

# Modern scientific research and their practical application

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**J21313-001**

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**Nakhodkin V.V.**

**SCIENTIFIC-PSYCHOLOGICAL MAINTENANCE OF SPORTS  
ACTIVITY**

*The North -Eastern Federal University named after M.K.Ammosov,  
Yakutsk, Russia*

*The concept of «the person as the subject of sports work» is opened, methodological approaches in psychological maintenance of highly skilled and young sportsmen training, possibilities of psychological maintenance of all sports space, a problem of psychological support of sports are considered, a number of problems arising before sportsman and coach is allocated.*

**Keywords:** *methodological approaches, sports, sports activity, psychological maintenance, the coach-sportsman, the sportsman – the sportsman, model, the person as the subject of sports activity, motivation of efficiency, competence.*

Sport of today is one of the parties of our modern culture and social life of the society, having the contents, structure, regularities and manifestation mechanisms. Stagnation of sports attracts to itself multimillion masses of people. Sports, not only wrestling on arenas and paths of stadiums, are our way of life in which we compete every day, the sphere of formation of the personality and an image "I", area where dreams and desires where everyone can find the place are realized. Sport – most often, the first experience of overcoming of difficulties, - is experience of defeats and ability to work with it.

The President of the Russian Federation Dmitry Medvedev analyzing results of the Winter Olympic Games in Vancouver, emphasized: "We have to taking into account that occurred in Vancouver, radically change preparation of athletes because, unfortunately, this conclusion is already obvious to all including not experts: we long time left on the Soviet opportunities. At some instant they ended, we that is called

already lost former Soviet school – it doesn't need to be idealized, it already simply isn't present, and we yet didn't create the school in spite of the fact that the quantity of money which is put in sports, and is absolutely obvious fact, unprecedentedly big. From this performance the conclusion that at the center there is an athlete, his opportunity, his desire to win arises.

It is possible to express satisfaction to that psychologists of sports began disclosure of the concept "person as subject of sports work". As A.A.Krylov (1998) fairly notes, "It is necessary to unite separate statements of certain scientists and to formulate an accurate methodological position: sports are not only games, but the difficult, heavy, labor, professional activity demanding from the person of big tension of all its physical and spiritual forces... The importance of theoretical researches in sports consists of their significantly supplement the concept of the person as the subject of work with disclosure of an essence of the concept "person as subject of sports work" [2].

Possibilities of psychological ensuring sports activity aren't less intensively analyzed. In the second half of the 80th years there is a number of the works devoted to this problem. So, A.V.Grigolova [1] uses methodological aspects of system approach in psychological ensuring preparation of highly skilled athletes. V.F.Sopov considers psychological ensuring preparation of the athlete as system of organizational, research, scientific and methodical actions and the psychological-pedagogical levers aimed at the special development, improvement and optimization of system of psychological regulation of functions of an organism and behavior of the athlete taking into account problems of training and competition [5].

Thus, it is supposed to consider it in the form of system of the interconnected actions solving all complex of problems of psychological preparation, psychological maintenance of training and competitive process, removal of post-competitive symptoms. Opening the content of psychological providing, the following components are allocated: psychological training and education of experts and the trainers participating in educational and training process; psychological preparation of athletes, formation of motivation of sports activity; psycho-diagnostics of

conditions and qualities of athletes; psycho-training and psycho-regulation of conditions; justification of the organization of an optimum mode of activity, intensity of trainings [4].

And integral, from the scientific point of view, approach of N.V.Tszen and Yu.V.Pakhomova which allocated the internal, mental party of sports lying "outside the three-dimensional scheme (physical, technical, tactical training) and forming a peculiar fourth measurement" is interesting [7]. In their opinion, the practical psychology can be successfully applied for development in athletes of "mental functions" (feelings, perceptions, attention, memory, will, etc.) according to requirements of a concrete type of sports activity, an emotional spirit of the certain athlete and a team of full realization of all available opportunities, optimization of process of communication and interaction of athletes, removal of excessive or irrelevant tension and fatigue. Authors tried to specify some ways and means of active transformation and management of the mental party of sports activity. So, to the solution of psycho-diagnostic and psycho-correctional tasks (way) they apply specially developed psychological means – psycho-training. N.B.Stambulov's other domestic sports psychologist as the basic direction of psychological ensuring sports activity defines "long and laborious work on formation is sports important psychological properties of the athlete" [6].

In scientific and methodical literature (N.A.Khudadov, A.A.Lalayan, A.V.Rodionov, G.D.Gorbunov, V.M.Melnikov, I.M.Volkov, O.V.Dashkevich, A.V.Alekseev, Yu.A.Kolomeytsev, S.D.Neverkovich, A.N.Romanin, N.B.Stambulova, E.N.Kalinin, G.B.Gorskaya, T.A.Korolev, A.Ya.Korkh, B.DZh. Kretti, R. Naydiffer, E.Khan, etc.) the questions affecting activity of the practical psychologist working in the field of sports and reflecting the content working in the field of sports of psychological preparation were analysed.

