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BALNEOLOGY AND REHABILITATION

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THE RELEVANCE OF THE ISSUE OF MEDICAL REHABILITATION OF MILITARY PERSONNEL WITH EROSIVE AND ULCERATIVE LESIONS OF THE STOMACH AND DUODENUM

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Keywords: military personnel, medical rehabilitation, mineral waters, dynamic electroneurostimulation.

Annotation. Main directions of medical rehabilitation of the military personnel with erosive and ulcerative lesions of the stomach and duodenum are presented in this article. The author examined the use of mineral waters, dynamic electroneurostimulation, endoecological rehabilitation and herbal therapy in treatment and medical rehabilitation of this group. The study has shown that implication of physical factors and herbal therapy in the therapeutic complex increases significantly the efficiency of therapeutic measures.

УДК 616.084

HYDROTHERMAL FACILITIES ARE ESSENTIAL IN THE AGE OF PANDEMICS

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Keywords: hydrothermal therapies, sauna, balneology, public health, COVID-19, bathing.

Annotation.

This paper provides evidence to support the classification of hydro-thermal facilities as ‘essential services’ in an age of pandemics. Hydro-thermal therapies such as hot baths, cold plunges, saunas, steam baths and mud-wraps boost the immune system’s ability to resist viral infections, reduce the risk of chronic disease and improve public health. Hydro-thermal therapies also confer psychological benefits that include improved sleep, reduced stress enhanced social connections and connection with nature. Some hydrothermal facilities such as saunas also operate at temperatures that destroy viruses and therefore provide safe havens during a pandemic.

Common-sense safety principles allow hydrothermal therapies to be used safely and education of operators about infection control, disinfection, sanitation and water quality can ensure the safe re-integrating of hydro-thermal facilities into society. Treating hydro-thermal therapies as essential services will bolster public health and counter the many detrimental physical, mental, social and economic impacts of the current pandemic. Ultimately, governments and communities need to support optimal immune function and work toward the long-term goal of building community resilience.

УДК 615.835.52:616.8

OPTIMIZATION OF SANATORIUM-RESORT TREATMENT FOR CHILDREN AND ADOLESCENTS WITH DISEASES OF THE CARDIOVASCULAR SYSTEM WITH THE USE OF DRY CARBON DIOXIDE BATHS

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Keywords: dry carbon dioxide baths, cardiovascular diseases, children.

Annotation. The aim of the study was to develop a new method of sanatorium-resort treatment of children and adolescents with diseases of the cardiovascular system using dry carbon dioxide baths.

The use of developed methods of sanatorium-resort treatment of children and adolescents with diseases of the cardiovascular system with an application of dry carbon dioxide baths contributes to the regression of clinical symptoms, improves the heart condition according to the ECG, stabilization of systemic hemodynamics on average 84.4% of cases, versus 73.2% in the comparison group. The inclusion of dry carbon dioxide baths in the programs of sanatorium-resort treatment of children and adolescents with cardiovascular diseases contributes to the optimization of therapeutic measures. Indications and contraindications for the use of dry carbon dioxide baths in children and adolescents with heart and vascular diseases have been developed.

SPORTS MEDICINE

УДК 612.741

EFFECT OF A MECHANOTHERAPY SESSION ON THE FUNCTIONAL STATE OF THE NEUROMUSCULAR SYSTEM AND HEMODYNAMICS OF THE LOWER EXTREMITIES OF TRACK-AND-FIELD ATHLETES

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Keywords: mechanotherapy, athletes, track-and-field athletics, neuromuscular system, hemodynamics, functional status, musculoskeletal system.

Annotation. The aim of the work is to study the effect of a mechanotherapy session on the functional state of the neuromuscular apparatus and hemodynamics of the lower extremities in athletes. It was found that as a result of the use of a robotic biomechanical complex with biofeedback, initially increased arterial blood flow indicators (rheographic index on the right foot, right lower leg, time of propagation of slow waves on the left foot) were normalized in athletes. However, the data of electroneuromyography and dynamometry has shown only a tendency to improve the indicators of the functional state of the neuromuscular apparatus. This problem requires further research, including a course of classes with a robotic biomechanical complex.

УДК 612.741

COMPARATIVE ANALYSIS OF INDICATORS OF SURFACE ELECTROMYOGRAPHY OF MALE AND FEMALE WEIGHTLIFTERS IN THE WEIGHTLIFTING SNATCH

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Keywords: athletes, weightlifters, weightlifting snatch, electromyography, functional status, neuromuscular system.

Annotation. The purpose of the research is to examine and compare the indicators of surface electromyography in male and female athletes in the weightlifting snatch. The study has found that the strength and speed of muscle

contractions increase with increasing of amplitude and frequency characteristics of electromyography (EMG). However, it depends on sex characteristics. Despite the high frequency characteristics of electromyography in female athletes, which most likely indicates a high impulsation frequency, the amplitude of muscle contraction is higher in male athletes due to the higher functional capabilities of the muscles.

УДК 004.03:612:796

MODERN SYSTEMS FOR TESTING AND ANALYSIS OF HUMAN MOVEMENT

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Keywords: testing of athletes, testing systems, biomechanical indicators.

