Correlation between running anaerobic sprint test and anaerobic work capacity in soccer players #41

João Paulo Loures¹, Carlos Augusto Kalva Filho¹, Vanessa Holtz Franco¹, Diego André Bittencourt¹, Edson Itaru Kaminagakura¹, Marcelo Papoti¹².

¹Laboratory of Physical Evaluation, Health and Sports - Ponta Grossa State University – UEPG, Ponta Grossa, Paraná, Brazil; ²Laboratory of Physiology Applied to Sport- São Paulo State University–UNESP, Rio Claro, São Paulo, Brazil.
E-mail: mpapoti@yahoo.com.br

Running anaerobic sprint test (RAST) is theoretically an anaerobic measurement. Similarly, anaerobic work capacity (AWC), also evaluates anaerobic performance. However, their relationships as scientifically validated anaerobic tests are still controversial. This study evaluates associations between AWC and maximum velocity (Vmax), mean velocity (Vm) velocity, peak (PP), mean (PMab), absolute (PPab), and relative (PPre) power, fatigue index (IF), and peak lactatemia concentration ([la-]p). Nine sub-17 category soccer players from Ponta Grossa, PR, Brazil were submitted to six 35m efforts separated by 10s intervals to determine PPab, PMab, PPre, PMre, and IF (RAST). After three, five, and seven minutes blood samples were collected to determine [la-]p. Later, exhaustive tests were performed on a treadmill at 100%, 110%, and 120% VO2peak (previously determined). Points obtained in relation to velocity versus 1/tlim were linearly adjusted so that the linear coefficient corresponded to AWC. Possible associations between AWC and the RAST parameters were evaluated by the Pearson correlation test (P<0.05). No significant correlations were seen between AWC and any of the powers, IF, and [la-]p. However, AWC significantly correlated with Vmax (r=0.79) and Vmed (r=0.83). We can therefore conclude that AWC did not correlate with traditional anaerobic parameters determined by RAST, but could predict Vmax and Vmed provided from this test.

Key words: RAST; football; anaerobic work capacity.