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STRESS AS A SCIENTIFIC PHENOMENON

We say "stress" - we mean " Selye»,
we say "Selye" - we mean " stress»

The term STRESS is becoming more popular and fashionable today. It is published in any newspaper or magazine, we hear it on television and in the conversations of friends. It is especially often pronounced by general practitioners and psychotherapists. Coming to the clinic, the patient complains of insomnia, a violation of mental balance, and the most common diagnosis for him is recently experienced stress.

What is stress? And why has this word become popular in our time? Everyone has experienced it, but they don't always know it; everyone talks about it, but almost no one thinks to answer themselves what they mean by stress.

Russian Russian dictionary in the modern English-Russian dictionary, the word "stress" is translated into simple Russian "tension". In everyday life and medicine, it is already quite clearly understood that this is the voltage of our body or some part of it, and not the voltage of an electric current or metal. However, stress in a person can be most fully compared with the stress of the metal: the state that the metal (person) takes with a fairly strong impact on it from the outside. However, if the metal stress is defined as the value of the elastic force acting on the unit surface of the cross-section of the metal part, then neither the cross-section nor the numerical stress indicator have yet been invented for a person. The Great Soviet Encyclopedia, as the main teacher of our fathers and grandfathers, enlightens us in this way: stress in psychology, physiology and medicine is a state of mental tension that occurs in a person when working in difficult conditions. How would it be like this: uneasy at heart because of a sudden feeling of approaching (but not yet come) anxiety, waiting for the appearance in the dark 1 lane of a bandit-rapist or a ghost (which, for known reasons, will never appear).

The discoverer of the term "stress" in biology is recognized as a Canadian pathologist of Austro-Hungarian origin, Hans Selye. He gave this definition: a general adaptation syndrome caused by damaging agents. This is the central concept of the scientific theory

of stress. And this word no longer frightens scientists and doctors: they are more or less used to it.

Taking advantage of the intellectual heritage of Vladimir Mayakovsky and presenting his poetic lines in our own prose way, today we say "stress" - we mean "Selye", we say "Selye" - we mean "stress". It is in this vein that this book will be created: any mention of stress is impossible and unethical without quoting Hans Selye.

At the beginning of his professional activity, in the 1930s, a young specialist in the field of endocrinology, G. Selye, studied the effects of ovarian extract on the body, using experimental rats. He gave the rats injections of the extract somewhat clumsily: the rats fell off the table, hit, ran away-in general, it would be clear to any observer that they were in a panic [1].

A few months later, Selye discovered the occurrence of diseases in rats: stomach ulcers, an increase in the adrenal glands (where stress hormones are produced), changes in the tissues of immune organs. At first glance, the effect of this extract on the body was obvious.

But, for the purity of the experiment, the scientist decided to use a control group: he gave these rats daily injections of a salt solution. At the same time, Selye did not become more agile and careful with the rats, and they still tossed and fell off the table during the injections. After a while, the rats showed the same painful symptoms as the rats of the first group, who received injections of the extract.

Reflecting on the results of the experiment, Selye came to the assumption that the common in both the first and second cases were painful injections and, perhaps, the occurrence of diseases – this is a reaction to unpleasant experiences of pain.

The scientist decided to diversify the "unpleasant experience". Some rats were placed in a cold basement, others under the hot roof of the attic, and others were subjected to constant physical exertion. After some time, all three groups of rats were found to have the diseases listed above.

Thus, Selye discovered the tip of the iceberg of stress-related diseases. According to the results of his experiment, Selye called the "unpleasant experiences" of rats a physical term - "stress". The term was coined by the physiologist Walter Cannon in the 1920s.

Walter Cannon was the first to call the body's response to stress a fight-or-flight response ("fight or flight"). We still use the response system developed by our ancestors more than a million years ago.

Selye developed this concept by offering two ideas:

1. The body reacts equally to any effects of stressors – whether it is an increase or decrease in the temperature in the environment, whether it is the threat of being eaten or bruised, or thoughts about possible negative outcomes (the latter applies exclusively to humans – animals do not have such a problem: worry about possible troubles). That is, the impact of stressors is perceived by the body as a threat to physical and mental integrity and "includes" adaptive mechanisms that involve physiological and biochemical changes in the body that lead to certain external reactions of a person to stress.