Thus, as psychological preparation began to understand process of practical application of accurately certain means and the methods directed on creation of psychological readiness of the athlete [4].

Field of activity of psychological science in modern sports is versatile and many-sided, at the level of an elite sport psychological maintenance is presented, but more often this experience is fragmentary today and isn't systematic that it is possible to explain not only shortage of experts in the field, but also many other reasons.

It is possible to allocate a number of the problems arising before the athlete and the trainer and which, in turn, demand the psychological decision. These problems arise in connection with mastering, development, improvement and realization of sports activity. One problem as though concentrate on the side of the athlete, others on the side of the trainer, the third root in system of relationship "athlete-trainer". It is possible to note that sports activity (as however, and any other cultural and historical form of activity) is a source of generation not only specific problems of the athlete and the trainer, but also mental new growths of the personality.

Problems of psychological maintenance of sports which are shown by sports activity, are defined by the social and personal importance for participating in this process: the analysis of social and psychological conditions of sports activity (a problem of socialization of the athlete and team, influence of national features and traditions on sports development, the interpersonal relations and psychological climate of teams, professionalism in sports); research of features of development and formation of the personality in the conditions of sports activity (studying of mechanisms of formation and dynamics of the personality, motives, motive abilities in sports); studying of psychological bases of formation of motive skills and qualities (specialized perceptions, psychological features of different types of sports and types of training, methods of control over mental conditions); justification of factors providing success of competitive activity (dynamics of mental processes in competitive activity, mental stability and reliability, mental conditions, success forecasting); definition of bases of psychological ensuring sports activity (psycho sport traumas and psychological typology of sports, methods of control over mental conditions in sports activity, diagnostics, consultation and psycho-correction).

Sports represent currently developed infrastructure, an integral part of world culture, branch of production of the material and cultural wealth, making and

reproducing the psychological world of the person – the identity of the athlete and the trainer. Therefore, all conditions and preconditions for participation of psychological science in "sports production of the person" are so far created.

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**Yuliana I. Shramko, Radmir B. Emirov**

**OUTDOOR GAMES IN COMBINATION WITH MEDICINAL  
SWIMMING AS AN EFFECTIVE METHOD IN REHABILITATION OF  
CHILDREN WITH SCOLIOSIS IN SANATORIUM**

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*In this paper we analyze the complex influence of different motive regimes on the functional tests of children aged 12-14 with scoliosis*

*Key words: medicinal physical training, physical rehabilitation, scoliosis, sanatoria and health resorts*

Scoliosis morbidity in Ukraine is established in the range of 18,7%, together with significant forms of 8% [1]. The named data show the necessity of the following improving of both rehabilitation and prophylactic of vertebral pathology. The study was performed in “Yubileyniy” sanatorium in Eupatorium. The patients were undergone rehabilitation included terrainkur, outdoor games and medicinal physical training [2]. The locomotor apparatus’ features (dynamic stamina and motility of the spinal cord) were investigated. Functional tests (Martinet, Stange and lungs vital capacity (VC)) were performed. Antioxidant system was studied by measuring of activity both catalase (C) and superoxididismutase (SOD) [3]. The comparison with age norms for named parameters indicates on the depression of locomotor functions in the muscular stay of the spinal cord in scoliotic patients. Probably, it is stimulated by muscular dystrophy caused by both lack of innervations and compression because of scoliotic deformation. Named deformation certainly leads to overstretching of muscles at the top of scoliotic arch. Together with muscular dystrophy, functional asymmetry of right and left sides of the trunk was registered. The application of both outdoor games and terrainkur provides the increase of both dynamic stamina and

motility of the spinal cord. The time of breathing hold-up in Stange test was increased of 13% ( $p < 0,001$ ), heart rate time restore in Martinet test was reduced of 16% ( $p < 0,001$ ). VC was raised of 7% ( $p < 0,001$ ), Ruffeau index was decreased of 23% ( $p < 0,001$ ). In the intact group significant changes were not noticed. The significant change in both catalase and superoxiddismutase levels had not been recorded. In the end of the course in both groups activity of C was  $18,23 \pm 0,77$ , SOD  $-1,44 \pm 0,09$  conventional units. Consequently, the condition of children's antioxidant system remained moderately low. To sum up, the medicinal swimming led to more considerable rehabilitative effect in children, suffering from scoliosis.

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**Kozin VV<sup>1</sup>, Pritykin VN, Kuznetsova NS<sup>2</sup>**

### **IMPROVING THE ACCURACY OF THROWS THE BALL BY SITUATION AND SIMULATION**

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Modern basketball, with his usual continued growth of competition, is inconceivable without an organized scientific support for training and competitive activities of the players. This fact is due to increasing workloads, increasing the

number of events throughout the year, changes in the rules and, therefore, intensification and changes in the structure of training and competitive athletes.

