

SUMMARY

Bukov Y.A., Alpeeva A.V. Pre-school children hyperventilation syndrome and possibilities of its correction with the help of increasing of capacity of respiratory tract // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 3-6.

Physiological mechanisms of pre-school children hyperventilation syndrome are observed in the article. It's shown, that using of additional resistance to breathing, as means of respiratory training, allows increasing of functional reserves of the external breathing system in group of poor health children.

Key words: hyperventilation, respiratory training, pre-school children.

Grabovskaja E.Yu., Malygina V.I., Arhangelskaya E.V. The reaction of animals with different mobility level on the action of changing magnetic fields with frequency 8 Hz // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 7-12.

Rats with a different level of motion activity react on changing magnetic fields variously.

At animals with middle level of mobility and high level of mobility adaptation processes are developing unidirectionally, but on rats with HLM the primary reaction and adaptation to the changing magnetic fields action develop 3-5 days later, and animals with low level of mobility have the most expressed changes. Regularities that have been found, could be used for prognostication of men's reaction on magnetic fields action with frequency 8 Hz and induction 5 mTl.

Key words: changing magnetic fields, motion activity, adaptation, neutrophiles, simpatoadrenal system, low level of mobility, middle level of mobility, high level of mobility.

Evstafyeva H.V., Sydjakin V.G., Pavlenko V.B. Unfavourable effects of environment on psychophysiological status of students and ways of its treatment // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – C. 13-20.

Heavy metals and intensive computer work resulted in unfavourable changes of psychophysiological status of students. The methods of status treatment suggested.

Key words: heavy metals, personal computer, correction of psychophysiological status.

*Zolotnitsky A.P. Ecological laws of reproduction of the mussel (*Mytilus galloprovincialis lam.*) in various areas of the Black Sea // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 21-33.*

Laws of reproduction of a mussel (*Mytilus galloprovincialis*) in various areas of the Black Sea are investigated. Wide ecological plasticity of reproduction of the mussel is

revealed. It is expressed in acceleration or delay of passing of separate gametogenesis phases, removing of terms of mass reproduction and change of number of the spawning caused by thermal, salt and trophic mode of water areas. It is shown, that changes of functional condition of sexual glands are caused by both historically developed and genetically fixed endogenous rhythms to generalized parameters of environment and labile adaptive reactions in which the important role is played by processes of resorption sexual cells of different gametogenesis phases.

Key words: mussel, oogenesis, sexual cycle, reproduction, oocytes, spawning, temperature, salinity, trophic conditions.

Kolotilova O. I., Kylichenko A.M., Fokina J. O., Pavlenko V.B., Zinchenko E.N.

Influence of brain stem structures on mass electrical activity pattern in wake cats // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 34-42.

The article studies the type of interconnection between impulse activity of aminergic system neurons and spectral power of EEG rhythms of free moving cats.

Key words: noradrenergic, serotonergic systems, locus coeruleus, nucleus raphe, EEG rhythms, neuronal activity.

Korenuk I.I., Gamma T.V., Zamotaylov A.A. **Effects of influence of 2-triflormethylbenzimidazole hydrochloride on parameters of bioelectric activity neurons of mollusc // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 43-49.**

The article covers the study of the effect of 2-triflormethylbenzimidazole hydrochloride (TFMB) in concentration 10^{-6} - 10^{-2} m on neuron electro-genesis by use of intracellular registration of electric potentials and registration of trans-membrane ion currents of the neurons in right parietal and visceral ganglia of mollusk. The threshold concentration (10^{-5} m) of the substance is discovered. There was found that TFMB had rendered various responses in different neurons, accompanied by specific changes of membrane potential, amplitude and duration of action potential, afterhyperpolarization and transmembrane ion currents values. Na^{+} , K^{+} , Ca^{+} и Cl^{-} -currents turned to be sensitive to TFMB effect. TFMB was helpful in discovering of exciting and inhibiting synaptic inputs in pace-maker neurons. Specific effect of TFMB on axon-dendrite and somatic membrane was discovered.

Key words: action potential, neuron, mollusk, 2-triflormethylbenzimidazole hydrochloride

Kotov S.F., Simagina N.O. **Allelopathic influence of perennial plants species on annual succulent species in the communities of halophyte vegetation of Crimea // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 50-55.**

The influence of perennial species *Artemisia santonica*, *Halocnemum strobilaceum*, *Limonium gmelinii* on annuals *Salicornia europaea*, *Suaeda prostrata*, *Petrosimonia oppositifolia* was investigated. Perennial species are characterized by high allelopathic

activity which dynamics changes during the vegetative period and ontogenesis. It is established correlative connection between biomass, height, diameter, branching of annuals and distance to perennials.

Key words: allelopathy, perennials, annuals, halophytes.

Lutsyuk N.V., Pavlenko V.B. **Approaches for the organization of biofeedback sessions for the correction of attention disorders** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 56-64.

The article is an overview of some major questions, approaches, methods that are currently used for the correction of attention disorders by using EEG-biofeedback method. The advantages of definite protocols for the correction/development of attentional properties have been described.

Key words: biofeedback, methods, approaches, correction of attention.

Martynyuk V.S., Tseyslyer Yu.V., Miroshnichenko N.S. **The renaturation of methemoglobin under the influence of hydrophobic ligands** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 65-68.

The new experimental model of hydrophobic interactions during renaturation of methemoglobin was developed. It is based on spontaneous folding of protein globules after its partial denaturation under the loading of low-molecular nonspecific ligands with non-polar nature, such as benzol and chloroform. It was revealed that chloroform and benzol inhibit the renaturation of methemoglobin, but benzol also slows down this process.

Key words: renaturation, denaturation, methemoglobin, hydrophobic interactions.

Melnichenko E.V., Efimenko A.M., Ozerova L.A., Mishin N.P., Parhomenko A.I., Snapkov P.V., Romashevskiy D.V. **Effect of traction miorelaxation on reactivity of neurons of cerebrum of sportsmen** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 69-74.

The effect of traction miorelaxation on coefficient of reactivity (KR) alpha-rhythm in the hemisphere of brain left and right of sportsmen (experiment) and no sportsmen (control) have been studied. It is shown, that muscular tension renders substantially a greater sedative effect on the functional state of neurons of sportsmen brain. That is expressed in the KR increase at sportsmen during the visual activating and its decline at its breaking.

Key words: EEG, alpha-rhythm, autotracting, miorelaxation, sedative effect, coefficient of reactivity.

Minin V. V. **Types of reaction of the heart-vessels system of boxers on the vestibular irritations** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 75-78.

Three types of reactions of cardiovascular system of boxers on the vestibular irritation have been found out. They are hypocinetic, eycinetic, hipercinetic. In the case of the hipercinetic reaction the heart ejection increases, blood vessels expand; in the case of hypocinetic reaction the heart ejection decreases, blood vessels narrow. In the case of eycinetic reaction the indices do not change.

Key words: heart-vessels system, vestibular irritation, gipercinetic, gipocinetic, eucinetic.

Nagaeva E.I. **Change of intradian rhythmicity of bactericidal systems of neutrophiles of rats with the high activity under the influence of a weak variable magnetic field of ultralow frequency** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 79-87.

The influence of variable electromagnetic field (EMF) of extremely low frequency (ELF) on infradian rhythmicity of bactericidal systems of neutrophiles of rats with typical reaction and high tolerance to action EMF was investigated. Results of these researches testify weak variable EMF of ELF causes essential changes of infradian rhythmicity parameters of physiological processes of rats with the various individual typological features. As a result the EMF of ELF activity the change of parameters of the infradian rhythmicity of functional neutrophiles activity of animals with the average and high activity become less expressed.

Key words: Individual sensitivity, infradian rhythmicity, bactericidal systems, synchronization.

Pavlenko V.B., Kalashnik O.A. **Neuroetology and electrophysiological correlates of aggressiveness** // // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 88-96.

The article introduces the critical literature review of biologist mechanisms of aggressive behavior and its EEG-correlates.

Key words: aggression, personality, EEG-potentials.

Pogodina S.V. **Use of parameters of physical development for an estimation of functional readiness of the young swimmers to physical loadings** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 97-102.

In the article the efficiency of use of parameters of physical development of the sportsmen for an estimation of their functional readiness to physical loadings is discussed. In particular, it is offered to use the given parameters for definition of the sensitive periods at various stages of physical development of the young swimmers. It has the important meaning in maintenance of adaptive reactions of the young swimmers and it should be taken into account at drawing up of the long-term programs of employment.

Key words: functional readiness, physical development sensitive periods, physical loadings, young swimmers.

Ponomareva V.P. **The role of individual type of functional asymmetry of a man and animals in the realization of physiological mechanisms of biological effects of low intensity electromagnetic radiation of extremely high frequency** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 103-120.

Thesis is devoted to studying the patterns of functional activity of neutrophils and lymphocytes, functional state of CNS of healthy tested people and rats with different individual type of functional asymmetry (ITFA) under the influence of electromagnetic radiation of extremely high frequency (EMR EHF) of different localization. The experimental confirmation of the fact that EMR EHF increases the nonspecific resistance and modulates the reactions of the CNS of healthy tested people and animals subjected to the influence of stress-factor of mobility restriction has been received. With healthy tested people with different ITFA certain differences in the development of studied psychophysiological functions were revealed. It was shown that the difference in rat's motor asymmetry is connected with the strength of nerve processes in CNS the reflection of which is a level of moving activity and animals' emotionality at "open-field" test. It was shown for the first time that the asymmetry of average activity of succinate dehydrogenase in lymphocytes of peripheral blood corresponds to the sensor or motor asymmetry of a man and animals. It was shown for the first time that the peculiarities of ITFA of organisms can be used as a criterion of individual sensitivity of a man and animals to the influence of factors of different intensity, stress factors and low intensity EMR EHF including. The choice of effective localization of extremely high frequency influence can be based on preliminary definition of motor or sensor asymmetry which are the reflection of (HBA).

Key words: hemisphere brain asymmetry, individual type of functional asymmetry, electromagnetic radiation of extremely high frequency, adaptive reactions, hyperkinesias, neutrophils, lymphocytes, psychophysiological state, behaviour reactions.

Ravaeva M.Yu., Korenuk I.I. **Modulation of the rat behaviour by β -alanin and N-(1,2:3,4-di-O-izopropiliden- α -D-galaktopiranuronol)- \square -alanin in the «open field» test** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – v. 18 (57). – №. 2. – P. 121-125.

Effect of β -alanin and N-(1,2:3,4-di-O-izopropiliden- α -D-galaktopiranuronol)- \square -alanin on rat behaviour in the «open field» test studies. B-alanin and N-(1,2:3,4-di-O-izopropiliden- α -D-galaktopiranuronol)- \square -alanin turned to rise movement and research activity at rats. Effect of β -alanin was stronger than that of glycopeptides. Presence of anxiotropic profile in the probed substances is hypothesized. Participation of monoaminergic systems in displaying of the ethological effect is discussed.

Key words: «open field», glycopeptides, \square -alanin.

Safronova N.S. **Mildronate action on the organism's antioxidant reserve and movement activity of weaken health persons** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 126-131.

Free radicals oxidation and antioxidant system properties under different loads action were investigated. Interaction between peroxide lipids oxidation and physical training, between peroxide lipids oxidation and Mildronate taking was studied. Also, combination of Mildronate and 6-week training cycle was studied. Obtaining data allows to recommend Mildronate and aerobic physical training combination as increasing physical working capacity method in weaken health persons.

Key words: Mildronate, aerobic training, peroxide lipids oxidation, physical working capacity.

Stanishevskaya T.I. **The basic types of females' microcirculation and their sampling frequency in the south-eastern part of Ukraine** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 132-139.

The essential variation in main indices of microcirculation in three types of laser Doppler flow allowed to reveal three types of microcirculation among survey females. They were: medium-bodied type with deadbeat laser Doppler flow curve; shallow-bodied type which was characterized by steady laser Doppler flow curve with high microcirculation parameter; and deep-bodied type, that had steady laser Doppler flow curve with low microcirculation parameter.

It was registered that one third part of all the survey females of the south-eastern part of Ukraine (28 % from the sampling) had medium-bodied type of microcirculation. The majority of females (56,7 % from the sampling) had deep-bodied type, and 14,5% of all the females had shallow-bodied type of microcirculation.

Key words: laser Doppler flow, deadbeat and monotonous laser Doppler flowgram, amplitude spectrum, shallow-bodied type, deep-bodied type, medium-bodied type of microcirculation.

Temuryants N.A., Minko V.A., Yazkevich T.V. **Infradian rhythmicity of physiological processes at rats with low mobile activity in open field under action of week variable magnetic field of extremely low frequency** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 140-152.

The influence of variable magnetic field (VMF) of extremely low frequency (ELF) on dynamics and infradian rhythmicity of behavior reactions, parameters of functional state lymphocytes and neutrophils of rats with low mobile activity in comparison with animal's characterized by middle mobile activity in the open field test thesis was studying. Vmf frequency 8 hz induction 5 mct1 stimulate changes of infradian rhythmic parameters of physiological processes at rats with various individual – typological features but processes are more expressed with rats with low mobile activity. It should be noted that essential changes of rhythmic parameters have been registered in the case when their absolute values do not change. As a result, changes of rhythmic parameters concerning control data the differences in dynamic and infradian rhythmicity of investigated parameters decrease.

