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**SPORTS MEDICINE**

**FACTORS, INCREASES OF RESERVE OPPORTUNITIES OF  
ATHLETES IN THE ALTITUDE ACCELIMATION**

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**Key words:** sports physiology, adaptation, functional reserves, hypoxic training, middle-altitude, heart rate variability, hemodynamics.

**Annotation.** The purpose of this work was to identify factors for increasing the body's reserve capabilities of elite athletes during the period of high altitude acclimatization. The results of the research showed that adaptation to extreme conditions of the middle-altitude during intensive training in elite athletes is mainly provided due to the tension of the mechanisms of vegetative regulation of the heart rhythm (sympathetic and parasympathetic nervous system) and strengthening of the functions of central hemodynamics. This is more pronounced with greater motor activity. A smaller role is played by mechanisms of increasing peripheral hemodynamics and performance indicators of left ventricular performance.

**NEUROHUMORAL REGULATION**

**HEART RATE IN VARIOUS ELECTROCARDIOGRAPHIC  
SYNDROMES OF CHRONIC PHYSICAL SURGE IN ATHLETES**

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**Key words:** physical strain, cardiovascular system, neurohormonal regulation, electrocardiography.

**Annotation.** The article presents the results of a study of neurohumoral regulation of heart rate in athletes of cyclic types of sport with different ECG syndromes of chronic physical stress. It is revealed that at rest, the athletes with the violation of repolarization on ECG have a high level of cerebral ergotropic, humoral and sympathetic influences in the modulation of cardiac rhythm and low levels of

parasympathetic effects. In athletes with disorders of the processes of automatism and conductivity on ECG were observed regarding the influence of the parasympathetic nervous system by reducing sympathetic and humoral influences.

**Key words:** physical strain, cardiovascular system, neurohormonal regulation, electrocardiography.

## **CHARACTERISTICS OF LOCALIZATION SUBCUTANEOUS ADIPOSE TISSUE AND DEVELOPMENT OF BODY FAT COMPONENT IN YOUNG SWIMMERS**

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**Key words:** physical development, anthropometry, bioimpedance measurement, centile evaluation, body fat mass, skin-fat folds, younger school age (7-10 years), young swimmers.

**Annotation.** The article presents features of development of body fat tissue and distribution of subcutaneous adipose tissue on the body of young swimmers of 7-10 years old. The obtained indicators were compared with existing age norms for children of this age to identify particular anthropometric indicators and particular of the component body composition, which can serve as starting points for defining a set of criteria sports selection among children, engaged in swimming. Were revealed that the highest content of subcutaneous fat was located in the region of the thigh, shin, back of the shoulder and on the abdomen; and the smallest content - on the front surface of the shoulder and forearm, back and chest of the boys. Wherein, average indicators of skin-fat folds on the back, the front surface of the shoulder and forearm, abdomen, thigh and lower leg girls are lower than boys; on the back of the shoulder - more girls. Indicators of centile evaluation of skin-fat folds are within the normal range at the lower limit of the norm (the skin-fat fold on the abdominal of boys are  $4,47 \pm 0,4$  centile, of girls -  $4,25 \pm 0,35$  centile; the skin-fat fold on the shoulder of boys are  $4 \pm 0,49$  centile, of girls -  $3,7 \pm 0,39$  centile; the skin-fat fold on the back of boys are  $4,27 \pm 0,31$  centile, of girls  $4,08 \pm 0,26$  centile), which is characteristic of the features of physical development of young athletes, which have a reduced content of body fat tissue and increased content of body muscle tissue. By results of bioimpedance analysis of body composition revealed that boys have more an absolute fat content ( $5,9 \pm 0,71$  kg) then girls ( $5,31 \pm 0,51$  kg), although the

relative content of body fat slightly more girls ( $17,48 \pm 1,04 \%$ ), then boys ( $17,37 \pm 1,48 \%$ ).

## **THE USE OF ELECTRONEUROMYOGRAPHY IN SPORTS MEDICINE**

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**Key words:** athletes, electroneuromyography, neuromuscular apparatus, functional state.

**Annotation.** The purpose of the work was to analyze the possibilities of using the method of electron neuromyography in sports and sports medicine.

The results of the research show that at present electroneuromyography is actively used in sports and sports medicine. The nature of electroneuromyography makes it possible to determine the level of coordination, power and speed-velocity preparedness. Depending on the need to solve problems in the study of sports conditions, different types of electroneuromyography are distinguished.

The conducted study showed high values of the parameters of amplitude and speed of M-response in highly qualified athletes in comparison with the normative values of these parameters in healthy persons who do not engage in sports.

## **NON-INVASIVE STUDY OF CENTRAL HEMODYNAMICS FOR EVALUATION OF HEART ACTIVITY IN HIGH QUALIFICATION HEAVY DUTY**

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**Key words:** noninvasive instrumental technique, computer oscillometry of hemodynamics, cardiovascular system, weightlifters of high qualification.

**Annotation.** The paper presents the results of the study of central hemodynamics for evaluation of cardiac activity in weightlifters of the republic

Kazakhstan team using non-invasive instrumental techniques with software (computer hemodynamics oscillometry). This technique allows you to diagnose the condition of the cardiovascular system of athletes in eight indicators. The results of the study made it possible to identify the features of adapting the cardiovascular system of weightlifters to the long-term load of a large volume and high intensity of the speed-strength orientation in conditions of training training. The technique of diagnostics has shown its high informativeness and allows to reveal the initial signs of overtraining and overstrain of athletes.

### **OPPORTUNITIES FOR DETERMINING THE FUNCTIONAL CONDITION OF THE HUMAN SUPPORT-MOVEMENT APPARATUS ON ROBOTIZED BIOMECHANICAL COMPLEXES**

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**Key words:** robotic complexes, biomechanics, athletes, musculoskeletal system, power abilities.

**Annotation.** In the article results of researches of the Russian and foreign authors on a problem of an estimation of function of muscles with use of the robotized complexes with biological feedback as a dynamometer are considered. These complexes are intended for diagnostics and objective evaluation of the functional state of the musculoskeletal and neuromuscular apparatus based on the volume of the movement performed, the registered power voltage and the determination of the optimal speed characteristics of motion. The use of a robotic complex as a dynamometer allows carrying out various load-carrying power tests and samples and as much as possible objectively assess the functional state of the muscles in the force, speed-force and biomechanical parameters obtained in the measurement.

### **INFLUENCE OF COURSE APPLICATION OF PANT BATHS ON ADAPTIVE REACTIONS OF RATS ORGANISM WITH CHRONIC PHYSICAL LOAD**

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**Key words:** adaptive reactions, physical overwork, pant baths, open field, rats.

**Annotation.** Biological active additives, cooked on the basis of deer antlers, are effectively used to restore the body in case of overwork, stress and physical stress. However, the mechanisms of the biological effect of these drugs have not been fully studied. In this paper, it was shown that under the conditions of physical activity for 15 days, the drug of pantal maral breeding in the form of pantalum baths had a mobilizing effect on performance in the first days of training, during adaptation to the extreme factor. In the future, as fatigue accumulated, the antistress effect of pan baths on the life support systems of rats was associated with the launch of a tolerant strategy of adaptation to prolonged physical activity.

## **PECULIARITIES RESEARCH OF FUNCTIONAL STATE OF ACHILLA TENDON AND SHIN MUSCLES WITH KONTREX MG COMPLEX AT ATHLETES WITH SYMPTOMS OF ACHILLOTENDOPATHY**

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**Key words:** sports medicine, sports trauma, muscle strength, athletics, athletes, achillotenopathy, therapeutic physical culture.

**Annotation.** The aim of the study was to reveal the peculiarities of the functional state of the Achilles tendon and shin muscles with the help of Kontrex MG in athletes with symptoms of achillotendopathy.