While fighting between rival players is a complex technical and tactical activities that require the development of basketball special qualities. To forward the result of this activity is to hit the ball to the basket for the defense - selection, blocking or catching the ball.

Scientific and methodological support for training and competition activity basketball extends and enhances the environment for innovation of scientists, experts, coaches basketball and allows the introduction of the results, methodological and technical developments in the process of sports training.

As part of the cathedral Laboratory of Physical Culture and Sports "Perspective" Omsk State Medical Academy, Omsk realized the direction of studying and organizing the process of teaching and training and competitive basketball players of different skills.

One of the main problems addressed and solved by the laboratory is to improve the accuracy of throws the ball by optimizing the variability of motor actions basketball players of different skills in simulated and natural, extreme conditions of the game, as well as the use of technology in the testing and improvement of gaming devices basketball players.

Currently, to solve the problem, performed research, proven in practice: modeling counteractions rivals in improving the efficiency of attack basketball, non-traditional approaches to improve the accuracy of free throws, increasing the accuracy of basketball shots with the reflection of the ball on the shield.

Earlier in the solution of such problems have been numerous studies. Thus, it was found that a significant role in the variability of game action belongs to artificially dispositive regulators of athletes playing sports [18]. Obtain these results have contributed to the concept of "artificial control environment" [14] and the scientific statements "about the theory of functional systems" [1].

As a result, on the basis of an integrated approach, it was possible to discover the essence of variability of action that is not simply that the athlete sees "feel" a

certain set of characteristics of the simulated game situation, and on the basis of panoramic perception combines these features to a certain structure, and by means of schematization this structure as a model, the catalytic performance of specific game actions in real time interval [2, 4, 20]. From the point of view of the requirements of the image becomes the regulator only when the sensory and rational form a bond [3, 16]. In this case means the objectivity of perception game situations and rational choice of the technical and tactical methods basketball player.

Therefore, the training and improvement of throwing the ball to a combination of methods that form a sensory- perceptual and logical components of the image, its semantics.

Also, revised views on the problem of modeling in sport, in particular the use of situational modeling in team sports. Through the development of model characteristics [19], the simulation of the process [8, 9], as well as extreme conditions [17], the researchers came to the conclusion that the feasibility of using temporary (situational) models, which are the binding between the subject (an athlete) and object (the study situation).

Considering the problem of the use of technology, training facilities worth noting set of measuring instruments, computer processing, real-time display devices (display) the results of measurements in a visual (opportunity) for the perception of an athlete and a coach and as a means of correcting the synchronous motor act [15].

In the past two decades, technical devices have become more systematic. The most complete of the proposed classifications, which in combination with the basic principles of creating a fitness research funds can qualitatively select the required devices for the training process [14].

In order to achieve the stabilization of perception and movement are offered special design limiter, offset elbow joint [25], the location of the lock on the ball the index and middle fingers of the throwing arm [23], the correct index of the brush [30].

In improving throws a lot of time is spent on the selection of the ball. In connection with this are numerous variations to the collection and return of goals [12,

24]. Also among such funds are designs that provide a return to the athlete's only goals scored in the improvement of free throws with reflection and without reflection of the ball on the shield [29].

When you throw the players focus your eyes on a target [30]. To focus the need to disconnect the peripheral vision so that the athlete is not distracted by the ball and the movement of the hands. For the implementation of the above have been used special glasses. They can be seen only ring that visually increases in size. However distort glasses sense of distance, which leads to lower performance. However, after applying the points in the classroom perception rings and improved ball [26, 31].

Approaching the training process for game conditions, some authors recommend the use of mobile and immobile mannequins [24]. By bringing action to action dummy defense increases the effectiveness of training athletes and increases the number of options used in the exercises.

Pursuing research and athletic goals aimed at improving the accuracy of throws, including the reflection of the ball on the panel have been proposed devices and methods to ensure receipt, recording and analysis of the parameters of the ball [21, 27]. The maximum point of the path is indicated, and adjusted if necessary mobile ring [22].

When throwing the ball with a reflection on the selection panel aiming points depends on the coordinates of the location of an athlete on the court. However, in some studies [28], aiming to coordinate shots with reflection not substantiated the above factor.

Consideration of means to improve the accuracy of basketball shots proves the need for new devices and accessories, allowing to reduce training time and improve the most complex techniques in basketball.

It should be noted that the issues of increasing variability of technical and tactical actions and impact throws the ball reflected in a series of papers [5, 10, 11, 16]. However, the available literature does not take into account situational conditioning of the game of basketball, which is the result of technical and tactical actions of rival players. Therefore, at the moment there is the unresolved issue of the

rational use of offensive action in the face of opposition defenders to accomplish the main goal of the game - hitting the ball in the basket. In this regard, the relevant issue is the increase of productivity attack basketball players in the face of resistance by the defenders of the simulation.

