

# THE INFLUENCE OF COMPUTER GAMES ON THE DEVELOPMENT OF PATHOLOGIES IN THE HUMAN BODY

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**Abstract.** Computer games are a fairly common hobby of modern youth. Almost every teenager has used a computer at least once in order to play games on it. Although rare sessions of the game are harmless, abuse of this can lead to many serious pathologies - both from the nervous system and from the musculoskeletal system, and from the cardiovascular system and other organs. This article discusses the main pathologies that can be caused by the constant use of a computer.

**Keywords:** *computer games, gambling addiction, computer addiction.*

Nowadays it is impossible to imagine our life without a computer. Information, photographs, all important records, and even money are stored using a computer. According to the portal Gartner, there is now one computer for every third person in the world, which is approximately 2 billion pieces. Currently, almost 90% of people on this planet cannot live normally without using a computer or other electronic device (smartphone, tablet)

Computer technologies are developing by leaps and bounds, and if some ten years ago a computer was just a monitor and a system unit, now you can connect equipment unthinkable at that time to the "standard" configuration: surround sound, virtual reality glasses (VR), wireless joysticks (gamepads) that follow your movements.

It is very often said on the Internet that games cause bouts of uncontrolled aggression, but is that so? In addition, the abuse of computer games can become an etiological factor in the development of serious pathologies.

## **The influence of computer games on the human body**

### **Computer addiction**

No matter how much is said about the benefits of computer games, all this is almost completely negated by one (but not the only) significant disadvantage - computer addiction. Starting to play, a person will sooner or later win. Having won the victory, he will undoubtedly enjoy it and want to win again. In the end, the person will not be able to stop and will continue to play over and over again in order to enjoy the victory.[2]

The main signs of computer (gaming) addiction:

- Euphoria during the game
- Excessive playtime
- Constant uncontrolled spending of large sums of money on computer games
- Impossibility of giving up video games
- Decreased social activity
- Constant problems in the family, at work, school, etc.

Scientists from the University of Ghent, Belgium conducted an experiment. They studied the brains of 154 teenage gamers at the age of 14. About half of them were avid computer gamers who played at least 9 hours a week. The rest played less often.

Using magnetic resonance imaging, the researchers scanned the brains of adolescents and found that avid gamers had more gray matter in the left ventral striatum, an area that is responsible for pleasure and addiction.

Next, the scientists suggested that the teenagers take a test. Participants had to answer the questions, thereby receiving points. The task of the scientists was at this moment to monitor the activity of the brain, when the participants answered the questions correctly or incorrectly. Avid gamers were more active in these areas of the brain when they got more points. The same activity is observed among gamblers - gamblers with addictions.

### **Attacks of uncontrolled aggression**

The main problem, in addition to dependence, is most often called attacks of aggression. A number of scientists (A. V. Grishina, S. P. Kozhevnikov, I. B. Lebedev, O. S. Lobanova, E. N. Saladovnikova, Yu. V. Serebrennikova, S. V. Fadeeva, T. P. Filatova, K. Kardellan, G. Gabriel) note the relationship of computer games with elements of violence and increased aggressiveness of gamers [2] "Games urge children to be ruthless and cruel!" the Internet. According to statistics, only 4% of all players suffer from bouts of uncontrolled aggression. Most often these are people who play games in which scenes of violence are demonstrated.[1]

"Of course, violence in play has a negative impact on the formation of a child's character: it increases aggressiveness. Many games simply celebrate and reward crime. So in a social sense, video games with violent content play a negative role. However, there are other categories of video games as well. In particular, related to medicine. The content of video games can contain information about diseases, for example, allergies, asthma, diabetes. These games can be allowed in schools and children's hospitals. The child learns through play how to live with diabetes, how to take care of his health. So it's not about the computer or video games, but about their content. Unfortunately, violent computer games are in much greater demand in the marketplace" - says New York City Child Psychologist Elizabeth Karl.

Most often, according to Elizabeth Karl, it is children and adolescents who are susceptible to increased aggressiveness, which makes this problem even more important, since it is this category of people that are easily suggestible.

