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Session G-28 - HIIT and Resistance Training Interventions

2744. Effects Of A 6-week Resistance Exercise Programme With Microcurrent On Strength, Functional Capacity, And Muscle Thickness In Middle-aged Adults: A Pilot Study

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Disclosures

S. Kolimechkov: None.

Abstract

PURPOSE: Combining microcurrent therapy (MCT) and resistance exercise has been shown to contribute to muscle recovery and maximise training outcomes in young and older adults. The aim of this study was to assess the effects of adding MCT to a resistance exercise programme (RT) on strength, functional capacity, and muscle thickness in middle-aged adults.

METHODS: Thirteen participants (mean \pm SD: age 52.6 ± 7.5 years, BMI 24.6 ± 4.2 kg/m², height 168.2 ± 9.6 cm) were randomly assigned into either a microcurrent

(MCT, n=7) or a sham (SH, n=6) group. Participants used a wearable microcurrent device (live or sham) on the dominant upper arm for 3 hours post-workout or in the morning on non-training days. The live device used an intensity between 50 and 400 μ A in a ratio of 2:1 (on:off) and a frequency of 1.03 kHz. Participants completed a 6-week RT (2 times a week, 12 sessions in total), with each session involving 3 sets x 12-15 reps of 8 multi-joint exercises using elastics bands: squat with shoulder press, biceps curl, squat, lateral pull down, deadlift, triceps extension, lunge, and upright row. The OMNI-RES Scale (0-10 scale) for elastic bands was used to rate the perception of effort. Participants were instructed to reach the following OMNI-RES scores at the end of each set: 6 to 7 in week 1; 7 to 8 in week 2; and 8 to 9 during weeks 3 to 6. Measurements of strength (handgrip and 90° isometric leg press), functional capacity (30s chair stand test), and muscle thickness via ultrasonography were conducted before and after the intervention.

RESULTS: Only the MCT group showed significant pre-post improvements for both, lower-body strength (+3.0 kg for the 90° isometric leg press, $p = 0.02$, $d = 0.31$) and functional capacity (+3.1 reps for the 30s chair stand test, $p = 0.01$, $d = 0.57$). No other significant pre-post or between-group differences were observed. Nonetheless, compared to SH, the MCT intervention demonstrated favourable moderate effect sizes for the 90° isometric leg press ($d = 0.67$), 30s chair stand test ($d = 0.50$), and vastus lateralis muscle thickness ($d = 0.49$).

CONCLUSIONS: Adding MCT for three hours after resistance training seems to improve training outcomes in middle-aged adults.