Study of attacking players in the face of opposition defenders points to the lack of technical and tactical preparedness of the players, which is reflected in the limited use of the provisions of shots back and sideways in relation to the opponent (up 13%). This is due to a small amount and implemented throws one hand "hook" and "semi-hook" (4%). Forwards typically use one way that during the execution of attack is not changed.

The lack of variation in the ways of throwing the ever-changing face of opposition rivals leads to the fact that much of the throws (12%) is the covered defenders. Thus, the attackers are fairly predictable in organizing attacks and the implementation of the shots, allowing defenders to successfully prevent attacks. Offensive players in 83 % of attacks suffered by avoiding throwing the ball, not finishing with the attack on the basket. This leads to the fact that basketball players do not use the non-compliance opponent in order to gain points. We should also note the lack of the use of deceptive movements and techniques (30%) in order to avoid tackles and covering shots [6].

In the simulation model is the counteraction of opponents in the structural form, which is due to interposition and communication components of offensive and defensive actions.

Along with the creation of structural models based on the composition of attack, and created structural models based on the composition of protective actions. Under the composition of the technical and tactical actions, we mean the variety of methods and types of the technical and tactical elements of the opposition rivals [7].

The final step is to integrate the modeling of protective and attacking patterns in the playing conditions. Playing conditions to perform simulations of counteractions rivals at different distances and distances between the defender and attacker. In this simulation is possible counteractions opponents in foul (extreme points of the game),

which are determined by the nature of action in attack and defense. Segments game closer to counter rivals play activities, giving the situations expressed specific time limit in which the fit of the model.

Thus, in the simulation should be noted that from the early stages to improve technical and tactical actions reflect upon and to be analyzed not only the quality of each player's own actions, but also the quality, features action opponent.

Analysis of the data allowed us to determine that the most significant changes occurred in the mental development of the following qualities: the response to a moving object with an acceleration of movement, speed and accuracy of operational thinking, attention span. The exceptions were indicators of switching attention and response to a moving object with a handicap. Investigation of the physical characteristics revealed significant differences only in terms of speed-strength in basketball, the experimental group. The performance shots in the experimental group increased by significant level compared to the effectiveness of the control group.

In these studies, an attempt was made to investigate the accuracy of mathematical positions of basketball shots to establish reasonable quantitative and qualitative evaluation (criteria) to search for new approaches to improve the accuracy of the free-throw [12].

On the basis of theoretical and computational analysis of the parameters and throw in basketball destroys targets by using the technical design developed experimentally tested a number of devices. The most effective of them put into practice training basketball players of different skills, including the following training devices:

- Rotating ring with screw holder. It is intended for practical guidance dealing with the interaction of a basketball with short and long arcs in angle of attack by varying the position of the plane of the ring to the horizon;

- A set of inserts - correctors. Fixture flush inside the game - corrector ring insert enhances the slope trajectory of the ball and the achievement of the required parameters parishes ball to the area of real destroys targets closer to the rear of the arc of the ring;

- Insert ring - reflector. It allows you to hit the target ball, aimed solely on the optimal trajectory in the center ring of the game;

- Correction of the trajectory. This simulator "sets" the optimum angle lesions ring.

Methods to improve the accuracy penalty shot involves the following steps: testing the athlete, processing and analysis of test results, preparation of basketball "portrait" of an athlete, theoretical lessons on the basics of the theory of optimal free throw, familiarization with the technical means used to improve the accuracy of the free-throw and the recommendation of their use; practical exercises using simulators and teacher recommendations to achieve the optimal trajectory free throw [13].

Practical exercises and implementation of a comprehensive methodology to improve the accuracy in basketball free throw in the training process youth schools, student and professional teams show the possibility of a significant improvement in throwing training skilled basketball players and offer the following perspective:

- Its joint use with conventional techniques;

- Creation of a module for throwing specialized training within the gym on technical and tactical training basketball players;

- Distribution of the main provisions of the methodology for the preparation of young athletes, from the age of seven.

These studies defeats the purpose of a basketball offer new opportunities for other related basketball sports with accuracy hitting the ball into the ring of various sizes. For these kinds of (beach basketball, regbol, netball, korfbal, skrembol ) saves the characteristic features of the formation of the actual objectives, depending on the trajectory of the ball and the interaction of the ball with his reflections on the proximal and distal edges of the ring.

To improve the accuracy of a free throw in basketball is expedient to use a comprehensive methodology that contains visual materials, a number of technical tools and recommendations for their use.

Theoretical analysis of the current state of the problem of increasing the accuracy of the basketball throw identified the lack of consensus on the point of sight

and understanding of the quantitative values of the parameters destroys targets and trajectory of the ball in basketball experts.

