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PHYSICAL ACTIVITY AS A FACTOR TO PREVENT DISEASES, RECOMMENDATIONS

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Among the factors that form the basis promoting many diseases, including cardiovascular ones, there is lack of physical activity. In 2008, about 31% of people (28% men and 34% women) all over the world aged 15 and older were considered to be not physically active. Approximately 3.2 million annual deaths related to physical inactivity.

Physical activity is to be understood as any body movement involving skeletal muscles with energy release. Physical inactivity (lack of physical activity) is an independent risk factor for occurring chronic diseases. Healthy people are recommended to maintain appropriate levels of physical activity throughout their life. At least 30 minutes of moderate intensity physical activity 5 times a week reduces the risk of a number of non-communicable diseases among adults. Stronger physical activity brings more health benefits and may be required for weight control.

Physical inactivity is the fourth leading risk factor for global mortality (6% of deaths in the world). In addition, physical inactivity is a major cause approximately 21-25% of breast cancer and colon cancer, 27% of cases of diabetes and approximately 30% of cases of coronary heart disease.

Worldwide there is a decrease in physical activity, while every third adult is not physically active. However, the increase in physical activity in terms of a healthy environment benefits the health of people of all age groups. WHO provides recommendations for optimal activity levels, but even minor physical activity is better than its absence. People who suffer from lack of exercise, should start with a low level of physical activity and gradually increase duration, frequency and intensity of training. To promote the benefits of physical activity it is necessary to take measures both throughout society as a whole and at the level of an individual. In 2013, WHO member states agreed on the reduction of the prevalence of insufficient physical activity by 2025 to 10% in the "Global Action Plan for the prevention of non-communicable diseases and combat them in 2013-2020". Recommendations on physical activity for adults in the United States provide at least 150 minutes of moderate intensity exercise a week.

Regular practice of physical activity appropriate levels among adults have the following positive effects on health: reduces the risk of hypertension, coronary heart disease, stroke, diabetes, breast cancer and colon cancer, depression and risk of falls; helps to strengthen bones and improve functional health; is the main determinant of energy release and therefore fulfills a crucial role in energy metabolism and maintaining proper weight.

The term "physical activity" should not be confused with "physical exercise". Exercise is one of the subcategories of physical activity, covering a planned, structured and repetitive physical activity aimed at improving or maintaining one or more components of physical fitness. In exercise physical activity also includes other types of active body movements performed during games, working, active transportation, household chores, recreation and entertainment.

Modification of lifestyle is a priority in the treatment of hypertensive patients according to the recommendations of the European Society of Hypertension (ESH) and the European Society of Cardiology (ESC) in 2013. Clinical studies show that to reduce blood pressure changes in lifestyle can be equivalent to the efficacy of the drug alone and able to safely and effectively prevent the development of hypertension or delay the use of drug therapy; to prevent, if necessary, the use of it by patients with hypertension I degree. In addition to effects blood pressure reduction, lifestyle changes contribute to the control of other factors of cardiovascular risk and clinical conditions. In the recommended approach to lifestyle changes regular exercise are envisaged, for example, at least 30 minutes of moderate physical activity within 5 - 7 days a week. Moderate aerobic exercise are walking, jogging, cycling, swimming.

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ENOS3T-786C GENE POLYMORPHISM DISTRIBUTION AND THE RISK OF CAROTID DAMAGE IN PATIENTS WITH CONCOMITANT ARTERIAL HYPERTENSION AND DIABETES MELLITUS TYPE 2

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The aim of the investigation was to study the distribution of the NOS3 T-786C gene (rs2070744) polymorphism and its relationship to the local injury of carotids in concomitant arterial hypertension (AH) and diabetes mellitus type 2 in (DM).

The distribution of gene polymorphism was estimated in 100 patients with AH and DM type 2 (basic group) and 50 healthy people. The local damage was diagnosed by measuring intima-media thickness (TIM) in right general carotids. In the primary group distribution of NOS3 T-786C was reliably deviated from the Hardy-Weinberg equilibrium ($p < 0.05$). After analysis of NOS3 gene allele association with the risk of increased TIM (> 0.9 mm) in patients with AH and DM it was confirmed the reliable changes between groups (table).

By analysis of polymorphic locuses of NOS3 gene was set variability of -786C risk allele and increase in 2,55 times its frequency in the primary group. In the group with local changes of carotids, we have set the decline (in 4,46 times) in frequency of -786T allele.