

FEATURES OF BLOOD MICROCIRCULATION IN CHILDREN 6-11 YEARS OLD

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Abstract

It is known that the foundations of health are laid in childhood, and the age of 6-11 years is one of the important periods in a child's development. Research on the physical development of children in normal conditions and their adaptation in the learning process are relevant and modern.

Keywords:

program, development, Research, physical.

Introduction

Each person is morphologically unique, since the hereditary program implemented in ontogenesis is unique, and the environmental conditions in which the genotype and phenotype are realized are also specific [2]. One of the leading places in medical practice in the diagnosis of various diseases is the problem of studying blood microcirculation.

The microcirculatory bed is the smallest structural and functional unit of the circulatory system, where transcapillary exchange takes place. The state of metabolism and functioning of any organ is directly determined by the adequate state of microcirculation. On the other hand, any pathological process proceeds with various changes in the microcirculation [7].

It is obvious that changes in the blood microcirculation system are closely correlated with shifts in central hemodynamics, and this makes it possible to use microcirculation parameters as prognostic and diagnostic criteria in assessing the general physical condition and health level of the examined persons.

Thus, the purpose of our study was to study the individual-typological characteristics of blood microcirculation in children aged 6-11 years, since this age period is one of the critical periods in a child's development and requires careful health monitoring [2].

In order to study microcirculation in children 6-11 years old, we examined 165 practically healthy children, including 55 girls and 110 boys, students of secondary schools in the city of Melitopol.

To study the functional state of microcirculation in a child's body, the method of laser Doppler flowmetry (LDF) was used, which makes it possible to assess the state of tissue blood flow [6]. The assessment of the state of microcirculation in children was carried out on the palmar surface of 4 fingers of the right hand, the hand was positioned horizontally at the level of the heart. The duration of the standard recording was 3 minutes.

The results of the study indicate a decrease in the microcirculation parameter (PM) in girls over the age period of 6-11 years. In a group of females during the study period, a significant increase in the standard deviation of the recorded Doppler signals from the mean was noted. This parameter characterizes the variability of blood flow over time and reflects the level of fluctuations in the flow of erythrocytes in microvessels.

The fluxmotion efficiency index, which determines the ratio of active modulations of cutaneous blood flow caused by myogenic and neurogenic mechanisms, and additional parasympathetic influences on it, did not change significantly in female children over a period of 6-11 years.

In boys, the dynamics of a decrease in the index of blood microcirculation in the period of 6-11 years is similarly traced.

Among the tested male children, the value of RMS - the coefficient of variation of erythrocytes in microvessels, acquires the greatest value at the age of 6 years, by the age of 11 years, decreasing to the minimum recorded value. The

index of the efficiency of tissue blood flow fluxmotion in the male group increases over a period of 6-10 years, in the age range of 10-11 years its maximum decrease was noted.

Thus, the age-related dynamics of blood microcirculation parameters in children was traced over a period of 6-11 years. The absence of significant differences in the main indicators of tissue blood flow in children of different sex was noted .

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