

Testing and training the strength, power and complex reactions in rugby players

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Abstract

Background. The physical demands of rugby players vary, depending on the control of play, the athlete's position, environmental conditions and many other variables. Strength, explosive power and reaction speed are the main determinants of physical performance in rugby players. Therefore, taking a methodical and scientific approach to improving these conditions is vital.

Aims. The study aims to demonstrate the effectiveness of proper testing and training for improving strength, explosive power and reaction speed in rugby players.

Methods. The study comprised twenty professional rugby players (age between 18 to 32 years). The subjects underwent measurements of explosive force and power of the lower limbs by performing the Counter movement jump test (using Myotest system, Switzerland) and Complex acoustic reaction test (using Optojump Next system, Italy). The complex reaction was assessed in each subject by making a move outside a perimeter and reaching a target located at a distance of 1 meter and 25 centimeters from the floor. All investigated subjects participated in a 10 week training camp. The training program was based on the concept of periodization, and comprised the following phases: Hypertrophy phase, Maximal strength phase, Conversion phase. On the entire period of training, the reaction speed to optic and acoustic stimuli was trained using coordination and plyometric exercises.

Results. After ten weeks of training, we noticed a significant improvement in reaction time to acoustic stimuli (from 1.69 ± 0.06 seconds to 1.41 ± 0.06 seconds, $p < 0.001$). We also noticed, at the end of the training period, a significant increase of leg explosive force (from 21.6 ± 1.8 N/kg to 25.8 ± 3.3 N/kg, $p < 0.001$) and explosive power (from 39.4 ± 7 W/kg to 46.4 ± 8.4 W/kg, $p = 0.009$).

Conclusion. The results emphasize that even a short period of training (10 weeks) can improve reaction time required to initiate complex muscular sequence, along with explosive power and strength among rugby players.

Keywords: rugby players, strength, power, complex reactions, exercise training.