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This publication contains abstracts of The X Annual International Conference for Students and Young Researchers “Modern University Sport Science” May 18-19, 2016. This book of abstracts considers issues of Theory and Methods of Physical Education; Physical Education and sports for All; Physical Education & Rehabilitation and Adapted Sports; Biomechanics, Sport physiology, Sport medicine; Sport Psychology; Sport and Society; Sport Management, Marketing & Sport Media; Sport Methodology & Comparative Study in Sport and Physical Education; Issues of the Modern Olympic Movement and is intended for the scientists conducting research in physical education and sport, lecturers of Higher Educational Establishments, students, post-graduates, coaches and athletes.

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Topicality. Technical training in sailing is very important, because this sport is associated with using the wind forces to move the boat. If athlete is technically well-trained and he can effectively operate the sailboat, he can show high competition results in the race.

The object of the study was the training process of young sailors, and the subject was the level of technique preparedness of young yachtsmen.

Hypothesis. Technical training will be more effective if athletes will change functions with their partners in the crew; sports and pedagogical process will include simulator training, training with experienced crews.

The purpose of the study: to develop and experimentally prove the effectiveness of training methods of yachtsmen 11-15 year-old during specialized training.

Objectives of the study:
1. To determine the techniques and methods which can be used in technical training of young yachtsmen.
2. To develop and to improve the training method of young athletes.
3. To develop practical advices for application of the technique.

The following methods were used in the research:
- literature analysis;
- hedagogical experiment;
- methods of mathematical statistics.

Scientific novelty. New method of technical training of sailors in the Cadet class was developed. Up to the present, training methods of young athletes in sailing had not been developed.

The practical relevance of the research was developing the method of technical training, which can be used for preparation of athletes, specializing in “Cadet” class; and it also can be used as a basis for the development of technical training methods in other classes of sailboats.

Research organization. The study was conducted for 3 years in yacht-club “Dolphin” and yacht center “Admiral Ushakov” in Rostov region. 40 boys and girls 11-15-years old took part in the research. During the specialized training. The total volume of the training loads in the year is 576 hours, the share of technical training is 22-27% or 127-158 hours. We can see the percentage of different methods used in experimental technique. The simulator training was 10 percent of the total load in EG, and 5% in CG, the sailboat training in Cadet class was 95% in CG, and only 70% in EG. To access the level of technical preparedness we used 4 types of tests.
Tacking. It’s a kind of maneuver, used by athletes when the boat sails upwind or against the wind. Jibing. Jibing is used by athletes when the boat sails downwind. Setting the spinnaker was the 3\textsuperscript{rd} type of test. Spinnaker is used as an extra sail when the boat sails close to directly downwind. A crew should set the spinnaker as far as possible. The 4\textsuperscript{th} test was Dropping the spinnaker. When the point of sailing changes from “running” to “close rich”, the crew should drop the spinnaker as far as possible.

**Results of the research.** On the diagrams 1, 2 we can see the growth of the results in control and experimental group during the research. The total growth for 3 years in the control group was about 30\%. While in experimental it was 40\%, which confirms the effectiveness of the developed technique.

![Diagram 1. Growth of the results in tests on simulator](image)

![Diagram 2. Growth of the results in tests on sailboat](image)

**Conclusion.** All the objectives were achieved during the research:
- for technical training of sailors various methods are used. However, the majority of coaches use the method of training in the sailboat on water;
– the effectiveness of the developed methods was confirmed during the pedagogical experiment. All athletes of the experimental group significantly increased the level of technical readiness;
– for training young sailors in “Cadet” class the following methods can be helpful: training with experienced crews, crews of keel yachts; changing the roles of partners in the crew.

**So we can recommend to:**
– use simulators to practice technical maneuvers (10 min before sailboat training on water);
– to change the partners functions inside the crew (4 hours twice a month);
– se training with experienced crew (4 hours twice a month).

## FEATURES OF NATIONAL WRESTLING STYLES OF PEOPLES OF RUSSIA

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**Introduction.** At the beginning of the XXI century there is a significant increase in interest in the study of ethnic and historical traditions and customs of national sports and physical education both in Russia and abroad. But despite some publications on the subject, history and traditions of national kinds of wrestling of the peoples inhabiting the territory of Russia and CIS countries are insufficiently covered. It is not possible to fully make up a holistic impression of the subject of study and thus the in-depth study of national kinds of wrestling is required. In the study and analysis of the history and traditions of national wrestling of different peoples the diversity of national kinds of physical training that have a huge cultural potential must be taken into account. All these factors determine the relevance of the chosen research topic.

**Objective.** The object of the study is to examine features of national kinds of wrestling of the peoples of Russia which are used in the training process of different types of wrestling not only at the regional level, but also in the national Olympic wrestling teams.

National kinds of wrestling, despite definite distinctions in rules and traditions, represent competition of two opponents. Rules of competitions provide regulations of competitions and conditions of victory awarding, limit actions of the fighters to provide audience appeal and health protection of the athletes.

Each nationality has the original national kinds of wrestling that were created and developed for many centuries. Various methods and training techniques of traditional national wrestling are often used by high-class modern athletes, members
of national teams at the largest international competitions such as the World Cups and the Olympic Games.

**Methods:**
- theoretical analysis and synthesis of the literature;
- analysis of the systematization of documentary sources;
- comparisons and analogies method.

**Discussion.** The problem of national wrestling styles was reflected to a certain extent in the writings of B. M. Rybalko, V. M. Igumenov, G. S. Tumanyan and others, but the issues associated with the use of diverse national wrestling used in the preparation of high – class athletes has not received the proper covering.

Wrestling as a sport is a duel of two opponents which is carried out in accordance with the established rules. Many nations have their own distinctive national wrestling style. Wrestling as an effective means of physical training was studied at different times by Plato, Aristotle, Rabelais, Hegel, Lesgaft and other well–known philosophers, teachers, doctors and writers.

In Russia wrestling has traditionally been not only a popular entertainment but also had a special significance in military training.

The peoples of the European part of Russia practiced a variety of wrestling styles: “belts wrestling”, “to kryzhi”, “in the fight”, “not in the fight”. In terms of rules these national wrestling styles are close to the Greco – Roman wrestling (Olympic sport). The structure of technical actions is also close to the Greco – Roman wrestling.

National wrestling widely spread on the territory of modern Russia has had a significant impact on the development and promotion of different forms of wrestling recognized all over the world (Greco – Roman wrestling, Freestyle wrestling and judo).

Rules of the Tatar-Bashkir “kurash” are also close to the Greco – Roman wrestling but mutual capture of sash is performed. In this style the main technical methods are carried out with the amplitude throws, clear of the mat, throws a deflection that looks very impressive to the spectators.

The national wrestling of the Tatars, Bashkir and Chuvash is an essential component of their success in Greco–Roman style wrestling in the international arena. Representatives of these republics such as Shazam Safin, Shamil Serikov, Shamil Hisamutdinov, Kamil Faktulin and other athletes have achieved victories in major international competitions.

**Results.** This study established that each ethnic group has its own unique aspects associated with religious traditions and customs which are organically embodied in a common culture in general and in physical education in particular.

**Conclusion.** Study of the history of national wrestling styles of the people of Russia shows that the strong secular traditions of national wrestling help to bring up efficient fighters who successfully defend the sport honor of their country at major international competitions (European and World Championships, the Olympic games). Experience of different types and styles of the national wrestling accumulated over centuries has been used successfully in modern training process.
Literature

THE ANALYSIS OF APPROACHES TO THE PSYCHOLOGICAL PREPARATION OF FOREIGN TENNIS PLAYERS

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Relevance. Sport activity is one of the areas of practice where a person can prove his perfection, using the physical and mental ability to achieve certain results. Due to the high competition, this activity has clear criteria for evaluating the results. It requires high activity and motivation of practice from a person.

Motivation takes a leading place in the structure of personality and it is one of the basic concepts that is used for explanation the dynamic of someone’s behavior (Kovalev A.G., Leontyev A.N., Stambulova N.B.).

The International Tennis Federation (ITF) pays great attention to the development issues of tennis players’ psychological preparation, particularly the problems of athletes’ motivation.

In our study, the modern approaches of the International Tennis Federation (ITF) to the study of motivation in tennis are considered on the basis of the traditional foundations of sports activities’ psychological assessment. We differentiated the approach to the possibility of applying this knowledge in training and competitive activity. Further consideration of this subject will allow us to explore this subject thoroughly.

We determined following problems:
1. To study the psychological aspects of sport as an activity.
2. To identify current approaches of foreign experts to the process of studying the motivation in sport, particularly in tennis.
3. To analyze and propose practical recommendations for tennis coaches.

The following methods were used to solve the distinguished problems:
– the analysis of the scientific literature in the Russian and English languages;
the analysis of the media sources, in particular, the International Tennis Federation and Tennis Europe Federation’s websites;
the pedagogical experiment.
The author of the article took part in the translation the International Tennis Federation and Tennis Europe Federation’s literary sources from English into Russian.

During the research:
were studied the psychological aspects of sport as an activity, including the basic concepts of psychological training and psychological support in the sport, assessment of personal characteristics and emotional state of an athlete, psychological approaches to the concept of sports activities’ motivation;
were revealed the current approaches of foreign experts to studying the sport’s motivation, particularly in tennis, allowing to complete modern scientific conceptions of the process of psychological preparation in tennis as an activity model, that requires a certain motivation. The importance of motivation was reflected in becoming an athlete and dynamics in sports career. We investigated the specificity of the preparation that depends on the type (species) of motivation. The use of modern foreign scientists’ developments will expand the representation of native experts on the mechanisms, in particular, the motivation of the tennis activities.
The analysis of foreign literary sources and tennis players’ experience level made it possible to allocate:
the main characteristics of the orientation types and the most important results of the research of objectives, perspectives and theories in tennis;
the relationship between the target orientation, abilities, and motivational signs;
the methodology of target strategy for creating a motivational climate in tennis;
the characteristics of the motivational climate in tennis.

It is very important for a tennis coach to identify and recognize the motivation of players and then work with them in a certain direction. Indeed, if tennis players have a high level of internal motivation, the coach should create a positive motivational climate in the team to disclose the potential to become a high-skilled tennis player.

The most important motivational tools, that coaches could imagine, are the feedback and reward. Their appropriate use may help to increase the intensity of the necessary behavior and facilitate its modification.

As a result of this research there have been proposed guidelines, that allows to assess and to form in the right direction the tennis players’ motivation. These recommendations are used in the coaching in individual sports clubs and schools in Moscow and the Moscow region, particularly in children's sports school "Olympian", where the author works as a coach.

The levels of psychological preparedness (PP) of tennis players before and after training with the use of “complex techniques of motivation” are represented in the Table 5 with a 10 points scale.
The experimental work has been lasted for 6 months and has given its first positive results. The differences are statistically significant at $p=0.05$.

All coaches have noted the effectiveness of tennis players’ trainings with such “complex techniques of motivation” elements. Currently, based on the materials of this research, the graphic stand for the small hall of the University’s TennisCenter is being prepared.

Thus, the properly chosen pedagogical and methodological techniques are directed to understanding the motivation structure and construction of training process, in particular technical training with these techniques, that also will help to improve not only the presentation and a better understanding of the nature of motivation, but also will allow tennis players to optimize their physical actions and obtain the necessary information to improve their experience.

**Literature**

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MANAGEMENT STRATEGY AND PERSONNEL ASSESSMENT AS A COMPONENT OF PERSONNEL MANAGEMENT IN FITNESS CLUBS

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Key words: personnel assessment, management in Fitness clubs.

Introduction. The system for assessing the level of professional knowledge and skills of the coaching staff in fitness clubs has not been created so far. The developed program on introduction of a licensing system as a compulsory procedure for a professional fitness trainer and should be an obligatory condition for employment and should be introduced. It will improve the quality of the instructors.

Objectives of the present study are as follows:
- to analyze the regulatory framework, to identify existing rules and standards for trainers of fitness clubs;
- to define the criteria and parameters of evaluation of professional knowledge and competence for trainers in fitness clubs;
- to develop a methodology to assess professional knowledge and competences for trainers of fitness clubs;
- to work out criteria for the selection of personnel for employment.

Methods: analysis of scientific-methodical literature, collection of data by instructors` questioning, analysis and statistical processing of obtained data.

Discussion. This work used means and methods of performance evaluation and the level of professional knowledge and skills of the instructors and trainers staff to identify weaknesses, and existing problems in the system of personnel management in fitness clubs. It is anticipated that by developing the necessary methodological recommendations for the fitness clubs, as well as introducing a necessary system of licensing for instructors, we will achieve a significant improvement in the quality of the staff.

Results. New means and methods of performance assessment and professional knowledge of instructors and trainers staff in the fitness clubs will be created and implemented. This will increase the level of service and attract new customers.

Conclusion. The absence of a unified system of fitness personnel evaluation negatively effects the level of professional services in Russian fitness industry.

The created system of professional knowledge and skills assessment is aimed at the improvement of quality of the personnel work and increase of fitness clubs profits.

Literature
WOMEN’S PROBLEM OF GENDER IDENTITY IN SPORT

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Modern society has entered a post-industrial era. A new type of specialist comes to replace the working class the main type of activity of which is creativity, or "intellectual work". The information and knowledge is a commodity/

According to Daniel Bell, postindustrial type is not the picture of a particular society, but rather a kind of paradigm, the social scheme, perceived as a reality in the development of civilization. And in this "knowledge industry" possibly use to women's potential expands significantly. Women are actively included in the spheres of activity and take positions that were previously considered "masculine", they drive cars, organize business, manage companies engage in politics and compete with men in sports. Today they prove to the world that a woman is a free and harmonious development of personality in society [3].

Purpose is to find out whether there is a conflict of gender and social roles of women doing conditionally male sports?

Object: gender relations in sport.
Subject: Athlete’s Gender Identity.
Research: analysis of the literature on the topic.
Gender identity - self-identification, identification of the man himself with a certain affiliation to a particular gender.

Gender is a social and cultural construct model of human behavior related to masculinity or female introduced in the human consciousness of society.

Gender studies are relevant in Russia in 1990-2000, in the post-Soviet period, when the society has changed straightforward look at equality of men and women, including the sphere of physical activity and sports, where the differences in the biological sex are recorded initially and are fixed by standards system.

The area of gender relations has always been prone to stereotypes, which for many centuries kept male power and dominance. Now the woman has to be independent. The sporting life traditionally refers to the process of socialization of men involving them in exercise to a greater extent than women. The list of quality of a "real man" is always part of the definition of "sportive" or "athletic". In women, these virtues are not always observed, but with the advancement of women in sport the concept of "sports figure" seemingly divergent of femininity, is beginning to take important, symbolizing the health and strength of will.

A lot of researchers argue that women who engaged conditionally male sports are in conflict of gender and social roles. However, the results of a dialogue with representatives of power sports show the opposite. Here are some examples:

"Fist of Fury" – that is how the rivals call Svetlana Kulakova. World champion gives special care even protection to hands before training, not to spoil manicure [1].

Yulia Lukina, world-class athlete in powerlifting: "At home I do not show it, he (my husband) does not see me in the gym. I do not allow him to go to
competitions and training. At home I am just a girl I'm weak and I'm afraid a lot of things" [1].

Ekaterina Keyb, world champion in sumo wrestling: "Do not think that we sumoists are rough and masculine. We are gentle creatures. I like to tell people that a lot of weight and beauty are the things quite compatible "- Ekaterina says [2].

Thus, we see that women share their activities in the performance of sports and gender roles. A woman who practices in male sports, can be a model of femininity, but it happens as a result of conscious work on herself, her behavior, relationships with relatives and friends.

**Literature**


**COLLEGE ATHLETICS AND THE PATH TO PROFESSIONALISM IN THE UNITED STATES**

*Baier Paul A.*

*Holderness School*

*United States of America*

College sports in the United States are extremely competitive, both on and off the field, court, or rink. With college football and basketball revenues in the hundreds of millions of dollars, there is a lot of money at stake so it is worthwhile for a school to invest heavily in their sports programs. Physical sports like football and basketball require large physiques and therefore most athletes play in college in order for their bodies to mature. For other, more elegant and international sports like ice hockey, college is not the only avenue to professionalism and many professionals did not attend college. (In the United States the terms “college” and “university” are often used interchangeably and will be used as such here. Also the term “football” refers to American football).

College athletics, especially football and basketball, can be just as popular to watch on television as professional sports. In many ways college level athletics operate just like they do at the professional level. Tickets are sold for games, merchandise is available to purchase, anything from a custom team jersey to a stuffed bear with the school’s logo on it, broadcast deals are made, advertisements are sold, and games are televised. Some coaches at the university level can make millions of dollars in salary. In 2015 Jim Harbaugh, the head football coach at the University of
Michigan, made over $7,000,000 and over half of the other division 1 college football coaches made over $1,000,000 in salary in the same one year span\(^1\).

Schools have a clear monetary motivation to build great athletic programs. A college athlete’s motivation is more long term. It is important to note that college and university tuition in the United States may be different than in other parts of the world. The United States has both public and private universities. Public universities are funded with taxpayer dollars while private colleges are funded privately.

The average cost for one year of college in 2015 was $43,921 at a private school and $19,548 at a public school\(^2\). Over 4 years that amounts to over $150,000 to attend a private university. According to the U.S. Census Bureau the median household income in 2014 was $53,627\(^3\), which means that in order for an average family to send one child to a private university, they would need to contribute nearly 82% of their annual wages to college tuition.

To ease the financial burden and as a way of attracting high caliber athletes to their school, many colleges will offer athletic scholarships to very elite recruits, but due to the large sums of money involved there are rules and a regulating organization.

The National Collegiate Athletic Association (NCAA, commonly pronounced “N-C-double A) regulates college athletes. The NCAA, despite the millions of dollars surrounding college athletics, does not allow for any college athlete to be paid or otherwise compensated for their performance, though schools can offer scholarships to help pay for tuition. Most young athletes, therefore, participate in athletics hoping to earn a scholarship so they can afford to go to college or university. The benefit to them is more affordable schooling and, with a college degree, a better chance at finding a job once they are finished with school. A small percentage of college athletes will continue to play their sport professionally after their college career or participate in the Olympics, but most will represent their school as an athlete, earn their degree, and then find a job.

There is currently a debate in the United States about the role the NCAA plays in college sports and if their rules are fair, specifically regarding an athlete’s compensation. Many argue that, given the great sums of money surrounding college athletics, the athletes themselves are entitled to some of the revenues.

Between sponsorships, television and video game deals, and merchandising, there is a huge industry worth billions of dollars surrounding these athletes.

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\(^1\)USA Today  
http://sports.usatoday.com/ncaa/salaries/  
\(^2\)Collegeboard.org  
Defenders of the NCAA argue that the players are student-athletes and their main focus should be academics. Their compensation is their education and the exposure and opportunity to possibly play professional sports after college.

For some sports, like football and basketball, college is the main path to playing professional sports, but for others, like hockey, other options are available. Two members of the 2014 United States Olympic Ice Hockey team, Patrick Kane of the Chicago Blackhawks and Zach Parise of the Minnesota Wild, are examples of the different routes an American ice hockey player can take to professionalism.

Kane grew up in Michigan where he played minor hockey until he left to play Canadian juniors at the age of 17. At 19 Kane was drafted to the NHL and signed by the Chicago Blackhawks. In contrast, Parise grew up in Minneapolis, Minnesota and played for the University of North Dakota before being drafted and ultimately signing with the New Jersey Devils. He later signed with the Minnesota Wild. Both players took very different paths but ended up in the same place.

The American amateur and professional athletic system is complex and nuanced. The system is tensely held together by a common need between the institution and athlete. Stacks of money surround athletics on all sides and in all age groups. What is certain is that American’s have a passion for athletics and this passion fuels the development of future athletes.

E-SPORTS PROMOTION IN RUSSIA

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In the late XX century computer games became part of our lives as a symbol of a new era of high technology. However they were initially just for entertainment. Of course, progress is not standing, games have become more and more realistic and attract attention. Over time active group stood out particularly wishing to bring their passion to a professional level among gaming fans.

They began to form teams, or clans, as they are called in eSports. All this gave rise to its rapid development: in 1997 the first version of Quake tournament was held, and from 2000 eSports analogue of the Olympic Games - World cyber Games are held. In 2001 the eSports were even included in the Russian register of sports, though they were expelled in 2006.

But there are some problems in the development of modern eSports:
1. A negative image of eSports in the eyes of the public are associated with a number of stereotypes.
2. Insufficient media attention to this sport. In those Asian countries such as South Korea the broadcasting of games (example - Starcraft) is conducted by federal channels.
3. The absence of numerous sponsors or major financial investments. Lack of investment in new players or teams, infrastructure of Internet clubs do not allow us to make them attractive to the layman that does not give an opportunity to expand audiences. Lack of investment also leads to non-payment or delay cash prize pool, which is a barrier to motivate the gamers to participate.

To help to solve the problem of creating and promoting a positive image of the sport in the media, to make it attractive in the eyes of the state and investors all these are functions of PR-specialist.

**The object of study:** the promotion of e-sports in Russia.

**Subject of research:** PR-promotion methods of eSports.

**Objective:** to identify the most relevant to the development of the Russian eSports PR-promotion methods.

**Research objectives:**
1. To study the literature on the methods and characteristics of the promotion of sports.
2. To analyze the current conditions of development of e-sports in Russia.
3. To identify and analyze PR-tools used by foreign and Russian companies to promote eSports at the present stage.
4. Relate PR-practices identified in the analysis of literature and the scope of PR in e-sports with the conditions of Russian reality.

Analysis of the Russian and foreign experience of promotion showed that:
- in Russia work on promotion is being mainly due to the interaction with a small number of specialized media (magazines "Spire", "Game World Navigator", "Gambling", specialized TV show "Gambling", PlayGround.ru sites, GoodGame.ru, Gamer.ru, AG.ru, GamesLife.ru, Igromania.ru);
- another tool is the creation of spectacles around sporting events. In particular, the youth movement, cosplay, carrying out recreational activities in parallel with sports;
- in addition, used such methods as exhibitions, press events are used;
- in the West there is more emphasis on the possibility of creating interesting multimedia support cyber events.

Analysis of opportunities for promotion led to the following results:
1. The need to work on changing the image of eSports. It must be associated with health, positive emotions, high moral ideals.
2. Collaboration with game producers, the creation of computer games with educational bias.
3. The creation of an organization and association under the auspices of its various competitions allow to work more organized and efficient.
4. A work with the management of cyber organizations will optimize the activities that will take away a lot of negative factors. Such work will hinder the creation of a positive cultural phenomenon of eSports.
A NEW APPROACH OF TEACHING THE AIMED SHOT FROM A COMPETITIVE BOW IN THE INITIAL STAGE OF ATHLETIC TRAINING

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Baidychenko T.V., Associate professor,
Russian State University of Physical Education, Sport, Youth and Tourism

The process of learning the technical elements is related to a higher level of movement control organization in athletes. At the initial stage of training it is due to the need to improve the technical result, acquire a sport’s rank or/and the transfer to a training group [3].

In this regard, we believe that the organization of the training process at the initial stage should include targeted teaching methods, auxiliary training components and controlled monitoring allowing the determination of the impact of the means and methods used. This approach of teaching the movement actions to children and adolescents is popular and in demand in the realization of the physical education program in secondary school [2].

For the first time a "Teaching module" it’s compiled, including comprehensive training material content, aimed at improving the technical skill of the athlete-archer at the initial stage of preparation.

In this study, the following objectives were put:
1. To justify the need to improve the technical skill at the initial stage.
2. To compose and fill the content of the training material for the creation of a "Teaching module".
3. Test the "Teaching module" and formulate guidelines aimed at improving the technical skill of athletes-archers at the initial stage of preparation.

To solve the problems, we used the following method:
1) analysis and systematization of specialized, scientific and methodical literature;
2) empirical research methods: pedagogical observation, questioning, interviewing leading trainers;
3) pedagogical experiment;
4) methods of mathematical statistics.

The study was conducted in two stages: The first stage was the analysis of specialized, scientific and methodological literature that allowed to substantiate the value of skill of athletes-archers at the initial stage of training. The results of pedagogical observation, questioning and surveying leading coaches revealed the significant pedagogical means of teaching the technical elements of the aimed shot and the auxiliary exercises most often used in the training process. The results of the first stage formed the basis of the teaching material for the components of the “Teaching module” (fig. 1).
Next, is considered a component of the module the component "Teaching means". In our study, it’s the significant "pedagogical methods" in teaching the elements of the technical phase, "setup position", responsible for the development, establishment and stabilization of the specialized - static strength of the athlete-archer: 1) "Hips repeat the position of feet"; 2) "Legs straight," "Legs, shoulder width apart"; 3) Shoulders, thighs and feet in two straight lines; 4) Projection point of the center of mass is the center lines drawn between the feet ("Hold the cross"); 5) The shoulder joints, holding the riser and bowstring are on the same line; 6) Pressing the string to the face is the starting step to perform the base movement "expansion" ("synchronous work"); 7) Left arm is straight and rests on the bow, and soon afterwards there is the pre tension of the string; 8) Right palm is relaxed, and "auxiliary exercises" are also used in shooting practice for the development of a specialized static force –the exercise "plank."

The set of components of the module "learning tools" are represented in our research training program (table 1).

### Table 1

**Approximate program of the training sessions in the five-day micro cycle**

<table>
<thead>
<tr>
<th>Part of training session</th>
<th>Content</th>
<th>Amount</th>
<th>Pedagogical methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preparatory</td>
<td>General exercises</td>
<td>15-20 min.</td>
<td></td>
</tr>
<tr>
<td>2. Main</td>
<td>1. Exercise “plank”</td>
<td>20 сек. –work phase,</td>
<td>Bow arm fixes on the riser soon</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 сек. rest – 5 sets</td>
<td>afterwards starts the drawing of the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5x15 times</td>
<td>string</td>
</tr>
<tr>
<td></td>
<td>2. Drawing of the bow</td>
<td>5хмакс</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Holding the bow</td>
<td>50 выстр.</td>
<td></td>
</tr>
</tbody>
</table>
4. 3m shooting
5. Exercise “plank”
6. 18m shooting
7. Exercise “plank”
8. 18m shooting
9. 3m closed eyes shooting
10. Exercise “plank”

<table>
<thead>
<tr>
<th>3. Conclusion</th>
<th>Stretching exercises</th>
<th>15-20 min.</th>
</tr>
</thead>
</table>

*Recommendations for the technique of the exercise “Plank”.*

1. Lying on the floor chest down. Bend your elbows at 90 degrees and rise your body. The body should form a straight line from head to toe.
2. Rely holding posture only on forearms and toes. The elbows are directly under your shoulders.
3. Keep body as straight as possible, tighten your abdominal muscles and keep the tension. Be careful not to bend the hips down to the floor.
4. Shoulder blades do not stick out, chest not “hanging”.

In this exercise, many muscles are involved, especially the muscles of the core which are also actively involved in the implementation of the aimed shot.

At the second stage of the study it was implemented the component of the "Teaching module" "pedagogical experiment." Participants in the experiment were 9 athletes (girls) of the initial training group of the third year. Sport rank—1st and 2nd.

Duration of experiment - 5 training days in precompetition period.

The bulk of the training session (tabl.Ne1) was carried out on a daily basis and accounted for 30% of the motor density of the training session.

The accuracy shooting indicators, which in our study were the means of monitoring the impact of an exercise program, were recorded before and after the five-day micro cycle.

Conclusions of the study were formulated discussing the findings along the research. The first part of the research organization is expressed in conclusion 1: The most common (significant) pedagogical methods for training the technical element “setup position” and the auxiliary exercises (mentioned above). The second part of the discussion of the results is related to the study of the dynamic changes in the accuracy of shooting indicators under the influence of the prepared training program,
Conclusion 2: Dynamic changes in the values of the accuracy indicators were positive, before and after the training microcycle of shooting for each athlete, only in the parameters of: the systematical vertical error, the random vertical error and the horizontal random error (Fig. 2, 3).

- XCE – horizontal vertical error;
- YCE – systematical vertical error;
- XVE – horizontal random error;
- YVE – random vertical error.

Fig. 2. Accuracy indicators of the archers prior to the experiment

Fig. 3. Accuracy indicators of the archers after the experiment

Figures 2 and 3 shows the dynamics of changes in the values of the accuracy indicators of the athletes-archers in a positive way, after the training micro cycle. The changes occurred only in the parameters: systematical vertical error, random vertical error and random horizontal error.
Data on table 2 (shooting errors registered in our experiment and the factors determining them) were compared with the performance of the accuracy indicators, the values of which have changed in a positive way.

Table 2
Errors of shooting and the factors determining them (Baidychenko T.V)

<table>
<thead>
<tr>
<th>YCE - systematical vertical error</th>
<th>1. Sight not corrected vertically</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Nocking point height is different than the height of the arrow rest</td>
</tr>
<tr>
<td></td>
<td>3. Shooting arrows without vanes</td>
</tr>
<tr>
<td></td>
<td>4. Deformalized arrow or arrow point glued incorrectly</td>
</tr>
<tr>
<td></td>
<td>5. Gap between the index finger and the arrow while holding the string</td>
</tr>
<tr>
<td></td>
<td>6. Angle made from the phalanx of the fingers while holding the string</td>
</tr>
<tr>
<td></td>
<td>7. Change of base height (head moves up or down)</td>
</tr>
<tr>
<td></td>
<td>8. Pressure point of the bow arm on the handle of the riser changes high or low</td>
</tr>
<tr>
<td></td>
<td>9. Change of the lighting on the target</td>
</tr>
<tr>
<td></td>
<td>10. Rain</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>XVE - horizontal random error</th>
<th>1. Disparity of the mechanical parameters of the arrow (weight, length, change in the center of mass etc.) parameters of the bow (bow strength, length of riser and limbs etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. One of the parts of the bow is going to break</td>
</tr>
<tr>
<td></td>
<td>3. Asynchronous work of the shoulders while shooting</td>
</tr>
<tr>
<td></td>
<td>4. Twist of the limbs or the riser relatively the vertical axis</td>
</tr>
<tr>
<td></td>
<td>5. Different times on the release will come to:</td>
</tr>
<tr>
<td></td>
<td>a) Variable angles holding the bowstring</td>
</tr>
<tr>
<td></td>
<td>6. Bow arm movement prevails drawing arm movement (folding) that is shown as if there’s reaction to the clicker</td>
</tr>
<tr>
<td></td>
<td>7. Variables on the pressure point on the riser’s handle</td>
</tr>
<tr>
<td></td>
<td>8. Wind</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>YVE - random vertical error</th>
<th>1. Disparity of the mechanical parameters of the arrow (weight, length, change in the center of mass etc.) parameters of the bow (bow strength, length of riser and limbs etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. One of the parts of the bow is going to break</td>
</tr>
<tr>
<td></td>
<td>3. Work of the stabilizators doesn’t correspond to the work of the bow</td>
</tr>
<tr>
<td></td>
<td>4. Asynchronous work of the shoulders while shooting</td>
</tr>
<tr>
<td></td>
<td>5. Twist of one of the limbs or the riser relatively to the transverse axis</td>
</tr>
<tr>
<td></td>
<td>6. Disturbance on the drawing length:</td>
</tr>
<tr>
<td></td>
<td>- different “expansion” lengths after the clicker</td>
</tr>
<tr>
<td></td>
<td>- When anchoring there are no 3 points of touch on the face.</td>
</tr>
<tr>
<td></td>
<td>(for example, Due to a stiff finger tap which disturbs the feeling of contact with the string)</td>
</tr>
<tr>
<td></td>
<td>7. Change of the initial speed or the angular velocity of the arrow from not correctly assimilating the same draw length every time</td>
</tr>
<tr>
<td></td>
<td>8. Differences in the brace height</td>
</tr>
<tr>
<td></td>
<td>9. Wind</td>
</tr>
</tbody>
</table>

As a result of analytical work on the impact of a "Teaching module" to improve the technical skill, studied values of the indicators, factors and training components of the aimed shot, determined the way of teaching the technical elements of the aimed shot in the phase of the "setup position". This is clearly shown in table 3.
Table 3

Correlation of the accuracy indicators and the factors determining them along with the components 1 and 2 of the "training module"

<table>
<thead>
<tr>
<th>Accuracy indicators</th>
<th>Shooting mistake factors</th>
<th>Pedagogical methods</th>
<th>Auxiliary methods</th>
<th># of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>YCE - systematical vertical error</td>
<td>Change of base height (head moves up or down)</td>
<td>Pressure of the string on the face points is the basis for a successful “synchronous expansion”</td>
<td>“Plank”</td>
<td>2</td>
</tr>
<tr>
<td>XVE - horizontal random error</td>
<td>Disturbance of the drawing length: - different “expansion” lengths after the clicker</td>
<td>Projection of the center of mass goes thorough the center of the line between the feet “hold the cross”</td>
<td>“Plank”</td>
<td>4</td>
</tr>
<tr>
<td>YVE - random vertical error</td>
<td>Disparity of the mechanical parameters of the arrow (weight, length, change in the center of mass etc.)</td>
<td>Shoulders are aligned in one line</td>
<td>“Plank”</td>
<td>3</td>
</tr>
</tbody>
</table>

Of the 9 subjects in the first group came to be 4 people who have increased their technical result allowed them acquire a rank: 1 person -CMS, 3 persons. - 1 rank (change in a positive direction occurred in the magnitude XVE, see.tabl.#3.) and accordingly, they will be transferred to the next training group. The next group of two people, were athletes that improved their performance of the systematic vertical error, which allowed them to acquire the second sport rank.

