

## STRENGTH TRAINING WITH ANTAGONIST MUSCLE PRE-ACTIVATION IN THE ELDERLY: A RANDOMIZED CONTROLLED TRIAL.

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The study aimed to verify and compare the effects of controlled strength training (TF) with antagonistic muscle pre-activation, during 16 sessions, on the muscle strength of lower limbs and on functional performance in sedentary elderly people. 56 elderly people of both sexes were selected, with a mean of  $66.5 \pm 4.5$  years. Participants were divided into 3 groups: TF1 n = 17, TF2 n = 18 and CG n = 21. The body mass index (BMI), fat percentage (% F) and the strength tests of 1 maximum repetition of the femoral quadriceps (FQF), sitting and standing on the chair, the Timed Up and Go (TUG) and the six-minute walk. Data were submitted to the normality test (Shapiro Wilk). Variables that presented normal distribution were expressed as mean and standard deviation, and those that did not present normality, as median and interquartile range. To verify the effect of the intervention on the percentage of fat, factorial ANOVA was performed. The Kruskal Wallis test was applied to verify the difference between groups both in the pre and post-test and to identify the differences between the comparison pairs between groups, the U-Mann Whitney test with Bonferroni correction. To verify the differences between pre and post test in each group, the paired Wilcoxon test was used. The adopted significance was 5% ( $p < 0.05$ ). The study demonstrated that the 1RM test did not find any statistically significant intergroup differences in the pre-intervention moment, however, in the post-intervention moment, significant intergroup statistical differences were found. In the 1RM test when compared to the CG (TF1 pre vs TF1 post -  $T = -3.746$ ,  $p < 0.001$ ; TF2 pre vs TF2 post -  $T = -3.537$ ,  $p < 0.001$ ; GC pre and GC post -  $T = -3.753$ ,  $p < 0.001$ ). There was a statistically significant difference between the TF2 and GC TF2 and GC groups ( $H(2) = 6.276$ ,  $p = 0.04$  |  $U = 96.5$ ;  $z = -2.410$ ,  $p = 0.016$ ). For the test to sit and reach, (TF1 pre vs TF1 post -  $T = -3.337$ ,  $p < 0.001$ ); TF2pre vs TF2post -  $T = -2.442$ ,  $p = 0.015$ ); GC pre vs GC post -  $T = -2.935$ ,  $p = 0.003$ ). For the 6-minute test, in the intergroup analysis, the groups showed statistically significant differences in the pre-intervention moment. Strength training with antagonistic muscle pre-activation in the elderly improves muscle strength and functional performance. **Keywords:** Resistance Training; Muscle pre activation; Strength; Functional performance in the elderly.

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