Pedagogical observations have shown that half of the successful shots from the penalty occurs after rebound from near and far edges of the ring.

The number of hits the ball after a rebound off the far arc in 2-7 times the number of hits the ball after a rebound from near the arc. Installed asymmetry influence the near and far edges of the ring to the extent of destroying the target in basketball athletes and coaches are not taken into account.

Affected (extended) goal in basketball has constant parameters. The size, shape and location of the target relative to the geometric center of the ring depend on the parameter changes the trajectory of the ball, which creates an athlete on the shot. The goal is elliptical in shape, varying from pointed to oval. In view of this, the optimal parameters were calculated aiming to hit a basketball hoop with a free throw: angle of  $-54^\circ$ ; target of 3.5 cm is shifted to the back arc of the ring from its geometric center.

Area destroys targets for the recommended range trajectory of the ball is 22-29 % of the area of the ring, which should be taken into account when organizing the training process basketball players.

To improve the effectiveness throws the ball has developed a methodology, based on the assumption that increasing the number of shots with the reflection from the foul line, the near and medium distances will increase the overall percentage of team performance [10].

Our observations of competitive activity teams of different skills show that the total number of attacks the basket throws the ball with a reflection on the board are on average 17-35 %, depending on the qualifications of the team, so the quality of their performance depends largely on the result of the match equal contenders.

Playing basketball for youth sports school learning with the reflection of the ball rolls off the shield begins in initial training. The next period of improvement in the last 2-3 years of the training phase. In our opinion, such a length of training one of the most important elements of playing technique is inadequate because it does not contribute to the effective formulation technology and at the same time, the fact is not

always true. It can be concluded that the roll with reflection virtually given little attention.

Shooting with reflection have certain advantages. This position is consistent with our view that the effectiveness of the shots from the reflection depends not only on the location of the attacking player on the court, but equally on the parameters of the trajectory of the ball, which creates this athlete, depending on the game situation.

To solve this problem have been identified coordinates of the points of reflection. We used the following methods: visual observation, the definition of the print area and its center formed by the ball in contact with the surface of the shield covered with gouache; video computer analysis (throws recorded two video cameras in the horizontal and vertical projections, and with the help of computer programs, the geometric center of the print set).

As a result, the experimental search for points of reflection is established:

- The horizontal and vertical coordinates of the points of reflection increases from the center panel to its side with a decrease in angle of attack;
- The reflection point is the geometric center of the indentation formed by the interaction of the ball with a shield;
- Contact area formed by the interaction with the ball shield at right angles to two times more compared with the areas of prints to be performed on the extreme angles and track changes shape from a circle to an ellipse;
- Analysis of the ball in the projection on the surface of the site showed that the angle of the arrival at the shield and the angle of reflection of it are equal.

As a result of horizontal coordinates of aiming points and reflection were identified:

- The intersection at one point trajectories of the center of effective throws the ball behind the shield it possible to establish an imaginary center of the ring, which is located at a distance of 131 mm from the front of the plane of the board.

To calculate the vertical coordinates of aiming points and reflection applied algorithm to determine the orbital parameters of the ball [12], in which athletes show the largest percentage of the shots. The parameters of the trajectories are calculated

from point of manufacture to the center of an imaginary ring. Depending on the height of the point of release the ball and the distance to the target, the angle of release and the initial velocity of the ball.

The results of mathematical modeling served as the theoretical basis for creating simple visual cues and clarify the location of the boundaries of athletes on the court at throws with reflection.

Earlier, the approximate boundaries of the proposed site for the two species, which throws a reflection recommended to perform in a range of  $15^{\circ}$ - $45^{\circ}$  to the plane of the shield. We believe that these data now require correction.

Analysis of the results revealed that the average impact of the shots from the reflection of the greater of 8.7 % or higher across the board than without reflection, which confirms the relevance of our study calls into question some of the recommendations in the literature [11].

On the basis of experimental studies and mathematical modeling parameters shots with reflection through technical design in the practice of training basketball players of different skills introduced following visual landmarks: the vertical axis of sight; pointers origin aiming at throws with reflection.

Our proposed method of aiming for shots from the reflection is designed to train rolls with reflection and improve them using simple visual cues and standard basketball equipment. To do this mathematically simulated flight of the ball and its interaction with the plane of the shield. Determined by the board of an imaginary plane located at a distance of the radius of the ball parallel to the main switchboard inside the area. Regarding the alleged main board are symmetrically located and imaginary ring. The coordinates are formed by the intersection of aiming a vertical axis passing through the center of the ring perpendicular to the surface of an imaginary area with mathematically calculated line of sight on the front of the plane of the sheet in the form of colored tape, the coordinates of which are changed when you change the location of the thrower at the site. On the surface of the shield is mathematically calculated reflection line, allowing you to control the ball from the coordinates of the reflection shield. Point release the ball and folding axis aiming

create a vertical plane of the center of the ball, with the axis of the main visual reference. The proposed method is the basis of theoretical and practical training methods to improve the accuracy of throws [13].

