

Comparison between unilateral and bilateral lower limb strength trainings

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Aim: Back Squat (BS) is an exercise traditionally used to increase lower limb strength and power (Hoffman et al., 2009). Unilateral training such as Bulgarian Split Squat (BSS) could be an alternative method (McCurdy et al., 2005). The aim of this study was to compare the effects of unilateral and bilateral strength training on lower limb strength and power.

Methods: Ten healthy males (age=28.8±5.1 yrs; BMI=23.37±2.10 kg m⁻²) were recruited in this study and split into two groups: Bilateral group (BG, n=5) that performed BS high-intensity resistance training (HIRT, 4x5 repetitions, ~80% of 1RM); Unilateral group (UG, n=5) that performed BSS HIRT (4x5 repetitions, ~80% of 1RM) on both left and right leg. Before and after 9 weeks of training (2 times per week), they were tested on: 1RM on back squat (1RMBS) and 1RM on BSS using left and right leg (1RMBSS-L and 1RMBSS-R, respectively). Two-way ANOVA was used to identify group difference pre and post training periods.

Results: Both groups improved 1RMBS of 12.34±4.25% between pre and post training periods (within-subjects differences: p<0.001). UG improved 1RMBSS-L of 9.86% (interaction: p=0.002) and 1RMBSS-R of 9.36% (interaction: p=0.002) with respect than BG.

Conclusion: Although UG obtained greater improvement in unilateral lower limb strength than BG, UG was not able to transfer this improvement on bilateral movement. Thus, both trainings seemed to be similarly useful to improve bilateral strength and power.

Reference

Hoffman JR, Ratamess NA, Klatt M, Faigenbaum AD ... Kraemer WJ (2009) Comparison between different off-season resistance training programs in Division III American college football players. *J Strength Cond Res* 23:11–19.

McCurdy KW, Langford GA, Doscher MW, Wiley LP, Mallard KG (2005) The effects of short-term unilateral and bilateral lower-body resistance training on measures of strength and power *J Strength Cond Res* 19:9–15.