SEASONAL VARIATIONS, COMPETITIVE LEVEL AND PLAYING POSITIONS DIFFERENCES IN A SOCCER-SPECIFIC REPEATED SPRINT ABILITY (RSA) TEST.

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Soccer matches require players to repeatedly generate maximal sprints of few seconds interspersed by brief recovery periods with acceleration and deceleration phases. The ability to maintain high power or running speed over a series of sprints (repeated-sprint ability, RSA) has received attention from many researchers and recent studies have shown that a RSA soccer-specific test is correlated to high intensity activity during match play(1), have a good reliability(2) and is sensitive to specific training(3). The aims of this study were to examine 1) seasonal variations of test scores in top-level professional soccer players, 2) differences in test scores according to playing positions, and 3) differences in test scores according to competitive level. 30 top-level (TOP), 45 professional (PRO), and 33 amateur (AM) soccer players were involved in the study. The RSA test consist in 6x20-m+20-m shuttle run sprints with 20 s of recovery. The mean time over the six runs was used as test score. A two-way ANOVA was used for determining the differences between the four different playing positions (central defenders (CD) N=35; external defenders and midfielders (EX) N=21; central midfielders (CC) N=31; forwards (FW) N=21) and the three competitive levels (TOP, PRO, and AM). A one-way ANOVA was used for calculating the seasonal variations in 18 top-level soccer players that performed the test four times: July (pre-season), September (start-season), and two time during the competitive season (November and March, in-season).

No significant interaction (playing position x competitive level) was found. However, significant main effect (p=0.034) for playing position analysis was found. The RSA mean time was significantly lower in EX than CD (7.20 ± 0.27 sec vs 7.38 ± 0.29 sec; p=0.008). No other significant differences were found. Significant main effect (p=0.000) for competitive level analysis was found. The RSA mean time was significantly lower in TOP and PRO than AM (7.12 ± 0.17 and 7.20 ± 0.19 sec vs 7.55 ± 0.24 sec; p=0.000); no difference was found between the two groups of professional players (p=0.265). The RSA test scores changed during the season (p=0.000). The pre-season values (7.33 ± 0.13 sec) were significantly higher than the other periods (p=0.000). The mean time was significantly lower at the start season (September: 7.15 ± 0.16 sec) than July (7.33 ± 0.13 sec), November (7.21 ± 0.16 sec)(p=0.022), but not March (7.19 ± 0.13 sec)(p=0.333).

This study demonstrates that RSA is able to differentiate playing positions and competitive levels in soccer players. In addition, variations in RSA performance were observed during the season suggesting its sensitivity to training-induced changes. This study represent a further validation of this test in soccer (1, 2).

2) Ferrari Bravo D., communication to X ECSS, Belgrade, July 2005.
3) Ferrari Bravo D., communication to XI ECSS, Lausanne, July 2006.

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