When learning to cast a reflection observe the following sequence: an explanation and demonstration; imitation throw off the ball, playing the final phase of the throwing motion, repetition release the ball up on yourself, the shot from a distance of 1-2 meters at an angle of  $45^\circ$  to the plane of the board, increasing the distance shots at one and the same angle of attack, execution of the throw into the ring with the change of angle of attack without changing the distance to the ring, to secure the skill of the cast rolls are used to mark points using the site, the distance and the angle of attack vary as the development of technology throw; from a distance of 1-3 meters, simultaneously learning to perform throws both right and left hand, and more than 3 meters to train the strongest throwing arm.

In conclusion, it is worth noting that as the effectiveness of attack basketball mastered the technical and tactical elements in defense and attack should decrease, but at the same time expanding the scope of their effective application in a simulated environment counteractions rivals.

To increase the effectiveness of technical and tactical actions in the simulation of actions attacker and defender needs transport safety and structural models in the playing conditions of confrontation opponents, which include: the distance throw, the distance between the defender and the attacker, the time segment of the game, the nature of action in defense and attack.

Situations counteractions defenders must be of different nature:

- Offensive (dominated by the attacking model over protective). In this case, the offensive players master the possible situations harping on defense, which encourages diversity attackers searching for new ways to attack;

- Defensive (dominated by defensive model over the attacking). As a result of offensive players learn, along with features of the protective actions of opponents, techniques and methods that do not allow to carry out the selection, intercepting the ball and the covering property throws during the attack;

- Offensive and defensive (no predominance of one model over another).

Selection of exercises of different character, allows you to zoom opposition contenders for game conditions. We recommend the use of exercises:

- Spatial character: the distance between the defender and attacker (striker performs shots at different distances from the defender and depending on the type of attack that chooses) by the distance from the defender to the basket (improvement actions by modeling the attackers at different distances from the defender basket);

- A temporary nature: structured time, allowed for shots in the face of opposition rivals (Time limit to the ball, interception or tackles) simulation environment of confrontation in different periods of time playing (the development of the standard attack situations in the different periods of training games, the creation of situations the last seconds);

- The dynamic nature: the level of activity of the defense, foul shots in defense and attack (doing actions in the support strikers, and without a supporting position under constant pressure from the defenders and violations of the rules, especially when throwing the ball).

To ensure the accuracy and reliability of the free throw line in a training practice, development and retention of optimum parameters of the trajectory of the ball, proper alignment of throws, that is, throws, falling by an average of infestation of affected facility (extended) goal, athletes and coaches need to control the maximum height of the trajectory of the ball, which exceed the upper edge of the shield at 0-30 centimeters. You must also seek to implement a rule - getting the ball to the near-arc basketball hoop considered a mistake.

For high-quality work to improve the accuracy of the free-throw must have a basketball halls mass using methodical and visual materials that improve the intellectual training of players, as well as the presence of the module (hardware kit) for throwing training.

To train rolls the ball with reflection on the board and recommended way to improve targeting, including simple visual landmarks (vertical axis of the sighting, the line of sight and reflection), as well as a visual aid that reveals the interaction of

basketball with the plane of the shield and the rules of rational use of visual landmarks.

The coordinates are formed by the intersection of aiming a vertical axis passing through the center of the ring perpendicular to the surface of an imaginary area with mathematically calculated line of sight on the front of the plane of the sheet in the form of colored tape. The coordinates change when the sighting location thrower on the site. Control cast by using reflection lines. Point release the ball and aiming axis creates a vertical plane of the center of the ball, with the axis of the main visual reference for throwing the ball with a reflection on the board.

To improve the performance penalty, near and medium throws and accordingly the impact on the whole team by testing to determine the type of shots for each player sports team, and ensure compliance of selected varieties of shots up to 80 %, and in the case of two species - 50 % of the shots with reflection and without reflection of the ball on the shield. At close range to give preference to the reflection of the ball rolls off the shield.

To train rolls the ball with reflection on the shield and improve them in the gym should be transparent side panels the size of  $1050 \times 1800$  in accordance with applicable rules and signs characteristic points on the court, made with paint and mimic the layout trapeze playground for basketball.

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**ESTIMATING A LEVEL OF PROFESSIONAL-APPLIED PHYSICAL  
CULTURE IN EDUCATING STUDENTS - SPORTS MANAGERS  
IN THE HIGHER EDUCATION INSTITUTION OF PHYSICAL  
CULTURE**

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*Abstract: This paper describes the results of a survey of experts, study  
professiogram and own studies that assess the level of professional-applied physical  
culture students - sports managers enrolled in the higher education institution of  
physical culture.*

*Keywords: professional-applied physical culture, professiogram, physical  
condition, mental condition, the level of formation of knowledge, a sports manager.*

The current state of the students-sports managers' training system requires to rethink the professionally-applied physical training objective functions in a qualitatively new way, to review the relations with other kinds and forms of social practice, to define the place and levels of professionally-applied physical training formation in the process of higher physical education.

