

Decrease of Aerobic Capacity in Twenty Years in Lithuanian 11-18 Years-Old Youth

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Abstract : Background statement: Level of aerobic capacity in school age children provides important information about the current and future cardiovascular, skeletal and mental health. It is widely recognised that risk factors for modern chronic diseases of the adults have their origins in childhood and adolescence. The aim of the study was to analyse the trends of aerobic capacity across decades within groups of gender and age. Methods. The research included data of participants from the three nationally representative cohort studies performed in Lithuania in the years 1992, 2002 and 2012 among 11 to 18-years-old school children. Total of 18,294 school children were recruited for testing. Only those who had their body weight and height measured and completed 20 m shuttle endurance test were included in the analysis. The total number of students included in the analyses was 15,213 (7608 boys and 7605 girls). The permission to conduct the study was obtained from the Lithuanian Bioethics Committee (permission number BE-2-45). Major findings: Results are performed across gender and age groups. The comparison of shuttle endurance test, controlling for body mass index, indicated that in general there is a constant decrease of aerobic capacity across decades in both genders and age groups. The deterioration in aerobic capacity in boys accounted for 17 to 43 percent across age groups within decades. The biggest decrease was in 14 years-old boys. The deterioration in girls accounted for 19 to 37 percent across age groups with the highest decrease in 11 years-old girls. Though, girls had lower levels of aerobic capacity through all age groups and across three decades. Body mass index, as a covariate, accounted for up to six percent in deterioration of aerobic capacity. Final statement: The detected relationships may reflect the level and pattern of engagement in physical activity and sports where increased activity associates with superior performance in the tests because of the upregulated physiological function and instigated competitive/motivational level. The significance of the decade indirectly supports the importance of the recently changed activity among schoolchildren for this relationship.

Keywords : aerobic capacity, cardiovascular health, endurance, school age children

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