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Correlation of Fiber-Type Composition and Sprint Performance in Youth Soccer Players.

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Abstract

Metaxas, T, Mandroukas, A, Michailidis, Y, Koutlianos, N, Christoulas, K, and Ekblom, B. Correlation of fiber-type composition and sprint performance in youth soccer players. *J Strength Cond Res* XX(X): 000-000, 2019-The aim of this study was to examine the correlation between muscle fiber type and sprint performance in elite young soccer players of different age groups of the same team. Twenty-eight young players participated in this study (group U15, n = 8; group U13, n = 9; and group U11, n = 11). Anthropometric assessments, acceleration (10 m), and Bangsbo modified sprint test (30 m) were performed. Muscle biopsies were obtained from the vastus lateralis, and after that, fiber-type composition was determined by immunohistochemistry. No significant correlations were found between the sprint test and muscle fiber distribution for the groups U13 and U11 ($p > 0.05$). Also, no correlations were found between cross-sectional areas in the types of fibers with the sprint test in all groups ($p > 0.05$). A positive correlation was found between type I fibers and the performance in the acceleration test (10 m) ($r = 0.77$, $p < 0.05$) was found only in group U15 and a negative correlation between type IIA fibers and the performance in the acceleration test (10 m) ($r = -0.89$, $p < 0.05$). The correlations were observed only in group U15, which may indicate that the duration and the intensity of the soccer systematic training can affect the plasticity of the muscle fibers. Specific soccer training in youth is one of the factors that can affect fiber-type plasticity. The specific training programs and status of U15 are more intensive, and the exercises are oriented more to improve physical fitness.

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