

Maximal oxygen consumption and oxygen muscle saturation recovery following repeated anaerobic sprint test in youth soccer players.

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Abstract

BACKGROUND: The purpose of the study was to examine whether differences in aerobic capacity (VO₂max) influence muscle reoxygenation following repeated anaerobic sprint test (RAST) in soccer players. We hypothesized that muscle reoxygenation is faster in players with higher aerobic capacity.

METHODS: Ten male, youth soccer players participated in the study and performed RAST on a synthetic grass field. Oxygen saturation in muscle (StO₂) of the right vastus lateralis muscle was measured by near-infrared spectroscopy. Half the time that was required for StO₂ recovery (T_{1/2} StO₂) after RAST was used to evaluate the reoxygenation in the recovery period after testing. The T_{1/2} StO₂ was defined as the time from the end of RAST testing to the time of reaching 50% of StO₂. Aerobic capacity (VO₂max) was estimated by the Yo-Yo intermittent recovery test level 1 (YYIR1).

RESULTS: The T_{1/2} StO₂ had a significant inverse correlation with VO₂max ($r=-0.71$; $P=0.021$) and with the distance which was covered by players on YYIR1 test ($r=-0.71$; $P=0.021$). In contrast, StO₂ recovery rate showed no significant correlations with the VO₂max in subjects.

CONCLUSIONS: These results indicate that aerobic capacity can influence vastus lateralis reoxygenation following RAST in youth soccer players.