with increased mixed muscle protein synthesis 1.26 (95% CI 0.46 to 2.07) compared to the control group. Conclusion: We observed the use of whey protein in older adults promotes an increase in total protein intake, resulting in increased concentration of leucine and mixed muscle protein synthesis rate.

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