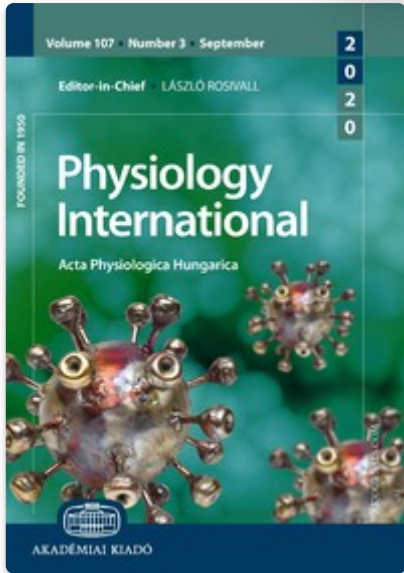




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# Agreement between heart rate deflection point and maximal lactate steady state in young adults with different body masses

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## Abstract

We examined the agreement between heart rate deflection point (HRDP) variables with maximal lactate steady state (MLSS) in a sample of young males categorized to different body mass statuses using body mass index (BMI) cut-off points. One hundred and eighteen young males ( $19.9 \pm 4.4$  years) underwent a standard running incremental protocol with individualized speed increment between 0.3 and 1.0 km/h for HRDP determination. HRDP was determined using the modified  $D_{\max}$  method called  $S.D_{\max}$ . MLSS was determined using 2-5 series of constant-speed treadmill runs. Heart rate (HR) and blood lactate concentration (La) were measured in all tests. MLSS was defined as the maximal running speed yielding a La increase of less than 1 mmol/L during the last 20 min. Good agreement was observed between HRDP and MLSS for HR for all participants ( $\pm 1.96$ ; 95% CI =  $-11.5$  to  $+9.2$  b/min, ICC = 0.88;  $P < 0.001$ ). Good agreement was observed between HRDP and MLSS for speed for all participants ( $\pm 1.96$ ; 95% CI =  $-0.40$  to  $+0.42$  km/h, ICC = 0.98;  $P < 0.001$ ). The same findings were observed when participants were categorized in different body mass groups. In conclusion, HRDP can be used as a simple, non-invasive and time-efficient method to objectively determine submaximal aerobic performance in nonathletic young adult men with varying body mass status, according to the chosen standards for HRDP determination.

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