For three people there was no change for the accuracy indicator values. However, they still have a chance to fulfill the standards for the physical skill and thus be able to transfer to the training group.

The study of this relationship has helped us to establish the opinion that the content of the educational components material proposed in the drafting of our "training module" are not only related to the improvement of technical skill, but other training skills also.

**Conclusions.** After analyzing and summarizing the data, the following conclusions are presented:

1. On the basis of study and analysis of specialized, scientific and methodological literature were identified:
1) the main direction of technical skill in archery at the initial stage of preparation (increase of technical result, the acquirement of a rank and the transfer to a training group);

2) the scheme of the "Teaching module".

2. The results of the questionnaire and the survey of leading coaches allowed us to fill with teaching material components the "Teaching module" - pedagogical methods (1st component) and auxiliary exercises (2nd component) aimed at teaching the technical elements of the aimed shot in the phase of "setup position" to athletes-archers (training means). These two components form the basis of the training program.

3. In the course of the pedagogical experiment (third component of the "training module") it was developed and tested a training program along with the accuracy indicators before and after the micro cycle (evaluation and control). The values of the parameters studied and the factors determining them show the impact of the components of the "Teaching module" that calls to the technical skill of the archer (increase in the technical result, acquirement of a rank and transfer to the training group (1st year)).

Guidelines

1. The main method of improving the technical skill at the initial stage of training athletes-archers should be modular teaching aimed at improving the technical result, the acquirement of a rank and the transfer to a training group;

2. The use of the training program in the pre-competition period, aimed at improving the technical elements in "setup position" phase and the increase of the effectiveness of the training process is at the most, individual;

3. The assessment and control of the most informative way of correction the training process concerning the training elements of the aimed shot are the parameters of the indicators of accuracy.

Conclusion. The use of a "Teaching module", aimed at improving the technical skill of athletes-archers at the initial stage of preparation allows more successfully combine different approaches to the selection of the content of the training program, its presentation and methods in the educational process. The "Teaching module" implies a clear structuring of teaching content, the consistent use of educational material, providing the training process with effective guidelines and a system of evaluation and control that allows to adjust the teaching process.

In the results of this study, it is evident that not all the athletes participating in the experiment, were affected equally. Accordingly, we assume that the use of modular teaching in the individual training process at various stages of preparation, can be represented in the form of arrangement rating preferences in teaching and planning the training with a focus on the development, formation or stabilization of one of the components of the technical skill in archery.

Literature

DanceSport is a high coordinated type of sport, so there is a probability to get injuries and diseases which are specific and characteristic for this Sport because of the unique technical and mechanical aspects.

Nowadays there is no special literature on the characteristic and injury prevention in DanceSport. There is a necessity to include a special set of exercises in the training process, which will strengthen the musculoskeletal system. However, practically you can hardly find any of specific prophylactic exercise-sets for the DanceSport athletes.

It has been suggested, that a special set of exercises in DanceSport, which is developed by taking into account the location and nature of the injuries, the peculiarity of DanceSport and the athlete’s level will allow to increase the effectiveness of diseases prevention of the athletes musculoskeletal system in DanceSport.

Object of the study was a process of injuries and musculoskeletal diseases prevention of the athletes in DanceSport. Subject of the study was based on the means and methods of injuries and musculoskeletal diseases prevention of the athletes in DanceSport.

The purpose of the study was to increase the efficiency of the injuries and musculoskeletal diseases prevention process of the 12-13 years athletes in DanceSport.

Based on the purpose, the tasks of the Study were:

1. To identify the location, nature and causes of injuries and musculoskeletal diseases in DanceSport.

2. To specify a set of means and methods for the injuries and musculoskeletal diseases prevention of the 12-13 years athletes in DanceSport.

3. To test the effectiveness of using the developed complex of means and methods for the injuries and musculoskeletal diseases prevention of the 12-13 years athletes in DanceSport.

To achieve the assigned tasks these methods of research were used.
– analysis and synthesis of the literature;
– interview (conversations and survey);
– pedagogical supervision;
– anthropometry and plantography;
– pedagogical testing
– pedagogical experiment;
– methods of Mathematical Statistics.

According to the results of the survey to the question about the causes of injuries in the training process most coaches emit the answer " inattention and distraction of students on the training " and “level of physical fitness”. Only 30% of the coaches click the option " lack of construction of training process”. Under their opinion “emotional condition of students” doesn’t influence musculoskeletal diseases prevention. Also, coaches emit the problem of lack of scientific research and lack of time in the training process for the musculoskeletal diseases prevention.

As a result of teacher observations, it was revealed that during trainings in DanceSport : 20 % of time is given for preparatory means, 30 % for special-preparatory means and 50% of time is devoted to competitive means. Coaches monitor the quality of the exercises, forgetting about their possible negative influence on the body. Moreover, this age is characterized by rapid elongation of the spine, which is caused by its instability.

Because of this, diagnostics of dancers musculoskeletal system was held. Visually assessment was applied to the state of the spinal column, the presence of scoliosis and abnormal posture, taking into account the position of the shoulder girdle, shoulder blades, symmetry of waist triangles. Also the plantography method was used for diagnosing the feet arches of athletes.

In preliminary studies, it was found a contradiction between the demand for injuries and musculoskeletal diseases prevention and its application in practice. Because of that, a system of exercises for musculoskeletal diseases prevention was made. It consisted of 3 blocks of exercises with certain methodological orientation.

![Image](image.png)

Picture 1. The direction of the exercises blocks for injuries and musculoskeletal diseases prevention in DanceSport(according to the survey)
The experiment was held on the basis of the Children's sports camp "Chayka", which was attended by 10 dancing couples aged 12-13 years «D» class of the dance club "Rhythm" for 6 months 5 times a week for 2 hours. To assess the level of skills of athletes during the process of pedagogical experiment testing was used, where the five control exercises should be done. As a result of the exercise implementation the conclusion about the effectiveness of the developed set of means and methodological approaches for injuries and musculoskeletal diseases prevention was identified. It is found that in the process of its application in the experimental group all tested qualities and abilities increased. In the control group, the development was not only lower, but also in one of the exercises the indicates decreased.

**Literature**


**COMPARATIVE ANALYSIS OF THE INVENTION SHOT PUT ROTATIONAL AND GLIDE METHODS**

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In practice the preparation of highly skilled athletes there is a need of creating conditions of conformity between the requirements of competitive exercise and management tasks aimed at its development and improvement.

In searching for the best shot put technique went on ways to speed up the movement of the thrower in a circle, to increase the power of the final effort, to length the power of the thrower to the core.

**The purpose of the research** – is to determine the effectiveness of the shot put technique in rotational or glide manner.

**Research methods:**
– analysis of literary and internet sources;
– retrospective analysis;
– methods of mathematical statistics.
The analysis of the achievements of the world’s strongest core pushers and the level of world records allows us to talk about the advantages of athletes using the rotational manner of shot put (picture 1).

However, the popularity of rotational method of shot put is prevented by lack of the technique analysis and the methods of studying of this manner.

Trainers and sportsmen are trying to increase the ways of power to the core, that allows their sport achievements. One of the main methods is acceleration of the core from the rotation take off. This method of shot put was suggested by V.I. Alexseyev and got the name of a “circular swing”. In 1950 he taught two young sportsmen to use this method. The method was not perfect, but young people achieved some good results. But his pupil A. Baryshnikov, who used this method 20 years later set a world record 22 meters in 1976.

The main task of all technical action of the thrower is to create conditions for developing muscle groups of the athlete physical abilities to generate maximum force applied to the core. The best technique is where the athlete will be able to apply a force on longer way in shortest time.

There is no answer about advantages of rotational or glide manner of shot put because of different opinions. The advantages of rotational method often associated with that fact that you can create an optimal and higher initial speed of the core using rotational movements. But the other hand coordination of complex rotational movements does not allow many sportsmen to show a good result, because of this technique shot put requires a comprehensive physical condition of the athlete, especially the qualities of flexibility and speed of movement coordination.

According to literary sources, the core speed at the end of the acceleration rotational method varies. It is 2,5-3 m/s, the speed of the core at the end of the rotational is 4-5 m/s , it exceeds the speed after the jump.
Despite the opinion of V.I. Alexseyev that method invented by him, is only effective for tall athletes in the international arena are the least overall throwers that reach high results due to higher activity in the initial dispersal of action and less loss of speed at the final effort.

There advantages and disadvantages in each method, but in any case it is important to find out which of them is more effective (table 1).

Table 1

<p>| Characteristics of options of rotational and glide methods to increase athletic performance |</p>
<table>
<thead>
<tr>
<th>Methods of shot put</th>
<th>Glide method</th>
<th>Rotational method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing results from spot pushing</td>
<td>1,5-2 m</td>
<td>3-3,5 m</td>
</tr>
<tr>
<td>Loss of speed after acceleration</td>
<td>1-1,5 m/s</td>
<td>3,5-4,5 m/s</td>
</tr>
<tr>
<td>Speed after acceleration</td>
<td>to 2 m/s</td>
<td>to 5 m/s</td>
</tr>
<tr>
<td>Ways of application of force</td>
<td>1,5-1,7 m</td>
<td>2-2,2 m</td>
</tr>
<tr>
<td>Trajectory</td>
<td>Glide forward movement</td>
<td>Curvilinear movement there back</td>
</tr>
<tr>
<td>Reserves increase athletic results</td>
<td>Increasing the rate of passage of the first half movement (jump) by increasing the level of development of the athletes speed</td>
<td>More uniform passage of the loop in the center of the circle</td>
</tr>
</tbody>
</table>

Using the rectilinear method the increasing of the result is 1,5-2 m, using the rotational method is 3-3,5 m. This is due: increasing the core speed with a straight take off 1,5-2 m/s, with rotational – 2-2,5 m/s.

During rotation, legs are dispersed more and accumulate a lot of movement that at the jump. When, after the acceleration, feet stop for a moment, some part of the accumulated number of movements of the upper body is transferred and this can be activated at the moment of action athlete final effort.

Regardless of the method of shot put in the closing seconds it is going on a straight line direction. So the rotational method of shot put is have to make straight line timely. It is a certain difficulty to the thrower.

In conclusion, it should be said that the comparison of characteristics of core movement and the entire system can be seen that the rotational shot put technique version is more progressive and effective than the well-known technique shot put with a jump.

**Literature**

2. Miller, V.I. Metodikasovershenstvovaniyatehnicheskoispetsial’noi phizicheskoipodgotovlennostivtolkani yadravrashatel’nym sposobom. /
Keywords: motion analysis, figure skating, technique, twist lift, consistency, gravity center.

Quite a long period Soviet Union school of pair skating was the strongest in the world. Since 1962 Soviet and Russian athletes always win medals of the world championships. Exceptions were only the 2007, 2008, and 2015. At the European championships since 1958 and till the present time, the Soviet skaters only once not been able to rich the podium – 1961.

Many very experienced coaches in the pair skating in the late 90s have gone abroad to train foreign athletes. Now we see very strong athletes from China, Canada, USA and Germany. At the moment, the athletes from these countries pose a serious threat to Russian skaters. The main reason is quad-elements and the highest quality. After the introduction of the new ISU judging system quality of the elements become a key factor in the final evaluation. Quality of performed elements is in the details, which may not be able been checked even an experienced professional.

Last time skaters motion analysis used by Alexey Mishin. His work was written in 1981. Since then, the pair skating has become more complicated technically. Modern computer equipment is able to check the tiny differences in themovements during elements performance. Video analysis of movements will allow analyzing kinematic characteristics in the pair figure skating. It is expected the use of video analysis will increase their technic, which will improve all elements. The research will perform at the ice rink and in the warm-up hall. Video analysis will be conducted during the training and the competitions. Highly skilled skaters will be involved in the research process.

The main objectives are:
– to identify deficiencies in the technical and physical component affecting the quality of elements in pair skating;
– to create a correction algorithms of skaters physical and technical qualities in the executable element;
– to conduct video analysis of performance;
– to improve of the technical skill of highly skilled athletes. To develop a methodology for assessing the technical skill based on video analysis of movements.

Research Methods are:
– a literature survey;
– observations;
– video analysis of technical actions. Comparative analysis;
– methods of math statistics.

During the comparative analysis of twist lift, one of the elements in pair skating had identified large differences in the technique of execution between different sports duets. We conducted an experiment to study the technical component of this element. Significant role in the performance of a twist lift is partners’ consistency. This element is performed, at first glance, mainly by man’s pushing force, but due to video analysis, we have identified the importance of the lady’s work on entering, before the take off from the ice. The result was an assumption that a man’s work efficiency can be high only if lady herself goes into man’s hands. The center of lady’s gravity must be exactly between the man's feet and above his hands at the moment of take off from the ice. This would enable man to push partner from the bottom without loss of energy and rhythm to load his hands and legs. Checking these technical features can be obtained sufficiently serious increase in the height of the twist lift, which in turn gives the time to perform the required number of turns in the air.

Conclusions
1. After the introduction of the new ISU judging system, the importance of high quality performed elements has increased significantly. By this parameter Russian athletes a little behind their rivals from abroad.
2. Since the 1970s, video analysis began to develop rapidly. Modern technology has made various methods of video analysis is much more accessible and functional. Today for the simple video analysis sufficiently HD camera, PC and special software. At the moment, the most promising method is cinematographic analysis of athlete’s movements.
3. In 1981 A.N. Mishin described in detail the biomechanics of the skaters movements in pairs and research relevant today. But from that moment the figure skating has changed a lot artistically and technically. It is necessary to analyze the elements of pair skating, based on modern technique that are executed in accordance with the updated ISU rules.
4. Due to the fact that the technical committee on figure skating annually amends the rules for pair skating competitions, the problem of improving the technical component exists as initial training of athletes, as well as for highly qualified athletes. Modern methods of video analysis can greatly facilitate the solution of this problem.

Literature
FEATURES OF SHOOTING PREPARATION FOR ATHLETES IN INDIAN BIATHLON

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Key words: canoeing, Indian biathlon, archery, bow shooting, 16-17 year old athletes.

Topicality. The new type of rowing – the Indian biathlon in 2002 for the first time in Russia has appeared. The World Cup has been held in 2007 in Moscow. There are some features in Indian biathlon - participants row on a canoe and also have bow shooting. The divisions are following: single, double, men, women and the mixed crews.

Relevance. Training of athletes in this sport demands development of the special techniques including rowing and special shooting preparation.

The purpose of work was to develop a technique of shooting training for athletes in Indian biathlon.

Process of shooting training in Indian biathlon was object of research, and features of shooting training in Indian biathlon were an a subject of research.

Tasks in research were following:
1. To study features of shooting training from bows and shooting training from bows in Indian biathlon.
2. To develop a technique of shooting training of athletes in Indian biathlon.
3. To check effectiveness of the developed technique in pedagogical experiment.

For the solution of objectives we used the following methods:
– literature analysis;
– pedagogical experiment;
– methods of mathematical statistics.

Hypothesis. In our research we assume that use of the developed technique will promote the systematic and accelerated increase of level of technical shooting readiness of athlete

Organisation. Research took place on the basis of shooting club "Victoria" and in rowing channel Krylatskoye in April/May, 2014. 10 athletes 16-17 years old, specialized training

Research was organized in 4 stages:
– at 1 stage there was literature analysis and development of a technique;
– at the 2nd stage was preliminary testing;
– at the 3rd was pedagogical experiment;
– and at the 4th was final testing and proceeding of the results.

For athletes training of experimental group, we have developed special shooting exercises:
– shooting from a firm surface standing also from kneeling position;
– shooting from training simulator the "lodka" (boat) standing also from a knee;
– shooting from the boat, being on water from kneeling position.

Unlike control group, the experimental group carried out exercises on specially developed exercise machine – “lodka”. There are two types on a slide, one stationary on suspended system on a rigid hitch, and his second type is a collapsible platform are presented. The exercise machine allows to create position of unstable balance ashore, allows to carry out shooting from a mobile support. Classes on the exercise machine were given twice a week during 2 months.

Results of testing. We can observe that athletes results of experimental group in the end of research are better than results of athletes of control group.
Diagram 1 – Results of testing

Table 1

The percentage growth of the results

<table>
<thead>
<tr>
<th>Tests</th>
<th>Growth in CG, %</th>
<th>Growth in EG, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shooting from a standing position, 10 shots from 25 meters</td>
<td>1,17</td>
<td>3,4</td>
</tr>
<tr>
<td>Shooting from kneeling position, 10 shots from 25 meters</td>
<td>2,29</td>
<td>3,4</td>
</tr>
<tr>
<td>Shooting from a standing position, 10 shots from 50 meters</td>
<td>3,75</td>
<td>7,4</td>
</tr>
<tr>
<td>Shooting from kneeling position, 10 shots from 50 meters</td>
<td>7,6</td>
<td>10</td>
</tr>
<tr>
<td>Average</td>
<td>3,7</td>
<td>6,05</td>
</tr>
</tbody>
</table>

All the objectives were achieved during the research.

Shooting from mobile support is a feature of shooting training in Indian biathlon.

We used a mobile support for imitation of shooting from the boat for implementation of shooting training of athletes in Indian biathlon.

Effectiveness of the developed technique has been confirmed during pedagogical experiment.
HEART RESPONSE ON POWER AND ISOMETRIC LOADS AND HOW IT AFFECTS ON MYOCARDIUM RE-MODELING

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post-graduate student 14.03.11 – «Sports medicine»
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Summary. Current research is devoted to the problem of scientific and methodological support of health and physical education in the section of

Key words. Power loads, isometric loads, forcefull, heart response, myocardium re-modeling, blood pressure.

The novelty of this research is to find out predictors and risk factors of raising levels of blood pressure in athletes of speed-strength and isometric specializations by use of modeling methods associated with the diagnostic.

Research objective study the effect of speed-strength and isometric stress on myocardial remodeling in athletes.

For realization of the research objective the following tasks have been set:
1. To study distribution of blood pressure raising levels in athletes from different kinds of sport.
2. To find out risk factors of blood pressure raising levels in athletes from different kinds of sport.
3. To determine the contribution of increased blood pressure in speed-power kinds of sports and sports involving isometric load to remodeling sports heart
4. To study endothelium dependent relaxation function in athletes with increased blood pressure in speed-strength sports and sports, paired with an isometric load.

To achieve the objectives will be used the following research methods:

Anthropometric methods.
1) collect family and sports history (evaluation of risk factors for cardiovascular disease);
2) research of heart rate variability;
3) assessment of the composition of body weight;
4) electrocardiogram;
5) handgrip;
6) PWC170;
7) wingate anaerobic test;
8) echo-cardiography;
9) endothelium dependent relaxation function.

Organisation of the research. Experimental work will be scheduled on the basis of the Russian State University of Physical Education, Sport, Youth and Tourism.

In the first phase: adoption of the theme of the dissertation research, analysis of scientific and methodical literature, the formulation of goals and objectives of the study, selection of research methods and subjects.

The second phase will identify the key testing procedures for the experiment based on the analysis of sport activities of subjects with different qualifications, and will also tested the basic test methods to substantiate the pilot program, which will be used during further studies. There would also be an experiment, collection of material using the above techniques; it is the separation of athletes into study and control group.

The third phase will be performed: processing of the obtained results of the research, generalizing, analysis and description of these results, writing conclusions and recommendations the results of the research, writing and publishing articles on the research results.

The fourth phase will be the preparation of the thesis to the approbation and protection.

Suspected contingent: athletes speed-strength sports, and sports, including isometric load. Quantity: 120-200, depending on the formation of research groups on hypertension.

Literature


THE COMMON CHARACTERISTICS OF COMPLEX WORKOUT FOR WOMEN ON THEIR SECOND AND THIRD TRIMESTER OF PREGNANCY

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**Key words:** fitness, pregnancy, women, workout, water aerobic, stress, yoga, pilates, joints gymnastics.

**Annotation.** This work deals with fitness workout during second and third trimester of pregnancy and it effect on mothers and children’s health. Methods of fitness activities such as pilates, yoga, joints gymnastics, water aerobic etc., were specially regarded. A detailed analysis of various forms of physical activity relevant in every trimester is given. It should be stressed that in this work different forms of physical activities constituted full prenatal complex. This work will be interesting for every specialist in fitness industry, midwifes and students and could be of interest and practical importance.

**Background.** There are a lot of myths about pregnancy and exercising while being pregnant. As long as the mother is cautious and knows when and how to limit her activity, exercising and staying fit during pregnancy are beneficial for both her and the baby. Modern scientific experiments shows, that exercising can help with backaches, bloating constipation, can improve mood and relieve stress and will lower changes of developing gestational diabetes.

**Objective:** our main aim was to create a prenatal fitness complex and find out how it affected on women in their second and third trimester of pregnancy on their health after labors and their children.

**Methods:**
– analysis of methodical literature;
– analysis of various forms of physical activity relevant in every trimester;
– psychological tests: STAI; SAN;
– interview of women after labor;

**Discussion.** We analyzed more than 70 articles and references and made a survey in 12 fitness clubs in Moscow. It shows us, that nowadays in fitness industry in Russia the common ways of exercising for pregnant women are water aerobics and indoor exercises. We made up a prenatal complex, it consisted from three parts:

<table>
<thead>
<tr>
<th>1. Warming up</th>
<th>Joints gymnastics, yoga (asanas for balance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Work out (in water)</td>
<td>Water aerobics, swimming, psychological exercises (to strength and relax muscles)</td>
</tr>
<tr>
<td>3. Cool down (in water and indoors)</td>
<td>Breathing exercises, massage</td>
</tr>
</tbody>
</table>

Our experiment was led in prenatal club “BirthlightFamily” under doctor’s supervision.

Training group (n=9) practiced 2-3 times a week, using our program; Control group (n=12) practiced swimming;

**Results.** As you can see on following tables (1,2) after two months of training, the level of personal and situational stress in training group significantly went down. In control group no significant differences were found:

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The level of personal and situational stress in control (CG) and training (TG) groups</td>
</tr>
</tbody>
</table>

| Personal stress | | | | | |
|-----------------|-----------------|-----------------|-----------------|
| Before | After | Difference | t | p |
| CG | 46,5±3,2 | 46,8±2,6 | -0,3 | 0,4 | p≥0,05 |
| TG | 48,2±2,7 | 44,3±3,1 | 3,9 | 2,8 | p≤0,05 |

| Situational stress | | | | | |
|-----------------|-----------------|-----------------|-----------------|
| Before | After | Difference | t | p |
| CG | 49,6±1,7 | 49±2,3 | 0,6 | 0,8 | p≥0,05 |
| TG | 50,6±1,3 | 47,5±2 | 3,1 | 3,3 | p≤0,05 |

The level of wellbeing, activeness and mood in both groups increased considerably.

In training group the level of self-rating of labor was higher, 89% of women have independent childbirth, without Cesarean section, their children in average have 8 in APGAR, and have normal Body lengths and Body weight; 66,6% percents of women would like to have one more baby and more than half of they were discharged from the hospital on a fifths day.
Results of after labor’s interview

<table>
<thead>
<tr>
<th></th>
<th>CG(n=11)</th>
<th>TG(n=9)</th>
<th></th>
<th></th>
<th></th>
<th>Discharge from the hospital (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-rating of labor (max-5)</td>
<td>2.5</td>
<td>3.4</td>
<td></td>
<td></td>
<td></td>
<td>5d-27,2%</td>
</tr>
<tr>
<td>Independent childbirth(in%)</td>
<td>81%</td>
<td>89%</td>
<td></td>
<td></td>
<td></td>
<td>6d-9%</td>
</tr>
<tr>
<td>APGAR (max 10)</td>
<td>7,3</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td>7d-36,3%</td>
</tr>
<tr>
<td>Body lengths (sm)</td>
<td>49,4</td>
<td>49,5</td>
<td>Body weight(g)</td>
<td>3.633</td>
<td>3.613</td>
<td>8d-27,2%</td>
</tr>
<tr>
<td>Would you like to have one more child?</td>
<td>Yes 41,6%</td>
<td>Yes 66,6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discharge</td>
<td></td>
<td></td>
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</tbody>
</table>

Conclusions. The results of researches have shown the efficiency of the authors prenatal complex for preparation for childbirth. This work will be interesting for every specialist in fitness industry, midwifes and students and could be of interest and practical importance.

**SELECTION OF CONCRETE ACTIONS IN ELITE WORLD FOIL FENCERS**

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**Key words:** elitefencing, tactics, technique, action.

**Introduction.** Selecting of concrete actions by fencers in terms of confrontation is determined by their ideas about the alleged intentions of the opponent, tactical knowledge of the expected nature of action and the level of mastery of the specialized skills to select, to differentiate, to switch, to anticipate. Participants of foil fights in oppose their intentions to each other as well as different spatial and temporal characteristics of the used actions. It is important to always compare the objective data on both opponents opportunities when conditions are taken into account, the situation of a particular event, the level of mental and motor qualities, competition experience, technical and tactical equipment.

**Objective.** Analysis of the action of the world strongest fencers in competitive bouts to assess the effectiveness of intentions implementation.

**Object of study.** Competitive activity of the world’s strongest foil fencers, estimated by the results of performance at the World Championships 2015 in Moscow.
Subject of study. Indicators of use of offensive technique in competitions of higher qualification foil fencers.

Hypothesis. It is expected that the analysis of the effectiveness of the actions in the strongest varieties of the world's fencers will allow to specify different levels of intentions implementation on the basis of tactical skills in the final bouts of the competition.

Results. Competitive activity of qualified foil fencers, expressed in the composition of variety of attacks, defense with attacks, counter-attacks, is modified by general provisions, specific to martial arts in the sport. The success of the fight for the initiative at the beginning of a bout, the possibility of effective application of attacks and reactions to attacks, is determined, above all, by adequate choice of intentions and accurate assessment of spatial and temporal characteristics of the applied action. The established differences in the volume and effectiveness of the actions in the eight strongest world foil fencers reveal the features of the model of conducting of the bout and assessing the correctness of the application of the chosen action.

Conclusion. The findings lead to the conclusion that the key to equipping the fencers is not only the expansion of the types of actions, but also the balance between concrete actions and counter actions, between offensive and defensive patterns of fight. And for athletes, focused on the highest achievements, individual correction is required with the focus on the universalization of the technical and tactical training so that an athlete could operate effectively in bouts with various opponents, with changes in competitive situations in the bouts.

SPECIAL ASPECTS OF HYDROKINESITHERAPY FOR PRIMARY SCHOOL CHILDREN WITH ADOLESCENT ERLACHER-BLOUNT DISEASE

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13.00.04 – «Theory and methods of physical education, sports training and adaptive physical education»

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Summary. Current research is devoted to the problem of scientific and methodological support of health and physical education in the section of medical gymnastics private methods - namely, physical exercises in water for children with Erlacher-Blount disease.

Key words: hydrokinesitherapy, child, Erlacher-Blount disease.

According to various statistical analyses of Ministry of Health of the Russian Federation the incidence and prevalence of musculoskeletal diseases are increasing among children. The incidence of diseases of the musculoskeletal systems has increased 2.5 times in the last 10 years.
The Erlacher-Blount disease holds the second place in the structure of the lower extremities stains after rachitic ones. Varus progressive deformation of a knee joint is one of the complicated pathologies of the musculoskeletal system in children and adolescents.

**Research objective** is to develop and reason contents of the hydrokinesitherapy program for primary school age children with teenage Blount’s disease.

**Anthropometric methods.**
2. The measurement of the shin circumference (the standard method of using measuring tape).
3. Somatoscopy of walking (limping, step length: healthy feet and injured legs).

**Pedagogical research methods.**
1. Pedagogical experiment (model of consecutive experiment)
2. The study of references.

**Mathematical statistics method.**

**Organization of the research.** The research was conducted on the basis of Health Centre «Medynskiy» of Moscow in three stages. The research included 10 participants with Blount’s disease of moderate form. 7 people (70%) had the left leg affected and 3 people-right-side defect (30%). All the children had basic swimming skills.

According to the theory and practice of medical physical training, the program includes 3 periods. Adaptation period lasted 5 weeks, corrective training – 15 weeks and stabilization period lasted 8 weeks. Each period was characterized by special goals, the selection of tools and modes for their implementation and load differentiation.

**Results.** Introduction of the developed program has led to reliable changes in most of the studied parameters.

Some of the girls remained partially limping. The tendency towards the elimination of asymmetry between the affected and healthy limb in terms of lower leg circumference was noted. Also, the reduced asymmetry between healthy and affected knee joint was registered.

**Conclusions.**

The application of the developed hydrokinetic therapy program will allow us to achieve a specific therapeutic effect, which is expressed in the data dynamics of applied research methods.

The achieving of reliable differences requires inclusion in the study a larger number of subjects and the elongation of application of the program up to six months with an indispensable adjustment to the physical load. This is the task of our ongoing research.
**Literature**


**PHYSICAL REHABILITATION OF OVERWEIGHT WOMEN**

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Russian State University of Physical Education, Sport, Youth and Tourism

**Introduction.** The problem of obesity is very important for Russia. According to the chief specialist nutritionist Ministry of Health of the Russian Federation Victor Tutelian, 25% of the citizens in our country suffers overweight. Five to seven years ago, this figure was 23%. Obesity is most common among Russian women. The urgency of the problem lies in the fact that the number of people who are overweight, are constantly increasing, which is likely due to changes in lifestyle (lack of exercise, refined high-calorie food). There is absolutely proven link between obesity and diseases such as coronary heart disease, hypertension, diabetes, cancers, gallstones, and some others.

**The aim.** The aim of this research is to improve the physical rehabilitation techniques for overweight people.

**The research objectives.**

1. To study the literary sources to get acquainted with the existing methods of physical rehabilitation at overweight.

2. To determine the level of physical fitness and functional status of middle-aged women (30-40 years), overweight, obesity varying degrees before and after the experiment.

3. To develop a comprehensive methodology for the physical rehabilitation of overweight women.

4. To prove the effectiveness of the proposed method by the experiment.

**Research methods.**

1. Analyze of scientific and methodical literature.

2. Anthropometric study.

   The most crucial features for this study were height, body weight, abdominal circumference, and hip, so these measurements were made. BMI (body mass index) was used to determine the excess fat deposition.

3. Medico-biological methods:
– functional tests (Harvard step test);
– tests to determine the strength endurance of abdominal muscles and the extensor muscles of the back.


**The experiment.** Experiment of scientific research includes new developed method of weight training for reducing fat component of the body. Series of strength exercises has been used. Training method consist of 3 periods, each of them has more intensity and less rest than previous. Also superset has been used in the second and third periods.

**Conclusions.** Measurements were carried out for the experimental and control groups as a result of anthropometric, medical and pedagogical examination: weight, BMI (body mass index), indices at Harvard step test, strength endurance of abdominal muscles and the extensor muscles of the back.

