Effects of 8-week resistance training on lower-limb power in male and female competitive ultimate frisbee players

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Purpose: Ultimate frisbee is a rapidly growing non-contact team sport played at all levels of competition in the men’s, women’s, and mixed divisions. Therefore, it is important to analyze if there is any relevant difference in training adaptations between male and female ultimate frisbee players, to understand if trainers of mixed teams should differentiate physical training between players of the two sexes. The purpose of this study was to analyze the effects of heavy resistance training on lower limb power in male and female ultimate frisbee players.

Methods: 9 elite (1st Italian league) female ultimate frisbee players (age: 20.7 ± 3.2 years; height: 167.9 ± 6.1 cm; weight: 57.2 ± 3.9 kg) and 5 elite male players (age: 22.2 ± 2.5 years; height: 183.1 ± 3.7 cm; weight: 72.2 ± 9.5 kg) were involved. All athletes were tested before (T₀) and after (T₁) an 8-week program of heavy resistance training, composed by 4 weeks focused on hypertrophy (overweight 70% 1RM, 10 repetitions per set) and 4 weeks focused on neural adaptations (85-90% 1RM, 3 repetitions per set). During the 8-week period, all athletes also performed standard field training using the frisbee. Tests included a countermovement jump (CMJ), a squat jump (SJ), and a drop jump (DJ) from 40 cm.

Results: At T₁, female players showed a significant (p<0.05) decrease of -1.11 cm in the SJ (-4.26%, ES= 0.30), while the reactive index calculated from the DJ test showed a significant (p<0.05) increase of 0.233 (+14.66%, ES= 1.42) and the CMJ showed a non-significant (p>0.05) decrease of -0.65 cm (2.37%, ES=0.20). Male players, at T₁, showed almost significant (p= 0.06) increases of +1.60 cm (+4.39%, ES= 0.28) in the SJ and of 0.499 in the reactive index (+27.44%, ES= 1.38), while they showed a non-significant (p>0.05) increase of +1.88 cm (4.72%, ES=0.33) in the CMJ. When comparing the effects of training (T₁-T₀) differences between female and male players, there was a significant (p<0.05) difference in CMJ and SJ changes (ES= 1.88 and 1.99 respectively).

Conclusions: The results show that heavy resistance training has a different impact on the lower-limb power in male and female ultimate frisbee players. This type of training can represent an effective strategy for in-season training of male players when aiming to increase the lower-limb power, while it should be used cautiously and possibly limited to the off-season period in female players, to avoid any possible negative impact on CMJ and SJ performance. This study highlights important differences between sexes in the effects of strength training and reveals the necessity to differentiate training programs between male and female players in mixed ultimate frisbee teams.

Reference: