

Scientific and methodological support of judoists training

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Abstract

Objective of the study was to identify effective means and methods for diagnosing physical qualities and functional state in the process of sports training of judo wrestlers.

Methods and structure of the study. The scientific experiment was carried out with the help of a theoretical analysis of scientific and methodological literature and generalization of the experience of the scientific and medical center of the Chaikovsky State Academy of Physical Culture and Sports.

Results and conclusions. As a result of the experiment, a program of scientific and methodological support for the training of judokas was developed, based on the diagnostic potential of the scientific laboratory of the Tchaikovsky State Academy of Physical Culture and Sports and including the following sections: morphology, physical, technical-tactical, functional and psychological readiness. The program of scientific and methodological support for the training of judoists is implemented at all stages of the long-term development of sportsmanship within the framework of ongoing, milestone comprehensive surveys, as well as surveys of competitive activity.

Keywords: examination program, scientific and methodological support, judo, judoists.

Introduction. Scientific and methodological support for the training of a sports reserve in the system of long-term sports training of judokas is necessary for better and more efficient work of a coach with athletes at all stages of sports training [4, 9, 12].

One of the most important aspects of an athlete's successful career is highly professional scientific, methodological and biomedical support at all stages of his training. At the present level of development of science, various means appear and become available to achieve results as quickly as possible [5, 6, 11].

In modern conditions, the effectiveness of scientific and methodological support for judo wrestlers can be significantly increased through the use of special equipment that allows for professional diagnostics of permissible loads, as well as assessing the condition of athletes during the training process [1, 3, 8].

Scientific and methodological support for the training of athletes at the stage of initial training contributes to the harmonious physical development of beginner athletes and the formation of the foundations of the correct technique of competitive exer-

cises in them. At the training stage - the purposeful development of physical qualities and the improvement of technical training with overcoming various confusing factors. At the stage of improving sportsmanship and higher sportsmanship - an accentuated development of special physical qualities and functional systems of the body, an in-depth improvement of technical and tactical skills, the formation of tactics [2, 7, 10, 13].

Objective of the study was to identify effective means and methods for diagnosing physical qualities and functional state in the process of sports training of judo wrestlers.

Methods and structure of the study. The scientific experiment was carried out with the help of a theoretical analysis of scientific and methodological literature, scientific articles in journals, collections of scientific and practical conferences, monographs and dissertations on the research topic were studied. The experience of the scientific and medical center on the basis of the Federal Training Center "Snezhinka" of the Tchaikovsky State Physical Education and Sport Academy (TchSPHESA) is summarized.



The program of examinations within the framework of scientific and methodological support for the training of judokas

