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Physiological Individualization of Painful Sensitivity of an Organism

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Undertaken theoretical and experimental researches have proved the universality and consistency of functional features in manifestation of the organism's painful sensitivity in humans and various species of laboratory animals. As a result of the biometric analysis of manifestations of nociceptive sensitivity was revealed general biological nature of intraspecific distribution of pain threshold in humans and traditional laboratory animals. Defined species boundaries varying values of the pain threshold. Statistically proven that intraspecific distribution of pain threshold in humans and animals corresponds to the normal distribution. There were significant differences between the distribution of the pain threshold in different populations a single species of animals and humans. As a result of a number of experimental researches were identify the mechanisms of the central and vegetative organization and personalization of nociceptive reactivity of the organism. Revealed morpho-functional features of the nuclei of the anterior hypothalamus, limbic, parietal and frontal cortex of the brain related to the level of painful sensitivity of the organism of experimental animals. As a result of electroencephalographic researches were identified specific issues of bioelectrical activity basic rhythms organization of the cerebral cortex in individuals with different levels of nociceptive sensitivity of the organism. At the analysis of cardiointervalography it was revealed that people with high painful sensitivity observed a large lability of standard indicators activity of the cardiovascular system, mainly in the form of relative predominance of the sympathetic nervous system in the organization of vegetative homeostasis. In addition, depending on the individual pain threshold are differentiated manifestations of somatotype and morphological characteristics of the organism, circadian biorhythms, typology of higher nervous activity, psychological symptoms, and level of stress resistance of the organism. By results of researches there were developed methods of individual prognosis of human adaptation to environmental impacts, based on analysis of a combination of nociceptive reactivity, circadian chronotype and separate elements of the functional status of the organism.

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Biography

Alexander Mulik is the doctor of Biology, Professor. He is the director of the Institute of Natural Sciences, head of Research and Education Center of Homeostasis Physiology of Volgograd State University, Russia. He is the chairman of the Volgograd Regional Branch of the Physiological Society named IP Pavlov, the Russian Academy of Sciences, the member of Central Council of the Physiological Society named IP Pavlov, the Russian Academy of Sciences, the head of the Scientific Section of the Volgograd Regional Association of Psychotherapists "Salus".

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