<table>
<thead>
<tr>
<th>Dynamics of weight loss (kg)</th>
<th>Initial weight</th>
<th>Weight after the experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>79,7±3,6</td>
<td>66,5±1,81</td>
</tr>
<tr>
<td>Control group</td>
<td>79,7±3,58</td>
<td>71,1±2,1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dynamic of BMI (kg / m²)</th>
<th>Initial BMI</th>
<th>BMI after the experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group, N=10</td>
<td>28,2±2,15</td>
<td>23±2,42</td>
</tr>
<tr>
<td>Control group, N=10</td>
<td>28,2±1,61</td>
<td>25±2,09</td>
</tr>
</tbody>
</table>

Reduce of body weight has experimentally proven, as shown by the weight and the BMI index. The most informative indicator is BMI. In the experimental group with BMI of 28.2 kg / m² decreased to 23 kg / m², with reference to the 28.2 kg / m² to 25 kg / m². Comparing the percentages achieved values, we can conclude that in the experimental group, there were more significant changes than in controls (18.4% in the experimental group, whereas 11.3% of the control that percentage). Based on these data it can be stated that the complex methodology we have developed, physical rehabilitation is more effective than traditional methods.

**Literature**
4. Белинский В. П. Избыточная масса тела, его жировой и мышечный компоненты в диагностике начальных степеней алиментарного ожирения у женщин //Терапевтический архив. – 2001. – т.69. №11. – с. 130 – 132.
EFFECT OF TRX EQUIPMENT USE ON MUSCLE ACTIVATION IN AN OVERWEIGHT AND OBESE POPULATION

Megan Garber, Kent Johnson, Ruth Henry, Karen Robichaud

Completed at Lipscomb University,
Masters of Science in Exercise & Nutrition Science Department

Abstract

Background and Purpose. This study aimed to examine the effects of the Total Resistance Exercise (TRX) suspension-training device on whole-body muscle activation through surface electromyography (sEMG) in an overweight and obese population.

Subjects. Qualifications for this study included being 21-50 years old and having a body mass index (BMI) between 25-40 categorizing them as overweight or obese. The mean age of participants was 36.73 ± 13.27 years. The average BMI was 31.27 ± 8.33. And average body fat was 35.25 ± 12.05%. Of the 15 subjects that participated in this study, 11 were female and four were males.

Methods. Every participant was exposed to two conditions: TRX instability training and non-TRX stability training. Participants selected randomly if they performed the TRX or non-TRX exercises first. Participants performed the following seven exercises with and without the TRX device: squat, reverse lunge, plank with arms elevated, plank with feet elevated, crunch with feet elevated, inverted row, push-up. Participants had 8 surface electrodes placed on their body to measure muscular activity while these exercises were being performed: biceps brachii, triceps brachii, upper rectus abdominis, lower rectus abdominis, external oblique, rectus femoris, biceps femoris, and lateral gastrocnemius. Participants were instructed to perform each exercise for five repetitions at the pace of 3 concentric phase, 1 isometric phase and 3 eccentric phase. For both plank exercises, participants got into position and said, “ready” when they hit proper form signaling the researcher to press the record button. These exercises were held for 10 seconds and stopped as soon as the 10 seconds were completed.

Results. A dependent t-test was run on the maximum point of contraction of each muscle for the exercises to determine if a level of significant existed between
the two experimental trials. In the lunge exercise, the biceps brachii activated greater when performing the exercise with TRX as opposed to without TRX (mean diff = 40.89 ± 67.91, p=0.0351, ES= 0.60). The biceps brachii also displayed a significantly greater muscle activation in the row exercise when using the TRX compared to the non-TRX (mean diff= 235.9 ± 251.1, p= 0.0008, ES= 1.10). The triceps brachii showed a significantly greater muscle activation using the TRX as opposed to the non-TRX in the plank with arms suspended, (mean diff= 66.46 ± 105.2, p= 0.0283, ES= 0.63); row (mean diff= 78.25 ± 103.6, p= 0.0111, ES= 0.76); and push-up exercise (mean diff= 111.9 ± 107.4, p= 0.0012, ES= 1.04).

Discussion and Conclusion. The TRX device was shown to only demonstrate a significant difference in the upper extremity muscles measured in five exercises. The TRX device may be a more effective piece of training equipment for the overweight and obese population in the upper extremities.

THE ANALYSIS OF THE DYNAMICS OF TECHNICAL PREPAREDNESS FOR 4 YEAR-OLD CHILDREN IN THE PROCESS OF PLAYING FOOTBALL

Gavrilov S., Master Student, Scientific adviser : Cheremisinov V., Candidate of Biological Sciences, Professor. Department of biochemistry and bioenergy of sport Russian State University of Physical Education, Sport, Youth and Tourism

Abstract. This article presents the dynamics of technical preparedness for children 4 years in the process of playing football. Discusses the success of mastering the basic techniques of football.

Keywords: football, technical preparedness, children 4 years of age.

Introduction. Today the important question is «early specialization» in youth sport. Many experts in the field of physical culture and sport wonder at what age we should give children in a particular sport. In football the stage of primary education starts from the age of 8 years. Now the trend start football training at an earlier age. This article presents the dynamics of technical preparedness for young players in the process of playing football. Discusses the success of the development children the basic techniques of football.

The aim of the study is to analyse the dynamics of technical preparedness of children 4 years in the process of playing football.

The object of research is the technical preparedness of children 4 years in the process of playing football.

The subject of research is the dynamics of technical preparedness of children 4 years in the process of playing football.

Research methods.
1) an analysis of the literature on the subject of the study;
2) pedagogical testing;
3) pedagogical experiment;
4) pedagogical observation;
5) methods of mathematical statistics.

**Methodology.** The experiment was conducted on the basis of kindergarten №3 in the city of Gus-Khrustalny between 1 September 2015 and 29 February 2016. The study involved 20 children aged 4 years. Before the start of the study, the subjects were tested, with which the recorded parameters for evaluation of the level of technical skill:

1) Time dribbling in a straight line 30 meters (seconds).
2) Time of the ball 10 meters around the 4 cones at a distance of 2 meters from each other.
3) Passing the ball from a distance of 3 meters (the number of hits in a cone of 5 attempts).
4) Shots on goal (length 1.2 meters, width 0.8 meters) from a distance of 5 meters (the number of hits on target from 5 attempts).

At the end of the experiment was repeated measurement of the indicators characterizing the level of technical readiness of children 4 years of age.

Comparing these mean group indicators assessing the level of technical readiness, obtained during testing before and at the end of the study.

For 6 months with the children 3 times a week, classes were held on the football using a variety of media are provided in table 1. Duration of one lesson is 60 minutes.

### Table 1
Preparation tool in the classroom for football

<table>
<thead>
<tr>
<th>Part of the class</th>
<th>Preparation tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparatory part</td>
<td>Build. Marching exercises.</td>
</tr>
<tr>
<td></td>
<td>Walking, running (various options and ways).</td>
</tr>
<tr>
<td></td>
<td>General developmental exercises (with and without object/ in place and in motion).</td>
</tr>
<tr>
<td></td>
<td>Outdoor games for attention with the subject and without. Relay. Exercises that develop motor and coordination abilities.</td>
</tr>
<tr>
<td>Main part</td>
<td>Learning motor skills and the simplest technique (stopping the ball with sole, keeping the ball inside of your foot, keeping the ball outside of your foot, kick the inside of your foot).</td>
</tr>
<tr>
<td></td>
<td>Playing soccer with simplified rules.</td>
</tr>
<tr>
<td>Final part</td>
<td>Stretching.</td>
</tr>
</tbody>
</table>

**The results of the research.** The initial results run the ball 30 meters in a straight line was 12, 6 seconds. At the end of the experiment results in dribbling has improved. The increase in results was 15.1 percent of the original result.

The result in the control of the ball is 10 meters with a 4 stroke of the cones to the start of the experiment amounted to 21.4 seconds. At the end of the study, the results improved. The growth results shown at the end of the experiment amounted to 24.8 percent.
The number of hits in a cone from a distance of 3 meters has increased from 0.4 to the start of the experiment to 1.3 times at the end of the study. The growth results in precision gear ball was 69.2 percent.

Similarly, the number of hits on target from a distance of 5 meters increased from 1.3 times up to the start of the study to 3.4 times at the end of the study. The growth results in precision strikes on target was 61.8 percent.

**The findings of the research.** The analysis of the dynamics of technical preparedness of children 4 years involved in football, showed that at this age children have successfully mastered the basic technical action of the player, as evidenced by the increase in results in all indicators that measure the level of technical readiness. Thus, it reasonable to start playing football, children from four years is not in doubt. Start playing football with the specified age provides improve their physical condition and technical skill, which is very important for modern football.

**Literature**

**APPLYING OF DIFFERENT TECHNOLOGIES IN ORDER TO ENTER THE FLOW CONDITION IN SPORT**

*Kabanov Dmitry*, Master Student,  
*Russian State University of Physical Education, Sports, Youth and Tourism*

**Key words:** flow, performance, condition, visualization.

The word flow defines a specific psycho-emotional condition, which appears in process of full involvement in completion of a real task or certain activity, working the maximum of its capabilities.

Mihaly Csikszentmihalyi is an American psychologist and an honored professor, who chairs the research center of life quality at Clermont University.

Flow experience appears when we do what we like, when body and mind fully tense till limit in inclination to achieve something really hard and significant (musicians - doing a lovely composition, child – building a high pyramid, athletes – participating in the Olympic Games) [1, 2, 3].

During an interview for Wired journal, Csikszentmihalyi describes flow in the following way:

*“Be fully involved in activity for itself, Time is flying. Each action, act, thought follows from previous, it’s like playing jazz. “Attention is so perfect, that I forget*
about time, about body, about surrounding, about other people. I realize nothing, except my hands” [4].

The author described required components for entering a flow condition, distinguishing the following:
- emotional attraction of task, activity;
- clear tasks;
- concentration;
- unambiguous and instant feedback;
- balance between task and skill level [1, 2, 3].

Explanation of challenge skill balance is shown on picture 1.

Picture 1. Challenge skill balance interpretation

This graphic means that if you have low level of task and high level of skills — you probably will feel boredom. Conversely, having high task level and low skill level — you probably feel anxiety. Flow condition in his turn can appear at intersection of these two high parameters.

Also Csikszentmihalyi indicated some leds of flow experience. He distinguishes the following:
- Emotional attraction of task, activity;
- Clear tasks;
- Concentration;
- Unambiguous and instant feedback;
- Balance between task and skill level [In foreign literature there are a lot of researches from different kinds of sport: tennis, basketball, surfing, football et setera.

Sarah Partington, Elizabeth Partington, Steve Olivier researched top world surfers and collected some interesting quotations and ideas:
1) flow experience overweigh everything even life;
2) social impairment was discussed (sample absence of time for upbringing children);
3) “I am ready to feel pain entering flow”;
4) many surfers noticed depression as a result of flow absence [7].
Stefan Koehn, Tony Morris, Anthony P. conducted a research to determine influence of imagery on increasing flow experience and performance of tennis players [8].

Each imagery session included the following: relaxation techniques, serve and groundstroke visualization. Performance was evaluated by fixing of quantity clear winning balls on serve, backhand or forehand.

It was also revealed that players, who won the last set had more flow experience. Seventy five percent of participants said that as a result of imagery they became better psychologically prepared and confident [8].

The result graphic is shown below. In picture 2 you can see the result of flow state scale before and after imagery and relaxation sessions of one athlete.

Picture 2. Flow score before and after imagery and relaxation influence in tennis

John Pates, Andy Cummings, Ian Maynard researched an influence of hypnosis on flow condition and 3-point shots performance in basketball. Method included relaxation and hypnosis impact. Each participant indicated that it helped them feel more confident, relaxed and calm. Researchers suggested that a hypnotic impact would increase performance of 3-point shots in basketball and increase intensity of flow experience.

One participant replied the following:

“Shots were easy, I couldn’t miss. The ball was flying where I wanted it to fly ... and it made me feel confident” [5].

The athlete also mentioned that he didn’t think about shots techniques implementation at all, had high level of concentration and his mind was completely free from extraneous thoughts.

Player 3 noticed that his mind was set aside and everything became automatic. He felt that the shot would hit the basket.

The results showed that all participants increased their average performance of 3 point shots execution and their flow experience level as well [5].
Example of flow score and performance before and after hypnosis influence in basketball are shown below (picture 3 and 4).

![Flow score before and after hypnosis influence in basketball](image)

Picture 3. Flow score before and after hypnosis influence in basketball

![Performance before and after hypnosis influence in basketball](image)

Picture 4. Performance before and after hypnosis influence in basketball

Matthew A. Pain, Chris Harwood, Rich Anderson researched an influence of imagery and music on flow state experience and performance was described. Participants said that during imagery intervention they were thinking about the result, and listening to music made them feel more relaxed. One athlete said after both imagery and music intervention he thought about nothing, but felt he could focus better.

Imagery and music influence on performance and flow condition in football (during warm-up) are shown on picture 5 and 6.

![Imagery and music influence on flow condition in football](image)

Picture 5. Imagery and music influence on flow condition in football
Also this research described that players often feel flow experience while being replaced [6].

**Literature**

CONTINENTAL SPORTS GAMES

Karaulova A.V,
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Smirnova E. Yu., Ph.D., associate professor
Velikie Luki State Academy of Physical Education and Sport.

Actuality. Nowadays there are sport Games, including separate continents, countries or states that speak the same language.

These competitions, in addition to the development of sports life, for the most part contribute to mitigate political controversy and express the desire to bring people together.

Today sports competitions are organized and held all over the world except of Australia.

Purpose of research is to study the organization of sports competitions in different continents.

Research tasks:
1. To study the history of the continental games.
2. To analyze the characteristics and dynamics of development of the continental sports competitions.
3. To identify the prospects of continental sports competitions development.

Methods:
1. Analysis of scientific-methodical literature.
2. Internet research.
3. Systemic and structural analysis.

The history of Asian games. The Asian games originated from small sports competitions – Far Eastern Games Championships, which were created to show unity and cooperation among the three countries: the Empire of Japan, Philippines and the Republic of China. The first games of this kind were held in 1913 in Manila. The games were interrupted in 1938 because of invasion of Japan in China.

Asian games are multi-sport competitions, which are held every four years among athletes from all Asian countries since 1951. Games are regulated under the International Olympic Committee. Olympic Council of Asia was founded in 1986. This Council oversees the games since the same year.

In 1994 OCA invited to take part in the games some of the former Soviet republics: Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan and Tajikistan in spite of opinions of some countries. In 2006 Australia was refused to join OCA. It is included in the National Olympic committees of Oceania and participates in the Pacific games since 2015.

The history of Pan-African games. The idea of Pan-African games appeared in 1920 and belonged Pierre de Coubertin, the founder of the modern Olympic Games. Unfortunately, this idea was not endorsed by colonizers of the African continent. They cautiously related to the sports of the aboriginal population of Africa. The first
games took place in July 1965 in Brazzaville (Congo). The second games, scheduled for 1969, did not take place because of a military revolution in the host country Mali, and were held only in 1973 after the end of military actions in the country. Third games were delayed for a year and took place only in 1978. The following games were held only in 1987 in Nairobi (Kenya) because of political instability. This was the last time when the games were postponed. In Cairo in 1991 there were the 5th games. Since that time the games are held regularly every four years. IOC recognized Pan-African games like a multisport event, along with other continental competitions such as Asian or Pan-American games.

The history of Commonwealth Games. A prototype of future Games appeared in 1911, when in honor of the coronation of king George V Games of the British Empire were organized. Competitions in boxing, wrestling, swimming and athletics were held, and dependent Canada, Australia and South Africa took part in them.

In 1928, Canadian sports reporter, M. Robinson offered to host the Games of the British Empire. The idea was supported, and the first competitions were held in Canadian Hamilton in 1930. These Games were held every four years between Olympiads, interrupted only during the Second World War. Only 6 teams were represented at all Games: England, Scotland, Wales, Canada, Australia and New Zealand.

The program of Commonwealth games has not a strict list of sports. Host country can include some sports which are very popular in its country, for example: cricket, bowling, squash, netball. In 2002 and 2006 the sports for disabled people were included in the program of the games. But games like Paralympic ones were not held. Over time many colonies and dominions became independent, and the Commonwealth of Nations was reformed, so the official name of the competition was changed.

The history of Pan-American games. During the 1st World War at the initiative of the IOC and the Olympic Committee of the Latin American in the New World began preparations for organizing transcontinental games. The direct organizers of the movement were also special advisers and instructors of the Christian Association of young people. The idea of the "Latin American games", covering all of Central and South America, has been performed only once in Rio de Janeiro (1922).

Attempt to organize these competitions with the aim to ease permanent tension and disagreements between the states of this region have not led to success.

In 1937 within the program of the Pan-American exhibition were held the first competitions. The program of the competitions was based on the swimming and track and field, where the advantage belonged to the athletes from the United States. Football was excluded from the program of games and it did not satisfy the Latin American delegations. Thus, the first initiative officially was not elevated to the rank of Pan-games.

Pan American games are the largest international complex competitions on the both the American continents. They are held since 1951 every 4 years for most kinds of sports included in the Olympic program.

All games except the first and tenth were won by the athletes from the USA.
The history of European games. The European games are regional international multi-sport events among athletes from the European continent, which are expected to be held every four years under the control of the European Olympic Committee.

The idea of the continental analogue of the Olympic Games was supported by the IOC in 2011, and in 2012 the right to host the Games was won by Azerbaijan.

The concept of Games is interesting because athletes whose disciplines haven’t been included into the number of the Olympic sports can participate in them. This opens additional opportunities for the development of the movement and participation of amateur and professional athletes.

Just now it is difficult to say what country will be the host one for the next games, because the Netherlands refused to organize the games in 2019.

**Conclusion.** Thus, we can say that the continental games have become an integral part of our life because we have not only a great experience, but also we have the preparations for the Olympic Games during these games.

Continental games are a great example of improving international relations and also relations within particular continent.

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**THE POSITIVE EFFECTS OF LEARNING A FOREIGN LANGUAGE**

Khodyreva I.K.,

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Learning a foreign language is a brave decision on the part of the learner. Learning a foreign language takes time, patience, skills, good study habits and dedication. Although the benefits of learning a foreign language can be immediately apparent -- increased communication and cognitive skills -- there can be a downside as well.

What happens in the brain when you learn a language? Learning a foreign language can increase the size of your brain. This is what Swedish scientists discovered when they used brain scans to monitor what happens when someone learns a second language. The study is part of a growing body of research using brain imaging technologies to better understand the cognitive benefits of language learning. Tools like magnetic resonance imaging (MRI) and electrophysiology, among others, can now tell us not only whether we need knee surgery or have irregularities with our heartbeat, but reveal what is happening in our brains when we hear, understand and produce second languages.

The Swedish MRI study showed that learning a foreign language has a visible effect on the brain. Young adult military recruits with a flair for languages learned Arabic, Russian or Dari intensively, while a control group of medical and cognitive science students also studied hard, but not at languages. MRI scans showed specific parts of the brains of the language students developed in size whereas the brain structures of the control group remained unchanged. Equally interesting was that learners whose brains grew in the hippocampus and areas of the cerebral cortex...
related to language learning had better language skills than other learners for whom the motor region of the cerebral cortex developed more. In other words, the areas of the brain that grew were linked to how easy the learners found languages, and brain development varied according to performance. As the researchers noted, while it is not completely clear what changes after three months of intensive language study mean for the long term, brain growth sounds promising. Looking at functional MRI brain scans can also tell us what parts of the brain are active during a specific learning task. For example, we can see why adult native speakers of a language like Japanese cannot easily hear the difference between the English “r” and “l” sounds (making it difficult for them to distinguish “river” and “liver” for example). Unlike English, Japanese does not distinguish between “r” and “l” as distinct sounds. Instead, a single sound unit (known as a phoneme) represents both sounds.

When presented with English words containing either of these sounds, brain imaging studies show that only a single region of a Japanese speaker’s brain is activated, whereas in English speakers, two different areas of activation show up, one for each unique sound.

For Japanese speakers, learning to hear and produce the differences between the two phonemes in English requires a rewiring of certain elements of the brain’s circuitry. What can be done? How can we learn these distinctions?

Early language studies based on brain research have shown that Japanese speakers can learn to hear and produce the difference in “r” and “l” by using a software program that greatly exaggerates the aspects of each sound that make it different from the other. When the sounds were modified and extended by the software, participants were more easily able to hear the difference between the sounds. In one study, after only three 20-minute sessions (just a single hour’s worth), the volunteers learned to successfully distinguish the sounds, even when the sounds were presented as part of normal speech.

This sort of research might eventually lead to advances in the use of technology for second-language learning. For example, using ultrasound machines like the ones used to show expectant parents the features and movements of their babies in the womb, researchers in articulatory phonetics have been able to explain to language learners how to make sounds by showing them visual images of how their tongue, lips, and jaw should move with their airstream mechanisms and the rise and fall of the soft palate to make these sounds.

Ian Wilson, a researcher working in Japan, has produced some early reports of studies of these technologies that are encouraging. Of course, researchers aren’t suggesting that ultrasound equipment be included as part of regular language learning classrooms, but savvy software engineers are beginning to come up with ways to capitalise on this new knowledge by incorporating imaging into cutting edge language learning apps.

Kara Morgan-Short, a professor at the University of Illinois at Chicago, uses electrophysiology to examine the inner workings of the brain. She and her colleagues taught second-language learners to speak an artificial language – a miniature
language constructed by linguists to test claims about language learnability in a controlled way.

In their experiment, one group of volunteers learned through explanations of the rules of the language, while a second group learned by being immersed in the language, similar to how we all learn our native languages. While all of their participants learned, it was the immersed learners whose brain processes were most like those of native speakers. Interestingly, up to six months later, when they could not have received any more exposure to the language at home because the language was artificial, these learners still performed well on tests, and their brain processes had become even more native-like.

In a follow-up study, Morgan-Short and her colleagues showed that the learners who demonstrated particular talents at picking up sequences and patterns learned grammar particularly well through immersion. Morgan-Short said: “This brain-based research tells us not only that some adults can learn through immersion, like children, but might enable us to match individual adult learners with the optimal learning contexts for them.”

Brain imaging research may eventually help us tailor language learning methods to our cognitive abilities, telling us whether we learn best from formal instruction that highlights rules, immersing ourselves in the sounds of a language, or perhaps one followed by the other.

However we learn, this recent brain-based research provides good news. We know that people who speak more than one language fluently have better memories and are more cognitively creative and mentally flexible than monolinguals. Canadian studies suggest that Alzheimer’s disease and the onset of dementia are diagnosed later for bilinguals than for monolinguals, meaning that knowing a second language can help us to stay cognitively healthy well into our later years.

Even more encouraging is that bilingual benefits still hold for those of us who do not learn our second languages as children. Edinburgh University researchers point out that “millions of people across the world acquire their second language later in life: in school, university, or work, or through migration or marriage.” Their results, with 853 participants, clearly show that knowing another language is advantageous, regardless of when you learn it.

**Literature**
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INCREASING OF FUNCTIONAL ABILITY OF THE HIGH QUALIFIED SAILORS

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Department of Theory and methodic of rowing, kayaking and sailing.
Russian State University of Physical Education, Sport, Youth and Tourism

Key words. Sailing, sailors, «Finn» class, “Laser» class, «RS-X» class, endurance, interval training, lactate training.

Summary: A new method of increasing endurance ability of the high qualified sailors was created. The effectiveness of this method has been proven in pedagogical experiment with sailors.

Relevance. During last 15-20 years Olympic sailing became much more athletic. With new materials as a carbon fiber, Kevlar, dyneema and others yachts became much stiffer. So, steering technic have changed, free pumping style was born. Speed of the boats became faster. Movements of the sailors became faster. So, sailors became faster, stronger, hardier.

But still. Olympic sailors working at least 6-8 hours a day, including usually 3 1,5 hours races. So endurance ability is limiting factor of sailor success.

Aerobic fitness is key to reducing the physiological strain on the human body when racing, improving recovery from short, intense bursts of activity and helping to reduce mental fatigue.

Part of aerobic training is also your ability to work at a high intensity for long periods of time. When it's windy some of Olympic sailors work at a constant 80-90% maximum heart rate (maxHR) with heart rate peaking at 95%maxHR in some races. The only way they get used to working this hard is to replicate racing conditions on the land in the form of interval / lactate training. Now in Russia it is redefining ideas of training athletes.

Target. To confirm the effectiveness of the methodic of interval training in the context of different class sailors.

Research methods:
1. The evaluation method indicators of physical readiness.
2. Pedagogical experiment.
4. Experimental work analysis.

Research organization. During the National Sailing Team training camp, we asked 20 high qualified sailors to take part in our research. There were 5 RS:X sailors, 8 Finn sailors and 7 Laser sailors. All the guys were 18 to 24 years old. Experimental group consist of 4 Finn sailors, 3 RS:X sailors and 3 Laser sailors. Other guys were in control group.

Just before the start of the training, after 4 weeks and after 8 weeks of training they all have complete 3 different fitness tests, to get the data about physical ability of the athletes.
Methodic. In experimental group athletes trained 6 days a week. On the first stage (first 4 weeks) sailors did 3 less intensive interval trainings a week. In theory – to increase base aerobic ability. On the 2-nd stage (5-8 weeks) for first 2 weeks sailors increased the intensity of interval trainings, and 1 week they had 3 pretty hard high intensity trainings, consist of 6x4 min maximum accelerations with just 4 min active rest between. Last week was easy to recover for the final test.

Control group also trained 6 days a week, but they didn’t use interval training.

Control tests. For control testing we used 3 different tests on the Concept 2 rowing machine:
1) 40 second maximum power on Concept 2 Rowing machine;
2) 4-min O’Neil test on Concept 2 Rowing machine;
3) 4000 m test on Concept 2 rowing machine.

We decided to use this machine because everybody of athletes in our research using it during their training campaign.

<table>
<thead>
<tr>
<th>Спортсмен и класс яхт</th>
<th>Группа</th>
<th>Результат в тесте 40 секунд (Ватт)</th>
<th>Результат в тесте O’Neil (м)</th>
<th>Результат в teste 4000 м</th>
</tr>
</thead>
<tbody>
<tr>
<td>Финн 1</td>
<td>Эксп.</td>
<td>564</td>
<td>1185</td>
<td>14:01:00</td>
</tr>
<tr>
<td>Финн 2</td>
<td>Эксп.</td>
<td>570</td>
<td>1174</td>
<td>13:59:00</td>
</tr>
<tr>
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<td>1210</td>
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<td>Эксп.</td>
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<td>1186</td>
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<tr>
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<td>14:32:00</td>
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<td>505</td>
<td>1101</td>
<td>14:29:00</td>
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<td>Ср. знач Laser</td>
<td>Контр.</td>
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<td>1121,5</td>
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<td>Ср. знач</td>
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<td>484,138888888889 11152,322777777778</td>
<td>14:38:141,67</td>
<td></td>
</tr>
</tbody>
</table>

Results of experiment. Here you can see pretesting results of the groups. There was less than 0,1% average difference in results between the control and experimental group in all exercises. So, the difference between the groups was not validated.

2-nd testing after 4 weeks of training. Both groups get better results in control tests. Experimental group was already bit better, but still difference between the groups was not validated by 5% significance.
Results from the final testing of the groups after 8 weeks of training. All the athletes had better results after 8 weeks of training, which is naturally because it was just few weeks before the racing season starts.

Control group increased their results in control test by 0.6% in power test, 2.3% in speed endurance test and 1.4% in 4000 m endurance test.

Experimental group increased their results by 11%, 4.5% and 3% respectively.

Summary. After our research we can say that’s interval/lactate training method is good solution to improve Olympics sailors functional ability. Before sailors will
start high intensive training they should prepare their body and cardiorespiratory system. It’s also pretty important to have a regular medical control to avoid possible injuries and overwork.

**Literature**

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**AGRESSION AS AN ELEMENT OF OPTIMAL FIGHTING CONDITION**

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**Introduction.** The aim of the research is to develop Express-method of assessment aggression in sport and to identify its optimal level.

Aggression – behavior aimed at causing physical or psychological harm.

Aggression in sport is one of the significant factors of sporting activity and its optimum level plays a positive role in achieving the highest results in sport.

A number of authors, such as Crete, Martens, Moles, Messner, Sabo, Baron, Richardson, Lorenz analyzed the relationship between sport and aggression.

Aggression in boxing is a necessary condition for achievement of high sports results.

A psychological preparation for tournament competition becomes very important for boxers. Psychological preparation of athlete directs his consciousness and actions on the solution of training and competitive tasks. The outcome of the psychological preparation of a boxer should be a state of mental readiness.

As a result of psychological training the psyche of the boxers adapt to competitive conditions and possible difficulties. In this aspect is very important optimal fighting condition as the stable condition of the body of a boxer when an athlete is able to show the maximum result corresponding to the best degree of readiness in this training period.
In the optimal fighting condition there are three particular components:

– physical – a set of physical sensations in the body (strength, flexibility, ease, relaxation, deep breathing etc.);

– emotional – optimal level of emotional arousal and proper direction of emotions and feelings (calmness, apathy, joy, enthusiasm, anger, excitement, anxiety, aggression, etc) of the sympathetic nervous system. An experienced fighter should know his ‘combat pulse’, its benchmarks and to be able to control it. Optimal level of emotional arousal is considered to be the core of the optimal fighting condition. However, you must remember that all athletes are different and it depends on many factors, primarily, the characteristics of the individual;

– cognitive – the exact program of action in the context of specific competitive situations, full concentration on the execution of a specific competitive challenges, maximize effort during activities. Cognitive component is fundamentally important because the lack of a clear plan or programme can cause unnecessary anxiety, prevent to concentrate on the important task. For example, a fuzzy plan of battle can cause a fuss, hasty choice of tactical options.

On the basis of theoretical analysis of the essence of aggression and aggressiveness it was revealed that the condition factor of situational aggression, and situational components of aggressiveness associated with the practice of martial arts, has received inadequate attention from the point of view of its control and correction in the process of training them. Aggressiveness must be present in the sports activity, but it should not impair the ability of the subject to the psychic self-regulation, rational assessment of the situation of sports rivalries.

Methods, results and discussion. The problem of aggression and aggressiveness in sport-competitive activity includes a quantitative evaluation, the relationship with other mental states and psychological characteristics and methodological approach to the control and management of state of aggression.

To address the problem of quantitative assessment of aggression and aggressiveness, we developed a scale of situational accentuation of aggression and the actual state of aggression (table 1).

<table>
<thead>
<tr>
<th>The accentuation of aggression</th>
<th>No, it is not so</th>
<th>Perhaps so</th>
<th>Right</th>
<th>Absolutely right</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I bet before last</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I'm not easily angered.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I don't settle for less, I want the most.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. When I am angry I keep bad.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I prefer better to obey than to lead.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I have harsh, rough gestures.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I don't want to take revenge</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>The state of aggression</td>
<td>No, it is not so</td>
<td>Perhaps so</td>
<td>Right</td>
<td>Absolutely right</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------</td>
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<td>-------</td>
<td>------------------</td>
</tr>
<tr>
<td>1. I am calm.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I feel annoyed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I don’t feel anger.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I am pissed off.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. feel that I want to bangfist or throw something</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I feel that I want to hit somebody.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

After the completing these scales by boxers it was identified the optimal level of the current status of aggression and aggressiveness, in which the number of won fights was the greatest. For the scale of the accentuation of aggressiveness the period is from 20 to 24 points, for the scale of state of aggression – 8 – 10 points.

**Conclusions.** The current status of aggression as a defining factor of the effectiveness of sport-competitive activity of boxers, interrelated with other elements of the mental state and psychological features of personality.

The impact of sporting activity of boxers with different levels of aggression depends on another psychic states.

Through correction of certain characteristics of mental states and mental properties, and as a result the level of aggression is formed optimal fighting condition of the boxer. The aggression of the athlete can be monitored and adjusted by psychological means.

**Literature**
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**GENESIS AND DEVELOPMENT OF THE REGIONAL GAMES IN THE INTERNATIONAL SPORTS AND OLYMPIC MOVEMENT**

KokharoVa A. M.

