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## Bilateral Training Results in Superior Strength Improvements to Unilateral Despite Similar Changes in Fat-Free Mass

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**PURPOSE:** To determine if strength increases differ between bilateral and unilateral training; to determine whether differences, if any, were mediated by muscle hypertrophy. **METHODS:** College-aged men and women ( $n=67$ ; age= $19.7 \pm 0.9$  yr; height= $168.7 \pm 9.8$  cm; body fat =  $22.14 \pm 10.23\%$ ) provided written informed consent to participate. Subjects were randomized to a unilateral or a bilateral training group for eight weeks. Strength testing (chest press and leg press) was performed at pre, mid, and post, with body composition (air displacement plethysmography) at pre and post. Statistics included a repeated measures ANOVA with LSD post-hocs and planned contrasts. **RESULTS:** As shown in Figure 1 (leg press), strength increased (significant linear trend for chest press and leg press:  $p=0.000$ ) across all three time points. While there were no significant differences in strength at any time point, within-subjects contrasts displayed a significant linear trend interaction between time and training group for both leg press ( $0.049$ ) and chest press ( $p=0.029$ ) strength; the slopes of the two lines were therefore significantly different in favor of the bilateral trend. Although both groups increased FFM, the increase was comparable (mean kilogram change from pre to post:  $1.6 \pm 0.5$ ,  $p=0.001$  bilateral,  $1.4 \pm 0.4$ ,  $p=0.001$  unilateral). **CONCLUSION:** Bilateral training results in superior strength improvements over eight weeks as compared to unilateral despite similar changes in fat-free mass.

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