Annotation. Currently, modern motion testing and analysis systems are represented by a wide range of technologies and indicators used for subsequent analysis.

Systems with built-in accelerometer sensors include Xsens MVN Analyze, WIMU and Myotest. Dartfish is a video analysis system in sports. ForceDecks testplatform for automatic analysis of the hopping tests. NordBord and ForceFrame are testing systems for different muscle groups. Systems that use a set of technologies for testing athletes - HumanTrak, Trust-M, BTS Smart. Human Trap uses a 3D camera with wearable inertial sensors, which allows 3D motion capture and biomechanics analysis. Biomechanics "Trust-M" is a system for complex objective assessment of motor functions, registration of biomechanics of movements and electromyography. BTS Smart is a video analysis system for all types of movement with integration with power platforms, electromyography, and a touch treadmill.

PHYSIOLOGY

УДК 569.32

RHYTMICAL ORGANIZATION OF SEASONAL DYNAMICS OF PERFORMANCE OF LABORATORY RATS

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Keywords: chronobiology, biological rhythms, desynchronosis, physical performance.

Annotation. The purpose of this study was to examine rhythmical organization of seasonal dynamics of performance of “Wistar” laboratory rats under conditions of light desynchronosis. Results of the research show that the rhythmic structure of the seasonal dynamics of the performance of animals that have undergone light desynchronosis indicates a strain on the adaptive-compensatory capabilities of the body of laboratory rats.

УДК 612.741

ANALYSIS OF PSYCHOPHYSIOLOGICAL INDICATORS OF PRESCHOOL CHILDREN

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Keywords: psychophysiological indicators, simple sensorimotor reaction, complex sensorimotor reaction, reaction time to light, reaction time to sound, choice reaction time, tapping test, preschool children.

Annotation. The article presents the results of a study of psychophysiological indicators in preschool children. The results of the analysis of indicators have identified a reliably significant difference in reaction time to light and sound signals among 4 years old boys and 7 years old girls, 4 and 7 years old girls. In addition, a statistically significant difference of indicators of choice reaction time among 4 years old boys and girls and 7 years old girls and statistically significant difference of indicators of the second 10-seconds tapping-test interval among 4 years old boys and girls have been discovered.

УДК 613.955:572.087:37.018.523

CROSS-SECTION ANALYSIS OF RELATIONS BETWEEN BODY MASS INDEX OF PARENTS AND CHILDREN OF THE RURAL AREA

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Keywords: the body mass index, parents, children of rural schools.

Annotation. The results of measurements of the Quetelet index of 359 residents of rural settlements of Bashkiria were analyzed. The results of overweight (6.9%) and obesity (5.3%) indicators in children are 1.6 times lower than the average in Russia. 89.3% of schoolboys and 83.5% of schoolgirls had normal weight, excess weight and obesity were recorded in 10.7% of boys and 16.5% of girls. Age and gender differences were evaluated for groups of students in grades 2, 5 and 10.

According to the obtained data of analysis of the "child-mother-father" model, there is a dependence between the body mass index of the child and their parents.

PHYSICAL EDUCATION AND SPORTS

УДК 796.011.3

USE OF EXERCISES OF THERAPEUTIC PHYSICAL CULTURE AND PILATES ELEMENTS FOR STUDENTS' SELF-STUDY

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Keywords: physical therapy, pilates, osteochondrosis, self-isolation, physical education at the University.

Annotation. The article discusses the use of therapeutic physical education (LFC) exercise complexes and elements from the pilates system in physical education classes at a university in the department of rhythmic gymnastics.

It also discusses the prevention of osteochondrosis and the use of these complexes by students for self-study at home. The results of introducing these exercises into educational practice have shown their effectiveness while students are in self-isolation.

УДК 004.03:612:796

ANALYSIS OF ONLINE TESTING SYSTEMS FOR SPORTS AND FITNESS

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Keywords: online testing of athletes, online testing systems, psychological testing, sports, fitness.

Annotation. Based on the analysis of online testing systems for sports and fitness, it was revealed that there are a large number of online applications and fitness trackers. At the same time, only the Polar Flow online application has a wide range of studied indicators, which can analyze the following indicators: heart rate, calories, duration of training, maximum oxygen consumption, maximum aerobic capacity, pace, speed, distance, muscle load, power, maximum height, ascent and descent in meters/feet. Most online applications only measure physical activity indicators such as distance, speed, heart rate, and time, which allow you to adjust the training process. The list of the most popular apps include: RunKeeper, Adidas Running, Strava, Nike Run Club.

Especially popular are online testing systems with entering the values of indicators directly by the user in the personal account, then processing them and generating a test report.

УДК 796.42

SUPPORTING MEASURES OF RECOVERY IN POWERLIFTING

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Keywords: powerlifting, explosive strength, supporting measures, massage, stretching, respiratory gymnastics.

Annotation. At the present stage, there is an increase in the popularity of powerlifting and physical training aimed at explosive strength development among people of different occupations and genders. The training process in powerlifting involves the implementation of complex technical exercises with heavy weight lifting, which are accompanied by risks of getting an injury. In this aspect, it is necessary to apply reasonable measures of recovery after strength training sessions in powerlifting. For this purpose, we used supporting measures of recovery for the main group, which are massage, respiratory exercises and stretching.