Unfortunately, up to now, the experts have not offered any rational methods of the professionally-applied physical education as an important direction of the students - sports managers' process preparation at physical education Higher Schools.

The results of a sports manager's professiogram study, the survey of experts and our own investigation helped to identify such components, which allow us to estimate the professionally-applied physical training level in the given group of students. In

this regard, we have examined 227 students of the Volgograd State Academy of Physical Education, who study the "Organization Management" specialty.

The set of tests included a variety of exercises that characterized the students' versatile physical qualities, their mental health, academic achievement in the special subjects, formation of knowledge in physical training and physical training and sports skill and their personal qualities.

During the period of study at the Physical Education Higher School we have identified generally unreliable physical fitness indicators' changes in students-sports managers (Table 1). The significant improvements of results were detected in a few exercises only. The second year students (boys) improved the vertical hanging exercise (5.6%,  $p < 0.05$ ), medicine ball throwing (5.5%,  $p < 0.05$ ), 3000 meter running (14%,  $p < 0.05$ ), the third year students (boys) showed better results in 1000 m running (4.4%,  $p < 0.05$ ). The second year students (girls) improved 2000 m running (2.2%,  $p < 0.05$ ), the third year students (girls) improved medicine ball throwing (7.1%,  $p < 0.05$ ).

However, the reliable physical fitness indicators' results deteriorations are noted. The fifth year students (young men) decreased their results in 1000 m running (4.2%,  $p < 0.05$ ), the fourth-year students (girls) showed worse results in 1000 m running (3.0%,  $p < 0.05$ ); the fifth year students (girls) lowered their results in vertical hanging exercise (4.8%,  $p < 0.05$ ).

The analysis of mental and functional status results also shows a subtle change of these characteristics in students - sports managers during the period of study at the Physical Education Higher School. We have found the significant changes in the second year students' visual perception amount both of young men (10.4%,  $p < 0.05$ ) and young women (8.4%,  $p < 0.05$ ). The significant changes of the attention distribution indicators were identified in the third year male students (8.2%,  $p < 0.05$ ) and the fourth year male students (8.8%,  $p < 0.05$ ). The similar changes were shown by the female fourth year students (8.8%,  $p < 0.05$ ).

Thus, the indicators of physical fitness, mental and functional status of students - sports managers during the period of study at the higher school have varied largely

insignificantly. The students and teachers aspirations to develop these characteristics were less effective.

**Table 1****Levels of physical skills development of students-sports managers**

	Exercise	Sex	Course of study				
			The First	The Second	The Third	The Forth	The Fifth
.	30 m running (s)	m	4,71±0,04	4,66±0,04	4,60±0,03	4,62±0,04	4,67±0,04
		f	5,40±0,05	5,32±0,04	5,24±0,04	5,30±0,03	5,36±0,03
.	100 m running (s)	m	13,85±0,12	13,71±0,11	13,68±0,10	14,03±0,11	14,09±0,11
		f	15,70±0,10	15,56±0,09	15,50±0,08	15,67±0,08	15,75±0,07
.	Standing long-jump (cm)	m	225,1±3,7	233,4±3,9	238,6±4,0	235,4±4,1	233,0±3,9
		f	172,0±1,9	174,5±2,0	176,4±2,1	173,2±2,0	170,1±2,1
.	Shuttle running 3x10m (s)	m	7,68±0,10	7,60±0,11	7,56±0,10	7,63±0,12	7,67±0,13
		f	8,72±0,12	8,68±0,11	8,73±0,11	8,77±0,12	8,82±0,12
.	Chin-ups (number)	m	9,65±0,44	10,12±0,42	10,74±0,47	10,18±0,50	9,74±0,48
	Pushups (number)	f	16,4±0,71	16,8±0,72	17,3±0,70	16,3±0,69	15,8±0,70
.	Angle body (cm)	m	11,75±0,51	12,11±0,40	12,62±0,42	12,07±0,31	11,40±0,33
		f	16,11±0,60	16,92±0,52	16,52±0,53	15,36±0,41	14,60±0,43