Scientific Adviser: Melnikova N. Yu., PhD, professor

Department of History of Physical Education, Sports and Olympic Education

Russian State University of Physical Education, Sport, Youth and Tourism

**Introduction.** The Development of the International Sports movements along with the Olympics and the various world championships greatly contributed to the organization of the Regional Games, which represent the diverse interests of the
people of the world, the emergence of regional sports movements defined by the economic, geographical, linguistic, ideological and religious grounds. These games are difficult to attribute to any single system, however, they have obvious similarities since they are held under the patronage of the IOC and in accordance with its basic principles and rules. Thus, the Regional Games are a relevant part of the international Olympic movement.

In this study, we investigated the Asian, Pan-American, All-African, Mediterranean and European Games.

The purpose of our study is a comprehensive historical analysis of the genesis and development of the regional games.

Research objectives:
1. To study the predictors of Regional Games.
2. To analyze the key indicators (number of participants, the number of countries, the number of sports, disciplines and events) of the Regional Games.
3. The research the main features of the Regional Games development.

Discussion and results. The main prerequisites for the emergence of regional Olympic Movement are obtaining sovereignty for the vast majority of countries in the developing regions of the world; social, economic, political and cultural transformations in the countries of the studied regions; the creation of the state and public authorities responsible for the development of physical education and sport (in particular the Olympic and non-Olympic sports federations); formation of the national systems of physical education and sport; the development of competitions in various sports in these regions; the development of international relations in the field of physical education and sport; the creation of the National Olympic Committees recognized by the International Olympic Committee; the increase in the number of participating countries and athletes of the said regions in the Games of the Olympiad. The predecessors of the modern Regional Games were the Far Eastern Games (1913-1931), the Games of the Central America and the Caribbean (1926-1938), the Bolivarian Games (1937), the Balkan Games (1921).

Investigation of the main indicators of the Regional Games allows us to discover a stable and positive dynamic of the number of participating countries, number of the countries that won medals in various events, indicating steady growth in popularity of all the Regional Games. The stable growth of the Regional Games popularity leads to the similar trend in the growth rate of the number of participants, as well as the number of sports and events.

We can determine the leading nations of the Asian Games, which are Japan, China and Republic Korea. The leaders of the Pan American Games are the United States, Cuba and Canada. All-African Games show the sports dominance of Nigeria, Egypt, South Africa. And finally at the Mediterranean Games the highest numbers of medals are won by Italy, France and Turkey.

The sports program of the Asian Games includes not only the Olympic sports but also the non-Olympic sports such as: baseball, billiards, bodybuilding; bowling, golf, kabaddi, karate, cricket, rugby, sambo, Sepak Takraw, squash, softball, soft tennis, sports dance, martial arts, hockey, chess. The Pan American Games program
includes the following non-Olympic sports: baseball, bowling, Brazilian Jiu-Jitsu, water-skiing, karate, racquetball, rugby, roller sports, squash, softball. All-African Games program represents the following non-Olympic sports: baseball, karate, kickboxing, softball, squash, chess. Mediterranean Games sports program also includes certain non-Olympic sports: bowling, golf, karate. The sports program of the recent European Games included the following non-Olympic sports: acrobatics, aerobics, basketball 3x3, karate, beach football, sambo.

**Literature**


PECULARITIES OF GENERAL AND SPECIAL PHYSICAL TENNIS TRAINING

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**Key words**: physical training, general physical training, special physical training, physical qualities, physical abilities, strength.

**Topicality.** Modern tennis is characterized by universalization of the game, requiring the comprehensive technical training. In turn, successful execution of technical elements depends on the physical preparedness of the athlete. It follows that physical training is an important aspect in a preparation of tennis players.

Methodological literature emphasize requirements and recommendations for physical training of tennis players, particularly the strength training.

It can be assumed that intensification of strength training of skilled tennis players can play a leading role in enhancing the impact of sport activity.

**Purpose.** To show the dependence of the results of the sport activity of skilled tennis players from their physical abilities.

**Methods:**
1) theoretical analysis and generalization of scientific and methodical literature;
2) pedagogical observation of training and competition activity of skilled tennis players;

Introduction. The average length of individual points in tennis is approximately equal 8-15 seconds. The total duration of the match varies within wide limits, 2-5 hours. So, the game of tennis is a long intermittent physical workload of variable intensity.

Main part. Tennis becomes an athletic sport. It continues to significantly expand and strengthen the technic dependence of the level of physical qualities, especially of strength. Increasing amount of attack situations in the game demand the high level physical preparation.

Physical training aimed at improving functional skills, health improvement. In the physical training of a tennis player general and special physical training are combined.

General physical preparation of the athlete involves a versatile training of his/her physical qualities by nonspecific exercises. This training creates the fundamental base of physical qualities.

Special physical preparation of an athlete is a physical training of physical qualities and abilities by specific exercises. This part of training is highly recommended for skilled players. It is aimed at the maximum development of exactly needed physical qualities, abilities, skills.

![Pic. 1. The dependence of the results of the sport activity of skilled tennis players from their physical abilities](image)

On picture 1 we can see which abilities are most important for skilled tennis players. We can also say that one the most important ability is strength because strength is a basis precondition of power, stamina.

Expected results. General and special physical training are inexricably connected. General physical preparation should begin at an early age and have the
focus on the chosen specialization. Special physical education needs to allocate physical abilities required for the chosen kind of sport.

**Literature**

**VOCATIONAL COMMUNICATIVE COMPETENCE OF SPORT UNIVERSITY’ STUDENTS**

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There have been some attempts made in recent years in the methodical research to link the learning of foreign languages with the emergence of a professional, to identify pedagogical foundations of forming foreign vocational communicative competence in higher educational establishment. The authors argue that the process of forming a professionally oriented non lingual communicative competence of the university students will be carried out successfully, if it is identified the means of, and conditions for intensification of self-directed learning activities of students; it is theoretically modeled and practically implemented the conditions of students communicative competence formation and complex of communicative problem tasks in the learning process.

To clarify the requirements for modern PE specialists in foreign language proficiency, a survey and questionnaires were conducted. We have tried to identify the most common situations of intercultural professional communication and communicative tasks that PE professionals have to deal with, as well as the difficulties that they face in the process of communication with foreign colleagues.

According to our study 90% of the respondents indicated the need and the use of foreign language. Among them: 75% use foreign language during competitions, 60%-while searching for information in the Internet, 38% use the language in their personal contacts, 30% are involved in international scientific conferences. The hardest thing for the respondents turned out to be listening to and speaking foreign
language (almost the same percentage for listening and speaking skills), the easiest was reading.

In most cases, the most common situations for specialists to enjoy foreign language for oral communication remain the international competition and professional scientific conference. High rank competitions, such as Olympic Games, World Championships, etc., can be considered as the accumulation of intercultural situations for implementation of professional communication. Although high-level competition is the traditional form of communication for specialists in the sphere of physical education and sport, the nature of such communication in modern conditions has undergone a significant transformation.

Special features of foreign language communication in major international competitions include:

– a combination of oral scientific and professional speech as varieties of business communication including some ordinary conversation (emotion and imagery);

– written language (terminological and impersonal);

– a realization of professional oral speech in different genres, such as: business talk, negotiations, presentations, meetings, etc. It has been noticed that such form as presentation tends to be a monologue, business conversation as a dialogue, and meeting uses polilogu form;

– a need for speech specialty, which includes conventional vocabulary, reading, writing and grammar for oral communication.

Such event as organization and conduction of major international competitions involve professionals who belong to various linguistic and cultural communities but at the same time they are included in a common professional community with general conceptual apparatus and general thesaurus. The commonality of vocational and cultural development can be seen as a platform for effective entry into "interculture" or "third culture" area. Preparation and holding of major international competitions can be considered in the context of modeling different scenarios of written and oral professional communication and, therefore, as a way of implementing a context approach in professionally oriented foreign languages learning.

Literature


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**COMPARISON OF AN INDEX OF FUNCTIONAL CHANGES AND SPORTS PRODUCTIVITY OF OARSMEN OF HIGH QUALIFICATION**

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*Uzbek state institute of physical culture*

**Introduction.** In Uzbekistan special attention to support and development of all kinds of sports, including rowing is paid.

The regular studies by rowing promote development of force, general and high-speed endurance. One of necessary conditions of achievement of high results in rowing is the presence of the complex information about the sportsman, which renders considerable influence on the decision of tasks of sports training. The information on a functional condition of organism of the sportsman is necessary for an estimation of a condition of his health, revealing of features of activity organism, and also for definition of a level training [2].

Significant intensification of training process entails increase of the requirements to all bodies and systems of organism of the sportsmen, thus the special place belongs to the cardio respiratory system directly ensuring sports working capacity [3].

The problems of functional preparation of the sportsmen were by a subject of researches of a wide circle of the experts, however researches of dependence of a functional condition of the sportsmen’ cardio respiratory system and results of performances on competitions have not found the due reflection in the literature.

In this connection the purpose of research was realization of the analysis of sports productivity oarsmen in view of a functional condition of organism of the sportsmen.

**Methods and organization of research.** In research the following methods were applied: the analysis of the scientific-methodical literature, functional tastings and mathematical statistics. The pedagogical experiment carried comparative character. In a course of research were measured morph-functional parameters: the growth and weight of a body, pulsometriya, tonometriya, paid off an index of functional changes (IFC) by R.Baevskiy [1]. In research have taken part 20 sportsmen of high qualification.

**Results of research and their discussion.** The measurements of morph-functional parameters have shown, that some sportsmen differ by stability of functioning of cardio respiratory system (parameters adaptations of potential are at a level of satisfactory adaptation or pressure of mechanisms of adaptation), the separate sportsmen were distinguished by a constancy of parameters at a level of unsatisfactory adaptation, or failure of adaptation.

The analysis of a ratio IFC and results of performances on competitions has shown, that at the greater meaning IFC the actual sports result did not correspond expected, and, on the contrary, at smaller meaning IFC the actual sports result corresponds to predict.
Thus, abundantly clearly, that for the sportsmen having an identical level of development of physical qualities and general working capacity, but adaptation, having various types, to loading, the individually picked up program of construction of study-training process and planning of loadings is necessary with the purpose of maintenance of a due level of health and preservation of favorable dynamics of sports capacity.

Literature

ORGANIZATIONAL ASPECTS OF THE ATHLETIC TRAINING
OF HIGH-PERFORMANCE ARCHERS

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Abstract. Modern conditions of managing the training and competitive process in the sphere of high-performance sport are based on:
1) individualization of the training process;
2) providing significant feedback and informative indicators of different types of training (6.7.).

In this regard, the content of the form of a high-performance athlete’s individual training plan, requires modernization in accordance with the latest science data in the sphere of sports. This form is a compulsory document of assessing and controlling the individual training and competitive process. Creation of such a plan is based on the theory and principles of specific targeting programming, one of the types of management, based on the orientation of requisite planning focusing on the set objectives accomplishment [1].

Research objective. Implementation of an individual approach in the training of high-performance archers by updating the contents of the ITP (individual training plan) in the annual cycle.

Organization and methods of research. Analytical research (analysis, systematization and generalization of scientific data from literature domains concerning the investigated issues, survey of leading experts in the field of archery) have allowed us to establish the opinion that for the coach is obligatory the obtainment of testing data for a specific athlete and accordingly the creation of an
individual training plan that is equivalent to the personal characteristics of that specific athlete.

The method of pedagogical modeling has been used for an analytical design pertaining the project of the ITP and were formulated guidelines aimed at the individualization of the athletic training.

**Discussion of results.** The original form of the plan was introduced in the order approving the development and submission of all Russian sport federations in the Ministry of Sport, Tourism and Youth Policy Development Program of respective sports (order from 08 of June 2009 г. № 369) and we respectively composed the sections 2.1 “Performance results on main and major events (Indicators of technical prowess)” where our addition of the indicators of technical prowess is the primary accumulation of material to create individual training programs (table #1) and section 2.2 “Overall results on the realization of the training plans of last year’s season” (ITP) according to the form from the order of the Ministry of Sports. In this section (table #2), are presented tests, of which indicators are significant and informative for athletes-archers. Furthermore according to the section are presented examples of the means, methods and exercises, aimed at eliminating, correcting or developing the different performance skills. The data presented in section 2.2 (table #2) were the basis for amended proposals of the next part of the section 2.2 (table #3) “Recommended distribution of tests in periods according to the annual training preparation cycle" for planning the strategies for and the defining the tasks for the upcoming season.

Table 1

Performance results on main and major events (Indicators of technical prowess)

<table>
<thead>
<tr>
<th>№</th>
<th>Competition name</th>
<th>Date of the competition</th>
<th>Place of the competition</th>
<th>Discipline</th>
<th>Age category</th>
<th>Setoff (personal or team)</th>
<th>Place acquired</th>
<th>Technica l result</th>
<th>«Indicator of technical prowess&quot; before and &quot;after” Official starts</th>
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<td>Plan.</td>
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<td>Overall world ranking</td>
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<td></td>
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</tbody>
</table>
## Table 2

### Overall results on the realization of the training plans of last year’s season

<table>
<thead>
<tr>
<th>Training skills</th>
<th>Significant and informative parameters</th>
<th>Means, methods and exercise to address shortcomings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized endurance</td>
<td>“Module of athletic training in the corresponding sport”</td>
<td>1. Holding a loaded bow in “setup position” (min. 45 sec.) 2. Loading and reloading the bow to anchor position and back (min. 24 times, until failure)</td>
</tr>
<tr>
<td>Technical skill</td>
<td>Controlled shooting (Indicators of technical prowess)</td>
<td>1. Rhythmical training 2. Personal equipment tuning</td>
</tr>
<tr>
<td>Tactical skill</td>
<td>Controlled shooting (Indicators of technical prowess)</td>
<td>Target shooting in artificial limit of time</td>
</tr>
</tbody>
</table>

## Table 3

### Recommended distribution of tests in periods according to the annual training preparation cycle

<table>
<thead>
<tr>
<th>Tests</th>
<th>General preparation period</th>
<th>Specialized preparation period</th>
<th>Pre-competition period</th>
<th>Competition period</th>
<th>Transitional period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(personal diary of the athlete)</td>
<td>4. Personal control (personal diary of the athlete)</td>
<td>4. Psychological tests</td>
<td>4. Personal equipment tuning</td>
<td>4. 16PF Questionnaire RB Cattell.</td>
</tr>
</tbody>
</table>
Conclusions. The prospect of our study lies in the preparation of the type of test in each of the periods of the athletic training and the use of a specific form of the individualization of each high-performance athlete

1. Update of the contents of the section “Overall results on the realization of the training plans of last year’s season” was carried out by the introduction of significant tests concerning archery that were studied by analyzing scientific and methodical literature.

2. The main organizational approach is the inclusion in the ITP the section “Overall results on the realization of the training plans of last year’s season”, specifically for athletes-archers along with adjustments to other sections of the ITP.

3. Recommendations were presented as follows: update of the content form of the ITP with significant and informative tests, implementing an individual approach in the system of the athletic training of high-performance athlete-archers.

Literature


POSTURAL FUNCTION OF THE DIAPHRAGM

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Russian State University of Physical Education, Sport, Youth and Tourism

Keywords: diaphragm, chronic pain, low back pain (LBP), breathing.

Introduction. The diaphragm is a thin muscle, built from striated muscle tissue. The shape of this muscle resembles the wrong dome. The apex is turned upwards, towards the chest cavity. The diaphragm is located between the thoracic and abdominal cavities. There are three parts: sternal, costal and lumbar.

The sternal part (the weakest) starts from the xiphoid process; the costal part, from the inner surface of cartilages of lower six ribs; the lumbar part from the spine and arcuate ligaments. This part consists of two cruses – left and right.

The arcuate ligament covers the upper portion of the muscles: medial ligament - psoas major (part of iliopsoas muscle) and the lateral - square muscle of the lower back.

The main diaphragm function is respiratory. The diaphragm participates in the act of respiration, contributing to the implementation of maximum inhalation and exhalation.

The abdominal and thoracic cavities, where the diaphragm is located, are involved in stabilization and postural control of the trunk. (Grillner, Nilsson & Thorstensson, 1978; Cresswell, Oddsson & Thorstensson, 1994).

Despite earlier findings of the integration of respiratory and stabilizing functions of other respiratory muscles (Stabilization of the thorax by the intercostal muscles movement Rimmer, Ford, & Whitelaw, 1995; contraction of the abdominal muscles contributes to the stability of the spine before and during limb movements (Hodges, Gandevia & Richardson, 1997), the participation of the diaphragm in postural control of the trunk was denied until 1997.

Objective: to summarize data of diaphragm postural function.

Materials and methods: the analysis of literary sources for the study of nonrespiratory function of the diaphragm, its postural task and dysfunction of the diaphragm in persons with LBP.


The response of the diaphragm to the postural perturbation produced by rapid flexion of the shoulder to a visual stimulus was evaluated in standing subjects. In the main beginning study, electromyographic activity (EMG) of the diaphragm was recorded by intramuscular electrodes in 5 subjects, activity of the transverse abdominal muscles in the two subjects.

As a result of this study the following results were obtained: 1. In response to a rapid flexion of the shoulder to a visual stimulus, EMG activity in the costal part and the area of the cruses of the diaphragm appeared. The EMG signal
was received during 20 MS before EMG signal of the deltoid muscle. This rapid contraction has occurred regardless of the phase of respiration, in which the movement of the hands was begun. The time of the EMG signal of the diaphragm coincides with the EMG signal of the transverse abdominal muscles.

2. Transdiaphragmal and intragastric pressures increased in response to the speed flexion of the shoulder to 13.8 +/- 1.9 and 13.5 +/- 1.8 cm H2O, respectively. An increase occurred at 49 +/- 4 ms H2O after receipt of the EMG signal of the diaphragm, but preceded the beginning of the movement of the limb at 63 +/- 7 ms.

3. Ultrasonographic measurements revealed that the costal portion of the diaphragm was shortened and then lengthened progressively with increasing of the transdiaphragmatic pressure.

The results of this study indicate that the contraction of the diaphragm contributes to increased intra-abdominal pressure before the movement of the upper limbs. The contraction does not depend on the phase of respiration. This provided the first direct evidence that the diaphragm may contribute to postural control of the human spine in addition to their respiratory function. The results show that this preparatory contraction of the diaphragm is associated with the initial contraction of its muscle fibres and occurs simultaneously with activation of the transverse abdominal muscles.

The first study of respiratory and postural functions of the diaphragm in people suffering from chronic pain of the lumbosacral spine was conducted in 2012 by a group of Czech scientists, Pavel Kolář, PaedDr, PhD, Jan Šulc, MD, PhD, Martin Kynčl, MD, Jan Šanda, Ing, Ondřej Čakrt, MSc, Ross Andel, PhD, Kathryn Kumagai, DPT, Alena Kobesová, MD, PhD. They conducted a comparative study of the postural function of the diaphragm in healthy subjects and persons suffering from chronic pain in the lower back during tidal breathing and postural load.

18 patients with chronic back pain caused by muscular overload and 29 healthy subjects were examined using magnetic resonance imaging.

Diaphragm activity was evaluated under the following conditions:
1) tidal Breathing;
2) isometric Flexion of Upper Extremity (UE);
3) isometric Flexion of Lower Extremity (LE).

Multivariate analysis of the excursions of the diaphragm showed significant differences between subjects of different groups during isometric flexion of upper and lower limbs, with significantly lower excursion of the diaphragm in the patient group compared with the control group in both conditions. During flexion of the upper limbs, significant differences were indicated at the costal part, while the differences in the sternal and lumbar parts were insignificant.

In 2013 Pavel Vostatek, Daniel Novák, Tomas Rychnovský and Šarka Rychnovská conducted a similar study.

The movement of the diaphragm was controlled in two different situations:
S1 - subjects lie supine on their backs during tidal breathing.
S2 - subjects lie supine on their backs during tidal breathing while loading is applied to the distal part of their extended lower extremities against the flexion of the hips.
The results of these studies showed a significant difference of range of motion of the diaphragm (DDD). A two and three times greater ROM was noted in the control group, than in the pathological group in situations $S_1$ and $S_2$. In addition, the average diaphragm excursions (central part) in situation $S_1$ were 40 mm in the control group and 22 mm in the pathological group. In situation $S_2$, diaphragm excursions were 46 mm in the control group and 21 mm in the pathological group. When considering changes in the range of diaphragm motion after pressure was applied to the lower limbs, the ROM values for the control group rose on an average, but there was great variance in the group, and the rise was bigger in the posterior part than in the anterior part. The ROM values for the pathological group rose in the anterior part of the diaphragm, and lessened in the posterior diaphragm part.

Kolar observed the opposite changes in the same situations. In Kolar's case, the range of motions was the same during tidal breathing, but the group with LBP had lower excursions of the anterior part of the diaphragm. The subjects in Kolar's study had the diaphragm at the same height in the trunk, despite the symptoms. In the present study, the diaphragm was located significantly higher in the experimental group. This may be a mechanism by which the pathological group was able to keep the diaphragm excursions more evenly spread after the postural demands increased. All results confirmed the decreased level of interaction of the muscles in persons with LBP.

**Conclusion.** The movement of the diaphragm is a complex physiological parameter. It aims not only at respiratory implementation, but also a stabilizing function, and regulation of intra-abdominal pressure. In the presence of pain syndrome lumbosacral of diaphragm contractions are disrupted. More cranial position of the diaphragm is observed in patients. Asymmetric contraction of the diaphragm during inspiration may lead to a more curved or bent position of the diaphragm. The studies suggest that in persons with lumbar-sacral dorsopathies, abnormal position and asymmetric involvement of parts of the diaphragm lead to the emergence of pain syndrome in the lumbar spine.

This dysfunction may also be the possible reason of diaphragm stabilizing function reducing and excessive activation of the paravertebral back muscles that can lead to hypertrophy and ultimately occurrence of pain. Different kinds of asymmetry in individual studies may be caused by an etiological factor and subjects to the further studies.

**Literature**


THE STRUCTURE OF THE PREPARATION AND COMPETITIVE ACTIVITY EFFICIENCY OF THE HIGH QUALIFICATION BASKETBALL PLAYERS IN A FOUR-YEAR OLYMPIC CYCLE

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T&M of basketball, Russian

*State University of Physical Education, Sport, Youth and Tourism*

For many years, the USA and the USSR teams have been the leaders of the world female basketball. The national team of Russia is the successor of the USSR team. The third place at the Olympic Games was the highest place of the Russian national team. In the Target Comprehensive Program (TCP) of preparation for the Olympic Games in 2016, the Russian Federation of Basketball has set the goal for the Russian national team to reach the final of the Olympic basketball tournament. In the last Olympic cycle our team has shown unsatisfactory results in the 2013 and 2015 European championships, was not qualified for the World Cup, and could not qualify for the Olympic Games in Rio de Janeiro in 2016.

Many authors have studied the problems of Russian national teams preparation in a 4-year Olympic cycle (Rubin V. S., Chernov S.V., Akopyan A.O and others), however today they demand an improvement and a specification.

Therefore, the purpose of our work is to study a structure of a four-year Olympic cycle of the Russian women’s national basketball team preparation and to analyze an efficiency of competitive activity in a 4-year Olympic cycle.

**Methods of the research:**

1) analysis of references;
2) pedagogical supervision the process of the Russian women’s national basketball team preparation;
3) Investigation of the competitive activity.
4) the method of modeling;
5) mathematical processing (statistical analysis) of the results.

We have defined the dynamics of the results of the Russian women's national basketball team and her main competitors in two last Olympic cycles. After the first place in the Eurobasket – 2011 the Russian women's national team has had negative
dynamics of the performances. The performances of its main competitors, the National teams of the USA and Australia, were stable.

We have revealed the dynamics of the FIBA rating after 2012 Olympic Games in London.

The national team of the USA is on the first place, Australian national team is on the second place. The Russian women's national team has lost 3 places in the rating and holds the 6-th place. The Spanish national team has moved from the 6-th place to the 3rd place. The French and the Czech Republic teams have switched their places.

We have defined two types of the Russia national team structure of the preparation for the main competitions. The first type is the structure of preparation for the World Cup and the Olympic Games. This structure has the extended transition period after the National Championship in which all players of our team take part. This type of structure is characterized by a long period of preparation for the competitions.

The second type of the structure is used for the preparation to the European championship. It is characterized by the reduced transitional period and preliminary stage. Such a model doesn't allow to prepare for competitions systematically. That is why the results of our national team worsen. We have revealed the dynamics of training loads in preparation for the Olympic Games in London and for the main competitions in a four-year Olympic cycle of 2013-2015. We have revealed that the training loads of preparation for the European championship of 2013 were reduced twice as loads in preparation for the Olympic Games. The number of training camps has reduced from 8 to 3. The number of days of preparation, trainings and working hours was reduced twice but the number of control games was equal. Such dynamics has had an adverse effect on our team result.

We have studied a data of the Russian national team competitive activity in the two last Olympic cycles in the main competitions. We have noted positive dynamics of competitive activity efficiency from 2009 to 2011, which has led to a victory in the European championship in 2011. After 2011 we have revealed negative dynamics of the competitive activity indicators which has been caused by a high tension of the competition in 2012, and has led to a failure in main competitions in 2013 and 2015. The efficiency of competitive activity was higher in the Olympic cycle of preparation for the Olympic Games in London.

We did the comparative analysis of competitive activity data in the European championship of 2015 with model characteristics, which have been developed in the target comprehensive program. We have revealed that the team data of the competitive activity in the European championship, such as throws, turnovers, points, steals and fouls is lower than the level of model characteristic. Some data of competitive activity such as assists and free throws remains on the same level.

Thus the analysis of sports results dynamics, of a rating according to FIBA, the analysis of the structure and content of preparation, and also the analysis of the data of competitive activities of the women’s basketball national team of Russia gives the reasons to claim that the 2009-2012 Olympic cycle was more successful.
than the 2013-2016 Olympic cycle. These data will be used as a basis for creation model characteristics of the structure and loads of the centralized Russian women's national basketball team preparation.

**Literature**


**MODERN INFORMATION SPACE EFFECT ON STUDENTS MOTIVATION AND SPORTS INTERESTS OF MSAPE STUDENTS**

*Lebedev M.A.*, student  
*Butorin V.V.*, PhD  
*Pahomova E.V.*, senior teacher

*Moscow State Academy of Physical Education (MSAPE)*

The young generation is very interested in a variety of information environment. The question of modern information environment usage has not been quite covered yet. [1] It is also known that the studies on the subject have been carried out by Murashova E. and Kuznetsova M. [2, 3].

We have studied the role of informational environment (related to the students of MSAPE), especially a role of internet; we have studied motivation to sport training (related to the students of MSAPE).

**Object of research.** Physical Education university students interaction with information environment.

**Subject of research.** The role of different information space, particularly sport and fitness related sources among the students of Physical Education university.

**Purposes and tasks.** Target of research: define a role of information environment in building motivation and interest towards physical education and fitness.

Tasks of research:

1) to define preferences in resources of sport and fitness;
2) to conclude an opinion on the promotion of sport and fitness;
3) to know the degree of susceptibility.
Hypothesis. Internet is the most popular kind of information environment; sports websites increase sport motivation of MSAPE students. The results are presented in picture 1-4.

![The most preferable information resources of Sport and PE](image1)

**Picture 1.** The most preferable information resources about Sport and PE

![Why do you do sports?](image2)

**Picture 2.** Why do you do sports?
In your opinion, why do people do sports?

Picture 3.

In your opinion, will the sport information resources, particularly Internet, become a more effective instrument in future?

Picture 4.

Conclusions

1. The hypothesis is confirmed – the Internet is the most popular kind of information space; the research has shown that students of MSAPE are interested in surfing the information environment, the most popular type of information environment is Internet (63% of respondents).

2. Respondents suppose that Mass Media activity will become more effective and will attract new people in the field of sport and physical education.

3. Great number of respondents have low (48%) and medium level (40%) of susceptibility, which means that students of MSAPE have critical mind; the information from mass media should persuade them by means of facts.
Literature
1. Lebedev M.A. The modern information space and its influence to MSAPE students/ M.A. Lebedev, I.A. Klimashin// The Olimpic Games and modern society/ Malakhovka, 2015.
2. Murashova E.V. "8 hours without gadgets"/ https://snob.ru/selected/entry

PHYSICAL REHABILITATION OF PERSONS WITH ARTHROSIS OF THE KNEE JOINT USING BIODEX COMPLEX

Leonov D., Master Student
Russian State University of Physical Education, Sport, Youth and Tourism

Key words: physical rehabilitation, arthrosis, knee, joint, Biodex.

Introduction. Osteoarthritis or arthritis is the most common form of joint disease and a major cause of disability, causing a deterioration in the quality of life and significant financial costs. Arthrosis occurs everywhere. In the US, is noted in 7% of men. The large-scale study in 7 cities of the former USSR showed arthrosis at 6.43%. The incidence of osteoarthritis increases sharply with age, reaching a third of the population in the elderly age. However, arthritis can occur in a fairly young age due to ligaments damage, caused by home accidents, sports and occupational injuries.

Lower limb joints rank first according to the severity of dysfunction of the musculoskeletal system. Among them, a large percentage falls on the knee joint, which accounts for the urgency of this work.

Objective of the research is to develop method of physical rehabilitation of persons with osteoarthritis of the knee joint using hardware and software complex.

Methods:
– analysis of the literature;
– teacher observations;
– pedagogical experiment;
– methods of mathematical statistics;
– dynamometry;
– determination of the intensity of pain on a scale of pain.

Discussion. It is planned to conduct the study, which will involve 16 people with knee joint arthrosis, grade 1-2. Subjects will be divided into two equal groups of 8 people each. One group will be using the previously known method and the second the developed one using the hardware-software complex Biodex, which will carry out exercises with different kinds of load on the muscles in the prescribed range of motion.
Conclusion. Knee osteoarthritis is a widespread disease that reduces the quality of human life, the efficiency at work and at home as well as entails financial costs. It is expected that the developed method of rehabilitation, using the hardware-software complex Biodex will improve the quality of the restoration of the knee joint functional condition and will reduce its timeline. Also, this method will be useful for rehabilitation specialists, who are able to use these devices in their practice.

PHYSICAL EDUCATION EFFECT ON CHILDREN OF 12-13 YEARS OF AGE COGNITIVE PROCESSES

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Scientific supervisor: Klimashin I.A., PhD
Moscow State Academy of Physical Education (MSAPE)

Currently, the problem of fatigue is one of the most urgent problems of the modern school. The amount of information, school hours and time spent on homework, lack of daily routine as well as physiological changes occurring at the age of 12-13 years can't help affecting the quality of mental cognitive processes. A student gets tired quickly, not concentrated, attention becomes involuntary, easily distractible and according to the material necessary to memorize is absorbed and stored much worse as mental activity is weakened. In our study we made the assumption that the practice of physical activity contribute to the improvement of mental activity.

The purpose of the research – to determine the influence of physical education on cognitive processes in children of secondary school (12-13 years of age).

The task of the research is to 1) to Identify cognitive processes in children of secondary school age (12-13 years). 2) to Investigate the influence of physical education on cognitive processes of children of secondary school age (12-13 years).

Research methods are the theoretical analysis of the psychological literature on the research problem. Ebbinghaus Test, proof-reading test. The study involved 50 subjects 12 to 13 years old, students of 6th grade school №810 Moscow who were divided into two groups – control group and experimental group. The control group was exempted from physical education lessons and the experimental group worked in a usual mode. The experiment was conducted for three weeks (21 days).

Results. In the beginning, we have defined the leading cognitive processes in charge of the educational activities of children at the age 12-13 years. When studying the scientific literature we have identified the three most important: attention, memory, reasoning.

The first part of the experiment was conducted with control group and experimental group at the beginning of the school day. The second part of the experiment was conducted after training sessions, which
included items that require mental stress and physical education lessons. As a result of the Ebenhausen test in the first part of the experiment, it was found that the memory in subjects of the control group, and the memory of the subjects of the experimental group developed in almost the same way. The results of the second part of the experiment (table 1), confirm the hypothesis about positive influence of physical education lessons to reduce fatigue, and as a result improving the flow of cognitive processes.

