

EFFECTS OF KAATSU TRAINING ON UPPER EXTREMITY SIZE AND STRENGTH

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Conventional resistance training involves lifting heavy loads (~70% maximal strength), which can be poorly tolerated or contraindicated in many clinical populations. KAATSU training is a novel training mode from Japan that combines muscle blood flow restriction with low load lifting (~20% maximal strength). The purpose of this study was to investigate the effects of a KAATSU training program on upper extremity size and strength. Forty healthy subjects ages 18 to 30 were divided into exercise (EX) or control (CON) groups. Subjects reported to the laboratory three times per week for eight weeks. The EX group performed 3 sets of 15 repetitions of unilateral bicep curls and triceps extensions lifting loads equivalent to 20% of their predetermined maximal strength while wearing a pneumatic cuff to restrict blood flow on one arm (CUFF) and nothing on the other (NCUFF). The CON group did not perform any exercises but wore the cuff on one arm for a time comparable to the EX group. CUFF and NCUFF arms were randomly assigned. Strength, girth, skin folds and tomography scans were taken pre-, during, and post-eight weeks. In the EX group, bicep curl (17.4% \pm 4.1% and 18.7% \pm 4.9%) and triceps extension (15.8% \pm 3.4% and 10.7% \pm 2.7%) strength increased significantly over the 8-week period for both the CUFF and NCUFF arms, respectively. No significant differences in strength occurred between the CUFF and NCUFF arms within the group. No strength changes were noted in the CON group for the CUFF and NCUFF arms. Arm girth and muscle cross-sectional area (mCSA) increased significantly in the EX subjects compared to the CON subjects, however no significant differences were found when within group comparisons were made between the CUFF and NCUFF arms. This study indicates that KAATSU training can increase muscle strength and mCSA.

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