Athletes with achilleness and tenderiopathy symptoms revealed a muscular imbalance in flexor muscles and extensor muscles of the right and left legs, which is manifested by large indices of the maximum torque of the extensor muscles strength, in comparison with the strength of the flexor muscles of the left leg, on the contrary, compared with the muscles of the extensors of the right leg.

The use of the CON-TREX MJ complex helps to predict and prevent fatigue injuries of the Achilles tendon in athletes even at the preclinical stage. Timely preventive measures will help optimize the biokinetic chain and eliminate muscle

imbalance. Therapeutic exercises on CON-TREX MJ complex can be an effective method of conservative treatment of damage to the Achilles tendon.

## **BALNEOLOGY AND REHABILITATION**

### **AIR RADONIC BATHS WITH USAGE OF «REABOKS» DEVICE: INDICATIONS AND CONTRAINDICATIONS, APPLICATION METHODOLOGY IN DERMATOLOGY**

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**Key words:** radonotherapy, reaboks, indications, methodology

**Annotation.** The authors present some data on application of air radonic baths with usage of a device for conducting air carbonate and radon treatment «Reaboks» (Ltd company «Reaboks», Moscow) in dermatology. There are some data on the mechanism of therapeutic action of radonotherapy, indications and contraindications for administration of air radonic baths with application of «Reaboks» device. There is also a full description of treatment methods.

### **SOME ASPECTS OF THE METHODOLOGY OF EMG-BIOFEEDBACK AT THE CHILD CEREMONIAL PARALICK**

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**Key words:** EMG-training, game biocontrol, muscular tone, habilitation, spastic diplegia, hemiparetic form.

**Annotation:** in this article the authors share information on the use of game EMG-training in the physical rehabilitation of children with spastic diplegia and hemiparetic forms of infantile cerebral palsy using the BOS-LAB «BI-012-2» hardware and software complex. The authors have revealed particular aspects of the use of the game EMG-training in the habilitation of children with spastic diplegia and hemiparetic forms of infantile cerebral palsy: places of application of electrodes

to spasmodic limbs; definition of priority directions; decreased muscle and emotional arousal.

## **THE RIGIDITY OF FIXATION OF BONE FRAGMENTS AT OPERATIVE CORRECTION OF DEFORMITY OF TIBIA**

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**Key words:** transosseous osteosynthesis, bone regeneration, the rigidity of fixation, blood supply to the limb.

**Annotation.** To assess the effect of increasing the rigidity of fixation of the supports of the Ilizarov apparatus to account for additional console spokes arranged at an acute angle to the bones examined 11 patients in the process of correcting varus deformity of the tibia, and a control group of patients in the process of deformity correction of the tibia (18). Increase the rigidity of fixation of bone fragments leads to the initial reduction of micromotion of bone fragments and accelerate blood circulation through the vessels regenerate. In the future, the rigidity of the fixation is determined by the rheological properties of the regenerate.

## **THERAPEUTIC FACTORS OF THE KISLOVOD RESORT AND SYSTEMIC MAGNETOTHERAPY IN RESTORATIVE TREATMENT OF PATIENTS WITH CHRONIC BESSAMINAL CHOLECYSTITI IN COMBINATION WITH ABDOMINAL OBESITY**

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**Key words.** medical rehabilitation, sanatorium treatment, physiotherapy, cholecystitis.

**Annotation.** The aim of the study was the development of a new scientifically grounded method of complex sanatorium-and-spa treatment of chronic acalculous cholecystitis with concomitant abdominal obesity at the Kislovodsk resort using sulfate narzan, coniferous-pearl baths and systemic magnetotherapy. The results of the study confirmed the high efficiency (88.9%) of the integrated use of drinking MB, coniferous pearl baths and systemic magnetotherapy, which was manifested by a stable decrease in body weight, body weight, abdominal obesity, normalization of

carbohydrate metabolism, lipid metabolism, hepatic metabolism and peroxide homeostasis, improvement of quality of life.

## **THE INFLUENCE OF OZONE THERAPY ON THE CONDITION OF INTESTINAL MICROBIOTA**

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**Key words:** ozone therapy, irritable bowel syndrome, intestinal microbiota.