<table>
<thead>
<tr>
<th>Groups</th>
<th>First part of the experiment</th>
<th>The second part of the experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>control</td>
<td>62.5%</td>
<td>31% (refusal to continue on)</td>
</tr>
<tr>
<td>experimental</td>
<td>62.5%</td>
<td>56%</td>
</tr>
</tbody>
</table>

Table 1

There were more mistakes made by the subjects in the control group. Besides, because of fatigue of the subjects of the control group there was a refusal to continue working on the first part of the second experiment (table 2).

<table>
<thead>
<tr>
<th>Groups</th>
<th>First part of the experiment</th>
<th>The second part of the experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>experimental</td>
<td>Sub. 1: 6/6/4</td>
<td>Sub. 1: 13/2/1</td>
</tr>
<tr>
<td></td>
<td>Sub. 2: 10/2/4</td>
<td>Sub. 2: 14/2</td>
</tr>
<tr>
<td></td>
<td>Sub. 3: 8/6/2</td>
<td>Sub. 3: 10/4/2</td>
</tr>
<tr>
<td></td>
<td>Sub. 4: 10/4/2</td>
<td>Sub. 4: 12/2/2</td>
</tr>
<tr>
<td></td>
<td>Sub. 5: 10/1/4/1</td>
<td>Sub. 5: 16</td>
</tr>
<tr>
<td></td>
<td>Sub. 6: 16</td>
<td>Sub. 6: 15/1</td>
</tr>
<tr>
<td></td>
<td>Sub. 7: 6/1/2/4/3</td>
<td>Sub. 7: 13/3</td>
</tr>
<tr>
<td></td>
<td>Sub. 8: 10/5/1</td>
<td>Sub. 8: 14/1/1</td>
</tr>
<tr>
<td></td>
<td>Sub. 9: 7/2/3/4/1</td>
<td>Sub. 9: 12/1/3</td>
</tr>
<tr>
<td></td>
<td>Sub. 10: 11/5</td>
<td>Sub. 10: 15/1</td>
</tr>
<tr>
<td></td>
<td>Sub. 11: 15/1</td>
<td>Sub. 11: 16</td>
</tr>
<tr>
<td></td>
<td>Sub. 12: 12/2/2</td>
<td>Sub. 12: 15/1</td>
</tr>
<tr>
<td></td>
<td>Sub. 13: 9/5/1/1</td>
<td>Sub. 13: 14/2</td>
</tr>
<tr>
<td></td>
<td>Sub. 14: 10/4/2</td>
<td>Sub. 14: 12/2/2</td>
</tr>
<tr>
<td></td>
<td>Sub. 15: 7/5/4</td>
<td>Sub. 15: 10/3/1/1</td>
</tr>
<tr>
<td></td>
<td>Sub. 16: 9/5/2</td>
<td>Sub. 16: 16</td>
</tr>
<tr>
<td></td>
<td>Sub. 17: 10/4/2</td>
<td>Sub. 17: 15/1</td>
</tr>
<tr>
<td></td>
<td>Sub. 18: 11/5</td>
<td>Sub. 18: 13/2/1</td>
</tr>
<tr>
<td></td>
<td>Sub. 19: 12/2/2</td>
<td>Sub. 19: 12/4</td>
</tr>
<tr>
<td></td>
<td>Sub. 20: 5/5/6</td>
<td>Sub. 20: 16</td>
</tr>
<tr>
<td></td>
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<td>Sub. 21: 10/5/1</td>
</tr>
<tr>
<td></td>
<td>Sub. 22: 12/1/1/1/1</td>
<td>Sub. 22: 16</td>
</tr>
<tr>
<td></td>
<td>Sub. 23: 9/7</td>
<td>Sub. 23: 12/2/2</td>
</tr>
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<td>Sub. 24: 10/5/1</td>
<td>Sub. 24: 13/3</td>
</tr>
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<td>Sub. 25: 11/5</td>
<td>Sub. 25: 16</td>
</tr>
<tr>
<td>control</td>
<td>Sub. 1: 5/refusal to continue</td>
<td>Sub. 1: refusal to participate</td>
</tr>
<tr>
<td></td>
<td>Sub. 2: 7/5/4</td>
<td>Sub. 2: 1/10/2/3</td>
</tr>
<tr>
<td></td>
<td>Sub. 3: 5/7/3</td>
<td>Sub. 3: 2/11/3</td>
</tr>
</tbody>
</table>
To determine the influence of fatigability on cognitive processes the method of "proof-reading test" was applied while the conditions were exactly the same as in the previous two experiments. The procedure was carried out to determine the amount of attention (viewed by number of letters) and its concentration - the number of mistakes made. In the first part of the experiment, before the modification of terms for the two groups, we obtained averages that were about the same level (For the control group – 193.75; for experimental – 178.4). The second part of the experiment was carried out after changing the conditions. The method revealed that in the lack of a PE lesson, where the students could relax, followed by the fading concentration, the average decline for the control group – 154.1). In the experimental group, by contrast, the indicators of concentration increased (experimental – 214.4). This suggests that the physical education lessons helped children to relax and have a break from mental activities. The data is shown in table 3.

Table3

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Control group</th>
<th>experimental group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1sample</td>
<td>2sample</td>
</tr>
<tr>
<td>Sub. 1</td>
<td>123.3</td>
<td>100.65</td>
</tr>
<tr>
<td>Sub. 2</td>
<td>95.7</td>
<td>89.3</td>
</tr>
<tr>
<td>Sub. 3</td>
<td>145.6</td>
<td>123.4</td>
</tr>
<tr>
<td>Sub. 4</td>
<td>123.3</td>
<td>115.4</td>
</tr>
<tr>
<td>Sub. 5</td>
<td>234</td>
<td>216</td>
</tr>
<tr>
<td>Sub. 6</td>
<td>236</td>
<td>236</td>
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<td>Sub. 7</td>
<td>289</td>
<td>234.4</td>
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<td>Sub. 8</td>
<td>236</td>
<td>221.5</td>
</tr>
<tr>
<td>Sub. 9</td>
<td>144.6</td>
<td>123.5</td>
</tr>
<tr>
<td>Sub.</td>
<td>167.87</td>
<td>100</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>------</td>
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<tr>
<td>Sub. 11</td>
<td>194.6</td>
<td>89.7</td>
</tr>
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<td>134.2</td>
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<td>Sub. 16</td>
<td>145.76</td>
<td>127.2</td>
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<td>189.6</td>
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<td>Sub. 20</td>
<td>147.5</td>
<td>112.5</td>
</tr>
<tr>
<td>Sub. 21</td>
<td>122.5</td>
<td>100</td>
</tr>
<tr>
<td>Sub. 22</td>
<td>267</td>
<td>167</td>
</tr>
<tr>
<td>Sub. 23</td>
<td>287</td>
<td>122</td>
</tr>
<tr>
<td>Sub. 24</td>
<td>299</td>
<td>211</td>
</tr>
<tr>
<td>Sub. 25</td>
<td>144.65</td>
<td>144</td>
</tr>
<tr>
<td>Average</td>
<td>193.75</td>
<td>154.1</td>
</tr>
</tbody>
</table>

**Conclusion.** As a result of experiments, on the basis of assignments of the protocols of conducting experiments and self-reports of subjects it was confirmed, the thesis found in modern psychological and pedagogical literature about the negative impact of fatigue on the course of cognitive processes that arise due to fatigue of middle school students from the long school day. In our study, it was presented for test approval on the positive influence of physical education on the course of mental and cognitive processes. In the course of the study it was revealed a greater number of mistakes made by the subjects from the control group who did not have PE lessons and consequently they were in a state of fatigue more than the subjects of the experimental group. This phenomenon can be considered due to the fact that the subjects of the experimental group had the opportunity to reduce mental and physical tension, and the control group did not have such an opportunity.

Concentration, memory and reasoning were better in the experimental group. It can be concluded that the lessons of physical education have a beneficial effect on cognitive activity of students. Thus, physical activity is necessary for harmonious development of the child.

**Literature**


THE ATTITUDE OF THE STUDENTS OF THE SPORTS UNIVERSITY
TO THE FAMILY AND MARRIAGE RELATIONS

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There is a perception that young people are not quite serious about the institution of marriage. It is in this frivolity we often see the reason of high number of divorces. In this regard, the preparation of young people for family life, the formation of adequate ideas about family and marriage under current serious situation in the field of demography is an important national problem.

The stability of marriage and family relations depends on the willingness of young people to create a family. Readiness for marriage is understood as a system of social and psychological attitudes of a person, which determines the emotionally positive attitude towards family life, and this explains the importance of this work. In our work we will try to prove that the flippant attitude of students to the family and marriage is not true to the fact.

The object of study: the students.

Subject of research: The attitude of students to marriage and marriage relations.

The study aims to: study students' attitudes towards marriage and the family.

The purpose and object of the study have identified the problem:
1) to investigate the specificity of the students' view on family life and marriage;
2) to study the students' attitude to marriage and the family in modern conditions;
3) to identify key priorities and values of today's youth;

Methods: theoretical analysis of the psychological literature on the subject; analysis of the personal experience of students; a questionnaire.

The research was conducted testing of athletes, students of the Moscow State Academy of Physical Education, with the help of a previously prepared questionnaire. The questionnaire was designed by the second and the fifth year students of the Faculty of Psychology and Teaching. The study was conducted on students from different faculties, specialties, sports. A total of 200 people participated. Among these, 76 girls and 124 boys, ages 18 to 23.

According to the poll results positive attitude to marriage was officially registered - 75% (35% of girls and 40% boys). The remaining 25% (15% of boys and 10% girls) consider that the official registration of the marriage is entirely optional. It should be noted that, in spite of the above result, the majority (87%) consider it unacceptable to marry several times. Also, despite the fact that Russia is a multi-confessional country, for the majority of respondents (98.2%) polygamy is unacceptable.

Among the respondents, 98% think that the most suitable age for marriage is 20-30 years; a minor part (1%) considers 30 and above. Only for 1% it is necessary to
get married at the age of 16-20. Therefore, the majority believes that early marriage is unacceptable. Also, in the course of the research, conclusions were drawn about the preferences of today's young people regarding the number of members of the future family. 65% of respondents believe that a family should have at least 2 children. 25% of respondents are ready to raise one child, and only 10% would like to have a family with 3 children or more.

We also submitted data showing the respondents' attitudes towards sex education of children. 69% of respondents expressed their willingness to engage in sexual education of their children on their own, 21% believe that these should be done at school, and 10% offered another option.

It should be noted that for the majority of young people (92.6% of respondents), the main problems a young family may face are financial and housing problems. This number should be attributed to the positive trend of increasing awareness of marriage, and of the fact that marriage is not only the realization of the need for intimacy with someone of the opposite sex, but also a great responsibility before the partner, as well as before future children.

As the study was conducted in the university sports, interesting data has been obtained regarding the profession of the future husband (wife). 45% see their future partner being an athlete. 35% percent said that the profession of the future partner is not important, 15% would like to marry a doctor, and only 5% keep other professions in mind. These data allow us to conclude that the athletes would like to see their partner as their associate.

This belief is supported by the majority of the answers that one of the most important things in a marriage is mutual understanding. However, less than 41%, according to a study are ready to discuss sexual problems with their partner.

It is noted that 98% of respondents believe love and loyalty being important part of marriage. However, the majority of respondents believe that partners who marry should have a sexual experience (80% of boys and 42% girls), and the experience does not imply that the sexual partner later becomes a partner in marriage. At the same time 42% said that their first sexual experience was at the age of 17 - 18, 35% - have no sexual experience, and only 23% received such experience in the age of 16 years or earlier.

**Conclusions.** According to the results we obtained in our study, we can say that currently positive trends in understanding of marriage and family life are seen. In particular, the answers we have received allow us to consider the hypothesis of our study to be proved:

1. Students are serious and have a mature attitude to marriage.
2. Specific to the sample can be regarded the preferences for future partner's occupation.
3. The main priorities for the future family, for this sample, are universal moral principles.
**Literature**

**OLYMPIC SPORT AND SPORT FOR ALL**

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**Introduction.** In November 2014 the President of the International Olympic Committee Thomas Bach submitted 40 theses on reforming of the Olympic Movement which formed the basis of the program "Agenda-2020". This document is in many respects conformable with the activity of the Olympic Committee of Russia directed to the active involvement of various social and age groups of the population in the movement "Sport for All".

According to Strategy of development of the Olympic Committee of Russia for the period till 2020 and the Law on Physical Culture and Sport in the Russian Federation, the draft of the Concept of the Program of OCR assistance to the development of mass sport "Sport for all" for 2014-2016 years is developed.

**Discussion.** Modern Russia didn't reach the level of the European countries population involvement in the movement "Sport for All". Despite some positive dynamics in the recent years the problems of physical activity of citizens, insufficient efficiency of use of physical education opportunities for benefit of the general population, quality and availability of sports and improving services are still actual. The methodical, personnel and medical support of physical culture and mass sport demands considerable improvement.

Within the Program of OCR it is offered to put an emphasis on the advance of ideas of an Olympism and the Olympic values, on development of physical culture and mass sport, on participation in the international movement "Sport for All".

Thus in Russia additional conditions for advancement of the Olympic values, distribution of the Olympic Movement and development of mass sport should be taken into account.

Development of “Sport for All” project is carried out by implementation of the all-Russian projects listed below.

The Olympic Change project started in November 2013. On a competitive basis a jury chose the most effective model for familiarizing the population with
physical activity. Project's main objective is to acquaint the people with sport, to promote a healthy lifestyle and the main values of the Olympic Movement.

"The Olympic patrol" is the All-Russian sports educational program consisting of two parts: a theoretical and a practical one. The first part is the communication with children within the Olympic lessons on the subject of the Olympic values and history of the Olympic Movement. The second part is organizing the talks and events with famous athletes, champions and winners of the Olympic Games to impart to children the love for sports. During these meetings athletes tell children about the basic principles of the Olympic Movement and about progress of Russian national team at the XXII Olympic winter Games in Sochi. They also discuss the rules of conduct for sports fans, the importance of healthy and active lifestyle. Champions and prize-winners also share their personal success stories with children.

By means of the special complex "My Olympia" schoolchildren undergo the testing of their physical condition level. They learn which physical attributes – force, dexterity, endurance or flexibility - they should pay more attention to. More than 9000 children already took part in that long-term program.

In October 2014 the World Walking Day was held in Russia. In is the vent in which millions of people annually participate in 150 countries of the world. The main objective is to promote walking as one of the most available and natural types of physical activity for general population.

"The Olympic Day Run" is the event held under the auspices of the national Olympic Committee which promotes familiarizing of the population with the Olympic values and a healthy lifestyle.

**Results.** There also other forms and methods of population involvement in regular trainings such as mass media propaganda, installation of the sports equipment in public places which allows everyone to check their physical condition and to receive recommendations on their everyday physical routine, meetings with experts in the field of medical physical culture. The good example of the sports equipment installation was the installation of the machines in the subway stations which gave the chance to obtaining a free ticket under a condition if the person makes a certain number of knee-bends.

**Conclusion.** Thus as a result of permanent job, search for the original forms and methods of work with various groups of the population and coordination of activity of the state and public organizations directed on the solution of the main objectives of development of mass sport, the movement "Sport for All" gains the increasing popularity in Russia.

**Literature**

THE EFFECTS OF STRENGTH TRAINING PERFORMED ON A STABLE AND UNSTABLE SUPPORT

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Introduction. In recent years there has been growing interest of researchers to a more detailed study of the problems of the use of exercise in a precarious foothold in practice, fitness and sports training. However, much of this research is devoted to studying the effect of exercise in a destabilizing support, especially in the aspect of improving the coordination of movements. These exercises are usually regarded as an effective means of improving balance, posture stability, gait, recovery after injury [1]. There are relatively few studies, which examine the impact of the exercises performed on unstable support on the power of the individual abilities.

Purpose of the work is to clarify information about the training effects of strength training performed in the conditions of stable and unstable support.

Hypothesis of the study. It is assumed that power exercises performed on an unstable support have a greater training effect, as compared to the strength training performed on a stable support.

Objectives of the study.
1. To analyze and to clarify ideas about the effects of exercise training performed on an unstable support.
2. To reveal physiological value of exercises performed on a stable and unstable support.
3. To compare the effects of strength training performed in the conditions of stable and unstable support.

Object. Strength training performed under the conditions of stable and unstable support.

Subject. Identification of the electoral effect of strength training performed in the conditions of stable and unstable support.

Methods. Analysis of literary and documentary sources; electromyography method; pulsometry method; instrumental methods of control (strain gauge platform); methods of observation; teaching experiment; mathematical and statistical methods of data processing.

Discussion and Results. Students of various specializations, aged 19-23 participated in the study. Students were divided into 2 groups: control and experimental. As the test exercise - "arms flexion and extension in push-up position"
on a stable and unstable support was used. The test was carried out "to failure." As an unstable support BOSU platform was used.

The study took place in several stages. Initial testing was carried out at the first stage, during which performance of absolute strength was measured, then exercises on stable and unstable supports were carried out to failure. After that, the subjects started strength training using BOSU. The whole experiment lasted 6 weeks. Final testing was conducted after the end of the study.

We used electromyogram method for a comparative analysis of electrical muscle work on stable and unstable support ("Push ups", the average maximum tension of each push-up in the concentric phase (measured by homeometer). We determined the exercise cycle, which includes both concentric and exentric phase of the major muscle groups (working in dynamics). The average EMG values for the following muscle groups for this cycle were determined and preliminary values indicate the following: there is a tendency towards an increase in the electrical activity of the back from 1 to 10 repetitions with push-ups on unstable support. The value of the activity of the muscle group is more than the same value at push-ups on stable support.

For the comparative assessment of the value of the load of exercises performed on a stable and unstable supports the method of determining the intensity of pulse debt accumulation (IPDA). The basis for calculating the value of IPDA is measuring the pulse debt within 5 minutes of restitution based on the duration of the exercise. IPDA index was determined on the basis of a formula proposed by V. Korol et al.

According to IPDA, load on the BOSU was higher than on the usual support. It may indicate that there is more energy used for achieving balance during the exercise, the load on the stabilizer muscles is redistributed or additional muscles are involved into operation.

After 6 weeks of training, the results in both groups have improved, but these measurements are not reliable. Perhaps more time is needed for training to achieve valuable results.

**Literature**


THE BEGINNINGS OF THE OLYMPIC MOVEMENT IN RUSSIA

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Introduction. In order to understand the modern Olympic movement it is necessary to consider the images of the people who stood at its beginning, to understand them, to note their best qualities to create a positive image of the athlete.

Methods:
– theoretical analysis and synthesis of the literature;
– comparative-historical method.

Discussion. We examined the age characteristics of the IOC members from Russia as well as of the members of the Russian Olympic Committee and also people who took an active part in the genesis of the Olympic movement in Russia. The IOC members for Russia from 1894 to 1912 were: A. Butovsky, G. Ribotpierre, S. Beloselsky-Belozersky, A. Trubetskoï, L. Urusov, G. Duperron.

The youngest was Duke Sergei Beloselsky-Belozersky. At the time of entry into the IOC he was 33 years old, while the oldest was Vyacheslav Sreznevsky who was 62 and also was the first Chairman of ROC – Russian Olympic Committee.

We also examined the social status of the IOC members. All of them were from the privileged and wealthy families, half of them even had the title of Prince or Earl. Earl Georgy Ribotpierre was a famous sports patron of that time. He has also organized a trip of four Russian wrestlers to the Games of IV Olympiad in London. Prince Beloselsky-Belozersky was a landowner, had several large factories in the Urals, the horse racing stables, and was a general of the Russian army. Prince Trubetskoy served in the royal retinue.

Prince Lev Urusov, grandson of General Pavel Urusov, was born in a family of state counselor, became a diplomat and was the first secretary of the Russian embassy in Japan (1912-1916). Georgy Duperron came from the merchant environment, later he became the first Secretary of the ROC, the first chairman of the Russian Football Union, the Russian representative in FIFA (1912-1917). Vladimir Voeikov was a hereditary nobleman. Since 1913 he served as Head of State Department "for the physical development of the population of the Russian Empire". Vyacheslav Sreznevsky was born in a family of a well-known scientist Ismail Sreznevsky, academician of the St. Petersburg Academy of Sciences. Aleksei Butovsky came from a family of landed gentry, for the period of military service he has gone from sergeant to lieutenant general.

All members of the IOC and the ROC had higher education. Butovsky graduated from Petrovsky-Poltava Cadet Corps, then Nicholas Academy of Engineering, he also knew several foreign languages. Lebedev graduated from the Law Faculty of St. Petersburg University. Beloselsky-Belozersky and Voeikov graduated from the Corps of Pages; Urusov graduated from Imperial Alexandrovsky Lyceum, then immediately joined the Ministry of Foreign Affairs. Duperron
graduated from the Law Faculty of St. Petersburg University. Sreznevsky graduated from historical-philological faculty of St. Petersburg University and defended his thesis in 1878.

Almost all the IOC members from Russia were the founders of or members in various sports clubs. From 1896 Earl G. Ribopierre was the chairman of the St. Petersburg athletic society and the founder and chairman of the Society of purebred dog lovers. Lebedev was one of the founders of the Gymnastics Society in St. Petersburg and also a Honorary Member of the Society of skating. Beloselsky-Belozersky was a member of the Krestovksy tennis club in 1898. In 1902 he became a representative of the St. Petersburg Football and Ice Hockey League. Voeikov was an honorary member of the Tsarskoye Selo Sport Cars club. Sreznevsky was the Chairman of the Saint - Petersburg Society of amateurs skaters (1877-1923) and also an honorary member of the Moscow River Yacht Club and Krestovsky Lawn Tennis Club.

Many of them created scientific and publicist works on the subject of sports and physical education. A. Butovsky wrote a lot of books, the most famous of which is "Athens in the Spring of 1896" in which he documents his personal experience of the first Olympic Games of modern times in Greece. An interesting book was written by V. Voeikov – his memoirs "With the king and without the king." G. Duperron was an author of several books in physical education, most notably he described all popular kinds of sports in a two volume edition of "Athletics and games" and published "The Bibliography of Sport and Physical Education" in 1915. V. Sreznevsky was the author of the first Russian handbook on photography (1883) and a number of smaller works on this subject. Prince L. Urusov wrote the "The book of horses".

Many IOC members for Russia were awarded state awards by Russian government. S. Beloselsky-Belozersky was awarded the Order of St. Stanislaus 3rd dg., the Order of St. Anne 3rd dg., the Order of St. Vladimir 3rd dg. He also took part in the fight of the White Finnish Army against the Red Army. V. Sreznevsky was awarded the Order of St. Vladimir 3rd dg. A. Butovskiy received the Commander's Cross of the Greek Order of the Redeemer in 1906.

Conclusion. Due to the efforts of these people and to their interest in the promotion of sport in Russia, their the faith in the Olympic movement and the need for the presence of the Russian Empire in it, sports movement started to develop in the Russian Empire which led to the participation of the Russian athletes in the Olympic Games and World Championships. Under their influence sport committees were established, sports facilities were built including the first stadium in Kiev. All-Russian Olympic Games were held in Kiev and Riga in 1913 and 1914 respectively. Russian people were ready to become a part of the international Olympic movement. All thanks to a handful of people who managed to ignite this flame from the spark.

Literature

INCREASING SKATING SPEED ENDURANCE OF HOCKEY PLAYERS THROUGH TARGETED DEVELOPMENT OF AEROBIC ABILITIES OF THE BODY

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Introduction. The ability of a hockey player to show high speed skating during the entire playing time of a game is one of his most important qualities. Experts say that an athlete's performance level depends on their level of aerobic capacity of the organism (Y. V. Nikonov, 2003; V. P.Savinet all, 2003). The external respiration system of a human is the defining element of the system of aerobic capacity of the human body. The relationship between the level of the external respiration system and the body's level of performance has been proven (S. V.Klauchek et al., 2010; L. V.Tarasova et al, 2013). A number of publications indicate the possibility of targeted development of the external respiration system and improve its functions. Some of these publications are devoted to the study of the of increasing the physical and special performance of athletes by increasing the efficiency of functions of the external respiration system (V. E. Vinogradov, T. A. Tomyak, 2004; A. S. Mikhailov, 2013; Dylan M. Wiwchar et al., 2010).

Hypothesis. It was assumed that the rise of one of the main indicators of the respiratory system (vital lung capacity– VC) of qualified hockey players should justify the increase of speed endurance in skating on the principle of "cross–adaptation."

Research objectives:
1. To prove the effectiveness of the impact of focused work (using a system of breathing exercises) with the goal of improving the individual performance of the respiratory system of skilled players in the age group 16–19 years old.
2. Rate the dynamics of speed endurance in skating of skilled hockey players in the age group of 16–19 years old during the preparatory period of a one-year training cycle, during the training process special breathing exercises were used for
improving the respiratory system of players.

**Organization and research methods.** A scientific experiment was carried out, including: the assessment of the dynamics of vital lung capacity (VC) of players in the experimental and control groups during the preparatory period of a one year training cycle; implementation of a complex of breathing exercises (using A. V. Siderskymethod) for hockey players in the core group; evaluation of speed endurance test results of players in both control and experimental groups at the beginning and at the end of the pedagogical experiment. To evaluate the players speed endurance in skating, we used a test exercise “on–ice shuttle run with 4 segments of 54meters”. This version of the "shuttle run" ice test is more informative in assessing the speed endurance of skilled hockey players in the age group 16–19 years old (A. S. Pavlov, N. N. Uryupin, T. S. Kuchava, A. A. Petrov, S. E. Pavlov, 2015).

**Research results.** The average group results of the VC of players in the control and experimental groups of youth and junior teams in the Sports School №85 in Moscow (ages 16–19 years) are shown in Figure 1.

![Figure 1](image)

Figure 1. Shows the mean group results of vital lung capacity (VC\textsubscript{initial} and VC\textsubscript{final}) of players in control and experimental groups in the initial and final studies

The revealed differences between the average results of vital lung capacity of the control group showed unreliable differences, these results were gathered in the beginning and at the end of a 3–week training microcycle during the preparatory period of a one year training cycle (p\geq0.5). It shows no change in the average group results of vital lung capacity of players in the control group as a result of training at this stage.

The revealed differences between the average results of vital lung capacity of the experimental group showed reliable differences, these results were gathered in the beginning and at the end of the three–week training microcycle during the preparatory period of one year training cycle (p\leq0.005). It is indicating a positive change in the average group results of vital lung capacity of the experimental group.
of players.

The average group performance of youth and junior teams for skating time during the "shuttle run" ice hockey test 4x54 meters of the control and experimental groups are presented in Figure 2.

![Bar chart showing average group performance times](chart.jpg)

**Figure 2.** Average group performance times (t sec) of the 4x54 meter «shuttle run» skating test for the control and experimental groups in the initial and final tests.

The differences between group average performance time of the 4x54 meter shuttle run test during the initial and final tests of the control group is unreliable (p≥0,1), indicating the absence of improvement for a players speed endurance in the control group.

Reliable results (p≤0,001) were shown in improving the experimental groups’ time for the 4x54 meter "shuttle run" test in the final test.

**Conclusions and summary.** The results obtained in the study data allow us to make conclusions of the effectiveness of conducting exercises for improving vital lung capacity in the experimental group in terms of their effects on improving a players’ speed endurance in skating.

**Conclusions**

1. A completing a range of breathing exercises (A.V.Sidersky) for skilled hockey players (ages 16–19 years) – 3 times a week for 3 weekly training microcycles during the preparatory period of a one year training cycle can significantly improve the performance of an athlete’s vital lung capacity in this age group.

2. Increasing a players’ lung capacity in the age group of 16–19 years old with the inclusion of complex breathing exercises in the training process, causes an increase in the level of their speed endurance in skating.

**Literature**


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Introduction. The approach to the coverage of the Olympic Games is a powerful factor in the popularization of the Games throughout the world. At the XXII Olympic Winter Games in Sochi the technology of the national signal was first used. It has allowed Russia to become one of the most technologically advanced countries in this field. Insufficient coverage of this issue in the existing literature did not allow realization of the national signal technology benefits to the Games in Sochi as an important tool for the promotion of the Olympic Games.
Based on the analysis of national approaches to the use of signal technology as well as international experience in this matter we assume that the coverage of the XXII Olympic Winter Games in Sochi in 2014 with the national signal had a number of advantages.

The main objective of this study is to analyze the application of national signal technology in the coverage of the XXII Olympic Winter Games in Sochi as a factor of the Olympic Games popularization. To test the hypothesis and achieve the purpose of the study we have set the following objectives:

– exploration of approaches to the coverage of the Olympic Games starting from the first broadcast of the Games in 1936, the Berlin;
– investigation of the international and national signal technologies;
– study of the use of the national signal technologies as a factor of the Olympic Games promotion in media coverage of the XXII Olympic Winter Games in Sochi.

Discussion. 535 television specialists from 10 Russian regions worked on the creation of the national signal in Sochi. In addition to that more than 40 people worked remotely in Moscow.

540 hours of media content were produced for the national signal of the Olympic games. Promo video of 400 members of the Russian Olympic team were filmed. During the Olympic Games the Media office recorded nearly 5,000 hours of video content created including 215, 389 logs and 14, 681 videos.

All broadcasts of the Olympic competitions were available on the website www.russiasport.ru; on smartphones with the free application RussiaSport (iOS / Android), on iPad and Android tablets using RussiaSportHD. The entire event was broadcast in fullHD format.

Results. As a result of studying technology of the national signal we identified the following advantages of broadcasting on the RussiaSport:

– complete broadcasts of all competitions;
– the choice between the national and international signals;
– the possibility to watch recorded broadcasts;
– the possibility to choose camera angles when viewing ice hockey games of the Russian national team;
– daily compilation of the best moments, photo reports and interviews;
– the possibility to choose certain moments or episodes on a given topic (for example: "all goals of the Russian team", "all kisses in the stands at the Russia-USA game", etc.);
– no advertising.

Conclusions. Through the use of the national signal coverage technology at the XXII Olympic Winter Games in Sochi there has been an increase in the public interest in the Olympic Games due to:

– the increase of the time of TV broadcasting with an emphasis on Russian content (athletes, coaches, fans, VIP, etc.);
– the implementation of RussiaSport website;
– the demonstration of related videos before and after the competition;
the short films about veterans of Soviet and Russian sports.

**ASSESSMENT OF THE FINISH PAIN SYNDROME IN THE ENDURANCE SPORTS SUCH AS CROSS-COUNTRY SKIING, SKI MOUNTAINEERING, CLIMBING AND SKYRUNNING**

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**Annotation.** This study is devoted to the research of the psychological characteristics of the endurance athletes involved in such types of sport as cross-country skiing, skyrunning, ski mountaineering and climbing. The psychological portrait of the athletes who positively tolerate the Finish Pain Syndrome was determined and recommendations were developed for overcoming the Finish Pain Syndrome.

**Keywords:** endurance sports (cross-country skiing, climbing, skyrunning, ski mountaineering), high qualification, psychological state, personality, Finish Pain Syndrome.

One of the most common psychological problems in cyclic sports is the Finish Pain Syndrome, which occurs at the peak of the maximum fatigue of the endurance during the sport activity [1, 6].

Finish Pain Syndrome is characterized as an intense experience of a combination of psychological and physiological feelings occurring at the finish line of a competition [4].

This condition was first mentioned in the research of V. Sopov [4] and it was based on the analysis of subjective experiences and reflections of outstanding athletes in various sports as well as special experiments with the utilization of hypnosis for identification of the causes of fear.

The description of athletes’ experiences was collected after the completion of 4 hour training session using the method of retrospective analysis of mental states, which indicated the significance of the Finish Pain Syndrome experience [4]. Consequently, the goal of this study is to analyze the individual psychological characteristics of athletes who are involved in endurance sports and who are resistant to the Finish Pain Syndrome and develop a psychological training to increase pain tolerance.