### **Effects on vision**

First of all, you need to remember that a long stay in front of the monitor is a huge strain on the eyes. In 1998, scientists from the United States coined the term Computer Vision Syndrome. This term means visual impairment caused by the influence of a computer on a person. [5] According to researchers, this syndrome occurs every day in 40% of users, and from time to time in 92%. The following symptoms of the syndrome are distinguished:

- Burning and gritty sensation in the eyes
- Redness of the conjunctiva
- Blurred vision
- Double vision
- Headaches
- Dry eyes
- Neck and back pain

It should be noted that science does not stand still. Special glasses have already been invented to reduce eye strain. Also, computer companies have long been producing monitors with increased contrast, which also reduces eye strain.

### **Effect on hands**

Computer games affect not only the brain, eyes, but also the hands. Distinguishing an avid gamer from an ordinary person is very simple - just look at his hands. Avid gamblers have one distinctive feature on their hands - a bump in the area of the pisiform bone of the wrist. Spending a long time at the computer, a person does not notice that he constantly performs the same monotonous movements, as a result of which the so-called Carpal Tunnel Syndrome or Carpal Tunnel Syndrome can occur.

Carpal tunnel syndrome symptoms:

- At the onset of the disease, discomfort in the hand is disturbed: tingling, burning, numbness.
- Pain is one of the main symptoms. It is dull, aching, can grab fingers, a hand, part of the forearm.
- Feeling of numbness in the hands in the morning.
- Muscle disorders gradually develop. It becomes difficult for a person to hold small objects with his fingers, they fall out of his hands. Difficulties arise in performing precise movements.
- Since nerves regulate vascular function, vascular disorders can develop. Fingers may become pale or bluish, and often become colder.
- Disruption of the innervation of the sweat glands leads to increased sweating or dry skin.
- Violation of the innervation and blood supply to the skin and nails leads to a deterioration in their appearance.

Preventive measures:

Correct use of a computer mouse:

- The palm should be positioned so that the bottom of the mouse is near the wrist.
- The ring and thumb should be slightly on the sides and lightly touch the side edges of the mouse.

- The index finger should lie lightly on the left mouse button, the middle one on the right. While moving the mouse, try not to make strong movements in the wrist joint - the whole arm should move freely behind the mouse.

Correct use of the keyboard:

- The arms should be relaxed, bent at the elbows at an angle of 90 ° and lie freely on the table.
- The toes should be slightly bent. The keyboard buttons should only be touched with the pads, applying short soft blows.
- When typing, it is better to make movements not in the wrist joints, but with your fingers.
- Do not place your palms on the table or keyboard.

### **Effects on the cardiovascular system**

The main factor that negatively affects the heart is a sedentary lifestyle.

Disorders that can develop:

- **Atherosclerosis (high blood pressure).** Due to a sedentary lifestyle, especially if a person is addicted to fatty foods, overweight develops, cholesterol accumulates in the vessels. If you do not engage in prevention and treatment for a long time, complications in the form of heart attacks and strokes can occur.
- **Venous insufficiency (varicose veins) in the legs.** Due to the action of the force of gravity, it is difficult for blood to return from the vessels of the lower extremities to the heart, as a result of which edema occurs on the legs.
- **Hemorrhoids.** As a result of a sedentary lifestyle, blood stagnates in the veins that surround the rectum.
- **Stagnation of blood in the veins of the pelvis.** It manifests itself in the form of pulling pains, discomfort, discomfort. This condition is not so harmless: it increases the risk of inflammatory diseases of the genitourinary system in men and women, and over time it can even cause infertility.

### **Influence on the musculoskeletal system**

Most people know that prolonged sitting can cause spinal curvature. In addition, people leading a sedentary lifestyle may acquire a stoop, which will only get worse in the future.

Continuous work at the monitor for more than 2 hours leads to tonic muscle overstrain, spasm of the arterial vessels of the spinal column, deterioration of metabolism and blood circulation in the structures of the spine.

Symptoms of dysfunction of the spinal column:

- Stiffness of movements in the back;
- Pain in the cervicothoracic and lumbar spine;
- Numbness in the fingers;
- Crunching on neck movements;
- Dizziness, headache;
- Drowsiness;
- Decreased working capacity.

Preventive measures for diseases of the musculoskeletal system:

- Using special chairs when working with a computer
- Take breaks for 10-15 minutes every hour of working at the computer
- During work, keep your back straight, do not tilt your back and neck
- Legs should be flat on the floor and bent at a 90 degree angle
- During rest, try to move more.

## **Conclusion**

To prevent negative consequences, one should avoid not only excessive being in computer games, but also in front of the computer in general. It is necessary not only to limit the time at the computer, but also to adhere to certain rules of prevention and work at it, both during the game and during the work process.

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