**Annotation.** The article presents the results of the influence of complex ozone therapy on the condition of intestinal microbiota at irritable bowel syndrome with coprostaniasis. It is shown that complex ozone therapy (drinking of ozonized distilled water, rectal insufflation of ozone-oxygen mixture) promotes correction of dysbiotic shifts of microlandscape of intestinal canal which led to the increase in maintenance of obligate microflora (bifido- and lactobacilli, typical escherichias), and the increase in quantity of pathogenic microbiota (yeast-like fungi, aurococcus, colibacilli with modified enzymatic properties). The improvement of microbiota is caused by anti-inflammatory, bactericidal, antifungal, pro-kinetic effects of ozone therapy.

## **THE RESULTS OF THE APPLICATION OF COMPLEX METHODS OF REHABILITATION IN CHILDREN WITH CEREBRAL PALSY**

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**Key words:** Vojta therapy, kinesiotaping, autochthonous muscles, cerebral palsy.

**Annotation.** The aim of the study was scientific substantiation of the effectiveness of remediation using the method of Vojta therapy for the correction of motor disorders in cerebral palsy. The study involved 64 children of both sexes in the age interval from 1 to 3 years diagnosis: cerebral palsy, hemiparetic form of defeat. The patients were divided into two groups of 32 people. In the experimental



group for restorative treatment of children comprehensively we have applied the methods of kinesiotherapy and Vojta therapy. Overall, the data received demonstrate positive dynamics application for integrated methods of rehabilitation in children with hemiparetic form of cerebral palsy on the basis of a combination of the methods of Vojta therapy and kinesiotherapy.

## **HEMODYNAMIC PARAMETERS IN ASSESSMENT OF THE ERECTION COMPONENT WITH PATIENTS SUFFERING FROM CHRONIC PROSTATITIS**

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**Key words:** chronic prostatitis, hemodynamic parameters, erection component.

**Abstract.** The purpose of this study was to study the state of penile hemodynamics in the situation of relaxation and tumescence for evaluation of the erectile component in patients with chronic prostatitis with erectile dysfunction. Under observation were 62 patients with erectile dysfunction aged 22 to 45 years.

All patients were: tested using the International Index of Erectile Function; dopplerometry of the vessels of the penis by an ultrasound scanner. The results of the study confirmed that to evaluate the erectile component in patients with chronic prostatitis with erectile dysfunction, it is advisable to assess the state of penile hemodynamics in a situation of relaxation and tumescence.

## **EFFICIENCY OF REHABILITATION TREATMENT OF CHILDREN WITH DIAGNOSIS CHILDREN'S CEREBRAL PALSY IN THE CONDITIONS OF SPATIAL SPA**

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**Key words.** Children's cerebral palsy, rehabilitation treatment, balneological resort, mechanotherapy.

**Annotation.** The purpose of the study was to develop the functions of the child's organism with infantile cerebral palsy and its social adaptation. The results

of the study showed that additional methods of rehabilitation for incomplete 13-14 days of treatment gave a more pronounced and sustained result. The intensity and frequency of hyperkinesia under the influence of rehabilitation treatment significantly decreased. With expressed choreoathetoid hyperkinesia, positive shifts were insignificant, only improvement of speech function was noted - pronunciation of words became more understandable.

## **PRINCIPLES OF HEALTH SUPPLY FOR THE MEDICAL REHABILITATION PROGRAM**

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**Key words:** medical nutrition, medical rehabilitation, nutrition imbalance.

**Abstract.** Medical nutrition plays a significant role in the biorhythmological and physical aspects of the body's work, in which the time of ingestion and its quantity contribute to the reduction of harmful factors, especially when combined cardiovascular diseases with obesity and diabetes. Individualized nutrition should be balanced with proteins, fats and carbohydrates, contain products of animal and vegetable origin and is targeted at the treatment of a particular patient, rather than a disease. Adherence to the principles of dietary nutrition in medical rehabilitation programs is an important factor in the recovery and prevention of many diseases.