The following tasks have been identified for achievement of this goal:

1. Analyze personal characteristics of individual athletes to identify their impact on resistance to the Finish Pain Syndrome.
2. Develop recommendations for psychological training to overcome the Finish Pain Syndrome.
**Methods.** The analysis of personal characteristics of individual athletes was conducted by the method of psychodiagnosis \[2, 3, 5\] and included the following tests:

- temperament identification test (Belov Test);
- cattell’s 16 Personality Factors Test;
- motivation Identification Test (Kalinin Test);
- assessment of psychological state using Spielberger State-Trait Anxiety;
- inventory and Sopov scale of motivational state;
- questionnaire for identification of resistance to the Finish Pain Syndrome.

25 endurance athletes in cross-country skiing, ski mountaineering, climbing and skyrunning with the Master of Sport and Candidate for Master of Sport qualifications were tested. The study has been conducted starting from June 2015 to April 2016 at the Russian championships of sport.

**The following survey results were identified:**

1. Questionnaire results stated that 67% of athletes were positively tolerant to the Finish Pain Syndrome and 33% were negatively tolerant.

![Figure 1. Finish Pain Syndrome Tolerance in Athletes](image)

2. The temperament identification test revealed that 80% of the Finish Pain Syndrome tolerate athletes were sanguine and 20% were phlegmatic.

![Figure 2. Types of temperament in athletes with positive tolerance to the pain finish Syndrome](image)
3. Athletes with a positive tolerance to the Finish Pain Syndrome expressed the following personal qualities: Sociability (A)- 9 points out of 10; Emotional stability (C)- 9 points out of 10; Courage (H)- 10 points out of 10; Independence (Q2)- 9 points out of 10; Self-control (Q3)- 10 points out of 10.

![Cattell Test](image)

Figure 3. Average results on individual qualities of the athletes with a positive tolerance to the Finish Pain Syndrome according to Cattell test

4. The results of the Motivation Identification Test showed that 80 % of athletes with a positive tolerance to the Finish Pain Syndrome were at the optimal level of motivation, 12% of athletes were at the high level and 8 % of athletes were at the low level of motivation.

![Motivation](image)

Figure 4.Motivation to sport activity

5. According to the Spielberger and Sopov tests on identification of the psychological state, 70 % of the athletes were in the state of "hope for success", 24% felt "anxiety" and 6 % had a "thirst for action".
Figure 5. Current Psychological State

**Conclusion.** Athletes with higher resistance to the Finish Pain Syndrome during training/competition show to have the following personality characteristics:
- 80% - sanguine, 20% - phlegmatic;
- sociability, emotional stability, courage, independence and self-control;
- optimal level of motivation;
- 'Hope for success' psychological state.

2. In order to increase resistance to the Finish Pain Syndrome the recommendations are as follows:
- physical solution: high-speed race over the short distance, interim training, power training, training under challenging conditions, improvement of the finish line overcoming;
- psychological solution: (having friendly environment in the team, positive emotions, comfortable living conditions, interesting and diverse breaks, special psychological training, autotraining, prelaunch training with elements of autotraining).

**Literature**
LOCAL HYPERTONIC CHARACTER CHANGING OF VASCULAR RESISTANCE VALUES DURING PILATES EXERCISES

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Orel V.R., PhD, Associate Professor, leading researcher of research institute for sport
Smolenskiy A.V., Doctor of Medicine, Professor, Head of research institute for sports medicine
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Russian State University of physical culture, sport, youth and tourism

Key words: vascular resistance, physical exercises, Pilates exercises.

Introduction. Adaptation of cardiovascular system to muscular work, occurring while and after it is characterized by the coordinated changing of indices of Central hemodynamics Complex, vascular load of the heart and its contractility. Coordinated changing of hemodynamics indices and interactions of heart and vessels indices are determined by the functional conditions of the human and also by the power of the work, made by definite muscles groups.

Methods. The studies were conducted in the scientific laboratory of the university. The study involved girls at the age of about 20, students of gymnastics Department of Un. The girls had not trained for a long time before. The girls performed 5 basic "Pilates" exercises, named “The Hundred”, “The Cross”, “the Svastica”, “Swimming” and “Bycicle”. The Pilates Exersices now are one of the most popular group training exersices in Modern Fitness. All the exercises focused on the work of the abdominal and spine muscles, the muscles of the anterior and posterior surfaces of the thighs, the gluteus muscles. Exercises were performed in the isotonic kind of muscular contraction, without abrupt movements of the arms and back that is necessary for qualify check the cardiovascular system [2]. The cardiovascular system reaction on the physical load were determined by the sports medicine method named impedance pletismography method. You can see the process on the 1 picture.

Hemodynamics exercise gymnastics Pilates. One of the modern trends in fitness is the use of exercises isotonic orientation [9]. Closest to the orientation effects on the muscular system is a set of exercises "Pilates" [6], the implementation of which occurs in a much more gradual mode than when playing Izoton.

The results. The following pictures demonstrates the changes in heart rate, stroke volume of the heart, minute blood flow and vascular resistance (peripheral and elastical) while performing gymnastics "Pilates" exercises. In Fig.1 shows changes of heart rate and stroke volume during continuous exercise gymnastics Pilates one of the subjects. These exercises are characterized by the opposite changes in HR and Stroke Volume.
Fig. 1. Heart rate and Stroke Volume

Fig. 3. R, Ea and SBP
While performing the 1st exercise "the Hundred" (3 – 4th minute) with cyclic load abdominal muscles heart rate increases from 65 to 93 beats/min and Stroke Volume is reduced from 70 to 45 ml. Simultaneously there is a decrease in Minute blood flow (IOC) from 6 to 3.4 l/min, which is associated with a straining effort, reducing Vine return. Similar effects are observed from 5-th and 6-th minutes ("Round foot"), as well as from 9 th to 10-th ("Bike") and with 16-th and 17-th minute ("Cross") exercise of gymnastics, "Pilates".

It should be noted that simultaneous and multi-directional (Fig.1) changes in HR and Stroke Volume during exercise gymnastics Pilates and related recoveries are quite different from the changes in heart rate and SV during work on the Bicycle Ergometer. When pedaling in the course of work is observed as simultaneous increase in HR and SV, and the recovery of these indicators also reduced.

Under these conditions also obtained data (Fig.2) about the dynamics of vascular resistance (peripheral and elastic), which was calculated by the known formulas [4]. Peripheral resistance (Fig.2) in the first half of the execution time of a set of exercises (11 minutes) varied in the range from 1500 to 2000 Dean·cm·s⁻¹, and the second half of the study time mainly in the range from 2000 to 2500 Dean·cm·s⁻¹. Apparently, this is due to the tension of postural muscles for circular horizontal movement of the legsof the gymnast, who performed with the gymnast standing in the upper arms and knees.

Changes (Fig.2) elastic resistance of arterial system in the first half of the study occurred in the range from 1100 to 2300 Dean·cm·s⁻¹, and the second half of the study time mainly in the range from 1600 to 2800 Dean·cm·s⁻¹.
research of EA was changed in the range from 1500 to 2500 Dean-cm-5. It is also related to the tension of postural muscles causes a marked reduction in EE (Fig.1).

We emphasize that at low loads the complex exercises "Pilates" the magnitude of the elastic and peripheral resistance in the arterial system due to the effects of the straining press and tension of postural muscles can simultaneously exceed 2000 Dean-cm-5, which is characteristic of these vascular resistance in hypertension.

In Fig.3 shows the dimensionless values of the peripheral (R/\text{minR}) and elastic resistance (Ea/\text{minEa}), and the dimensionless values of systolic (Ps) blood pressure (Ps/\text{minPs}).

Note that the absolute values of systolic and diastolic (Pd) pressures vary in the range from 100 to 130 mm Hg.St. and 60 to 90 mm Hg.St. respectively. Until the 12th minute changes R/\text{minR} and EA/MPAA occur (Fig.3) the opposite way (the increase in EA is associated with a decrease in R), and the second half of the study dimensionless parameters R/\text{minR} and EA/MPAA almost synchronous change unidirectional way, almost simultaneously following each other.

In Fig.4 shows the change of dimensionless indicators of elastic resistance (Ea/\text{minEa}) and the stroke volume (UO/\text{mpwa}). Changes in these indicators (Fig.4) occur when performing muscular work and during the respective recovery intervals occur in different directions (r = -0.884). Thus, the increase of EA prevents the ejection of the blood, reducing stroke volume (i.e., upon release of blood difficult the process of enlargement of the aorta, the stiffness of which is mainly (Fig.4) and determines the value EA), and a decrease of EA is associated with the opposite effects of the increase in UO.

In Fig.5 to RE-coordinate presents RE-diagram the two fragments of 30-second repetitions of exercises of complex Pilates on the 4th and the 16th minutes, and the corresponding short segments of muscle recovery after those loads, which correspond to clearly identifiable peaks of growth reduction of each of the vascular resistance (Fig.2 and Fig.3). The large circles correspond to the initial point of each curve is the beginning of the engagement.

Occurs (Fig.5) the simultaneous increase in peripheral and elastic resistance in the arterial system, and then they are almost synchronous decline. The growth of peripheral and elastic resistance is growing on the right branch of each curve (Fig.5), and a subsequent decrease in resistance during the recovery runs along the left descending branches of these curves. The beginning and end of fragments of the curves in Fig.5 localized almost at the upper boundary of zone RE-normal (the other zones are from are not shown in Fig.5). The curves of changes in the vascular loading of the heart (Fig.5) is almost completely located in the transitional intermediate zone between areas of RE-codes and RE-hypertension, several coming in and in the area of hypertension (Fig.5) the initial stage.

At the ascending branches of the curves (Fig.5) are the processes of vasoconstriction of capillaries of the peripheral vasculature (increase peripheral resistance (R) and stiffening of the walls of the aorta and large arteries (increase in elastic resistance (E)). On the left descending branches (Fig.5) simultaneous reduction of both vascular resistance occur the processes of enlargement of the capillaries of
the peripheral vasculature and relaxation of smooth muscles of the walls of the aorta and other major vessels of the aortic compression chamber.

We note significant levels [1] correlations (p < 0.02) between sets of values of the vascular resistance R and E for which curves are plotted in Fig.5: r = 0.586 on the left of the curve and r = 0.538 on the right side of the curve.

The ascending branches of both curves (Fig.5) are in good agreement with the right branch of a parabola quadratic, held on average according to vascular resistance at rest (norm), with two physical loads (500 and 1000 KGM/min) and hypertension. The recovery processes after the cessation of the repetitions of exercises of gymnastics Pilates are descending branches of both curves (Fig.5). Moreover, the descending branch does not repeat the shape and position of the corresponding ascending branches (Fig.5). And although at the endpoints of the recovery curves (Fig.5) the magnitude of the elastic resistance returned to the initial values EA, the magnitude of the peripheral resistance at the endpoints of both curves is smaller than at the starting points. In other words, the peripheral resistance after performing low-intensity physical activity gymnastics Pilates during the short recovery process falls below its initial level before running a load.

**Conclusions**

1. In contrast to Bicycle stress loads under conditions of light physical activity complex Pilates increases heart rate while reducing the stroke volume, heart rate and then decreases when recovering simultaneously with a compensatory increase in stroke volume.

2. At low loads of the complex exercises "Pilates" the magnitude of the elastic and peripheral resistance in the arterial system due to the effects of the straining press and tension of postural muscles can briefly exceed 2000 (Dean cm-5 and Dean cm-5, respectively), which is typical for these resistance in hypertension.

3. Peripheral resistance after performing the physical activity of gymnastics "Pilates" during the short recovery process becomes below its original level.

4. The effects of adaptation of cardio-vascular system while making muscular work and after finishing it are characterized by definite common changers of several indices of central hemodynamics and heart contractivity. Common changes of hemodynamics indices and indices of activity of heart and vessels are determined by functional conditioning of tasted human and also by power of muscles work. It was shown that while making Pilates exercises the values of vessels resistanse (while having normal values of systolic and diastolic blood pressure) could reach hypertonic meanings (above 2000 din/c/cm for peripheral vessels resistance – R and above 2000 din/c/cm for elastic vessels resistance – EA)
PERSONALIZED STRENGTH DEVELOPMENT OF DIFFERENT POSITIONS ELITE HANDBALL PLAYERS

Savin V. A.,
Gillyard M. V., Professor
Russian State University of Physical Education, Sport, Youth and Tourism

Most part of competetive movements in handball are: jumps, sprints, changing direction, handball throw, defense playdemands from the athlete producing big amount of force in a short period.

Aim: the aim of this study was to explore the effectiveness of personalized overload in strength training of different positions elite handball players during in season period. Another aim was to compare the effect of 12-week strenth conditioning programme for elite handball of different roles.

Thesis: After using 12-week in season strenthtraining programm of handball players we derived statistically Reliable data of improving strenth conditions.

Method of investigation: during our job we used Wilcoxon test.

12 Week Programm

<table>
<thead>
<tr>
<th>Exercises</th>
<th>Training №1</th>
<th>Training №3</th>
<th>Training №5</th>
<th>Training №7</th>
<th>Training №9</th>
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**EXPERT ASSESSMENT IN KICKBOXING**

Semikolenov A. P.

Scientific Adviser: Kleshchev V. N., PhD, Professor

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**Introduction.** For modern kickboxing high degree of competition is characteristic, which manifests itself especially clearly at the highest level of achievement. The need to adequately withstand this competition and winning, the best way to realize the highest ideals of sport, encourages the search for ways for more effective training, involving a fuller realization and development of competitors’ capabilities in relation to this type of martial arts.

**Discussion and results** One of the areas of work to improve the quality of training of an athlete is improving his technical and tactical skill. This type of training, in turn, requires data characterizing the peculiarities of the competitive activity of the tournaments participants at the highest level. It should be noted here that the collection of these data is quite a complicated procedure. Many of the parameters of competitive activity are extremely important as the condition of effective training with great difficulty to quantify in this case and the question of their definition can be solved only by expert evaluation. The aim of this work was to study the peculiarities of expert assessment of competitive activity indicators as a condition of improving the level of technical and tactical preparedness in kickboxing of the highest achievements. We assumed that the use of expert estimation of the technical and tactical training parameters may provide information needed to improve the level of preparedness of the athlete for competition. The main objectives of the study were:

1) a study of technical and tactical training features of boxers of high class through peer assessment of their competitive activities;

2) studying the degree of consistency of experts in the evaluation of technical and tactical skills of kickboxers. The second problem had to some extent a subordinate role, possibilities of the method of expert assessment of the peculiarities
of the competitive activity by examining its conformity to the requirements for procedures of this kind were assessed. Research methods: analysis of scientific-methodical literature; pedagogical observation; method of expert assessment; methods of mathematical statistics.

The result of our research was an evaluation, which allowed to estimate the effectiveness of various military operations. (The group of experts consisted of four people, who evaluated the effectiveness of the relevant action). According to our data protective action is in the first place. Its total score is 390 points. Protection is the main action that enables the kickboxer to neutralize an attack and move to action, bringing the winning points, i.e., shock action. Counter-counter is in the second place with 377 points. It should be noted that it is mainly counter-attacks with hands. Attack is in third place. Here, the figure is 365 points. Response counter-attacks are on the fourth place with 351 points. As in the previous case, it is basically a counter with hands. The following figure is punches. Its total score is equal to 340 points. Punches dominate the fighting kickboxer, and inflicted blows are oftentimes varying. The efficiency of serial actions is 317 points. And they occupy the sixth place ranking of the eight types of technical-tactic actions, estimated by us. Next, with a total efficiency of 309 points is the ability to create the starting position for fighting. It completes our list of the total effectiveness of kicks with 301 points. Our calculations show that the results obtained by expert evaluation satisfy the required mathematical-statistical criteria and the results obtained can reliably be considered reasonable. The consistency of experts’ opinions is quite high. In each case it was estimated by the same quality and criteria for its evaluation which coincided with various experts. The expert group was fairly homogeneous in the evaluation.

Conclusion. We obtained estimates of the efficiency of major kickboxer’s combat operations and opinions about the contribution of a particular type of fighting in the victory. Our data allowed us to rank the contribution. On the basis of them as kickboxers’ and the team technical-tactical training can be described. It is possible to evaluate the preparedness of an individual athlete. Comparison of individual data with group allows to evaluate the advantages or disadvantages of the individual athlete's for the given stage of kickboxing development and for a certain contingent of athletes. Individual data can be matched with the model. As the model the best fighting of the best world kickboxing representatives can be chosen.

Literature
THE ASSESSMENT OF BASIC TECHNIQUE SKILLS
IN YOUNG SOCCER PLAYERS

Seyed Alireza Hosseini Khezri, Ph.D. student
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Ural Federal University, Russia, Ekaterinburg

Abstract. The aim of this study is justification and working-out the soccer techniques testing procedure for young players. Thereby the soccer technique and its assessment were under consideration. The analysis of different soccer technique tests for adolescence and adults, matching them with the needs of soccer and assessment their relevance, age and content coherence allow us to select tests which are comprehensive and sufficient for technical basic skills assessment in young soccer players.

Keywords: technique, young soccer players, testing.

Introduction. The ability to execute specific motor skills with ball called technique is the most important aspect. Players practice technique throughout their lives, but correct technique testing and training is essential for players age 6-12 when they are in developmental stages.

Research objective is to work out the tests for the assessment of the most important soccer skills of 10-12 years old players.

Research methods. Looking into different studies with soccer technique testing methods under consideration [1-4] we selected the most informative and easy carrying out tests for adolescents (table). Herewith tests has been developed according to the basic soccer technique classification: ball controlling with the body (trapping) and head (heading), dribbling, passing and shooting accuracy.

Conclusion. Complex of 5 tests suggested in the article includes basic skills of soccer players and that is more important may be helpful in assessment of the technique performance level in 10-12 years old soccer players. These tests are appropriate for selected ages and thus can give a fairly exact assessment of technical condition in soccer players in progress in case of regular carrying them out.
## Technical tests in soccer players carried out on the pitch 9×9 m

<table>
<thead>
<tr>
<th>Technical Tests</th>
<th>Method of testing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
<td><strong>Measurement and Norms</strong></td>
</tr>
<tr>
<td>Controlling the ball</td>
<td>The number of successful kicks the ball is recorded and test stops with ball falling. 3 attempt and recording by the best point.</td>
</tr>
<tr>
<td>with head only</td>
<td></td>
</tr>
<tr>
<td>with body parts except arms</td>
<td></td>
</tr>
<tr>
<td>Running with the ball (dribbling)</td>
<td>Two stopwatches should be activated when the player starts and stops when the ball dribbling into the fifth cone. Two attempts. The mean of the four recorded times is the score for analysis.</td>
</tr>
<tr>
<td>start 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Two attempts of passing to each of 5 cones (5 with left leg and 5 with right leg). 10 attempts and I point for accurate passing.</td>
<td></td>
</tr>
<tr>
<td>Passing</td>
<td>Two attempts of passing to each of 5 cones (5 with left leg and 5 with right leg). 10 attempts and I point for accurate passing.</td>
</tr>
<tr>
<td>Shooting</td>
<td>Amount of points were attached for the goal sections, 5 attempts. Maximum of points that may be recorded is 25 Pts.</td>
</tr>
</tbody>
</table>

O= Ball ●=cones ▲=Hopper

### Literature


INCREASE OF STRENGTH ENDURANCE LEVEL AMONG AIKIDO
HIGHLY QUALIFIED ATHLETES

Sikamov A.V., Master Student
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Department of theory and techniques of martial arts
Russian State University of Physical Education, Sport, Youth and Tourism

Introduction. There are a lot of problems in aikido training process; one of them is improving of fitness condition such as strength endurance, also called high-intensity muscular endurance. Muscular Endurance is the ability to sustain submaximal activity for extended periods of time and resist fatigue. Submaximal muscular endurance is the ability to sustain low-intensity muscular contractions for a period of time. High-intensity (strength) endurance reflects the ability to sustain high-intensity muscular contractions [30].

Many literal sources [7, 15, 19, 21, 24, 26] describe different ways for solving this problem in combat sports, but not in aikido. And it will be rationally to adopt these methods to aikido. New developed methodic will be include weight and total-body circuit weight trainings in a gym and will be based on the principles of physiology and biochemistry.

Some material was taken from scientific articles such as: Conditioning Methods of World Champion Boxer Evander Holyfield by Frederick C. Hatfield, Ph.D., FISSA; Effects of High-Intensity Intermittent Training on Endurance Performance by Christian Finn; Common Definitions of Fitness Components by Dr. Denise K. Wood; Effects of High-intensity Training on Performance and Physiology of Endurance Athletes by Carl D Paton, Will G Hopkins.

The purpose of scientific research. The purpose of this scientific research is to develop method of increasing strength endurance, for aikido and other combat sport athletes. This method has to be based on the general principles of physiology and biochemistry.

The research objectives.
1. To study the issue of strength endurance in aikido by scientific and methodological literature.
2. To identify approaches to solving this problem.
3. To develop the method of improving strength endurance as complex fitness condition for aikido and other combat arts athletes based on the basics of biochemistry and physiology and methods from other kinds of sport.
4. To test developed methodic among group of aikido athletes.
5. To analyze the results and make a conclusion.
6. To develop the practical recommendations.

Research methods.
1. Literature survey.
2. Participant observation of training process of control and testing group.
3. Fitness condition testing.
The three main exercises were chosen because of their biomechanics and physiology characteristics. Pulse measurement also has been used as a main indicator of strength endurance level. By result a conclusion of fitness condition has been made.

Researched level of strength endurance is below medium. That was defined by pulse measuring method.

Testing exercises

<table>
<thead>
<tr>
<th>№</th>
<th>Exercises</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bench press</td>
</tr>
<tr>
<td>2</td>
<td>Squats</td>
</tr>
<tr>
<td>3</td>
<td>Dead lift</td>
</tr>
</tbody>
</table>

4. Pedagogical experiment.

Weight and total-body circuit-weight trainings are the basis. Another principles are huge intensity, volume, weight and small rest. Athletes use a 40-50% of repetition maximum, 20 repeats in set for 10 exercises with 3 minutes rest between circuits in total-body circuit-weight training one time at week. This training includes barbell exercises such as: incline bench press, decline bench press, close grip bench press, upright barbell row, bent-over row, dead lift, biceps curl, squats, leg raise and crunch. Other trainings represent themselves a 3-day splits; consist of 6 exercises (3 for one muscle group). First exercise has 5 sets of 12, 8, 6, 8, 12 repeats with 60-90% of repetition maximum with 2 minutes rest. Second and third exercises include 5 sets of 20 repeats in slow form with rest time between sets for 1.5 minutes.

5. Methods of mathematical statistics.

Methods of mathematical statistics used for the analysis of the results:
1. Student's t-test will be used to validate the hypothesis for parametric criteria and to compare rates;
2. The Wilcoxon signed-rank test is a non-parametric statistical test (criteria), used to spot the differences between paired measurements samples.
3. The Mann–Whitney U test. It is used for small samples.

The expected results. It is expected that the results of the control group will increase significantly in the most of test exercises in the final testing in the start of next 2017 year, and certainly will not decrease. And the condition of strength endurance also will be improved.

Prospective conclusions. It is supposed that the all objects of this scientific research will be realized and developed methodic will be successful. All of this will become a confirmation that main purpose (Increase strength endurance) will have been achieved.

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Currently, there is growth in number of children with neurological disorders, in particular cerebral palsy. Incidence and structure of disability among children, currently, patients with cerebral palsy are in the first place. Over the past five years, the growth of disability has increased dramatically, and achieved 8-10% [Mamaychuk I.I., 2001].

Children with cerebral palsy are characterized by abnormalities of cognitive activity, motor, speech, impaired coordination of movements. [Potapchuk A.A., 2003].

That is why it is necessary to develop motive and informative processes in adaptive physical culture, particular with application of means of rhythmic gymnastics which, certainly, increase the interest of children to the lessons; increase the level of their physical activity, understanding and aspiration to quality of performance of movements, the effectiveness of formation of fine motor skills. [Karpenko L.A., 2011].

The purpose of the research is to develop and to substantiate theoretically the complex of exercises in adaptive physical education with application of means of rhythmic gymnastics for children with cerebral palsy; experimentally verify its feasibility.

The research methods are:
– theoretical analysis and generalization of literary and documentary data - literature materials on the work with contingent of children with cerebral palsy, and documentary evidence, namely an extract from medical records to identify comorbidities, indications and contraindications for lessons of adaptive physical education;

– the survey of experts in the form of questioning - in order to determine the amount of time and frequency of the lessons, identifying the means and methods of the organization of activities and the construction of training structures in general for this children;

– the survey of experts in the form of conversation - to determine the content and structure of employment of adaptive physical education, to reveal anatomical, physiological and psychological characteristics of children with cerebral palsy;

– pedagogical observation - to determine the level of physical training of children and their physical development;

– pedagogical experiment. There were selected 14 children (6 boys, 8 girls) aged 11-12 years and formed two groups: control and experimental. Students of the two groups matched by sex, age, initial clinical picture related diseases;

– testing: "Pyramid", "Knot", "Draw Sun" - these tests are directed to identification the level of development of fine motor skills of children with cerebral palsy and possible improvement of these indicators;

"Health, activity, mood" - the test is directed to definition of a psycho-emotional condition of children with cerebral palsy;

– mathematical processing of materials research - data processing was performed using the STATGRAPHICS plus program.

The results of the research:

Evaluation of the effective of the proposed complex was conducted by comparing and processing indicators in the period before and after its use in the experimental and control groups.

The control tests showed that in the control group there were no statistically significant changes.

In the experimental group it was found a statistically significant increase, indicating the effective of the proposed complex of exercises with application of means of rhythmic gymnastics to the development of motive and informative processes of children with cerebral palsy.

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The results of test 1 "Pyramid" in the period before and after the pedagogical experiment in the experimental and control groups.

The results of test 2 "Knot" in the period before and after the pedagogical experiment in the experimental and control groups.

The results of test 4 «Health, activity, mood»

ACTIVITY

MOOD
Conclusions

1. Using various methods of research there was identified and determined existing skills and abilities of children with cerebral palsy and assessed the level of their physical development.

2. As a result of the learning experiences of teachers and trainers in adaptive physical education in classes with children of secondary school age with cerebral palsy were identified tools, methods, ways of organizing and structuring classes in adaptive physical education.

3. Based on these data was developed a set of exercises in adaptive physical education for the development of fine motor skills of children with cerebral palsy with the use of means of rhythmic gymnastics.

4. Experimentally tested the effective of an exercise by means of rhythmic gymnastics. It is established that the proposed set of exercises had a positive effect on the development of fine motor skills and physical skills of children with cerebral palsy in general.

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THE IMPLEMENTATION OF THE OLYMPIC EDUCATION IN THE EDUCATIONAL SYSTEM OF THE SPK MGPPU COLLEGE

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Introduction. Nowadays, more attention is paid to physical culture and sports. Physical education is a fundamental means of promoting health, as one of the most important components of a comprehensive harmonious development of personality. Russia has always paid much attention to sports, especially after the XXII Olympic
Winter Games in Sochi in 2014. Russians are always interested in watching the performance of Russian athletes in various international competitions.

IOC President Thomas Bach stated about the results of the Winter Games in Sochi: "Russia has promised us the best Games, Russia has kept its promise. All people open to new ideas have seen the face of this new Russia, efficient and friendly, patriotic and open to the world." Bach’s words became the point of pride for the sports fans, athletes, coaches, government officials and the general public in Russia. It is important to focus not only on the person’s physical development and the achievement of high sports results, but also on the spiritual and moral development of the individual.

**Goal** of this research is the historical and pedagogical analysis of the Olympic Education for the future introduction in the educational process of the MGPPU COLLEDGE

**Methods:**
1. Theoretical analysis and synthesis of the literature.
2. Comparative-historical method.
4. Testing

**Discussion.** Classes in physical education in colleges and universities in Russia are a "stereotype", aimed mainly at performing physical exercises and benchmarking. The educational-methodical program is not intended to study the theoretical course of any sport, the history of the Olympic Movement etc. In this article we attempt to present an innovative approach to physical education in colleges and universities, which, in our opinion, could be successfully used in the curriculum.

Athletic spiritual and moral education of youth is based on a study of the ideals and values of Olympism, the Olympic competition, customs and traditions, historical documents on the history of the Olympic movement. IOC [International Olympic Committee] Olympic Charter (Article 31) prescribes: "... NOC [National olympic Committee] should advocate at the national level ... the fundamental principles of Olympism and contribute to ... the spread of Olympism in schools and universities. NOC contributes to the creation of organizations whose activities are devoted to Olympic education". IOC and each NOC must engage in propaganda of ideas of modern Olympism and Olympic education.

The researches of the Olympic historians worldwide prove that studying the history of the Olympic movement in the physical education course has a positive effect on a spiritual and moral development of students' personalities. In accordance with the format and requirements of the curriculum they have been developed and introduced lectures on the history of the Olympic Movement.

Within the theoretical training the students are expected to gain knowledge about the history of the Olympic Games and the Olympic Movement, its goals and objectives, the basic ideals and values of Olympism, the history and activities of the International Olympic Committee, the patterns and trends of development of the international Olympic movement and its impact on the national systems of physical education and sport.
Results. At the beginning of the theoretical course testing of students was conducted, which consisted of groups of questions about the main topics of the history of the Olympic Games and the Olympic Movement. The results showed that of the students know almost nothing about historical component of the Olympic movement. For example, out of 32 people only 2 chose the correct answer out of four provided to the question "What year were the first modern Olympics Games held?" Almost nobody knew that the "Olympiad" is a period of four years associated with the Olympic Games rather than the sporting event itself. Also no student knew that the correct names for the summer and winter Olympic events are "Games of the Olympiad" and "Olympic Winter Games" respectively.

In addition to lectures the test titled "The Olympic Boom" was carried out a week in each academic semester where students presented their projects on various topics from the history of the Olympic movement. The preparation for "The Olympic Boom" was as follows: at the beginning of each academic semester, students from first to fourth courses were divided into temporary research teams consisting of 10-15 people; then they chose the theme for the upcoming project on the history of the Olympic movement. For example, in one semester the student team took on the roles of "coaches", "athletes", "fans" and "judges" and researched some of the most relevant issues of the international sports and the Olympic movement. The problem of using pharmacological agents by athletes appeared to be the most interesting for students. Each team presented their vision of this problem and at the end of the presentations discussions and debates were organized. In the end student groups offered unexpected solutions to the original problem.

Conclusion. Thus, it can be stated that the introduction of a course of lectures on the history of the Olympic Movement and the training week "The Olympic Boom" promoted patriotic education, formation of interests, needs, attitudes, and values corresponding to the ideals and values of Olympism, increased the level of knowledge about the history of the Olympic Games and the Olympic movement, established humanistic education of spiritual and moral values through sports that affected the moral, aesthetic, communicative and environmental human culture.

Literature
Relevance of this research is that in modern sport training process of girls engaged in sports walking is based on the standard technique for men in which the dominating direction is an increase of volumes of training loads. Frequently it becomes the reason of an overstrain of a female organism. There is a need for optimization of sports training system for girls.

Research objective. To show the structure of training process for girls race-walkers of 13-14 years at a stage of initial specialization, with an account of their anatomical and morphological features.

Hypothesis. On the basis of our researches it is supposed, that the dispensing of training loads with an account of anatomical and morphological features will allow to improve results of sportswomen.

Object of research: training process in race-walking at a stage of initial specialization.

Subject of research: distribution of training loads in an annual cycle.

Scientific novelty: the individual approach to development of physical qualities of the girls specializing in race-walking at a stage of initial specialization is carried out for the first time.

Practical importance. Recommendations for trainers of youth sports schools regarding creation of training process in race-walking in a year cycle for 13-14 year old girls are developed.

Proceeding from a goal and a perspective of researches, the following tasks have been set:

1. To reveal the main approaches to creation of training process for the girls specializing in race-walking at a stage of initial specialization.
2. To define anatomical and morphological features of sportswomen.
3. To estimate a level of physical qualities’ development at sportswomen in a year cycle of preparation.
4. To develop recommendations about creation of training process for women race-walkers at a stage of initial specialization.

The following methods of research were applied for the solution of objectives:

1. Studying of scientific and methodical literature upon the research problem
2. Interviewing and questioning of trainers
3. Pedagogical supervision
4. Pedagogical testing
5. Video analysis
6. Anthropometry, goniometry
7. Methods of mathematical statistics

Research was carried out in four steps.

