Effects of order of resistance training exercises on muscle hypertrophy in young adult men

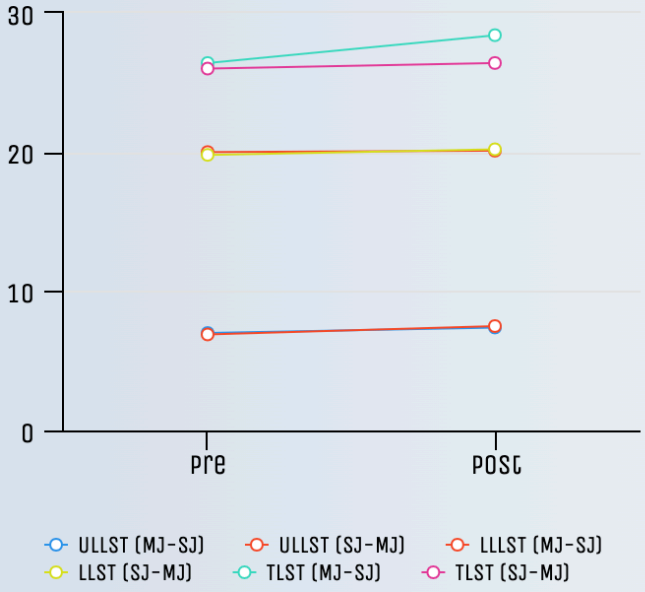
Study Objectives

To examine the effects of the order of resistance training (RT) exercises on hypertrophy in young adult men.

Measurements

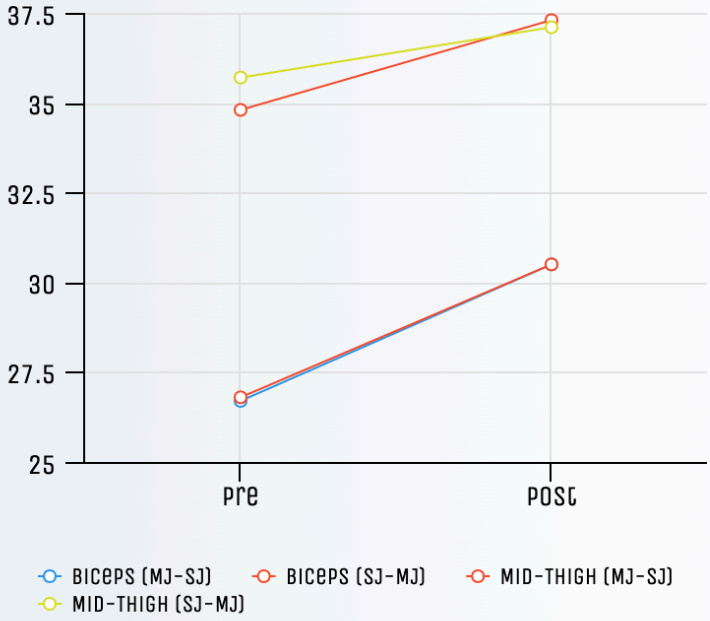
Thirty-six adult men (age, 21.9 ± 2.5 years; body mass, 72.6 ± 12.1 kg, height, 176.9 ± 7.4 cm; body mass index, 23.1 ± 3.3 kg/m2) were randomly assigned to 1 of 2 training groups that performed a 6-week RT program in either ; a traditional approach starting with multi-joint (MJ) exercises followed by single-joint exercises (SJ) (MJ-SJ, n = 19) or in reverse order (SJ-MJ, n = 17). Muscle thickness of the biceps brachii and mid-thigh were assessed by ultrasound. Lean soft tissue (LST) was assessed by dual-energy X-ray absorptiometry.

Results



MJ-SJ, multi-joint to single-joint exercises order; LLLST, lower limb lean soft tissue; SJ-MJ, single-joint to multi-joint exercises order; TLST, trunk lean soft tissue; ULLST, upper limb lean soft tissue

ULLST (MJ-SJ = +5.2%, SJ-MJ = +7.5%) were similar between conditions (P = 0.07) and for TLST (MJ-SJ = +7.2%, SJ-MJ = +1.7%). Nonsignificant pre- to post-training changes were observed for LLLSTs (MJ-SJ = +0.7%, SJ-MJ = +1.8%).



MJ-SJ, multi-joint to single-joint exercises order; SJ-MJ, single-joint to multi-joint exercises order;

Both groups similarly increased (P < 0.05) biceps thickness (MJ-SJ = +14.2%, SJ-MJ = +13.8%). Only the MJ-SJ group presented an increase in mid-thigh thickness from pre- to post-training (MJ-SJ = +7.2%, SJ-MJ = +3.9%)

Conclusions

These results suggest that both sequences are effective for increasing muscle hypertrophy over a 6-week RT period; there may be a potentially beneficial hypertrophic effect for the mid-thigh by performing exercises in a manner that progresses from MJ to SJ exercises.

Avelar, A., Ribeiro, A.S., Nunes, J.P., Schoenfeld, B.J., Papst, R.R., Trindade, M.C.D.C., Bottaro, M. and Cyrino, E.S., 2019. Effects of order of resistance training exercises on muscle hypertrophy in young adult men. Applied Physiology, Nutrition, and Metabolism, 44(4), pp.420-424.