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The Effects of Agonist-Antagonist Paired Set vs. Traditional Set Training on Forearm Strength

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It has been suggested that agonist-antagonist paired set (APS) training may be an efficacious and time efficient way to increase strength. There is no evidence examining the use of APS protocols to train the forearm. **PURPOSE:** To determine the efficacy of APS versus traditional set (TS) training on forearm flexor and extensor strength over a six week training period. **METHODS:** Thirty two recreationally trained individuals performed a 1-RM isometric hand held dynamometer (HHD) for 3 seconds to measure forearm flexor strength. A kneeling break test was used to measure forearm extensor strength before and after a six week training period. Participants were placed in three experimental groups. For the control group (N=9) no training was performed for the duration of the study. The TS group (N=11) performed between 3 and 7 sets of 15 to 25 reps with 90 seconds rest for each muscle group. The APS group (N=12) performed the same amount of volume but would alternate every 30 seconds between the finger flexor exercise and the finger extensor exercise and took half the time to perform each workout compared to the TS group. A 3x2 Repeated Measures ANOVA was used to determine differences. **RESULTS:** There was a significant ($p < 0.05$) increase from pre to post-test standing forearm flexor strength, for both the APS (43.2 ± 12.5 to 49.9 ± 13.2) and TS (43.5 ± 11.0 to 50.3 ± 13.4) training groups. A small magnitude of difference was seen from pre to post-test for both the APS (ES = 0.54) and TS (ES = 0.61). All groups experienced a significant increase ($p < 0.05$) from pre to post- test extensor strength. The control group increased from (36.5 ± 2.6 to 41.8 ± 3.1), the APS group increased from (34.3 ± 2.5 to 46.2 ± 2.6), and the TS (34.3 ± 2.7 to 46.7 ± 3.2). A small magnitude of effect was seen from pre to post-test for the control group (ES = 0.67). A moderate effect was seen in the APS (ES = 1.44) and TS (ES = 1.38) respectively. **CONCLUSIONS:** The results indicate that APS is an effective method for increasing both flexor and extensor forearm strength. If utilized, it is possible that total training time for forearm flexor and extensor strength could decrease significantly.