ACUTE RESPONSE TO HIGH INTENSITY STRENGTH TRAINING IN ENDURANCE AND TEAM SPORT ATHLETES

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The acute responses to exercise help to understand the response to a specific training session. This immediate response supposes an element of great importance in sport performance due to the lasting or chronic adjustments to training (1). The current study tried to elucidate the acute effects of high intensity-strength training (S) in two consecutive days in different athletes (2).

Two groups were conformed a) 11 futsal players of semi-professional level (FG) (18-25yr), and b) 8 endurance trained athletes of national level (EG) (20-25yr). The intervention was composed by two training sessions (4 sets of 3 repetitions at 85-90% of their 1RM in the squat exercise) separated by 24h. Two days before the first workout and 5 days after the second workout subjects were measured for 1RM in squat (90° knee angle). There were significant improvements (p < 0.05) in the 1RM and force production in both (FG p= 0,000 and 0,000; EG p= 0,003 and 0,003) groups. However, maximal power during 1RM was not changed after S, and the velocity of movement during 1RM was significantly reduced in FG. The group differences in maximal velocity and power during 1RM before training (greater in FG) vanished after S (before p= 0.016 and 0.001; after p= 0.528 and p= 0.60), whereas the statistically greater values in force production in FG compared to EG were unaltered by S (before p = 0,000; after p= 0,000). Nevertheless the results of the test 1RM that in a principle did not reflect differences between both groups (p= 0,332), after the training one saw a significant improvement of the players of futsal over the endurance sportsmen (p= 0,049). In conclusion, the results of this study show that only 2 very heavy strength sessions are able to significantly improve maximal force in team players and endurance athletes with no changes in power production during 1RM.


(2) Starkey, DB; Welch, MA; et al. One set of strength training is as good as three. Med. Sci. Sport Exerc. 1994; 26(5): supplement abstract 651

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