At the first stage the literary review on a research problem has been carried out. Government programs on preparation in race-walking have been studied on the basis of which it was revealed that in a year cycle at a stage of initial specialization training loads make up to: in the aerobic mode - 937 km; in the anaerobic mode – 27 km; in the mixed mode – 1093 km. Total of general physical preparedness at this stage – 220 hours (fig.1).

![Graph](image)

**Figure 1. Accepted structure of training loads of girls of 13-14 specialized in race-walking**

At the second stage anatomical and morphological features of sportswomen have been defined by means of anthropometry and a goniometry. Research was conducted on the basis of sports schools of the Olympic reserve No. 24, "Youth of Moscow" and "Moscow state sports association" on track-and-field. Groups of the girls training under the leadership of sports schools’ coaches participated in the research. 14 girls specializing in sports walking participated in the research. Sportswomen’ experience was from 1 to 2 years. Age of sportswomen was from 13 to 14 years.

During anthropometry we have measured the longitudinal and spigot sizes of a body. Length of legs in relation to body length has been also calculated. On the basis of the obtained anthropometrical data 2 groups of sportswomen have been revealed: short-legged sportswomen with a relative length of legs less than 50% from body length, and long-legged sportswomen with a relative length of legs more than 50% from body length (fig.2).
Figure 2. Revealed groups of sportswomen

Measurement of level of mobility in joints was taken by means of a goniometry.

Mobility of coxofemoral, knee, talocrural and humeral joints has been measured, and then the mobility coefficient in joints was calculated. Results of a goniometry of young sportswomen were as follows: Joint mobility in long-legged sportswomen was higher than that of the short-legged by 18% (fig.3).

Figure 3. Results of a goniometry of young sportswomen

Length and frequency of steps was calculated by method of the video analysis and in the mathematical way. Results of measurement of length and frequency of steps have shown that long-legged sportswomen take long steps with a low frequency. Short-legged sportswomen take short steps with high frequency (fig.4).
At the third stage a pedagogical testing with the purpose to estimate a level of development of sportswomen' physical qualities was held. The following physical qualities were measured: speed, force, flexibility, endurance, dexterity.

The level of development of speed was measured by "Running at 60 m from the low start" test. (Among short-legged sportswomen the level of development of speed was higher, than among long-legged sportswomen by 9,3%).

The level of development of force was measured by "Long Jump from the Place" test. Force level of development among short-legged sportswomen was higher, than among the long-legged by 7,5%.

The level of development of endurance was determined by using race-walking at 3 km. The endurance level of development among long-legged sportswomen was higher, than among short-legged by 8,7%.

The flexibility was determined by test an inclination on a gymnastic bench are presented. The flexibility level of development among short-legged sportswomen was higher, than among long-legged by 30%.

The level of development of dexterity was estimated by Jumps through a Jump Rope test and the Shuttle Run 3kh10m test. For an assessment of coordination abilities Bondarevsky's test was carried out. The dexterity level of development in both tests among short-legged and long-legged sportswomen appeared to be identical (with a 0,81% and 0,2% difference).

The level of development of coordination abilities among short-legged sportswomen was higher, than among long-legged sportswomen by 40,9%.

It has been established that among short-legged sportswomen such qualities as speed, force, flexibility, dexterity prevail. Among long-legged sportswomen such qualities as endurance and mobility in joints prevail. At a stage of initial specialization short-legged sportswomen show better results in comparison with long-legged sportswomen. In further long-term preparation, with an increase in a competitive distance, long-legged sportswomen since their step is longer are more perspective and mobility in joints is higher.
On the basis of the conducted researches and the revealed specific features we developed recommendations about creation of training process with the emphasis on development of missing qualities in the received groups of sportswomen (fig. 5).

Figure 5. Recommended structure of training loads for girls of 13-14 years

In a year cycle at a stage of initial specialization for long-legged sportswomen it was recommended to reduce loads in the aerobic mode by 5%; – to increase loads in the anaerobic mode by 3%; – to increase loads in the mixed mode by 2%.

In a year cycle at a stage of initial specialization for short-legged sportswomen it was recommended to increase loads in the aerobic mode by 5%; in the anaerobic mode – to leave without changes; in the mixed mode – to reduce by 5%.

Conclusions

1. In a year cycle at a stage of initial specialization training loads make: in the aerobic mode - 937 km; in the anaerobic mode – 27 km; in the mixed mode – 1093 km.

2. On the basis of the obtained anthropometrical data 2 groups of sportswomen have been revealed: short-legged sportswomen with a relative length of legs less than 50% from body length, and long-legged sportswomen with a relative length of legs more than 50% from body length.

3. The results received at measurement of mobility in joints allowed to establish that mobility level in joints among long-legged sportswomen is higher, than among short-legged by 18%.

4. Testing results allowed to establish that among short-legged sportswomen such qualities as speed, force, flexibility and dexterity prevail. Among long-legged sportswomen such qualities as endurance and mobility in joints prevail.

5. On the basis of the conducted researches and the revealed specific features recommendations about creation of training process with the emphasis on development of missing qualities in the received groups of sportswomen were developed. In a year cycle at a stage of initial specialization it was recommended for long-legged sportswomen to reduce loads in the aerobic mode by 5%; – to increase loads in the anaerobic mode by 3%; – to increase loads in the mixed mode by 2%. In
a year cycle at a stage of initial specialization it was recommended for short-legged sportswomen to increase loads in the aerobic mode by 5%; in the anaerobic mode – to leave without changes; in the mixed mode – to reduce by 5%.

6. More perspective in race-walking are the girls with relatively high length of legs. At a stage of initial specialization good results are shown by short-legged sportswomen, as they are more accelerate. However further, long-legged sportswomen (retardants) are ahead of those at the expense of longer steps and high mobility in joints.

TENNIS RACKETS DYNAMIC CHARACTERISTIC
AND PLAYING FEATURES

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Modern tennis is one of the most popular and fastest growing sports. Tennis development is an indicator of social and economic life level of society. Tennis industry ensures its development needs. In recent years the tennis industry for creating special tennis rackets has reached a huge variety of materials, designs and technologies. Visual method for rackets classification is not sufficient method.

The relevance of this study is related to the need to analyze the features of tennis rackets dynamic characteristics and their influence on the properties of the game, which will allow to implement racket more effective and individual selection.

The goal of research - to analyze tennis rackets dynamic characteristics and playing specialty and give practical advice on their individual selection.

Research objects are:
1. Identify the historical features of the production development and the dynamic characteristics of tennis rackets in our country and abroad, as one of the driving forces behind the development of tennis.
2. To analyze the experimental research results of dynamic characteristic and playing features of BABOLAT company's Diagnostic Center tennis rackets.
3. Identify current tennis rackets usage trends for tennis players of all ages and levels.
4. Develop practical recommendations on the selection of tennis rackets, depending on the individual playing style, age and level of tennis.

The following research methods were used to achieve the objectives:
1. Analysis review of the literature data and existing experience.
2. Tennis rackets dynamic characteristic and playing features experimental testing.

The Research. Revealed the historical features of the production development and the dynamic characteristics of tennis rackets in our country and abroad.
Analysis of the literature sources showed that the process of creating a tennis racket with a high features has a long history and practically, is the engine of tennis development.

The period is characterized by a wide variety of synthetic materials that graphite basis racket is made of. However, as before and now issues, related to improvement the efficiency of tennis rackets selection based on individual characteristics of the player, are mostly open.

To consider the different characteristics of tennis rackets and its mutual influence, the experimental study results of dynamic characteristic and playing features of Diagnostic BABOLAT company's Center tennis rackets showed the possibility of experimental measurement of the most important characteristics of tennis rackets: the weight of the beamstiffness, strings stiffness, and dynamic inertia. For example:

Rackets with the same parameters and only different beams were taken for the research were the ball speed dependence on beam size was measured.

Two specially made rackets with a string surface area of 645 cm\(^2\) and 710 cm\(^2\) were taken for the experiment. All other rackets parameters were the same.

Rackets stretched with the same effort and the same strings were fixed in a special device (to simulate the ball hitting in a real game). Balls were fired of the simulator ("tennis Gun"), which gave direct hit at certain points of the string surface.

The experiment revealed that the 710 cm\(^2\) beam gave ball flight longer on average 11\% than the beam 645 cm\(^2\).

Modern manufacturers have long produced a rackets that differs by more than one parameter. Currently there is no rackets that differs only by the area of the beam. That is why designers change area of the surface alongside with other characteristics (such as weight, balance, beam geometry) in order to optimize the the game features.

Likewise stretch of rackets, other parameters were researched.

Defined in numbers such gaming rackets features as power, hit control and controllability that allows to compare indicators with each other on rackets with identical gaming features.

Practical recommendations on the selection of tennis rackets on the basis of the tennis racket main characteristics mutual influence with gaming features, depending on the individual style of the game.

About 20-25 years ago, players can be divided into players who prefer to play in the volley and the baseline players. Times have changed, and for the last 10-15 years, all players now playing mainly on the baseline.

In the final game of Wimbledon 2014, some matches consist of more than 20 hits, whereas only 15 years ago - 10 hits were a rarity.

In modern tennis, all the players can be divided into 2 types;

First Striker (who is playing the first tempo) - player who plays "in court" and try to play on the "bottom-up ball" and Puncher - players who hit the ball mainly at the baseline, they hit the ball at the highest point, or when the ball drops and move in court if necessary. Racket manufacturers design model in accordance with this classification.
The device for the tennis rackets diagnosis allow tennis players to give the following recommendations:

1. Based on the research of the basic characteristics of the racket, which tennis player use, you can find ways to change some of its features and thus raise the level of play.

2. Knowing the characteristics of the various rackets, you can help the buyer to choose a new racket, which allows to raise the quality of his game.

During the research:

The modern trends in the use of tennis rackets for tennis players of different ages and levels with the use of the Diagnostic Center data revealed.

Choice option and rackets features for young tennis players depending on age, weight and skill level based on program of International Tennis Federation (ITF) «TENNIS-10s» experimentally proved.

**Literature**

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The modern tennis can be characterized by the increasing mental and physical challenge to the player, as well as by the complexity of the competition which basically represents an elaborate dynamic system of a conflict nature.

‘Competition in individual rallies, games, sets, matches, competitions and rounds of competitions should be considered and defined as a unified process of the struggle involving a wide range of different activities and aimed at the implementation of certain tasks’ (Belits-Geiman S. P. Tennis, 1977).

The success in the modern tennis depends on both subjective and objective factors. The main objective factors are the competitor, the competition environment, the balance on the court, the equipment (rackets and balls), calendar and competition mode. The subjective factors include athlete’s personality, specific knowledge and skills relating to the strategy, tactics and technique – these factors characterize the athlete’s ability and determination to fight and affect significantly the competition itself and its outcome.

Perfection of advanced tennis players’ skills as well as the process of the meaningful and deliberate work with young players cannot be fulfilled without innovative development trends of sports competitions considered and taken into account.

Meanwhile, the detection of the prospective development trends is becoming of crucial importance. Such trends should become landmarks for the beginners’ education techniques, perfection of strategy, tactics and technique, the development of the system of perspective long-term preparation. If the study and determination of trends of sports competitions development are stagnated it affects the sports and pedagogical tactics most negatively and results in widening the gap with more profound and forward looking competitors.

Considered the above the objective of this research is the detection of the prospective development trends of the gamerelating to all aspects of sports training that principally include strategy, tactics and technique, game style, exposure of most important features of athlete’s personality, calendar and competitions mode, different court surfaces, innovative equipment.
The research is based on the analysis of the experience of the Women's Tennis Association (WTA), Association of Tennis Professionals (ATP), International Tennis Federation (ITF) and tennis events at the Olympics.

The use of methods of interview and survey has enabled to gather and analyze unique material reflecting the vision of the best professionals in our field of the modern world and prospects of the tennis development.

A number of distinguished representatives of the tennis society have taken part in the research, including: Honored Coaches of Russia, Russian National Team coaches of all age groups, the key members of the Russian Tennis Federation (specifically, RTF President Shamil A. Tarpischev), the best players of the past years (specifically, Marat Saphin), active athletes (specifically, Svetlana Kuznetsova, Evgeny Donskoy and others), candidates of pedagogical sciences, professors of Russian State University of Physical Education, Sport, Youth and Tourism (Department of Theory and Methods of Tennis).

**Results of the research.** In the course of the research the key specific features of the modern tennis has been revealed: athleticism, wide range of tactical skills and techniques, game all over the court, increase of the duration of matches and requirements by the sports activities to the physical fitness and other aspects of players’ preparation.

The most effective techniques used by modern players include: strokes over the rising ball, playing the points/rallying with rhythm change, across the court strokes, techniques serving for the greater variability of the game (slices, drop shots, short crosscourt shots, volleys, drives).

Techniques of tomorrow which will be used by the next generation of tennis players are: high-speed serve with the rapid completion of a rally at the net, blocking return, strokes over the rising ball on court from an open stance, drive-volley, half volley; improving footwork is the key to saving energy and increasing variability of techniques, biomechanically proper stroke technique from the essential for an athlete not to be prone to injuries at high training volumes.

Factors determining the choice of the technical and tactical game style: player's temperament, physical, psychological, moral and determination of the player, technical and tactical attributes, anthropometric characteristics, court surface which the player is used to training on regularly from childhood.

When choosing the most potentially efficient style, coaches generally prefer the *universal style* based on active fast attacking strokes used in specially conjured up tactical situations to increase not only the activity but also the stability of technical and tactical actions.

The main features that distinguish modern tennis from the tennis of the past years: increased speed and stability of the game, increased stroke power, pace and duration of rally, increased duration of matches, change of equipment, ‘slow’ court surfaces trend.

**Prospective development trends** of tennis have been revealed: rally pace increase, increased speed of the game due to faster movement and inside the court play, increased accuracy and variability of performed technical and tactical actions at
a faster pace, mass sport as the foundation for the development of tennis, presence of highly motivated and highly qualified specialists.

Tennis players who distinctively demonstrate the features of tennis of tomorrow are A. Zverev, M. Rayonich, N. Kirgioz, G. Dimitrov, R. Federer, N. Dzhokovich, V. Azarenko, G. Muguruza, A. Kuznetsov.

Main features of the ‘Tennis Player of Tomorrow’ training:
– *physical training* – comprehensive, speed of complex reaction, endurance, speed of movement (gaining speed, braking, changing direction);
– *technical and tactical training* – biomechanical and anatomical studies, strokes over the rising ball, volleys, slice drop shots, return, teaching biomechanically correct technique from the from the very early ages to widen the variety of the player’s stroke techniques and thus minimize the risk of injury;
– *psychological training* – emotional control, psychological endurance, moral and determination, ability to play from the first to the last ball, focus.

Required educational level of a professional tennis player should be above average, although opinions vary and there is no uniform answer; many claim that the excessive level of education hinders quick decision making in the game, at the same time it should not be too low, as a player must be able to analyze the situation, knowledge of foreign languages is helpful.

The view was expressed about the lack of qualified specialists. This fact once again underlines the importance of education that we receive in our university, the importance of our attitude to the chosen profession, aspiration and opportunities to become in future the experts who will train the younger generation taking into account the prospective trends we have identified.

The analysis of literary sources and the results of the survey of highly skilled experts identified the direction of modern tennis development and revealed prospective trends, which will surely allow for creating practical recommendations for coaches working with tennis players of different age groups, in particular for children's coaches, aiming at training young tennis players for our national team.

**Literature**
8. WTA Managment Team (Eng.)
GENESIS AND PROSPECTS DEVELOPMENT OF DEAFLYMPICS

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Introduction. This work represents the historical and pedagogical research devoted to the genesis and development of the Deaflympic movement in the world. Sport for people with disabilities and measures for their social adaptation are actively developing in the world nowadays. The problems of the Deaf sports are becoming more urgent with each passing year. In this regard, in this paper we will attempted to analyze the main stages of the development of the Deaflympics. An additional interest in this research is provided by the fact that the XVIII Winter Deaflympics were held in 2015 in the Russian city of Khanty-Mansiysk.

The goal of this research is to conduct a historical analysis of Deaflympics.

Tasks:
1. Identify the stages of development of Deaflympics.
2. To investigate the changes in Deaflympics program.
3. Examine the main indicators of Deaflympics.

Discussion. This research attempts to formulate a clear picture on the Deaflympics and highlight the causes and factors of the creation and development of the Deaflympics as well as to investigate the international experience of Deaf sports movement development and the organizational side of the Deaflympics.

The following characteristics of summer and winter Deaflympics were studied: the program, the number of participating countries, number of sports and disciplines in the program, as well as the influence of various factors on the Deaf sport movement. Taking the aforementioned factors into account we defined the following the stages of the summer and winter Deaflympics development.

Results. In the conducted research we have identified three stages of the Summer Deaflympics development.
The first stage (1924-1953) is associated with the emergence and initial development of the Deaflympics before World War II and the first games after the war. World War II made its changes in the history of Deaf Sports Movement.

The second stage (1957-1989) is associated with the development of post-war summer Deaflympics and the USSR national team participation in the Games.

The third stage (1993-2013) is associated with geopolitical changes that occurred in the world at that time, most notably the collapse of the USSR and emergence on Russian national Deaflympic team.

The winter Deaflympics development was also divided into three stages:

The first stage (1949-1967) is associated with the development of Deaflympics before the USSR national team participation.

The second stage (1971-1991) is associated with participation of a national team of the USSR.

The third stage (1995-2015) is associated with geopolitical changes such as the crash of socialist regimes which led to the dissolution of Czechoslovakia, Yugoslavia and the USSR. It also marks the emergence of the Russian national team at the Deaflympics.

Summer Deaflympics program includes both the Olympic and non-Olympic sports. Non-Olympic sports are bowling, sports orientation and karate. The Olympic sports are track and field athletics, badminton, swimming, freestyle and Greek-Roman wrestling, water polo, handball, football, basketball, volleyball, beach volleyball, table tennis, tennis, shooting, judo, taekwondo, cycling. All of the winter deaflympic sports are also the Olympic ones. They are cross-country skiing, hockey, snowboarding, curling, mountain skiing, ski freestyle. The number of events in each sport at the Deaflympics is roughly on par the Olympic Games. With time the Summer Deaflympics program saw the 2.5 times increase from 6 sports in 1924 and 16 sports in 2013. A similar trend can be observed in the Winter Deaflympics. The amounts of winter sports in the has doubled from 2 to 5 at the 2015 Deaflympics.

**Conclusion.** Deaflympics are held every four years. Every year the number of participants, sports and the participating countries increases. The number of countries taking part in the summer Deaflympics has increased by 10 times in the period of 1924-2013. There is also a significant increase in the number of participants: from 14 in 1924 to 2879 in 2013. The positive dynamics of growth can be seen in the Winter Deaflympics as well. In comparison with the first games of 1949 the number of member countries has grown from 5 to 27 by 2015. The number of participants has also grown: from 33 to 344 people. The expansion of the international deaf sports movement in the world has a positive effect on the development and promotion of the Deaflympics.

**Literature**


Introduction. The world's education systems are different, and their study and comparison of currently significant. The novelty of our study is to identify the various aspects of the educational process, Bachelor of Arts by the example of Russian State University of Physical Education, Sport, Youth and Tourism (RSUPE) and the University of Canterbury (New Zealand).

Purpose of the study – to analyze the system of education in Russia and New Zealand, the object was the preparation of bachelors of Arts in educational institution, and the subject was the structural and substantive elements of education.

Research’s methods. Analysis of informational resources, documents, observations and comparative analysis.

Results. Comparative analysis of curricula and training programs shows the difference in the periods of bachelor’s preparation. In Russia, the bachelor studies 4 years and earns 240 credits, in New Zealand for 3 years studying student earns 360 credits. In Russia, disciplines cannot cost less than 1 credit, whereas in NZ, discipline cost at least 15 credits or a multiple of this number.

RSUPE has a set of academic disciplines regulated and defined by the curriculum of 4 years of study, whereas in the University of Canterbury - personally selected by student for only 1 year and the choice of subjects depends on student’s wish.

The curriculum in Russia consists of a base and a variable part, whereas in New Zealand there are four blocks of disciplines:

1 block – Arts major courses
2 block – Arts minor courses
3 block – Other Arts courses
4 block – Courses from Arts or other degrees

In New Zealand, the practice block does not exist.

In New Zealand, the student takes 8 subjects per year. The basis consists of the professional disciplines. Student can choose from several disciplines and Bachelors
of other areas of training, such as a Bachelor of Commerce, Bachelor of Criminology and others.

In Russia, the basic module consists of 49 disciplines, whereas University of Canterbury’s module has 31 disciplines and all three years of study has a different number of subjects of choice: first year – 5 disciplines, second and third years – 6 disciplines each.

RSUPE have distributed all professional disciplines on the courses and they are mandatory. On the contrary, University of Canterbury let students select any discipline from the list of professional disciplines, regardless on student’s level of knowledge on certain subject.

Workload on the subject at Russian university is distributed in the ratio of 30-50% of lectures and practical classes (in some disciplines - around 90% of the classroom, such as "professional development"), whereas in New Zealand, there just 2 lectures a week, practical activities – once a week. More flexible timetable made for independent learning for students.

Attending at RSUPE is almost mandatory. Attendance in the University of Canterbury is controlled during practical classes and can take up to 5% of the maximum mark for the discipline.

In Russia, tests and exams may be taken in the form of an interview with the teacher, testing, implementation of practical tasks. New Zealand on the other hand accepts any form of tests in a written form.

Conclusion. For the first time revealed features of the educational process of Bachelor of Arts in Russian and New Zealand universities. Comparative analysis of the structure and content of the educational process of Bachelor of Arts in Russia and New Zealand led to assess the advantages and disadvantages of preparing specialists in this field of activity in various countries, and may further serve to determine the prospects of development.

Literature

SOCIAL PSYCHOLOGICAL ASPECTS OF SPORT SUCCESS IN FOOTBALL (CASE STUDY OF YOUNG FOOTBALL PLAYERS)

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Introduction. Currently, the preparation of the professional football players is based mostly on physical, technical, tactical training and psychological preparation is almost overlooked. If true, these problems would be reduced to a superficial psychological research, solving personal problems of athletes.
The aim of this research is to identify the psychological aspects of the sport success of young football players.

The research was conducted on 33 participants in 10-11-year-old Russian male football players, specializing in football “Center of Sports and Education “Chertanovo” of Moscow city.

**Method:**
- scale of personal anxiety for pupils 10-16 years old, adapted for athletes;
- professional motivation of the learner, adapted for athletes;
- a test to assess the level of social psychological adaptation (Dmitrieva M.A.) adapted for athletes;
- the method of expert evaluations;

**Results of empirical research.** Sport success of young players was determined by the expert assessments, which gave them their coach.

![Graph of sport success levels](image)

As you can see in the diagram, 40% of the participants have a low level of sport success, 39% – an average level and 21% of athletes have a high level.

In terms of the general social psychological adaptation of participants, following results were obtained:

![Graph of adaptation levels](image)

As can be seen from the diagram, all the players have high level of social psychological adaptation (the highest - "high", a little less than high - "heightened"). Later levels are presented as high and medium respectively.

*The level of anxiety*, the following results were obtained:
As shown in the diagram, 21% of participants have a low level of anxiety, 24% have an average level and 55% of children have a high level.

The diagram shows the results of a survey of sport motivation of the football players.

As shown, 40% of participants have an average level of sport motivation, 24% – a high level and 36% – low level of motivation.

**Analysis Of The Results Of Empirical Research.** Social psychological adaptation of players with varying success.

As the results of our research are shown, the athletes with an average sport success have shown the highest social psychological adaptation. The athletes with a low success have shown the lowest adaptation.

In addition to the total score of adaptation, we also studied the specific indicators, such as the attitude towards sport school, the relationship between the guys in the team, their own attitude to the football guys, satisfaction with his position in the team, and others.
As can be seen from the picture, all values of indicators are almost equal. But there is a tendency to the fact, that the football players with an average sport success have higher levels of social psychological adaptation than the rest. The players with the high sport success, as one might suppose, are more satisfied with their position in the team than the low success players and more satisfied with the terms of training. Also they estimate the relationship between the guys in the team higher than the low success boys.

**Sport motivation of players with varying success**

Indicators of motivation in sport were as follows:

As the picture shows, athletes with high sport success and low success players have the highest motivation of sport skills, compared to the average success players. The motivation of self-affirmation in the sport scored higher on an average sport success. Perhaps, this result should be explained by the fact that well-adapted children with the average sport success are aimed not so much on the content of sport activities, but rather on what a social effect gives them, e. g. membership in a sport team. Apparently, this situation prevents them to achieve good results in sport.

**Anxiety of young players with varying success**

The following results were obtained according to our research.
As shown in the picture, the highest level of anxiety is observed among players with average success and the lowest level – among players with high success. It turns out that, despite the fact that the average success athletes are well-adapted to the social psychological terms, they experience significant anxiety, apparently because of the inability to improve their athletic results and thereby achieve a more prestigious social status to which they are, as shown above, are not indifferent.

Conclusions
1. The success of young players linked with their social psychological adaptation, motivation and anxiety.
2. The high and low success players scored higher on motivation of sport skills.
3. The average success players scored higher on motivation of self-affirmation.
4. The highest level of anxiety is observed among players with average success and the lowest level – among players with high success.
5. Successful players have an average level of anxiety, and social psychological adaptation, high motivation of sport skills and high motivation of self-affirmation in the sport.
6. The least successful players show the average level of anxiety, low social psychological adaptation, heightened anxiety, high motivation of sport skills and high motivation of self-affirmation in the sport.
7. Football players with an average success show high levels of anxiety, social psychological adaptation, high motivation of sport skills and high motivation of self-affirmation in the sport.

Literature
SIGNIFICANCE OF ENGLISH AS A TOOL OF INTERNATIONAL COMMUNICATION

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Modern world is impossible without extensive international contacts and communication, which are the basis for further interaction of ideas and innovations. Knowledge of a foreign language and professional competence in it is an effective tool for joining the European higher education area and moving from one country to another for the purpose of further study or employment. Physical Education and Sports is the area where the competence in foreign languages is always in demand. The number of foreign born employees in the field of sport is one of the highest compared with other industries. Besides, professional sport always implies competitions in the international arena. So it entails intensive international communications. But unfortunately the level of English and other foreign languages among athletes is not always very high, because foreign language training is not a major course for athletes during their studies in professional schools and universities. Thus, certain ways of improving the language training of students should be regarded.

Today English language is really the most convenient and efficient tool of international communication. According to official sources more than 400 million people speak it as their native language and for more than 600 million people it is a second native language [2]. In 53 countries it has the status of official language as well as in thousands of the most important international organizations. More than 1 billion are learning it, about a third (2 billion) of the world's population are in some sense familiar to it and by 2050, it is predicted [1], that half the world will be more or less proficient in it. For scientists it is important that English has become the language of computers and the Internet – the fast growing informational resource.

While English is viewed as a modern Lingua Franca, the situation in some countries with its knowledge and use is not at its best as the following figures show.
The self-reported data illustrates the differences in approaches and attitudes towards English as a language of international communication. Unfortunately in many post-Soviet states the level of command of English language leaves much to be desired. Thus educational systems in those countries should take particular steps to improve the level of English language in the society so that the citizens could use it for their benefit.

Fortunately, the interest to foreign language is greater in the student’s community than in other age groups, see diagram below.

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Fig. 1 Knowledge of English Language (all levels – self reported data) [2]

Fig. 2 Usage of Foreign Language in the EU by the age group [3]
The data of the graph clearly shows that the usage of foreign language among students is higher than in other age groups. It must be regarded in new educational process as well. Since students are so interested in using foreign languages in their personal communication, the educational process should stimulate them to use it on a better level and even more frequently.

The annual International Scientific Conference of Students, Post Graduates and Young Scientists in English “Modern University Sports Science” is an example of professional foreign language training. The participants demonstrate both their language skills and results of their scientific research. The participation of students of all Russian higher educational establishments of physical education and sport as well as their young colleagues from foreign countries emphasizes its significance. The winners of the Conference have a chance to participate in various International Conferences and Congresses as they acquire the indispensable practical experience of presenting their professional knowledge in a foreign language.

**Literature**


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**THE INCREASE OF JOBS IN THE SPORTS INDUSTRY IN THE RUSSIAN FEDERATION AFTER THE WINTER OLYMPIC GAMES IN SOCHI 2014**

_Udalova T._

*Department of Pedagogics,*

*Russian State University of Physical Education, Sport, Youth and Tourism*

Sports-related jobs are expected to increase 23% for the decade ending in 2018 in the United States, a much larger increase than the average for other employment sectors, according to the Bureau of Labor Statistics. Sports-related jobs also demand higher-than-average salaries, with average earnings of $78,455 per year, compared to the national average of $57,947. The United States is a proven leader in the amount of big annual sporting events and in the number of sports leagues. Russia though might be catching up soon. The sports industry has grown after Russia hosted the Winter Olympic and Paralympic Games in 2014.

One of the most popular job searching portals in Russia has recently published the statistics for 2016. According to the statistics 0.55% of the job listings on the website are sport and fitness related. Sales, as a point of comparison, occupy 35.37% of all job postings in the catalogue. The interest in sports and
fitness related job openings, however, is 1.03%, twice as much as the percent of actual openings\(^4\).

The increased interest in sport related jobs in Russia has grown significantly since the 2014 Winter Olympic and Paralympic Games in Sochi. The organizing committee “Sochi 2014” was established in October 2007. There were 11 blocks and 55 functions in the committee. The biggest functions as far as the numbers of employed staff is concerned were construction, finance, logistics, education, ecology, accommodation, and culture. During the games the organizing committee consisted of 1800 employees and 52000 temporary employees.

In September 2013 a brand new Russian International Olympic University (RIOU) in Sochi opened its doors for students who wanted to obtain Masters Degrees in Sport Administration. This special programme has been devised by a group of leading Russian and foreign experts in accordance with RIOU’s original concept which was approved by the International Olympic Committee (IOC). In the future, the University is planning to run an Executive Master of Sport Administration (ExMSA) postgraduate course. The University can host up to 500 students at any one time and the annual number of graduates (including external courses) will reach 2,000.\(^5\)

Professionals in sports related education in Russia admit the importance of extending the list of courses and making it more variable. Nowadays such professionals as event planners, psychologists, and even statisticians are finding jobs in the sports industry. The professional educational world has questioned why executives would employ people without any sports knowledge. The answer to this question is simple: the world of sports now offers many more venues and functions for employment than in days past. This is what the Russian Federation’s new contemporary job variety in the sports industry looks like:

– corporate athletic trainers (With the return of the “Ready for Labour and Defence of the USSR” (GTO) model, a lot of businesses employ corporate athletic trainers. This is more reasonable than providing staff with fitness club memberships. Corporate athletic trainers can be former professional athletes, school PE teachers, fitness instructors, etc.);

– school team coaches (In 2017 the Russian Government will be organizing school sports leagues. There is about 85 000 public schools in the country and 50% of all the schools will have to employ professional team coaches. That means 40 000 job openings.);

– sports Photographer (With the growth of social media like Facebook and Instagram there is big interest for professional photographers.);

– sporting Event Planner/Coordinator (A lot of companies are organizing corporate events for their employees, big sporting events are in need of specific professionals like sport press operators, sport logisticians, and sport marketers.);

\(^4\)http://www.superjob.ru/statistics/

\(^5\)http://www.olympicuniversity.ru/en/education/about
– sports Psychologist (An important and high demand profession at the professional and amateur sport level, private psychologists for elite and young athletes.)

**BASEBALL AND SOFTBALL IN THE INTERNATIONAL SPORTS AND OLYMPIC GAMES MOVEMENT**

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Russian State University of Physical Education, Sport, Youth and Tourism

**Introduction.** In the Olympic history the place of every sport in the Olympic Games program is important and actual, but not all sports recognized as an Olympic gets into the Olympic Games program. It only gets there after the International Olympic Committee (IOC) session decides to accept this particular athletic discipline to the Olympic program.

There are examples in sport history when a certain sport is recognized as Olympic but it is not yet included in the Games program due to the various reasons. Sometimes Olympic sports included in the Games program could be excluded from it.

