

Determination of blood glucose threshold for indirect method using the heart rate in runners #42

Giovanna Benjamin Togashi^{1,2}, Rafael Pelegrina Pieroni², Maria Fernanda Cury Rodrigues², Mateus Moraes Domingos², Grazielle Pereira de Oliveira^{1,2}, Richard Diego Leite², João Carlos de Oliveira², Vilmar Baldissera^{1,2}.

¹Post-Graduation Program Interunits in Bioengineering, USP, São Carlos/SP, Brazil; ²Department of Physiological Sciences, Federal University of São Carlos, São Carlos/SP, Brazil.

E-mail: gitogashi@hotmail.com

The Anaerobic Threshold (AT) is a parameter highly used for physical training prescription. The determination of AT can be performed by direct and indirect methods. The aim of this study was to determine one indirect method to predict the effort intensity that match to Blood Glucose Threshold (BGT), using the maximal Heart Rate from one incremental test in treadmill (HR_{max}) in runners, 37.57±2.87 years (n=7). The protocol consisted of one incremental test in treadmill, with initial speed of 8 km.h⁻¹, increased by 1 km.h⁻¹ every 3 minutes until the voluntary exhaustion. Blood glucose and HR measurements were done before the test and after each stage. The individual BGT was determined in the minor point observed in the blood glucose kinetic. The medium percentage of HR maximal of the test corresponding to the HR in the effort intensity in the BGT was 89.17%. To determinate the speed effort in the BGT, a dispersion graphic (HR x BGTspeed) and the tendency's line equation of the linear regression were used ($y=0.0932x-3.7541$, $R^2 = 0.8897$). It was concluded that it is possible to determinate the effort intensity in the BGT, indirectly, over the equation BGTspeed (Km.h⁻¹)= $0.0932(89.17\%$ of the HR_{max} in absolute value)-3.7541 or, the summary equation, BGTspeed= $0.083(\text{HR}_{\text{max}})-3.7541$ for this population. However, other researches are necessary to validate these results.

Key words: physical training; anaerobic threshold; runners.