Ministry of Sport of the Russian Federation

FSBI Federal Science Center for Physical Culture and Sport
Dear friends and colleagues!

FSBI «Federal Science Center for Physical Culture and Sport» (FSC VNIIFK) is now one of the prime movers of Sport science in our country.

Being fully involved in the implementation of the Strategy of Physical Culture and Sports Development in the Russian Federation up to 2020 FSC VNIIFK applies the principle “Keep and Enrich!”

Appreciating the experience of the generations before us, based on the technology, provided by the modern knowledge, we have courage to follow the dictates of our heart and mind, and it means that together we will do our best for future victories of Russian athletes in the most important international competitions and the Olympic Games!

I am convinced that our work and enthusiasm will result in a new stage of the mass physical culture and sport development as well as facilitate actively the implementation of the GTO complex and formation of the direction “Movement Instead of Medicine!”

Yashina Elena Romanovna, 
Director General 
FSBI FSC VNIIFK
FSC VNIIFK HISTORY

- 1933 – established as the Central Scientific Research Institute for Physical Culture;
- 1945 – renamed as the Central Scientific Research Institute for medical and biological problems of sports (CNIIMS);
- 1966 – reorganized into the All-Union Scientific Research Institute for Physical Culture (VNIIFK);
- 1993 – reorganized into the All-Russian Scientific Research Institute for Physical Culture and Sports;
- 2011 – reorganized into the FSBI “Federal Science Center for Physical Culture and Sports”.

During the Soviet era the Institute stood at the origins of theoretical and methodological researches in the fields of athletic training, physiology of sporting activities, sports healthcare, the GTO program, diagnostics of the level of physical training, bio cybernetics and theory of compound movement control. The Institute established the strong scientific background, which became a point of reference for the USSR victories at the Olympic Games.

The personnel of FSC VNIIFK still remains unique by the number of leading experts who were among the originators of sport science and were awarded with the title “Honored worker of physical culture and sports in Russian Federation”, and also received highest state decorations: Abramova T.F., Akopyan A.O., Golovachyov A.I., Iordanskaya F.A., Kabachkov V.A., Kofman L.B., Krylova V.M., Kurentsov V.A., Ozolin E.S., Novikov A.A., Shustin B.N. and others.
OUR MISSION

We create conditions for the application of accumulated experience and modern technologies in the system of athletic training to provide successful performance and highest results of Russian athletes and national teams at international competitions, including the Olympic Games. We see a champion in every athlete.

MAIN AREAS OF ACTIVITY

- Implementation of research, scientific and technical, methodological, educational and medical activity in the field of physical culture and sports.

- Carrying out applied researches in the field of sport: pedagogics, biomechanics, psychology, biochemistry, physiology, informatics, scientific technology, organization and management, economics, mathematic simulation.

- Improvement of the system of methodological support for Russian national teams.

- Providing advanced scientific and technical development of physical culture and sports, organization of innovation cluster for faster introduction of research and development projects.

- Interaction with educational facilities in the development of new approaches for the organization of the system of professional development, internship and advanced training.

- Participation in the creation of the common information space including information and analysis support of the field.

- Introduction of integrated control programs into the sports reserve training.
One of the priority areas of the Russian Federation Ministry of Sport activity is development and scientific substantiation of upgrade algorithms of the sports reserve training system and conversion of operating institutions into organizations of a new type – sport training.

Areas of activity of FSC VNIIFK:

- Development of standardized modern approaches to methodological support of the sports reserve;

- Coordination of the innovation platforms in the regions and elaboration of the estimation criteria for these new areas in accordance with the Minister of Sport’s Order “On establishment of the order of carrying out experimental and innovative activity in the field of physical culture and sports ”;

- Development of legal and regulatory framework (standards, procedures, orders, clinical protocols) for the medical assistance of the athletes within the sports reserve in cooperation with FMBA, the Ministry of Healthcare and Russian regions.

FSC VNIIFK specialists together with All-Russian sports federations have developed federal standards of athletic training for over 70 kinds of sports.

**Federal standards of athletic training** is a complex of necessary requirements for sports training for Olympic and non-Olympic kinds of sports which are mandatory for the organizations performing athletic training according to the Federal Law No 329-FZ “On physical culture and sports in the Russian Federation”. 

**METHODOLOGICAL SUPPORT OF THE SPORTS RESERVE**
The GTO complex’s history is closely related to the history of FCS VNIIFK.

Specialists of the Central Scientific Research Institute for Physical Culture (CNIIFK) for the first time in the history in 1933 elaborated for the All-Union GTO complex (“Ready for Labor and Defense of the USSR”). The complex underlay the state system of programs and test standards of physical development and physical training of citizens of different age.

Later on, the test standards and requirements of the complex were refined periodically following changes of the physical qualities of new generations.

Competent development of modern GTO test standards were carried out by the VNIIFK experts.

