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THE PHYSIOLOGY AND MECHANISMS OF EMOTIONS

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Annotation

This article examines the physiology of emotions and the biological mechanisms underlying emotional experiences. Emotions are complex psychological states closely associated with the functioning of the nervous system, endocrine system, and brain structures. The paper discusses the role of key brain regions, including the amygdala, hypothalamus, and cerebral cortex, in the generation and regulation of emotions. It also analyzes the physiological changes that accompany emotional states, such as alterations in heart rate, respiration, blood pressure, and hormonal activity. Special attention is given to the interaction between physiological processes and emotional responses, highlighting their significance in human behavior and adaptation. The study contributes to a better understanding of the biological foundations of emotions and their role in psychological functioning.

Keywords

emotions, physiology, nervous system, brain, amygdala, hypothalamus, hormones, emotional regulation, physiological responses, human behavior.

Аннотация

В данной статье рассматривается физиология эмоций и биологические механизмы, лежащие в основе эмоциональных переживаний человека. Эмоции представляют собой сложные психические состояния, тесно связанные с функционированием нервной системы, эндокринной системы и различных структур головного мозга. В работе анализируется роль таких отделов мозга, как миндалевидное тело, гипоталамус и кора больших полушарий, в возникновении и регуляции эмоций. Также рассматриваются физиологические изменения, сопровождающие эмоциональные состояния, включая изменения частоты сердечных сокращений, дыхания, артериального давления и гормональной активности. Особое внимание уделяется взаимосвязи физиологических процессов и эмоциональных реакций, а также их значению для поведения и адаптации человека. Исследование

способствует более глубокому пониманию биологических основ эмоций и их роли в психической деятельности.

Ключевые слова

эмоции, физиология, нервная система, головной мозг, миндалевидное тело, гипоталамус, гормоны, регуляция эмоций, физиологические реакции, поведение человека.

Emotion is an individual's experience that arises from their attitudes toward objects, events, other people, and themselves in reality. A person is not only a living being but also a member of society who objectively reflects the surrounding world. Human relationships and attitudes are reflected in the brain in the form of feelings, emotional states, and profound inner experiences, which give rise to emotions. The concept of emotion is used in different meanings in everyday life and scientific literature. In daily life, terms such as sensations, unconscious inclinations, desires, wishes, needs, and goals are often used instead of emotions. In scientific sources, however, emotion refers to the mental reflection of an individual's attitude toward objects and people that either satisfy or hinder their needs.

The terms emotion and feeling are sometimes used interchangeably. Physical manifestations such as changes in facial color, trembling lips, laughter, crying, sadness, hesitation, and similar reactions are considered emotional expressions. However, higher human qualities such as patriotism, responsibility, conscience, and love are regarded as feelings rather than simple emotions. These emotional experiences differ significantly in their nature, intensity, duration, influence, and direction. Therefore, an important distinction is that feelings are primarily social in nature, whereas emotions often have a more personal and immediate significance.

Feelings embody an individual's attitudes toward socially significant events, objects, activities, and behavior. Emotions, on the other hand, are psychological states that are not unique to humans but can also be observed in animals. Feelings develop through the internalization of social norms, values, rules, and ideals acquired within a social environment. They involve complex and conscious experiences that integrate higher mental processes with purposeful actions. For example, satisfaction derived from work, moral feelings, intellectual feelings, and aesthetic appreciation represent the core of human feelings. Animals do not possess such advanced capacities.

The physiological basis of emotions lies in the nervous processes occurring in the cerebral cortex and subcortical regions of the brain. Feelings are also often perceived as subjective experiences or sentiments.

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When discussing emotions, people generally understand one another. For instance, when frightening events are described, everyone can imagine the feeling of fear. However, scientists have not yet reached a completely precise and universally accepted definition of emotions. Emotions are subjective states in humans and animals that emerge as a result of external and internal stimuli and are expressed through feelings of satisfaction, pleasure, dissatisfaction, or discomfort.

The emergence of emotions is associated with the activation of specialized emotional structures within the central nervous system. The stimulation of certain brain regions produces positive emotions, encouraging the organism to preserve, strengthen, and repeat such experiences. In contrast, the activation of other structures generates negative emotions, motivating the organism to eliminate or reduce their effects.

Emotions serve as the foundation of individual life experience and learning. They function as positive or negative reinforcement mechanisms, promoting biologically adaptive behavior while suppressing ineffective responses. In this way, emotions expand an organism's capacity for adaptation and act as one of the primary mechanisms influencing psychological activity.

Human emotions are generally rooted in social conditions and are shaped by the laws, customs, traditions, and moral values of society. Higher emotions are formed on the basis of moral, aesthetic, and intellectual needs.

Every human need originates from a state of dissatisfaction. When individuals fail to achieve their goals or satisfy their needs, they strive to overcome obstacles in various ways. Failure to achieve desired outcomes often gives rise to negative emotions such as disappointment and dissatisfaction. These emotions motivate individuals to continue seeking ways to fulfill their unmet needs.

The satisfaction of needs, in contrast, leads to positive emotions. Such emotions are expressed through feelings of pleasure, joy, contentment, and happiness. The experience of positive emotions encourages people to repeatedly engage in behaviors that satisfy their needs.

One of the earliest attempts to explain the origin of emotions was the peripheral theory of emotions, proposed at the end of the nineteenth century. According to this theory, changes in the activity of internal organs and muscles are the primary cause of emotional experiences. While the peripheral theory can explain the emergence of basic emotions, it cannot adequately account for the development of higher social and moral feelings characteristic of human beings.

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