The effect of strain counterstrain (SCS) on forearm strength compared to sham positioning

by: Christopher K. Wong, Neil Moskovitz, Rico Fabillar

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Abstract

Determine the effect of strain counterstrain (SCS) techniques on forearm pronation and supination muscle strength compared to passive sham positioning. Randomized, blinded, sham-controlled study. 12 healthy right-handed subjects (4 men, 8 women) with 19 included forearms (6 right, 13 left). Each forearm was individually and randomly assigned to the SCS or control group (9 SCS, 10 control). Subjects attended 3 sessions within 3 weeks. Initial forearm pronation and supination strength was assessed at the first session. Forearm muscle strength was assessed in a stable seated position using a hydraulic dynamometer with doorknob-shaped handle. Pre- and post-treatment strength was assessed during the second session, with the SCS group receiving 1 SCS treatment to the pronator and supinator muscles and the control group receiving passive sham positioning between assessments. The third session consisted of a 1-week follow-up forearm strength. At baseline, the SCS and control groups were comparable with respect to age, gender, height, weight, hand dominance, and initial pronator and supinator strength ($p > 0.05$). After treatment, control group strength remained unchanged ($p > 0.05$) while the SCS group increased pronation strength by 8.3% ($p = 0.009$) and supination strength by 11.9% ($p = 0.046$) from pre-treatment to follow-up 1 week later. SCS group strength increased more compared to the control group for pronation ($p = 0.045$) and supination ($p = 0.059$). Forearm strength increased after SCS in a healthy population with muscle tenderness, with greater strength increase apparent than after passive sham positioning.