PRE-SEASON ISOKINETIC MUSCLE STRENGTH PERFORMANCE BETWEEN SOCCER AND BASKETBALL PLAYERS IN DIFFERENT DIVISIONS

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Muscular strength is one of the most important components of soccer and basketball players, both for high performance and injury prevention (Magalhães et al., 2004; Zakas et. al., 1995). Berg et al. (1986) reported differences in concentric isokinetic peak torque of the quadriceps and hamstring muscles between the highest and the lowest Swedish soccer divisions and they concluded that high – level soccer players had a greater strength because training intensity increased with increasing playing category (Cometti et al., 2000).

Thus, the aim of this study was to examine the differences in maximal voluntary peak torque of the quadriceps and hamstrings muscles groups between Greek soccer and basketball players in different divisions before starting the preparation training season.

One hundred soccer players (mean age 24.7±5.3 yrs; training age 13.3±5.0 yrs; height 1.78±0.06 m; body weight 75.1±7.2 kg) and 60 basketball players (mean age 22.5±3.6; training age 11.8 ± 3.6 yrs, height 1.91±0.08 m; weight 93.3±12.6 kg). All players were participated in Greek national leagues.

Peak torque for quadriceps and hamstring was measured on a Cybex II isokinetic dynamometer at 60°61655;s-1, 180°61655;s-1 and 300°61655;s-1. Three repetitions were carried out at each angular velocity and the best torque value was used. A 30 sec rest period was taken between each trial and a 60 sec rest period between each velocity measurement.

Basketball players showed significantly higher peak torque values at 60°sec-1 in hamstrings, for III (P<0.05) and IV division (P<0.05), but not for I and II. No significant differences were found in peak torque at angular velocity of 60°sec-1, 180°sec-1 and 300°sec-1 within groups for basketball and soccer players, in quadriceps and hamstrings muscle groups, too. At angular velocity of 180 °sec-1, hamstrings for basketball players were significantly stronger than soccer players, for I (P<0.01), III (P<0.05) and IV (P<0.05) division, but there was no significant difference between players for division II. However, at the angular velocity of 300 °sec-1 of basketball players significantly stronger hamstrings compared to soccer players, for all divisions (P<0.01, P<0.01, P<0.001, P<0.001). Quadriceps peak torque do not differ between basketball and soccer players at the angular velocity of 60°sec-1 and 180 °sec-1. Otherwise at 300 °sec-1, peak torque for division II, found significantly higher for basketball than soccer players (P<0.01). No significant differences were found for division I, III and IV for the same variable. Similarly, H/Q peak torque ratio did not differ within and between groups of soccer and basketball players in all divisions and at any angular speed.

In conclusion, our results concerning H/Q ratio suggest that the type of sport could influence the isokinetic strength profile. However, this investigation has revealed that professional soccer and basketball players differ from amateurs in terms of quadriceps and hamstring muscles strength. Finally, a higher level of muscle strength would be preferable in soccer and basketball play and would reduce the risk for injuries in maintenance and re-building training period.