







**Abstract**

## **A Comparison of Multicomponent and Concurrent Exercise Protocols on Muscle Strength in Older Adults**

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The objective of this study was to evaluate and compare the impact of a multicomponent exercise program and a concurrent exercise program on muscle strength among elderly individuals living in the community. Analysis using repeated measures ANOVA demonstrated significant main effects for the group factor ( $F(1,15) = 66.59, p < 0.001, \eta^2 = .81$ ) and the group\*time factor ( $F(1,15) = 16.95, p < 0.001, \eta^2 = .53$ ) in relation to the 30-second chair test. For the 30-second arm curl, significant main effects were observed solely for the group factor ( $F(1,15) = 19.28, p < 0.001, \eta^2 = .56$ ). The timed up and go test revealed significant main effects for the group factor ( $F(1,15) = 35.56, p < 0.001, \eta^2 = .70$ ) and the group\*time factor ( $F(1,15) = 11.68, p < 0.001, \eta^2 = .43$ ). Additionally, the group\*time factor showed significant main effects for handgrip strength ( $F(1,15) = 5.19, p = 0.038, \eta^2 = .25$ ). The multicomponent exercise group exhibited a higher average increase compared to the concurrent exercise group.

Although both exercise programs proved effective in enhancing muscle strength among elderly individuals living in the community, the multicomponent exercise group displayed superior outcomes across various physical fitness measures compared to the concurrent exercise group. These findings suggest that implementing a multicomponent exercise program may offer greater benefits for improving muscle strength in this specific population.

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