

Human Physiology 2015 vol.41 N4, pages 420-427

Hemodynamic status of prepubertal and pubertal hockey players

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Abstract

© 2015, Pleiades Publishing, Inc. The study of the properties of hemodynamics in 11- to 15-year-old hockey players depending on their age and puberty stages and comparison of its parameters with the parameters of non-athletes of the same age has made it possible to ascertain that regular muscle training has the dominant effect on the functional state of the cardiovascular system (CVS) in prepuberty and puberty. It has been shown that in hockey players a decrease in heart rate (HR) and an increase in the stroke volume (SV) with age result in a significant increase in systolic blood pressure (BPs) at the age of 11–14 years and a progressive increase in total peripheral vascular resistance (TPVR), in contrast to significantly lower values in the control group. Quick adaptation of the CVS to graded physical activities at the age of 11–13 years leads to an enhancement of vascular spasmodic reactions, while SV remains constant. Adolescent hockey players have been found to have steadily high values of SV and BPs; at the same time, maximal values of HR, cardiac output (CO), and diastolic blood pressure (BPd) were observed at puberty stages 1 and 2, and; by stage 3, these parameters decreased, in contrast to the adolescents who did not do go in for sport, in whom the dynamics of these parameters has an opposite direction. This may be evidence of the stress effect of physical activities resulting in the adaptive reactions of the CVS, rather than pubertal changes in its functional activity.

<http://dx.doi.org/10.1134/S0362119715040131>

Keywords

11- to 15-year-old hockey players, graded physical activities, hemodynamics, puberty stages