Focus of the survey	Means and methods of survey	Characteristics of the survey
Technical and tactical readiness	Control tests, pedagogical observation and video analysis	Determination of indicators in training and competitive bouts: «Activity», «Efficiency», «Reliability of attacking actions», «Reliability of defense», «Combination», «General variability» and «Effective variability»
	Hardware-software complex Qualysis	Allows you to evaluate the technique of performing movements based on the creation of a three-dimensional model of a moving human body with a mathematical analysis of the main aspects of movement. Allows not only to visualize the smallest details of the exercise, but also to present their spatial and temporal characteristics
General and special physical fitness	Control tests, pedagogical testing	Complex modified test: 1) 10 twists on a throw over the back with a one-sided grip without breaking off the partner (estimates mainly special speed abilities), 2) 5 twists on the throw «through the chest» with a breakaway of the partner (estimates mainly special strength abilities), 10 runs on the wrestling bridge (5 in one direction and 3) 5 in the other direction) (predominantly assesses special coordination abilities), 4) 5 crown throws with a painful hold on the arm (performed in «triples») (it evaluates mainly special coordination abilities). 5) The total time of the complex test (seconds) is an integral indicator that evaluates the manifestation of the special physical qualities of judo wrestlers: endurance, speed, strength and coordination
	Blazepod signal lights, pedagogical testing	Includes 4 modules for creating tasks and tests that allow you to evaluate the speed of reaction. Also used by judokas to train reaction speed
	Biodex software package, isokinetics	Biodex allows you to evaluate the maximum strength of the muscles of the arms and legs of athletes. Also used in the development of various joints and strengthening of various muscle groups. With the help of various nozzles, the lost motor function in various joints is restored.
	Hardware and software complex «Stabilan-01», stabilometry	Allows you to evaluate the ability to coordinate movements. Can be used to develop coordination and correct coordination disorders
Functional readiness	Hardware-software complex «Simona 111»	It is used to measure various physiological indicators of central and peripheral hemodynamics, respiratory function, body temperature, brain activity and metabolism
	Hardware and software complex «Omega-S»	Allows you to track the quality of recovery processes occurring in the body, which allows you to ensure a balance between high loads and maintaining health, predict the achievement of the peak of sports form and maintain it throughout the entire competitive period
	Polar H10 chest heart rate monitor, pulsometry	Allows you to track the heart rate of an athlete, which is displayed on the screen of a phone or tablet using Polar programs. Thanks to this, it is possible to control the parameters of the used means and methods of training in five zones of intensity. The program records training time in each intensity zone, total training time, average and maximum heart rate, calories burned and the percentage of fat in calories burned.
	Bicycle ergometer Monark 828E, ergometry (PWC170, Wingate test)	Helps determine maximum oxygen uptake and anaerobic performance of judokas. It is intended for an indirect assessment of general performance as a physiological basis for general physical fitness and an integral assessment of the state of the respiratory and cardiovascular systems.
	MetaLyzer gas analyzer, gas analysis (maximum step load test)	A system for cardio-respiratory exercise diagnostics that determines oxygen consumption and anaerobic metabolism threshold. This device allows you to directly study the three components of this quality: maximum oxygen consumption, maximum oxygen consumption retention time and anaerobic exchange threshold
Psychological preparedness	KOMPAS and SAN methods, Eysenck Personality Inventory (MPI), «Neurosoft» hardware and software system, psychological testing	Allows you to get the following indicators: coping with unpleasant thoughts and emotions, activation and relaxation skills, involvement and «flow», visualization, self-efficacy, planning, activity under stress, relationship with the trainer (points); well-being, activity, mood (points); assessment of the state of motivation; restlessness, excitability, anxiety and self-doubt (points)
Morphology	Morphological scanner Antroscan, anthropometry	Allows you to carry out a three-dimensional measurement of human body parts in a matter of seconds. Used to study physical development, anatomical features, control changes in the structure of the human body under the influence of physical exercises
	Body Composition Analyzer InBody720, bioimpedancemetry	Determines the dimensional characteristics and composition of the body: the percentage of fat and muscle tissue, fluid in the body. The device allows you to measure the amount contained in the human body: protein, fat, minerals and water, both in general and in individual parts of the body. It is an indispensable tool in monitoring the process of weight correction and dieting and evaluating their effectiveness.



Results of the study and their discussion. In order to meet the needs of athletes and coaches in various sports in the scientific and methodological support of their sports training, active work is being carried out on the basis of scientific and medical centers. In this regard, a number of studies of judo wrestlers of various qualifications were carried out at TChSPhESA, which made it possible to identify the most informative and effective methods of scientific and methodological support for judo wrestlers at all stages of many years of training [1].

Particular attention should be paid to the impact of sports loads on the body. Specialists of the scientific and medical center conduct an expert assessment of the possibilities of going in for sports and physical culture, rehabilitation treatment of athletes with over-training phenomena.

For a comprehensive analysis of the physical form, assessment of the state of the cardiovascular system and the body's tolerance to physical exertion, functional tests with various types of loads are carried out on the basis of the Scientific and Medical Center. Assessment of the special physical fitness of judo wrestlers is carried out with the help of special tests, including with the help of special training devices and computer programs.

Based on the analysis of scientific and methodological literature and practical experience in conducting examinations of judo wrestlers at the scientific and medical center of the Tchaikovsky State Physical Education and Sport Academy, we developed a program of examinations as part of the scientific and methodological support for the training of judo wrestlers (see table).

It should be noted that this program should be implemented within the framework of current and stage complex surveys, as well as surveys of the competitive activity of judokas.

Conclusions. Thus, the results of the research of the TChSPhESA scientists made it possible to develop an updated program of examinations as part of the scientific and methodological support for the training of judokas. Means, methods, techniques and diagnostic stands that are part of the examination program, allow you to get comprehensive information about the motor potential, different types of preparedness and aspects of sportsmanship of judokas. Based on the results of the examination program, athletes and coaches receive reports and personal recommendations for timely correction of the training program, which makes it possible to balance various types of loads within the training cycle, rationally distribute the functional resources of the body and achieve maximum efficiency, while avoiding the risk of overstrain or insufficient recovery.

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