7.	Body turning up and lowering (number)	m	23,2±0,50	24,72±0,61	25,60±0,50	24,81±0,61	23,54±0,62
		f	21,42±0,64	21,81±0,52	22,33±0,41	21,36±0,53	20,82±0,52
8.	Vertical hanging exercise (s)	m	51,4±0,9	54,3±1,0	56,7±1,1	57,4±1,0	57,0±1,0
		f	42,0±0,7	43,1±0,7	44,0±0,8	43,7±0,7	41,6±0,7
9.	Medicine ball throwing (m)	m	7,45±0,13	7,86±0,15	7,98±0,17	7,80±0,16	7,66±0,15
		f	4,59±0,08	4,68±0,10	5,01±0,10	5,04±0,11	4,86±0,10
10.	1000 m running (s)	m	209,1±2,9	205,5±2,8	196,4±2,0	202,2±2,5	210,7±2,6
		f	262,4±2,4	256,5±2,3	252,7±2,2	260,3±2,3	266,7±2,5
11.	3000 m running (s)	m	784,1±4,0	771,7±3,7	766,0±3,6	774,1±4,0	781,7±4,1
	2000 m running (s)	f	655±5,0	640,7±4,6	631,7±4,8	648,6±5,0	661,8±5,3

*Note. Physical fitness indicators changes are marked.*

The survey results presented in Table 3 indicate that the majority of respondents (girls - 75.4%, boys - 86.6%) noted the importance of physical education and sport for health, physical qualities development, motor skills formation and professionally-applied physical training formation in students.

According to our data less than a half of students - sports managers (girls - 35.9%, boys - 47.2%) attend sport circles lessons in different kinds of sports regularly. According to the given investigation 53.3% of girls and 69.9% of boys believe their motor activity sufficient, 31.2% and 26.6% of the respondents note its insufficiency, and 15.6% and 3.3% of the students indicated the critical size of motor activity.

According to the questionnaire answers results the problematic areas of physical training knowledge were identified in these respondents. The girls have difficulty in the means selection in the process of health improvement tasks solution (50.7%), they can not name the world's strongest athletes in the most popular kinds of sport (36.4%) and they do not know the rules of competition in basic events (31.2%).

The young men have other problematic areas. They are as follows: the physical qualities development methodology (43.3%), the main components of a healthy lifestyle (33.3%), the criteria for objective physical and technical fitness assessment (26.6%). Both boys and girls state they have insufficient knowledge for the organization of sports competitions where people of different ages are involved (40.0%).

The students say that to enable the self physical activity intensification it is necessary to set a goal clearly (girls - 35.1%, boys - 33.3%) and to get interested them in the level of professionally-applied physical fitness increase (girls - 26.0%, boys - 30, 0%).

Table 2

Students' responses characteristics about physical training value

	Questions	Ratio, %	
		m	f
	2	3	4
.	Specify your gender	28,0	72,0
.	Do you consider physical training and sports are important for health, physical skills development, motor skills formation: - Yes; - No.	86,6 13,4	75,4 24,6
.	Do you attend sport circles in different kinds of sports regularly: - Yes; - No;	47,2 52,8	35,9 64,1
.	How would you assess your motor activity: - Sufficient; - Insufficient; - Is critical (excessive / very low)	69,9 26,8 3,3	53,3 31,2 15,5
.	What mark would you give for your level of physical training knowledge: - "Excellent"; - "Good"; - "Satisfactory"; - "Bad".	16,7 26,6 53,4 3,3	11,7 23,4 46,7 18,2
.	Specify the necessary components to enable independent physical activities: - To put an aim clearly; - To get interested in the professionally-applied physical fitness level increase; - It is difficult to answer.	33,3 30,0 36,7	35,1 26,0 38,9
.	Do you help to organize and hold sports competitions at your higher school: - Yes; - No;	20,0 80,0	13,0 87,0
.	Do you follow a healthy lifestyle: - Yes; - No.	23,3 76,9	35,1 64,9
.	What tasks are of paramount importance in the process of professionally-applied physical training from your point of view: - Health directed; - Educational; - Educative.	33,3 43,3 23,4	63,7 28,9 7,4

Physical education is a social phenomenon closely related to the economy, culture, social and political systems, state of health service and public education.

Physical exercises help to strengthen discipline, to increase the sense of responsibility, to develop the persistence in life goals achievement. Physical education has a favorable effect on the neural and emotional system, prolongs life, rejuvenates the body and makes an individual more beautiful. Physical training is a complex social phenomenon; it is not limited to the problems of physical development of an individual solution, it performs an important social function of society in the field of education, morality and ethics. [1]

Physical education embraces those personality traits that allow an individual to develop harmoniously in close contact with the culture of the society, to achieve balance of knowledge and creative expression, of physical and spiritual, to resolve the contradictions between nature and industry, work and leisure.

Thus, the phenomenon of a student's personality physical education can present it as an integral quality of a person, as a condition and prerequisite for effective teaching and professional activities, as the professional culture generalized indicator of a future professional worker and as an individual self-development and self-improvement goal. [2]

The materials of our study demonstrate clearly the importance of professionally-applied physical education organization as an important trend in the process of students - sports managers training at Physical Education Higher Schools.

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