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ПРОБЛЕМЫ КОМПЬЮТЕРНОЙ ЭРГОНОМИКИ
ACTUAL PROBLEMS OF COMPUTER ERGONOMICS

В данной работе рассказывается о факторах воздействия компьютера на здоровье человека, а также о простейших принципах эргономики – науки, призванной защищать человека от негативных воздействий окружающей среды и компьютерной техники. В повседневной жизни люди часто не задумываются над простейшими правилами эргономики при работе с компьютером, а ведь именно они позволяют сократить вредное воздействие на драгоценное здоровье человека в несколько раз.

The theme of my work is the influence of a computer on a person's health. I chose this topic because nowadays there is a computer in each home, but people hardly think of dangers a user can face working with a computer. In my work I want to consider the basic negative factors influencing the health of a person, which can appear at work with a computer.

A lot of people constantly working with a computer observe that very soon after the beginning of the work they feel a headache, painful sensations in muscles of the face and neck, pains in the backbone, the pain during the movements of hands. These attributes are the basic syndromes of a «computer illness».

The negative influence of a computer on a person is complex; therefore studying the influence of computer technologies scientists should take into consideration a set of factors.

Electromagnetic fields are the real threat for a user of a computer. When all devices of a personal computer are switched on, the electromagnetic field is formed in that area. Its influence on a person has not been studied properly. However, there have been some researches confirming the influence of the electromagnetic field of a personal computer on the hormone sphere of a person, on biocurrents of a brain and metabolism.

Low-frequency electromagnetic fields together with the other negative factors can be the cause of cancer and leukaemia. Also the dust drawn by the electrostatic field of the monitor sometimes can be the reason of the skin diseases and asthmatic symptoms.

For building the case of a monitor a special substance is used which is a part of a fire-resistant material. The case heats up and this substance evaporates, causing allergic reactions. The room where a computer is should be regularly aired.

For reduction of computer radiation it is necessary to take a daily amount of vitamin C and to include cheese and some other dairy products into a diet.

Human sight is not absolutely adapted for a computer screen; we see colours and subjects in reflected light. The self-shining screen image has considerably smaller contrast. Blinking of a screen, patches of light, not optimum combination of colours in sight cause exhaustion of the eyes. At work on a computer for hours the eyes do not have necessary phases of a relaxation, the eyes strain, their working capacity decreases. The biggest loading the eyes get occurs at the input of the information because the user should often move the sight from the screen to the text and the keyboard, which are in a different distance and differently shined.

Research shows, that millions of computer users complain of the following problems concerning their eyes: the reduction of visual acuity, doubling of the subjects, fast exhaustion at reading, feeling of the "sand" in the eyes, pain in the eyes and the forehead, pain during the movement of the eyes, reddening of the eyeballs.

For the people, who spend long hours sitting at the computer, the greatest number of complaints is connected with the diseases of muscles and joints.

The motionless pose of an operator leads to exhaustion and pain in the backbone, the neck, joints. Muscular weakness can develop and the form of a backbone might change. But, however, more serious diseases can happen. For example, a carpal tunnel syndrome at which the nerves of a hand are damaged due to frequent and long work on a computer. Painful feelings cutting a person out of work are the indications of this syndrome.

Physicians recommend to make a 10-15 minutes break every 40-45 minutes during the continuous work sitting at a computer. The important condition of avoiding "computer" diseases is the observance of a balance: work and rest. For adult users the operation time at a personal computer should not exceed six hours per day. For school teachers the duration of working hours in classrooms should not be more than four hours per day. For any adult user the duration of continuous work with the monitor should not be more then two hours and then the break of 15-20 minutes is necessary.

Constant users of a personal computer are more often exposed to psychological stresses, functional illnesses of the central nervous system, the illnesses of a cardiovascular system and hormone shifts. The new type of a disease – a syndrome of computer stress – appears. The symptoms of this disease are various: sleepiness, headaches after work, pains in the bottom part of a back, in legs and hands; feeling of a sharp pain and burning in eyes; loss of concentration, irritability.

To protect yourself from the above-stated diseases it is necessary to observe the principles of ergonomics. Ergonomics is a science, which changes the environment in which people live and work, and technical means which are used by people in the best way meeting the needs of a person.

 t is necessary to create a microclimate in a working environment. For this purpose it is necessary to support normal temperature and humidity inside.. To improve a microclimate you should provide good lightening. The room should have natural and artificial illumination. Experts recommend applying mainly luminescent lamps as artificial illumination. They should be located sideways from workplaces, in parallel with the line of monitors.

Also the right organization of a workplace helps to prevent the development of "computer" diseases. First of all, it is necessary to put a computer correctly and sit at it correctly too. The table, on which the monitor and the keyboard are located, should be wide enough, that the screen is 60-70 cm, and the keyboard - 30-40 cm from the user. A waste of papers, office and computer technical equipment shouldn't be on the table, but at the same time all necessary things should be within the limits of direct reach.

Nowadays it's very important to estimate the degree of influence of a computer on the health of a person. The degree of computer safety is regulated by a set of various international standards which become stricter every year.

The work with a computer demands the regulation of working hours and the development of sanitary-and-hygienic measures to reduce negative influence. The latest research has shown that not a computer technology is the direct factor of negative influence on human body, but the negligence in elementary hygienic norms concerning work and rest.