**9Modern chronobiology**

Currently, the branch of science that examines biological oscillations is called biorhythmology or chronobiology. Its purpose is to study the rhythmic changes of physiological activities, their regulatory features, their significance for the adaptive effect of the organism, and their relation to abnormal processes. In addition, it determines the change in the body's sensitivity to toxic substances and drugs according to daily, monthly and annual biological cycles.

Biorhythmology is classified into several branches: chronophysiology chronopharmacology chronomedicine They examine the intentional changes associated with biological rhythms.

Since the beginning of human life, he has been paying attention to biological processes in the rhythm of nature. In this regard, rhythmicity in biological systems according to time is considered one of the main properties of living organisms. At present, the science of chronobiology combines its research with mathematics, physics, etc. closely connected with sciences.

At present, the science of chronobiology combines its research with mathematics, physics, etc. closely connected with sciences. Chronobiology (Greek: chronos - time and biology) is a branch of biological science that studies rhythmic changes occurring in biological systems over a period of time. Sometimes biorhythmology, a branch of science that studies periodic repetition of biological processes and phenomena, is also called chronobiology. Since the beginning of human life, he has been paying attention to biological processes in the rhythm of nature.

Depending on the relationship between the organism and the environment, two types of oscillatory movements are distinguished. The first is the periods of oscillations that adapt the organism to periodic changes in the external environment, adapting rhythms or biorhythms, similar to geophysical returns. The second is physiological or working rhythms, that is, they are oscillations that reflect the activity of the vital systems of the organism.

Several series of indicators are used to describe the rhythm: level, period, beat and time. The level is the average value of the activity recorded during the studied period of one biological return. The period of the rhythm is found by the duration of one complete rotation of the oscillation in a certain time. It is calculated as the difference between the maximum and minimum indicators during one biological cycle of vibration. It describes the state of the oscillatory system at each moment of time. Here, the peak of activity is considered to be akraphase.

Biological rhythms are classified into 5 classes: rhythms with a high frequency, the oscillation period lasts up to 30 minutes; central frequency rhythms, which are between 30 minutes and 28 hours, including ultradian - up to 20 hours and circadian (hour) rhythms; mesorhythms. periods of macrorhythms from 20 days to 1 year. megarhythms, ultraslow rhythms, periods lasting tens or several decades.

Currently, among the many reversible processes in biorhythmology and chronomedical research, the diurnal and seasonal rhythms are of particular interest. But it is characteristic of all biological structures and systems. Because they adapt the organism to the cyclical changes of the environment, integrate biological systems on a necessary time basis. That is why the rhythmic dynamics of the overall interaction of the organism is observed (eating, sleep-wake mode, sexual intercourse, movement activity).

Long-term rhythms In later years, it is determined that some phenomena in the body have a rhythm of several days. Seasonal rhythms Oscillation periods are considered to be seasonal rhythms of physiological activities for about a year. These activities make the body more flexible to the changes in the external environment in different seasons of the year.

*Problems of modern chronobiology*

Chronobiology (from the Greek chronos - time) is a branch of science that studies periodic (cyclic) phenomena occurring in living organisms in time and their adaptation to the rhythm of the sun and moon. This cycle is called biological rhythm. A field that studies rhythmic changes that occur in biological systems over a certain period of time. Sometimes biorhythmology is also called chronobiology, a branch of science that studies the periodic repetition of biological processes and phenomena. Chronobiological studies include comparative anatomy, physiology, genetics, molecular biology, and behavioral biology of organisms. Other aspects include the development, regeneration, ecology and evolution of species. Many living biological processes occur between the duration and level of biological activity of external factors in living organisms. This happens in animals (food, color, reproduction, hibernation, migration, cell regeneration, etc.), in plants (leaf movement, photosynthesis, etc.). One of the important rhythms in chronobiology is the circadian rhythm. For example, the 24-hour cycle of physiological processes in animals and plants ("circa" is translated from the Latin word "circa" - interval, around and "dies" - day, day). So "circadian" or "circadian" is interdiurnal, there are other cycles, for example, infradian - it has a long time. In animals, it is seen in migration and regeneration, in a woman, in the menstrual cycle. Ultradian rhythm - occurs in a short time. Humans have a 90-minute cycle of REM sleep, a 3-hour growth hormone cycle. A periodic rhythm - most commonly seen in marine animals - is due to the ebb and flow of water over a 12-hour period.

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