The **aim** of this study is to examine the factors that affected the exclusion of baseball and softball from the Olympic Games and determine the prospect for their re-inclusion in to the Olympic Games program.

**Discussion and results.** Baseball is a sports teamplay game with a ball and bat. Baseball was represented at the Olympic Games only with men disciplines.

Baseball tournaments were periodically included in the Olympic Games program. The first tournament was in 1904 at the III Olympic Games (Saint-Louis, USA), but it was being introduced as a demonstrational event only until 1992. It was officially included in the Olympic program at XXV Olympic Games (Barcelona, Spain) in 1992 and the first sets of medals were awarded. For the whole time the competition was attended by 17 teams, 8 teams took part in tournament, but only three teams – Cuba, Japan and Italy – took part in all competitions and tournaments. Baseball was gaining popularity and from year 2000 baseball professional players were being able to take part in the Olympic Games. In the 2005 IOC made the decision to exclude baseball from the Olympic Games program, which came into the force since XXX Olympic Games (London, UK) in 2012.

One of the reasons for exclusion from the Olympic program is the Main Baseball League, which hasn’t come to an agreement about the Olympic Games dates that coincided with the North America baseball play season. Because of this problem a lot of titled athletes could not come to the Olympic Games, which greatly affected the popularity of the sport as an Olympic sport.
Softball is a variety of baseball, with the difference in size of field, bat and ball. The “fast-pitch” type of softball has been included in the Olympic Games program only for women teams.

Americans and Japanese have taken efforts to achieve the inclusion of softball to the Olympic Games program since 1940. However, first softball tournament was at XXVI Olympic Games (Atlanta, USA) and was part of four Olympic Games till the XXIX Olympic Games in Beijing in 2008

13 countries have taken part in softball tournament, 12 medals were awarded, and only 4 countries were medal-winners. Also the women softball became the third women-only discipline in the Olympic Games program. But softball was not included in the program of the XXX Olympic games in London in 2012.

Possible reasons of exclusion of softball from the Olympic Games program were the ban by the North American major softball league for professional softball players to participate in the Olympic Games and low popularity of softball in Europe. According to estimations softball maintained slightly more than 40% of the IOC.

However, softball and baseball federations created a World Baseball Softball Confederation in 2013. And the Confederation has filled an application for review and inclusion of baseball and softball in the XXXII Olympic Games (Tokyo, Japan) in 2020. WBSC explain this by the fact that the male baseball and female softball are the most popular disciplines in WBSC. These revolve on popularity among young people, loyal players and fans of all ages.

**Conclusion.** Softball and Baseball combine athleticism, agility and coordination, and most importantly – teamwork.

Now, the 129th IOC session, to be held in Rio de Janeiro in August 2016 will decided the future of these sport in the Olympic Games program and their chance to recover their popularity and recognition of the audience.

**Literature**

5. Энциклопедия Олимпийского спорта. Т.1, т.2, под ред. Платонова В.Н.
EVALUATION OF INDIVIDUAL PERFORMANCE BY FINGER DERMATOGLYPHICS OF HIGH QUALIFICATION GYMNASTS

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Russian State University of Physical Education, Sport, Youth and Tourism

Annotation. This study was conducted with the aim of improving the competitive programs of athletes in rhythmic gymnastics on the basis of their genetic instincts, which are identified by finger dermatoglyphics. The study was conducted on the 11 highly skilled athletes (from candidates for master of sports to the world-class athlete).

Keywords: dermatoglyphics, gymnastics, physical quality, flexibility, speed, power, coordination abilities.

Introduction: Rhythmic gymnastics - acyclic, complex coordination sport. Exercise of programs are a free displacement around the gymnastics carpet. The competitive composition includes elements of dance, plastic, facial expressions, pantomime and the movements, which rhythmically coordinated with the music. The competitive composition is performed without an gymnastic subject and with it.

Evaluation of both individual and group exercises is made up of two components: the difficulty (D), and performance (E). In the aspect of our study is the most interesting of the body difficulty, it has a certain set of elements, which should be executed gymnasts in the competition exercises.

All of the elements in rhythmic gymnastics are divided into three groups:
1) jump;
2) turns;
3) equilibrium.

In accordance with the rule FIG 2013-2016 in the exercises gymnasts need to be presents Difficulties from each group of body movement (min 2, max 4 from each group). In accordance with this question: which group of elements prevails? This issue should be resolved on the basis of motor abilities of gymnasts, because, for example, in the predisposition to speed-strength work, gymnasts will most efficiently cope with the jumps, and at inclinations to preserve stability, the most rational will be included in the competitive program more equilibria.

Goal of research: the identification of the preferred group of elements for gymnasts of high class on the basis of genetic predisposition to development of certain physical abilities.

The main method of our research is the method of finger dermatoglyphics. Dermatoglyphics refers to the formation of naturally occurring ridges on certain body parts namely palms, fingers, soles and toes as a consequence of continuous friction which occurs in these areas. On the basis of this method we have identified a predisposition to the manifestation of all the basic physical abilities: coordination, strength, speed and endurance.
The results of research and discussion. The data obtained are presented in table 1: «Assessment of individual characteristics of finger dermatoglyphics of the gymnasts of high qualification»

Table 1
Assessment of individual characteristics of finger dermatoglyphics of the gymnasts of high qualification

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<td>21</td>
<td>10</td>
<td>18</td>
<td>16</td>
<td>16</td>
<td>21</td>
<td>16</td>
<td>8</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>PL 5</td>
<td>16</td>
<td>14</td>
<td>8</td>
<td>10</td>
<td>14</td>
<td>12</td>
<td>17.5</td>
<td>17</td>
<td>6</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>SGSrght</td>
<td>24</td>
<td>70</td>
<td>44</td>
<td>56</td>
<td>74</td>
<td>85</td>
<td>86</td>
<td>90</td>
<td>28</td>
<td>78</td>
<td>37</td>
</tr>
<tr>
<td>SGSlef t</td>
<td>34</td>
<td>97</td>
<td>40</td>
<td>70.5</td>
<td>84</td>
<td>80</td>
<td>99</td>
<td>94</td>
<td>36</td>
<td>61</td>
<td>39</td>
</tr>
<tr>
<td>SGS</td>
<td>58</td>
<td>167</td>
<td>84</td>
<td>126.5</td>
<td>158</td>
<td>165</td>
<td>185</td>
<td>184</td>
<td>64</td>
<td>139</td>
<td>76</td>
</tr>
<tr>
<td>D</td>
<td>6</td>
<td>18</td>
<td>13</td>
<td>15</td>
<td>10</td>
<td>15</td>
<td>17</td>
<td>16</td>
<td>8</td>
<td>13</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: PP – right finger, PL – left finger, SGS – total ridge account, D – Delta index, CMS - candidate master of sports, MS -master of sports, MSIC - master of sports of international class?
U-loop – ulnar loop, R – loop - radial loop/

The most common phenotype in the sample is the phenotype of WL, which corresponds to the high level of development of coordination abilities. Girls with L10 and LW phenotypes also can achieve high results in this sport.

Girls with phenotype AL with a certain probability, not achieve high results in this sport.
When determining the priority groups of elements for each gymnast must consider not only the types of finger patterns as well as quantitative indicators of total ridge count and ridge count of individual fingers of the hands.

**Conclusions**
1. The girls with the WL phenotype, given other favourable conditions (level of development of active flexibility, Constitution type, the value of ridge count), will be good to work out elements of all 3 groups of difficulty: Jumps, Spins and Balance.
2. The girl with the LW phenotype the most successful will manifest themselves in group exercises, in connection with the making for a high level of development of endurance. Indicators of power and speed-power work are usually not high, so in the competitive composition gymnasts with a given phenotype it is necessary to include more Equilibrium and Spins.
3. Athletes with phenotype L10 in most cases show a good speed-power performance. The most rational is the prevalence of elements of the group Jumping.

**Literature**

**THE ROLE OF GAMES AT LANGUAGE LESSONS FOR STUDENTS IN SPORT UNIVERSITY**

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Games offer students a fun-filled and relaxing learning atmosphere. After learning and practicing new vocabulary, students have the opportunity to use language in a non-stressful way. While playing games, the learners' attention is on the message, not on the language. Rather than pay attention to the correctness of linguistic forms, most participants will do all they can to win. This eases the fear of negative evaluation, the concern of being negatively judged in public, and which is one of the main factors inhibiting language learners from using the target language in front of other people. In a game-oriented context, anxiety is reduced and speech fluency is generated—thus communicative competence is achieved.

Games are also motivating. Games introduce an element of competition into language-building activities. This provides valuable impetus to a purposeful use of language. In other words, these activities create a meaningful context for language use. The competitive ambiance also makes learners concentrate and think intensively during the learning process, which enhances unconscious acquisition of inputs. Most students who have experienced game-oriented activities hold positive attitudes towards them. Students like the relaxed atmosphere, the competitiveness, and the motivation that games brought to the classroom. On the effectiveness of games
students seem to learn more quickly and retain the learned materials better in a stress-free and comfortable environment.

The benefits of using games in language-learning can be summed up in eight points.

Games are:
1) learner centered;
2) promote communicative competence;
3) create a meaningful context for language use;
4) increase learning motivation;
5) reduce learning anxiety;
6) integrate various linguistic skills;
7) encourage creative and spontaneous use of language;
8) construct a cooperative learning environment;
9) foster participatory attitudes of the students.

The advantages of using games. Many experienced textbook and methodology manuals writers have argued that games are not just time-filling activities but have a great educational value. Most language games make learners use the language instead of thinking about learning the correct forms. Games should be treated as central not peripheral to the foreign language teaching programme. Teachers believe games to be fun but warn against overlooking their pedagogical value, particularly in foreign language teaching. There are many advantages of using games. Games can lower anxiety, thus making the acquisition of input more likely. They are highly motivating and entertaining, and they can give shy students more opportunity to express their opinions and feelings. They also enable learners to acquire new experiences within a foreign language which are not always possible during a typical lesson. Furthermore, they “add diversion to the regular classroom activities”, “break the ice”, but also they are used to introduce new ideas. In the easy, relaxed atmosphere which is created by using games, students remember things faster and better. Teachers believe games to be a good way of practicing language, for they provide a model of what learners will use the language for in real life in the future.

Games encourage, entertain, teach, and promote fluency. If not for any of these reasons, they should be used just because they help students see beauty in a foreign language and not just problems.

There are many factors to consider while discussing games, one of which is appropriation. Teachers should be very careful about choosing games if they want to make them profitable for the learning process. If games are to bring desired results, they must correspond to either the student's level, or age, or to the material that is to be introduced or practiced. Not all games are appropriate for all students irrespective of their age. Different age groups require various topics, materials, and modes of games. For example, children benefit most from games which require moving around, imitating a model, competing between groups and the like. Furthermore, structural games that practice or reinforce a certain grammatical aspect of language have to relate to students' abilities and prior knowledge. Games become difficult when the task or the topic is unsuitable or outside the student's experience.
Another factor influencing the choice of a game is its length and the time necessary for its completion. Many games have a time limit, but the teacher can either allocate more or less time depending on the students' level, the number of people in a group, or the knowledge of the rules of a game etc.

There are a lot of different games nowadays but my favourite one is a well-known board game Alias. Players have to explain words to other players not mentioning them. ALIAS is a word game that you play in teams. In ALIAS you have to say things in “other words”. The idea is to explain words using synonyms, opposites or clues so that your team mates guess as many words from the card as possible before the sand in the sand timer runs out. The team moves forward on the board the same amount as words guessed. The team to reach the ‘Finish’ first is the winner. How to play:

1. Shuffle the cards turning over the last card in the pack to indicate the need to reshuffle.
2. Each team chooses a coloured playing piece and places it in the Start space.
3. Each team chooses a player who explains on the first round. This player then takes a suitable amount of cards from the pack (15-20). The cards each have eight words on them. The other teams then choose a number from 1 to 8, for example 4. The sand timer is turned over and the player starts to explain the word number 4 (see “How to explain”). When the team guesses the correct answer he puts the card on the table and starts explaining the word number 4 from the next card.
4. When the sand in the sand timer runs out, the other teams tell “stop”. If the player is still explaining, the guessing becomes ‘open’ to all teams. The fastest correct answer wins and allows that team to move one space forward on the board.
5. The amount of cards on the table show how many spaces the team can move forward on the board.
6. The turn goes to the next team. Used cards are returned to the bottom of the pack. The unused cards are given to the explaining player in the team, and he also takes some new cards from the pack, so that he has 15-20 cards in his hand. The spaces on the game board have numbers 1-8, and the number for the explained words is now determined by where the team’s playing piece is on the game board. The team members take turns at explaining the words.
7. The team that is the first to reach ‘Finish’ space is the winner.

Note! The words are not in any particular order. There are verbs, adjectives, nouns, people, locations and colours. It all depends on luck, whether you get easy or hard words. Only exact words are accepted. The guessed word has to be exactly correct. For example, if the word is “Running”, “Run” is not an acceptable answer.

How to explain. When explaining, you cannot use any part of the word on the card, nor a derivative of it. For example, you cannot explain the word “handbag” by saying “a small bag women usually carry”, or the word “balloon” by saying “a ball filled with air” since balloon and ball are derived from the same word. You could, however, say “a colourful object filled with air”. If the word has two parts, for example “tape recorder”, and someone guesses “tape player”, you can then use the first part and help your team by saying “the tape is right but use another word for
player”. You can use opposites. The word “big” can be explained as “the opposite of small”. You can’t use foreign languages. You are allowed to give as many hints and guesses as you can until the sand in the sand timer runs out.

Games are often used as short warm-up activities or when there is some time left at the end of a lesson. Yet a game should not be regarded as a marginal activity filling in odd moments when the teacher and class have nothing better to do. Games ought to be at the heart of teaching foreign languages. Teachers suggest that games be used at all stages of the lesson, provided that they are suitable and carefully chosen. At different stages of the lesson, the teacher's aims connected with a game may vary.

Games also lend themselves well to revision exercises helping learners recall material in a pleasant, entertaining way. All teachers agree that even if games resulted only in noise and entertained students, they are still worth paying attention to and implementing in the classroom since they motivate learners, promote communicative competence, and generate fluency. However, can they be more successful for presentation and revision than other techniques? The following part of this article is an attempt at finding the answer to this question.

There is a common perception that all learning should be serious and solemn in nature, and that if one is having fun and there is hilarity and laughter, then it is not really learning. This is a misconception. It is possible to learn a language as well as enjoy oneself at the same time. One of the best ways of doing this is through games.

Literature

PHYSICAL EDUCATION IN THE CONTEXT OF HUMAN POTENTIAL DEVELOPMENT

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The development of educational area in the framework of physical education is characterized by the development of social significative priorities that are determined by the state. Education in the whole and physical education in particular undoubtedly have proved their cultural significance for mankind. But education itself nowadays
directly depends on some factors that provide scientific and technical progress. Among these factors one can emphasize political, economical, historical, national, cultural, ideological etc.

By the amount of factors we have the opportunity to determine the development trend of educational services in the field of physical education. The main factors are as follows: political regime, historical way of the state development, economical potential and cultural peculiarities form the path of implementation of physical education in the framework of the educational process depending on the states. The research show that the historical path of the world civilizations has determined the succession of substitution of human labor for a machine one reducing man’s physical activity during production where the level of a human being’s physical activity per se doesn’t play any key role in his/her competitive ability on the labour market. Such situation, from one hand, should move aside physical education and sport to the range of non-actual subjects to study. But 21st century with the development of a high life rhythm, especially in the megalopolises have given birth to a new global problem of high mortality rate from cardiac-vascular diseases, cancer, infections, respiratory diseases and lungs chronic diseases (asthma, bronchitis etc.), diabetes, obesity and other.

The problems of dipsomania, smoking and drug addiction still remain very acute. All these make the different countries governments to invest considerable funds from federal budgets into the physical education and sport development to prevent high mortality among able-bodied population.

Many states of the world having realized the importance of physical education in the human potential development that causes the cumulative effect in country’s prosperity. The development of an individuality of every person create some preconditions to the describing of methodological principles of physical education influence upon the labour potential development.

The abovementioned determines the set of tasks that demand the detailed research in the field of frameworks of implementation of global population accessibility to physical education and sport:

1. To study a human potential from the position of physical education influence on it [1].
2. To substantiate the necessity of continuation of the Russian Federation Government support of projects on the population accessibility to sport facilities.
3. To study the main trends of organizational, educational and sport activities that are realized abroad with the purpose of finding the optimal level of the national level of physical education model development.
4. To examine the main aspects and trends on the finding the most favourable conditions of physical education development in the contest of political and economical succession.

The setting and solving of the abovementioned tasks should rest on the using of a certain research methodological background where general scientific methods should be applied: conceptual and theoretical, procedural and activity, philosophical and prescriptive, conceptual and descriptive, procedural and praxeological. Such
methods as science abstraction, classification, comparison, definitions and principles of innovative management, comparative analysis, expert evaluation should be applied as well.

Summarizing all abovementioned one should first of all support the physical education development that allots a task of improving a human potential through educational services on the state measures level and by the possibilities of educational institutions inner management.

As the main means of realization of this direction the necessity of creating of organizational and management mechanism that responses to functioning infrastructural conditions and strategic perspective directions of physical education development should be considered.

The correcting of functional and substantive as well as organizational and management directions should be carried out as a systematic transformation of physical education development at the educational institutions on the all levels of the educational system that are performing in the states considering national legislation.

**Literature**


**MILITARY-PATRIOTIC EDUCATION OF CHILDREN AND YOUTH BY MEANS OF TOURISM AND LOCAL HISTORY ON THE EXMPELE COSSACK MOVEMENT IN STAVROPOL**

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**Keywords:** cultural and historical heritage, historical and ethnographic heritage of the region, Cossacks, patriotism, military-patriotic education of children, youth, tourism, military-patriotic tourism, local history and local lore tourist route.

One of the important problems of modern society is to educate the younger generation ready to take responsibility for the fate of the country and its security. This is particularly important due to the existence of negative trends in the education of adolescents and young people of our society. The growth decelerations (lack of purpose in life) among the younger generation requires an adequate situation solutions, organizational research, pedagogical tools, forms and methods of education of youth, which will soon take over the responsibility for the fate of Russia.

Formidable history of Russian Cossacks is the most striking example of the best patriotic traditions. Its historic path is complex, contradictory and represents several centuries of the heroic struggle of the Cossacks for the freedom and independence of the Fatherland, his native land. The difficult and glorious history of the Cossacks created numerous examples of their selfless service to the Russian State,
allowed to form a kind of a powerful military organization, has accumulated vast experience of training and education of defenders of the Motherland.

Military traditions of the Cossacks had absorbed those signs by which "man is born a Cossack, became a son of his people" believed in his mission in his native land. However, the skills of military affairs and the high moral character of the Cossacks not formed overnight. From father to son, from grandfather to grandson passed the same covenant: "To love their homeland, to destroy its enemies." Diplomatic skills of the Cossacks in the settlement of disputes, tolerance, respect for other people's culture contributed to their rapid adaptation to new areas and the establishment of friendly relations with the neighboring nations. Volitional qualities, military discipline and a profound sense of duty to the Fatherland did Cossack form highly mobile and a significant force in campaigns and wars.

Activities of Cossack troops is very important today to maintain security in the region. The Cossacks are involved in the protection of borders of the edge, on government service related to the conservation and Jaeger activities. In addition, ermolovtsy-veterans share their experience Cossack youth, contribute to the military-patriotic education of the younger generation.

In the Stavropol region it is committed to support the Cossacks. There is a regional law regulating the activities of the Cossacks, approved the statute of the Stavropol Cossack District, is embodied in the life of the regional target program "State support for the Stavropol Territory Cossack societies." Formed Cossack land fund in accordance with the regional law "On management and disposal of land in the Stavropol region."

About how much weight is given here multilateral activities of the Cossacks, it is the fact that the regional government structure was created and successfully operating department on interaction with the Cossacks.

After studying and analyzing the available military-patriotic routes in the region it revealed that this branch of tourism is concerned and little illuminated. Thus, we can conclude that the Cossack tourism has a great future in the Stavropol Territory, as indicated by the huge potential of the region, which is made up of land, cultural and historical heritage. In the Stavropol region is concentrated a considerable part of monuments of history, architecture and culture, well-preserved customs and ceremonies, the original folklore, arts and crafts, which also increases the tourist interest and acts as a significant resource for the development of rural areas.

The enormous creative and physical potential of the young people, is one of the main sources of current and future reforms. It was the young to build a new Russia. Therefore, we must be sure to strive to ensure that our young people were close and clear moral categories such as patriotism, honoring the spiritual and cultural traditions of their ancestors, the national pride, respect for other peoples. Any civilized society, aware of this, seeking to use the conceptual approach to the formulation and implementation of youth policy through state administrative and social structures, the system of scientific institutions and information centers. Saving and transfer from one generation to the prevailing traditions of youth - is not
nostalgia for the past and future demand, to the third millennium, Russia has again become an advanced power.

AMMONIUM SUCCINATE INFLUENCE UPON AEROBIC CAPACITY

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The topic of our research is the study of influence of small dosage of exogenic succinate acid upon the possibility of athletes’ aerobic productive capacity broadening and avoidance of early development of anaerobic glycolytic processes.

Anaerobic boundary is a specific border or balance between the speed of lactic acid produce during the physical load performance and its eliminating. The higher the anaerobic boundary, the bigger load an athlete can perform during a long period of time simultaneously not decreasing work intensity not damaging first of all his/her “mitochondrial” health.

Research goal. To study ammonium succinate influence upon elite athletes aerobic capacity.

Methods and research organization. The research was conducted on the base of the laboratory of bioenergetics of muscle activity by the Department of sport biochemistry and bioenergetics named after N.I. Volkov. This very experiment was conducted health risks free with the observation of all humanism principles and ethic norms. 22 elite athletes took part in the experiment (weightlifters, wrestlers, cyclists, football players). 30 minutes prior the performance of the test of graded load increase “to the bursting point” on the cycloergometer the tested were given one time a standard dose of the ammonium succinate agent in the dosage 30 mg on 1 kg of body mass. The following indices were registered: performing output, time of work, heart rate, respiratory system parameters: oxygen consumption, respiration rate, pulmonary ventilation, respiratory index, oxygen utilization percentage. The research results were statistically processed with the help of Statistica 6.0 programme and incorporated analysis function in Microsoft Excel(2007).

Research results. The results of research of ammonium succinate influence upon registered indices of anaerobic boundary during the performance of the test of graded load increase “to the bursting point” are presented in table 1.

Table 1
Indices dynamics that characterize the boundary of anaerobic exchange without and with using succinate acid (n=22)

<table>
<thead>
<tr>
<th>Indices</th>
<th>Before sample intake</th>
<th>After sample intake</th>
<th>Change</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>W AnB, W</td>
<td>165,8 ±8,01</td>
<td>194,8 ± 10</td>
<td>29</td>
<td>17,5*</td>
</tr>
<tr>
<td>RatioWAnB, W/kg</td>
<td>2,17 ± 0,11</td>
<td>2,52 ± 0,16</td>
<td>0,35</td>
<td>16,12*</td>
</tr>
<tr>
<td>Heart rate AnB, beats/min</td>
<td>154± 6</td>
<td>164 ± 5</td>
<td>10</td>
<td>6,6</td>
</tr>
<tr>
<td>Peak concentration AnB, litres/min</td>
<td>2,14 ± 0,09</td>
<td>2,4 ± 0,09</td>
<td>0,26</td>
<td>12,15*</td>
</tr>
<tr>
<td>Ratio. Peak concentration AnB,</td>
<td>28± 1</td>
<td>30 ± 1</td>
<td>2</td>
<td>7*</td>
</tr>
</tbody>
</table>
Respiratory rate AnB, 1/min 29 ± 5 31 ± 5 2 6.9
V’E AnB (BTPS) 54 ± 2 66 ± 3 12 22*
RER 1,01 ± 0,02 1,05 ± 0,02 0,04 3,96*
ΔО₂AnB 5,20 ± 0,21 4,74 ± 0,13 -0,46 -8,85*

Note: * – existence of veracity of difference in indices before and after experiment (p<0.05).

The analysis of data received has shown the authentic increase of many parameters that characterize the anaerobic boundary. One can assume that in oxidative and glycolytic muscle fibres the energetic potential intensification towards aerobic capabilities increase takes place. Observing the index that characterizes the cardiovascular activity (heart rate, AnB), a trend for this parameter value increase after succinate acid intake can be marked. Authentic respiratory index increase (RER) for 4 % show the ratio between exhaled carbon dioxide and consumed oxygen. The appearance of “non-metabolic surplus” CO₂ leads to dramatic pulmonary ventilation increase and decrease of respiratory system activity economy. As our research show in the result of taking succinate acid the process of occurrence of anaerobic glycolysis comes a bit later. The process of oxygen utilization at anaerobic boundary authentically decreases for 8,9 % that characterizes a bigger vulnerability to oxygen by the body and less oxygen content in the air exhaled. The maximal indices of respiratory and cardiovascular systems that were fixed during the graded test performance without and with using succinate acid are presented in table 2.

Table 2
Indices dynamics of maximal aerobic productiveness before and after succinate acid intake (n=22)

<table>
<thead>
<tr>
<th>Indices</th>
<th>Before sample intake</th>
<th>After sample intake</th>
<th>Change</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>W Oxygen MPC, W</td>
<td>258,3 ± 10,7</td>
<td>266,4 ± 12,2</td>
<td>8,1</td>
<td>3,1</td>
</tr>
<tr>
<td>Ratio W Oxygen MPC, W/kg</td>
<td>3,41 ± 0,21</td>
<td>3,45 ± 0,23</td>
<td>0,04</td>
<td>1,17</td>
</tr>
<tr>
<td>Oxygen MPC, l/min</td>
<td>3,23 ± 0,13</td>
<td>3,32 ± 0,13</td>
<td>0,09</td>
<td>2,79</td>
</tr>
<tr>
<td>Ratio Oxygen MPC ml/min/kg</td>
<td>43 ± 2</td>
<td>43 ± 2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Respiratory rate Oxygen MPC, l/min</td>
<td>45 ± 4</td>
<td>48 ± 3</td>
<td>3</td>
<td>6,7</td>
</tr>
<tr>
<td>V’E Oxygen MPC (BTPS)</td>
<td>117 ± 5</td>
<td>131 ± 5</td>
<td>14</td>
<td>12*</td>
</tr>
<tr>
<td>Heart rate Oxygen MPC, beats/min</td>
<td>187 ± 5</td>
<td>190 ± 4</td>
<td>3</td>
<td>1,6</td>
</tr>
<tr>
<td>ΔО₂Oxygen MPC</td>
<td>3,69 ± 0,11</td>
<td>3,37 ± 0,14</td>
<td>-0,32</td>
<td>-8,67*</td>
</tr>
<tr>
<td>RER</td>
<td>1,25 ± 0,02</td>
<td>1,28 ± 0,04</td>
<td>0,03</td>
<td>2,4</td>
</tr>
<tr>
<td>AT % V’ O₂max</td>
<td>67 ± 2</td>
<td>73 ± 2</td>
<td>6</td>
<td>9*</td>
</tr>
<tr>
<td>Work time, sec</td>
<td>686 ± 36</td>
<td>714 ± 31</td>
<td>28</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: * – existence of veracity of difference in indices before and after experiment (p<0.05).
Using the graded test the work is performed by an athlete to the bursting point and in this case the trend towards work time increase is (4 %). Besides, the trend for maximal heart rate increase is detected.

**Conclusions**
1. Succinate acid single dosing has a positive effect upon aerobic productiveness of elite athletes.
2. Succinate acid intake has promoted the authentic increase of absolute and relative indices of anaerobic boundary power.
3. As a result of taking succinate acid the process of occurrence of anaerobic glycolysis comes a bit later.
4. The trend for work time increase is marked when performing the test load.
5. At the expense of oxygen consumption at the anaerobic boundary and sustainable Oxygen MPC the percentage of consumption level is authentically increased related to maximal oxygen consumption.

**USING QUANTITATIVE METHODS, SUCH AS MONTE-CARLO SIMULATION FOR ECONOMICAL AND FINANCIAL VARIABLES PROBABILITY DETERMINATION**

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Quantitative research is the systematic empirical investigation of observable phenomena via statistical, mathematical or computational techniques. The objective of quantitative research is to develop and employ economical and financial model, theory or hypothesis connected to phenomena.

The process of measurement is central to quantitative research as it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships.

Quantitative research can be used in many scenarios and in different field of study, including sports, economics, finance and investments. Let us provide you with several examples.

In sports an experiment in which group X was given two power tablets a day in order to increase sports results and Group Y was given two tablets of a placebo a day where each participant is randomly assigned to one or other of the groups. The numerical factors such as two tablets, percent of elements and the time of waiting make the situations and results quantitative.

In finance, quantitative research into the stock markets is used to develop models to price complex trades, and develop algorithms to exploit investment hypotheses.

For example, we may take annual portfolio return during last 30 years and calculate average return that will provide us with statistically proven data of probable future returns.
In all these examples we deal with a variable in study that has many values that provide us with a distribution of data. The whole data of the experiment is represented by a probability distribution of a sample, that is the quantity of our simulations. The process where we determine the probability of every received value of a variable is called Monte-Carlo method.

In general terms, the Monte Carlo method (or Monte Carlo simulation) can be used to describe any technique that approximates solutions to quantitative problems through statistical sampling. In other words, it is used to describe a method for translating uncertainties in model inputs into uncertainties in model outputs (results).

Monte Carlo simulation relies on the process of explicitly representing uncertainties by specifying inputs as probability distributions. The result of any analysis based on inputs represented by probability distributions is itself a probability distribution.

In order to compute the probability distribution of predicted performance, it is necessary to propagate (translate) the input uncertainties into uncertainties in the results. A variety of methods exist for propagating uncertainty. Monte Carlo simulation is perhaps the most common technique for propagating the uncertainty in the various aspects of a system to the predicted performance.

In Monte Carlo simulation, the entire system is simulated a large number (e.g., 1000) of times. Each simulation is equally likely, referred to as a realization of the system. For each realization, all of the uncertain parameters are sampled (i.e., a single random value is selected from the specified distribution describing each parameter). The system is then simulated through time (given the particular set of input parameters) such that the performance of the system can be computed.

This results in a large number of separate and independent results, each representing a possible “future” for the system (i.e., one possible path the system may follow through time). The results of the independent system realizations are assembled into probability distributions of possible outcomes. As a result, the outputs are not single values, but probability distributions.

As a simple example of a Monte Carlo simulation, consider calculating the probability of a particular sum of the throw of two dice (with each die having values one through six). In this particular case, there are 36 combinations of dice rolls:
Based on this, you can manually compute the probability of a particular outcome. For example, there are six different ways that the dice could sum to seven. Hence, the probability of rolling seven is equal to 6 divided by 36 = 0.167.

Instead of computing the probability in this way, however, we could instead throw the dice a hundred times and record how many times each outcome occurs. If the dice totaled seven 18 times (out of 100 rolls), we would conclude that the probability of rolling seven is approximately 0.18 (18%). Obviously, the more times we rolled the dice, the less approximate our result would be. Better than rolling dice a hundred times, we can easily use a computer to simulate rolling the dice 10,000 times (or more). Because we know the probability of a particular outcome for one die (1 in 6 for all six numbers), this is simple.

In our real world there are more complex examples for Monte-Carlo application. Let us consider an investments project of building a sports center somewhere in Moscow. While creating financial model we implemented basic parameters according to our marketing research. And let’s say in the end we received the result of \( \text{NPV} = 2.76 \text{ mln. RUR} \).

However, this result will only take place if all of our variables, for example our rate of sales will be equal to our estimated value.

But as the rate of sales will definitely very, we may consider taking the lower and the higher limit of possible sales and then create a distribution model of NPV based on the given parameters.

In our particular example we made 10 thousand simulations according to our minimum and maximum sales value. Finally we created a normal distribution chart, depicted lower.
According to the chart our NPV in the model lies to the left of the median, which means that our forecast of calculation is pessimistic compared to the statistical calculations. In other words our project will likely to give better NPV than we had calculated.

Literature