2. If the effect of stressors continues for too long, it can lead to physical diseases [1].

And it does not matter that some of the previous dangers, such as the attack of wild animals, have lost their relevance, they have been replaced by others: for example, the danger of losing social status, which can be perceived as a threat to life [2].

According to Selye, stress is a scientific concept. Or a scientific hypothesis that allows (and forces!) consider the state of human health as if from another, previously unknown, new side. A hypothesis (i.e., an assumption) that has become a theory (i.e., almost a law of nature) after numerous attempts to test it and obtaining equally numerous experimental facts in its favor. The essence of this concept is that damaging agents cause stress-a general adaptation syndrome. Psychological stress, i.e. stress in our psyche, otherwise it can be called "stress of the soul", physiological stress (or physiological stress) – "stress of the body".

Previously, Hans Selye used numerous phrases to refer to stress: general adaptation syndrome, adaptation syndrome, adaptation disease, nonspecific biological stress, stress syndrome, stress reaction. Both the author himself and his fellow colleagues and, perhaps, modern connoisseurs of antiquity and editors of scientific papers on stress believe that these phrases are unambiguous. But, you must agree, all the words used by Selye are still different, and not every reader will dare to convince his interlocutors that " adaptation syndrome "and" stress reaction " are the same thing. Even after reading the

popular books that Selye was fond of writing in the last 30 years of his life. However, Selye used to think about stress in a very different way than people think about it today [1].

When using the term "stress" in everyday life, people most often mean psychological stress, which can also be caused by different reasons. Sometimes psychological stress is divided into informational and emotional. The first, information stress, especially common in the age of intensive technologies, develops with information overload, when a person in search of economic or other benefits takes responsibility for performing many very important tasks, but does not have time to make the right decisions in the necessary mode and therefore experiences a strong psychological stress. The second, emotional stress, accompanies the experience of negative emotions, as a rule, (extreme indignation, anger, resentment, irritation, panic, feelings of horror or fear) and also affects our actions. A good example of emotional stress is the state of many millions of people, mostly North Americans, after watching television programs on the morning (New York time) of September 11, 2001. Some high-ranking officials were so distressed by the information about the ruins in Manhattan that they, being in a state of the deepest stress, were forced to announce publicly about the terrorist attack (which has not been given a single proof to this day – more than a year of investigative work). Something similar happened simultaneously with tens of thousands of Moscow teenagers on June 9, 2002 as a result of the mental trauma inflicted on them by Russian football players who lost to the Japanese at the World Championship [3].

Psychologists also distinguish between physiological stress, which supposedly differs from psychological stress by involving the physiological systems and organs of the body. As if under psychological stress, the organs and physiological systems do not participate in any life processes.

"New", adrenaline stress is experienced by everyone: the president of a trading company, who constantly feels attention from his employees, customers, local authorities, economic and political conjuncture; the dispatcher of a carpool, who releases dozens of multi-seat buses on his lines in full confidence of their malfunction; the athlete, madly eager for victory and preparing for victory; the mother, who received a notification

about the heroic death of her son in Ichkeria; the nurse, helplessly watching a slowly and painfully dying child; the student, preparing for the exam; the driver of the car, who is signaled to stop by the traffic police officer [3].

Sometimes the term "stress" is used to refer to the irritant itself – a substance or factor that causes tension in the body: a physical factor (such as cold or heat, high or low atmospheric pressure, ionizing radiation), chemical (toxic and irritating substances), biological (strenuous muscle work, physical fatigue, infection with microorganisms and viruses, trauma, burns), mental (strong emotions). Therefore, the first convention that we will adhere to is that stress is still not an irritant, but the tension of the body in response to its action.

The phenomenon of stress itself is so multifaceted that each of the definitions can only describe one of its aspects [2].

The concept of "Stress" is considered as:

- * Reaction to stimuli (stressors) (G. Selye, J. Godefroy, O.N. Polyakova);
- * Requirements for human adaptive abilities (D. Fontana, D.L. Gibson, J. Greenberg);
- * The natural process of interaction between a person and the external environment (R. Lazarus, S. Volkman, K. Cooper, F. Dave, M. O'Driscoll);
- * Special functional, psychological, physiological state of the body (M. Vogel, R.S. Nemov, N.P. Fetiskin, V.V. Suvorova, A.G. Maklakov);
- * Mental or physical stress, which is the cause of deterioration of physical and mental health (L.A. Kitaev-Smyk, Yu.I. Alexandrov, A.M. Kolman).

Literature:

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