Up to date FSC VNIIFK includes the Department of coordination and development of the All-Russian physical culture and sports complex.

Among the results of its work there are the following:

- Testing schoolchildren’s level of physical training (through the example of pilot regions);
- Development and practical approval of regulatory and testing system of the GTO complex;
- Drawing up recommendations for the implementation of the GTO complex among different social groups.
Two dissertation committees operate on the base of FSC VNIIFK to accept Candidate of Sciences and Doctor of Sciences degree dissertations:

- Dissertation committee D311.002.01 on specialty 14.03.11. Rehabilitation Medicine, Sport Medicine, Remedial Gymnastics, Balneology and Physiotherapy.

The oldest High school institution – postgraduate training program is available at FSC VNIIFK since 1933. Over recent years more than 500 applicants have become competent experts in the field of physical culture and sports.

The following specialties are available:
49.06.01 Physical culture and sports
30.06.02 Fundamental medicine

“Sports Science Bulletin “
The journal is on the list of the Russian peer-reviewed journals recommended by VAC. Bulletin was admited as the best periodical in the field of theory and methods of physical education, rehabilitation medicine, remedial gymnastics, pedagogics and psychology. The journal is in the Russian science citation index (RSCI).
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At the premises of FSC VNIIFK All-Russian “research-to-practice” conferences and forums, concerning the currently important problems of sports science. are regularly held.
PERSONNEL TRAINING IN SPORTS INDUSTRY

In order to form a human resources for the sports industry as well as to upgrade the professional background of coaching staff, instructors and specialists in physical culture and sports, at FSC VNIIFK there was established The Center of advanced training for specialists in physical culture and sports. License for educational activity No 1612 dated 20.08.2015.

Advanced Training include:
- Travelling seminars in the regions.
- Online webinars on the topical issues.
- Short-term courses of advanced training (from 16 to 144 academic hours).
- Professional retraining programs (from 250 academic hours).

- Practical masterclasses at FSC VNIIFK laboratory with the use of latest technologies, methods and unique diagnostics and rehabilitation equipment.
- Lecturers are leading Russian and foreign experts of sports industry, practitioners in the field of theory and methods of sports, rehabilitation medicine, sport psychology, etc.
- Upon completing the education, one receives a certificate of advanced training of the Federal Science Center for Physical Culture and Sport of the Russian Ministry of Sport.
- The education process employs author’s methods of training, includes masterclasses on the base of FSC VNIIFK laboratories. Internship and distance learning (webinars) are possible as well.
INNOVATIVE TECHNOLOGIES FOR COMPLEX SUPPORT IN HIGH PERFORMANCE SPORTS AND SPORT RESERVE

Having a unique experience based on years of integrated observations of functional abilities and the level of physical training, FSC VNIIFK specialists are working on optimization the process of selecting the best diagnostic and correction methods for the athlete's during the training for the summer Olympic Games 2016 and the winter Olympic Games 2018.

FSC VNIIFK laboratories provide:

- Functional and diagnostic testing of the cardiovascular and autonomic nervous system
- Biomechanical analysis of physical actions
- Analysis of complex biological motor acts, quantitative assessment of the results of rehabilitation correction, choice of neurogenic rehabilitation

- Diagnosis and assessment of the level of muscle and fat components, assessment of athlete's physical training
- Assessment of the foot conditions by the plantography method
- Determination of innate abilities of the athletes by finger dermatoglyphics and evaluation of their predisposition to sports specialization
- The recommendations for the optimization of the training process based on the obtained diagnostic findings are provided.
TESTING OF ATHLETES

FSC VNIIFK innovative equipment and technologies allow to provide integrated testing and assessment of the athletes. Testing estimates the following characteristics:

- Functional status at submaximal and maximal exercises.
- Psychoemotional state of the athlete.
- The level of training and adaptation to stress, the organism reserves and circadian rhythms.
- The condition of the locomotor system by using the safe imaging system.
- Speed-strength performance, endurance and coordination abilities.
- Biomechanics of movements with the construction of 3D models of movements.

Based on the obtained testing data it is possible to conduct:

- Psychocorrection procedures using the technique of rythmosuggestive impact;
- Training and recovery processes under hypoxia;
- High frequency vibrotherapeutics;
- Manufacturing of individual orthopedic insoles.
THE CENTER OF COMBAT SPORTS

The head of the Center – the USSR master of sports in boxing, honored worker of physical culture and sports of the Russian Federation, the author of over 200 scientific publications in Russian and foreign editions, PhD in education science - Alexander Acopyan.

Main areas of activity:

- Scientific and methodological support of Russian national teams on sports: Greco-Roman wrestling, Boxing, Judo, Sambo, Freestyle wrestling, Martial arts, Mixed martial arts.

- Development of techniques for improving the efficiency of technical-tactical actions of the highly-experienced martial artists on the basis of optimization of movement patterns.

- Diagnosis and comprehensive assessment of the level of physical training of athletes.