## **PSYCHOPHYSIOLOGICAL FEATURES OF SCHOOLCHILDREN AND HARDWARE AND SOFTWARE COMPLEX OF THEIR EVALUATION «SCHOOL PSYCHOPHYSIOLOGIST»**

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**Keywords:** psychophysiology, schoolchildren, psychomotor abilities, ontogeny, psychological testing.

**Annotation.** The article presents the results of a comparative experimental study of psychophysiological features of schoolchildren of grades 1-9. On the basis of the data obtained, an auto-matized complex system for assessing the psychophysiological characteristics and psychomotor abilities of schoolchildren was developed and tested.

## **CONTENT OF ADVERTISING FACILITIES AS A FACTOR OF EFFICIENCY OF PROPAGANDA OF PHYSICAL CULTURE AND SPORTS**

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**Key words:** propaganda, advertising means, psychoemotional impact, physical culture and sport.

**Annotation:** The article presents the results of revealing the opinions of the population engaged in and not engaged in physical culture and sports, the psychoemotional impact of the content of advertising tools aimed at promoting the values of physical culture and sports.

In the process of analyzing the results of the survey, a conclusion was made about the priorities of the importance of physical culture and sports among respondents, the nature of the psychoemotional impact of the design of the advertising message: font, the semantic content of the text, color design, including those associated with various sports specializations.

The results of the research allow us to assert that it is necessary to take into account the above-mentioned peculiarities in the process of preparing advertising means aimed at drawing the attention of the population to the values of physical culture and sports.

## **THE MANAGEMENT OF YOUNG HOCKEY PLAYERS INTERRELATION ON THE BASIS OF THEIR PSYCHOLOGICAL FEATURES**

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**Key words.** conflicts, temperament, behavior, accentuality, character.

**Annotation.** The conflicting relationships of hockey players at the age of 13-14 are studied in this article. The essence of conflict in sport is analyzed, a classification of the conflicts is given, and the sports conflict management is researched. In this article the sportsman's temperament has been investigated, the style of human behavior in conflicting situations has been defined; the type of hockey player's behavior accentuality at the advanced specialization stage has been established. The resulting conclusion about interconnection of the young hockey players characterological features and their type of reaction in conflicting situations is achieved.

## **PSYCHODYNAMIC CHARACTERISTICS OF HIGH-QUALIFIED SPORTSMEN OF DIFFERENT FLOOR AND SPORTS SPECIALIZATION**

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**Key words:** psychophysiological testing, anticipation, sensorimotor reaction, stand shooting, boxing, judo, weightlifting

**Annotation.** The article presents the results of testing psychodynamic characteristics: the spatial-temporal anticipation, the speed of sensorimotor actions of highly skilled male and female athletes engaged in bench shooting, boxing, judo and weightlifting. The analysis of the obtained results made it possible to reveal that highly skilled athletes have highly developed psychodynamic characteristics, formed under the influence of specific practical activity: the ability to spatiotemporal anticipation, the speed of a complex sensorimotor reaction. Ability to anticipation is characterized by a pronounced sexual dimorphism with a predominance of male athletes engaged in booster shooting and athletes engaged in boxing and judo.

The highest speed of perception and differentiation of sensory visual and auditory information is possessed by sportsmen engaged in boxing both male and female. The best motor time is revealed in weightlifters and judo athletes, compared to boxers of both sexes.

## **ON THE QUESTION OF THE FORMATION OF ORGANIZATIONAL CULTURE IN THE MEDICAL INSTITUTION**

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**Key words:** corporate culture, research methods, value system, image of the organization.

**Abstract:** The article deals with issues related to the study of organizational culture in a medical institution. A review of methods for studying the norms of culture, values, rules and regulations existing in a particular institution is given. The analysis of the results of the culture of the organization is carried out and the corresponding conclusions are drawn. The basic principles of culture, the sense of spiritual community of the organization's personnel, often have a much greater impact on performance than technological or economic resources.