

## **Adequate hemodynamic response threshold in athletes at graduated physical loads**

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### **Abstract**

Objective of the study was to identify the adequate hemodynamic response threshold in athletes grouped by different cardiorespiratory system adaptation types and exposed to graduated physical loads. Graduated intensity (50 W to 200 W) cycle ergometer tests were used to apply the varying physical loads, with no rest breaks in the process. The subject athletes were grouped by different cardiorespiratory adaptation types, with the loads up to 200 W in the cycle ergometer step tests being applied for the above athletes' grouping. Based on the tests, the subjects were grouped into 5 groups based on the following cardiorespiratory system adaptation types: chronotropic, inotropic, respiratory, chronotropicrespiratory and the inotropic-respiratory type. Subject to the study were 18-35 years old men athletes (n=59) engaged in different sports and having a variety of sport qualifications from Sport Masters down to mass Class Athletes. The adequate hemodynamic response threshold was found to depend on the cardiorespiratory system adaptation types and load intensities. The higher was the adequate hemodynamic response threshold, the higher were the functional and reserve capacities of the athletes as verified by the SBV (specific blood volume) rate variations under the graduated loads. Therefore, the adequate hemodynamic response threshold may be applied as a body functional and reserve capacity indicator.

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### **Keywords**

Athletes, Cardio-respiratory system, Chronotropic and inotropic adaptation types, Graduated load, Threshold