- Development of proprietary technologies

- In the Center of combat sports of FSC VNIIFK a great amount of outstanding Russian sportsmen regularly undergo the examinations based on proprietary technologies of improving the special functional abilities, among them there are Alexander Povetkin, Sergey Kharitonov, Sergey Vodopyanov, Batu Khasikov and etc.

Alexander Povetkin
The world Boxing champion

Khasan Baroev
Olympic champion Greko-Roman wrestling

Sergey Vodopyanov
The world Boxing champion

Sergey Kovalev
The world Boxing champion

Batu Khasikov
The world Kick-Boxing champion
The head of the Center – the USSR master of sports in cycling, honored worker of physical culture and sports of the Russian Federation, author of over 100 publications in Russian and foreign editions, PhD in education science – Alexander Golovachev.

Main areas of activity:

Assessment of functional state of highly-experienced athletes in cyclic sports:

– functional diagnostics of the basal systems of organs of the athletes; analysis of respiratory function and ventilation during ultimate and off-peak muscular work;

– determination of the individual limits for the zones of relative capacity;

– study of the cardiovascular system during various loads and current status of athletes.

Assessment of main physical characteristics, determining the successful performance in cyclic sports:

– identification of the development level of speed-power qualities of legs (studies on a tensometric platform)

– identification of the development level of speed-power qualities of arms.

Estimation of maximal anaerobic performance

Assessment of athletes’ ability to perform muscle activity under hypoxia

Assessment of the psychoemotional state of athletes
The head of the Center - the Honoured doctor of Russian Federation, Lagutochkin Sergey, is an expert in the field of healthcare organization, rehabilitation medicine and sanatorium-resort therapy.

The main objective of the Center is the development and implementation of the integrated assessment programs to control the effectiveness of training and competing of the sports reserve.

An integrated approach includes:

– Evaluation of physical training and functional state of athletes;
– Medical monitoring of health status;
– Psychological support of training and competitive process;
– Development of wellness and recovery technologies.

Effective implementation of integrated monitoring allows:

- Objectively assess the functional reserves of the organism;
- Determine the readiness condition of the athlete to compete;
- Ensure the safety of training process in order to prevent diseases and reduce the accident rate;
- Provide psychological stability and motivation of athletes with the objective of achieving maximum athletic performance;
- Organize advisory support to coaches and doctors with the help of the modern informational technologies.
FCS VNIIFK along with the leading Russian and foreign research institutes participates in interscience researches pursuant to the Decree of the President of the Russian Federation No. 899 dated 07.07.2011 "On approval of the priority directions of science, technologies and techniques in the Russian Federation and the list of critical technologies of the Russian Federation" in accordance with the key global trends.

**Priority Research Areas include:**

- Molecular genetic technologies in the system of forecasting sports results, personalized approach to the construction of the training process, prevention and rehabilitation.
- Prevention of sudden death.
- Sports medical Cybernetics.
- Management of cognitive functions and behavior.
- Management of nutrition and weight.
- Management of sleep.
- Time-management.

**LOOKING INTO THE FUTURE**

**FCS VNIIFK PARTICIPATES IN INTERSCIENCE RESEARCHES FOR EFFECTIVE MANAGEMENT OF COMPLEX CHALLENGES**

Individual specialization and risk profile  
Personal programs for training, preventive care and treatment  
Pharmacogenomics and nutrigenomics
WORK OF COMPLEX RESEARCH TEAMS

Training of top level athletes is conducted with regard to modern achievements in various fields of science and carried out through the system of methodological support (MS).

For this purpose in accordance with the Order of the Ministry of Sport complex research teams (RT) were created to provide advanced scientific, methodological and biomedical researches, analysis of a functional status and technical level of training of the athletes of national teams as well as to make recommendations to the training process and implement new methods of training.

**Main areas of activity:**

- Development of standard modern approaches with introduction of methodological support and detailed medical examination in sport training centers;

- Implementation of innovative technologies, high-tech diagnostics and monitoring of the functional state of athletes;

- Creating a legal and regulatory framework enhancing medical assistance of the athletes-members of national teams (standards, orders, procedures, clinical protocols) – in cooperation with the FMBA.

**Currently FCS VNIIFK successfully carries out the work of CSG:**

- Boxing (head A.O. Akopyan).
- Rowing (head T.F. Abramova).
- Volleyball, classic and beach (head F.A. Iordanskaya).
- Tennis (head A.P. Skorodumova).
- Archery (head L.V. Tarasova).
- Greco-Roman wrestling (head O.S. Morozov).
- Freestyle wrestling (head A.N. Korzhenevsky).
- Swimming (head S.V. Kolmagorov).

Since 2015 FSC VNIIFK in cooperation with the Russian Olympic Committee develops the techniques and methods of chronobiological and climatic adaptation to prepare the national sports teams for the XXXI Olympic Games 2016, in Rio de Janeiro, Brazil.