Key words: infradian rhythmicity, lymphocytes, neutrophils, low mobile activity, variable magnetic field of extremely low frequency, behavior reactions.

Tribrat A.G., Gubkina D.G., Arbatov V.V., Pavlenko V.B. **Dynamics of EEG patterns of a man during neuro-feedback sessions** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 153-160.

The article presents the effect of EEG feedback sessions resulting in alpha-rhythm changes in man. Neuronal mechanisms of neurofeedback are analyzed.

Key words: neurofeedback, EEG, alpha-rhythm.

Cherniy S.V., Makhin S.A. **Correlation between the properties of running EEG and the traits of character by Cattell's 16PF Questionnaire** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 161-168.

The article covers the results of the experimental research according to which there were discovered the positive correlations between the normalized power of theta- and alpha-rhythms at rest with closed eyes and the “Q₃” scale marks, and between the normalized power of beta1-rhythm at rest with open eyes and the “I” scale marks by the Cattell's 16PF Questionnaire.

Key words: Cattell's 16PF Questionnaire, EEG.

Chujan E.N., Makhonina M.M. **Role of opioid peptides in changing of the functional activity of rat blood neutrophils and lymphocytes at isolated and combined with a hypokinesia (HK) influence of electromagnetic field (EMF) of extremely high frequencies (EHF)** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 169-177.

It was investigated the role of opioid peptides (OpP) system in changing of the functional state of rat blood neutrophils and lymphocytes at isolated and combined with a hypokinesia (HK) influence of low intensity electromagnetic field (EMF) of extremely high frequency (EHF).

It is shown, that regular injection of naloxone at animals subjected action as isolated EMF EHF as combined with HK, leveled changes of neutrophils and lymphocytes functional activity, registered under influence of this physical factor.

The received experimental data prove an involvement of system OpP into realization of the biological effects caused EMF EHF. It can serve as acknowledgement of that primary perception of EMF EHF can be carried out by opioid receptors and specifies system endogenous OpP as a possible target of EHF -radiation.

Key words: opioid peptides system, low intensity electromagnetic field of extremely high frequency, lymphocytes

Chuyan E.N., Djeldubaeva E.R. **The anesthetic action of low intensity, ultra – high frequency electromagnetic radiation for the tonic pain at rats** // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 178-188.

Possibility of application of low intensity, ultra-high frequency electromagnetic radiation (UHF EMF) ($\lambda=7.1\text{cm}$, density of power flow $0,1\text{mW}/\text{cm}^2$) for the decline of pain syndrome at the experimentally caused tonic pain at rats in a formalin test is explored. It is shown that both single and course use of UHF EMF influence renders the expressed anesthetic action, that is shown up in reliable diminishment of duration of pain reaction and increase of duration of no pain reaction of rats in a formalin test.

Key words: ultra-high frequency electromagnetic radiation,, a tonic pain.

Chuyan E. N. Zayachnikova T. V. Modification of conducting reactions in rats were tonic pain has been aroused with the help of kinetic stress during the experiments // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 189-195.

It is proved that trustworthy changes in painful conducting reactions in animals in formalin test aroused by hypokinetic experiments.

It is supposed that development of crossed adaptation in organism is observed during combined action of painful and hypokinetic stress in animals.

Key words: stress, hypokinetic, pain.

Shishko E.J. Infradian rhythmic nonspecific resistance neutrophils blood peripheral rats and stress - realizing systems at hypokinetic stress // Uchenye zapiski Tavricheskogo Natsionalnogo Universiteta im. V.I. Vernadskogo. Series «Biology, chemistry». – 2005. – V. 18 (57). – №. 2. – P. 196-206.

The influence of hypokinetic stress on dynamics and infradian rhythmic parameters stress - realizing systems and functional condition of neutrophils of peripheral blood of rats is studied.

As the results of the carried out researches have shan and functional activity neutrophils at intact rats are characterized by the certain set of the periods and amplitude-phase characteristics. The assumption that hypokinetic stress modeled in our research, results in the expressed infringement of the time organization and, in particular, infradian rhythmic SAS is stated, to nonspecific resistance and activity of a bark of adrenal glands.

Key words: infradian rhythmic, nonspecific resistance, hypokinetic stress.