

**AGING AS A BIOLOGICAL PROCESS**  
Kim Meghy Gim-Cheliivna, Zhegunova G. P.  
Scientific supervisor: prof. Malosthan L. N.  
National University of Pharmacy, Kharkiv, Ukraine  
physio@nuph.edu.ua

**Introduction.** For man, aging always had personal significance. However, even today biology of the aging process is not sufficiently studied.

Therefore, this question is relevant and very important.

The problem of aging is associated with many factors that can include human health, indicators of civilization, and so on.

**Aim.** Old age is the final period of age development and therefore its study is the goal of many biologists, medics and physiologists.

**Materials and methods.** It was analyzed literature data where this concept described.

**Results and discussion.** Distinguish natural aging, premature and slowed down, that is typical for the long-livers. Age-related changes in the body that lead to aging are called homeorhesis.

In general, there are more than a hundred theories related to the causes and aging mechanisms. Accordingly, you can divide them into two large groups. The first group includes the notion that aging is a genetically programmed process. According to the ideas of the second group – aging is the result of random processes that destroy the body. The most famous theory of aging is the idea of the genetic basis of aging. By scientists, genetics it was discovered that in the process of aging, partly the DNA molecule decreases. In addition, there are researchers who argue that aging is the result of disorders in the genome itself. Proponents of metabolic theories argue that aging is the result of "wear" of tissues and a decrease in the speed of metabolic processes in the body.

Among the factors that reduce the rate of aging of the human body are those that can be attributed to a healthy lifestyle, rational nutrition, avoidance of various harmful habits, the ability to relieve stress, social activity, hygiene, and so on. Valeologists claim that it is necessary to prepare their life for the mature age in advance.

Old age must be perceived as a complete period in life. Therefore, people will understand that this part of life is also very interesting as the previous periods.

**Conclusions.** Aging requires human courage, a sense of humor and positive emotions. This is very important, because one of the mechanisms of aging is the "withdrawal" of the body from the active reaction to stimuli: the old organism reduces the adaptive reaction to external influences.

**THE ROLE OF CONNECTIVE TISSUE DYSPLASIA  
IN THE DEVELOPMENT OF VARICOSE VEINS**

Maslivets I.

Scientific supervisor: assist. Kalenichenko A. S.  
National University of Pharmacy, Kharkiv, Ukraine  
kalenichenkoas@gmail.com

**Introduction.** Connective tissue dysplasia is a genetically determined condition characterized by defects in fibrous structures and the basic substance of connective tissue, leading to a violation of the formation of organs and systems. Morphologically, these changes are characterized by improper formation of collagen chains, which do not withstand the necessary mechanical loads; changes are also being made to elastic fibrils, and glycoproteins, and proteoglycans with fibroblasts. From the side of the lesions of the cardiovascular system, there are often manifestations of the vascular syndrome - varicose veins of the upper and lower extremities, which is characterized by a change in the structure of collagen.

**Aim.** Establish the feasibility of determining the concentration of matrix metalloproteinases and the magnesium ion level as an indicator of connective tissue dysplasia in patients with varicose veins.

**Materials and methods.** Analysis of literary sources.

**Results and discussion.** According to the literature, the role of magnesium deficiency in the formation of undifferentiated connective tissue dysplasia is described in sufficient detail. By results of

researches, it is revealed that in animals with magnesium deficiency sensitivity to oxidative stress, sensitivity of tissues to oxidation increases, which is accompanied by an increase in products of lipid peroxidation, the accumulation of which promotes early "aging" of cells (in particular, endothelial cells). Magnesium deficiency leads to an increase in the total activity of matrix metalloproteinases (MMP) and more active degradation of collagen fibers, which also worsens the condition of connective tissue. MMPs play an important role in the pathophysiological cascade of reactions observed in varicose veins of the lower limbs. In the walls of varicose veins, smooth muscle cells lose their differentiation and ability to interact. All these events contribute to the dilation of veins, wall relaxation and loss of venous tone. The described processes in the vein wall lead to damage to the endothelium, resulting in the initiation of endothelial and leukocyte activation, which is the starting point of venous inflammation.

**Conclusions.** Thus, it is advisable to determine the concentration of matrix metalloproteinases and the magnesium ion level as an indicator of connective tissue dysplasia in patients with varicose veins of the lower extremities to improve the results of treatment, to optimize the prediction and diagnosis of this pathology.

## INDICATORS OF VISUAL ACUITY AMONG STUDENTS OF NATIONAL UNIVERSITY OF PHARMACY

Metasyova I. S., Shakina L. A.

Scientific supervisor: assoc. prof. Shatalova O. M.

National University of Pharmacy, Kharkiv, Ukraine

LyubovZ2003@gmail.com

**Introduction.** The most important indicator of the welfare of society and the state, which reflects the present situation and gives a forecast for the future, is the state of health of young people. At present time, the number of young people, who have different developmental and health disabilities, increases characteristically. Therefore, the actual task for today is the formation of the students' need to lead a healthy lifestyle. Among the factors affecting the health of young people, a number of authors highlight the impact of the learning process. Every year, the number of children who are in group of risk concerning to vision increases, i.e. children who may have visual problems as a result of even minor adverse factors. When enter the university, young people face a large psycho-emotional load, considerable mental work, the need to adapt to new learning conditions, regime of the day, nutrition, to new living conditions and communication with others. The increase of students' diseases reduces the effectiveness of the educational process, and restricts their further professional activities. At the same time, almost the majority of students have visual disabilities. In addition, the use of phones and tablets, including for studying, significantly worsen the situation with myopia among students.

**Aim.** Proceeding from what has been said, it is important to study the prevalence of reducing visual acuity among students and to search the causes leading to them. With the purpose of revealing these regularities, a visual acuity study was conducted for the 1st and 2nd year students of NUPh in the age group of 18-20 years.

**Materials and methods.** The study involved 120 people (30 boys and 90 girls). The average age was 18.2 years. Evaluation of visual acuity was carried out using Sivtsev's tables.

**Results and discussion.** The visual acuity among students was  $0.87 \pm 0.06$  and  $0.84 \pm 0.02$ , for the right and left eyes, respectively. For young men, visual acuity was  $0.92 \pm 0.01$  and  $0.89 \pm 0.01$ , for girls –  $0.80 \pm 0.01$  and  $0.78 \pm 0.01$ , for the right and left eyes, respectively. These indicators are much lower than the conventional rate, which is considered as a unit. It is also shown that the girls' visual acuity is lower than that one of young men. The percentage of persons with reduced visual acuity among girls is significantly higher than among young men and this mark is  $36.5 \pm 0.01\%$  and  $42.07 \pm 0.04\%$ , respectively,  $p < 0.05$ . We assume that such a high percentage of persons with visual analyzer disturbance and visual acuity reduction may be caused by excessive visual load.

**Conclusions.** 1. The study of visual acuity among students is one of the reliable factors in assessing the risk of myopia and taking measures for its early prevention. 2. It is necessary to introduce topics concerning to hygiene of vision, mental fatigue and the basics of maintaining health into the theoretical section of the normal physiology subject.