Interactive technologies as a means of tactical training of athletes in student basketball

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**Introduction.**

The training of basketball players of student teams has its own complexity and features [3; 4; 7; 8; 9; 10]. This is due to the fact that in order for the basketball team to be "played" it takes several years. The composition of the basketball team is changing all the time, since some athletes enter the first year, others finish the institute and retire from the team.

In a student's team, the mode of training and rest is determined not by the coach himself, as in professional and club teams, but by the given conditions of the educational process in the university. Therefore, the trainer of the student team of the team is forced to overcome a number of difficulties that involve difficulties in completing the team when trying to properly organize the training process in accordance with the laws of the development of sport form and adaptation, in the construction of training process, taking into account the lack of quantity (2-3 times a week) trainings, various levels of preparedness of basketball players and constant change of team composition [13; 14; 15; 18; 19; 20]. All these difficulties are to a large extent manifested in student teams.


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**Анотації.** Розроблено програму підвищення ефективності тактичної підготовки баскетболісток студентських команд із застосуванням методів для активізації образного сприйняття елементів техніки і тактики баскетболу на основі сучасних інформаційних технологій. У дослідженні взяли участь 23 баскетболістки 18-23 років студентської команди, з яких 11 склали експериментальну групу і 12 – контрольну. Встановлено, що розроблена система сприяє підвищенню якості техніки виконання технічних прийомів баскетболу, ефективності ігрових дій, підвищенню кількості реалізованих у гри тактичних взаємодій.

**Ключові слова:** баскетбол, студенти, тактика, інформаційні технології, тактичні прийоми, тактичні вправи, експертна оцінка, тактичні прийоми.

**Interactive technologies as a means of tactical preparation of athletes in student basketball.**

A program for improving the effectiveness of tactical training of basketball teams of students with techniques to enhance the perception of figurative elements of technique and tactics of basketball on the basis of modern information technology. The study involved 23 female basketball players 18-23 years of student teams, 11 of which were experimental group and 12 - control. Established that the developed system improves the quality of performance technique techniques of basketball, the effectiveness of actions in the game, raising the number of implemented in-game tactical взаимодействий.
Thus, at present, the problem of the need to improve the training process in student basketball teams is indicated. And especially it concerns tactical training of players. Many coaches do not have time to teach athletes the main tactical combinations for the period of study at a higher educational institution, and even more so - to apply these combinations in the game. Therefore, the search for effective means of tactical training for students of student basketball teams is a topical issue of the theory and method of student sport.

This determined the chosen direction of our research.

The purpose of the work: to develop and experimentally substantiate the methodology of training basketball teams of higher educational institutions, based on the use of tactical exercises.

Material and methods.

Methods of research: analysis and generalization of literary sources, pedagogical testing, physiological and psycho-physiological research methods, pedagogical experiment with the use of modern information technologies, methods of mathematical statistics using factor and cluster analysis, comparison of mean and dispersion analysis.

In total in this study were examined 23 basketball players 18-23 years old.

Results

A system of training student basketball teams with an emphasis on the use of tactical exercises has been developed primarily to enhance the perception of elements of basketball tactics. For this purpose, methods were used to influence the consciousness of players [6].

Therefore, the developed methodology included:

- Creation of polygraph manuals reflecting the peculiarities of techniques for the implementation of various techniques in basketball;
- Creation of cartoons that allow to emphasize certain features of basketball techniques and tactics. To create dynamic guides, the method of animation was applied for a number of reasons:
  - Cartoons have always attracted and attracted people of all ages;
  - With animation you can create any dynamic scheme depending on the tasks of learning;
  - Modern information technology allows you to quickly and efficiently create the necessary dynamic subjects that are often difficult to understand without vivid playback;
  - Modern technical equipment allows you to play cartoons created in the Flash program, both on personal computers, on video players and even on mobile phones.

For the preparation of printing aids were used video filming by qualified basketball players technical techniques with the subsequent computer processing of data. Materials were taken with the help of a video camera, and then translated into a computer using a TV tuner. Video materials were framed using Adobe Premier. After that, the necessary frames were selected and the background was deleted using Adobe Photoshop. Background removal was made to ensure contrast and better visual perception of technical elements. The videos created in this way were printed and provided to each student for self-study. Below are some examples of videograms and drawings developed in this way (Figures 1-3).

Fig. 1. Example of visual aids for illustrating individual tactical attacks in an attack (blind to a ball player)

Fig. 2. Shield for a player without a ball

Visual equipment was given to each athlete for an unlimited period of time. In an enlarged format, these guides hung out in front of the gym.

Dynamic manuals were developed to provide direct visual-perceptions in the study and
improvement of techniques and tactics of basketball. They reflected the basic details of techniques and tactics of basketball. To create dynamic guides, the method of animation was applied for a number of reasons:

1. Cartoons have always attracted and attracted people of all ages;
2. With animation you can create any dynamic scheme depending on the tasks of learning;
3. Modern information technology allows you to quickly and efficiently create the necessary dynamic subjects that are often difficult to understand without vivid playback;
4. Modern hardware allows you to reproduce cartoons created in the program "Flash", both on personal computers, on video players and even mobile phones.

In our work for the creation of educational cartoons the program "Macromedia Flash MX 2004" [36] was used. This program provides a visual environment for the visual development of multimedia documents that contain animation graphics, sound, video, user interface elements, and interactive capability. This program is designed to create applications with multimedia content of all kinds. The program allows you to create animated cartoons, add video clips and sound from other sources. The created documents can be exported to other programs and broadcast them.

In modern sports, when rivals meet and even the winners are often determined, the tactical skills of the athletes become especially relevant. In sports games and martial arts, where there is direct contact between opponents, tactical skill is crucial for victory.

The analysis of competitive interactions always leads to the need for an athlete to model the behavior of the opponent and different options for the development of events.

To simulate decision-making situations, different layouts are used that are able to perform certain actions that imitate the behavior of a real opponent.

The layouts are also used at the initial stages of developing tactical interactions, since understanding the holistic process of developing a situation on the site is a prerequisite for its implementation.

Special tactile boards are traditionally used to simulate tactical situations in the practice of basketball training, but the possibilities of their use are limited, since they do not allow to perceive the tactical situation in the dynamics. At present, the development of computer technology has unlimited possibilities for creating dynamic models of tactical situations. There are special programs for this, but these programs have certain limitations associated with the limited set of possible combinations. In addition, these programs are currently licensed, which is not always available to the user.

Below, we provide a description and e-mail address of the main applications that allow simulation of tactical situations.

1. Basketball Playbook v0.9 (JE Smit) gratuit (freeware) The program of design and animation of combinations and basketball exercises. Has over 600 combinations and exercises (shareware version, cost 29.95 euros). If not purchased within 30 days is considered free, with some features disabled at http://www.jes-basketball.com/playbook/download.html. Flash presentation (how to work with the program) http://www.jes-basketball.com/playbook/animation.html

2. The FIBA recommended program is Sideline Organizer Standard. When loading, be careful! The program allows installation only once. If you enter the key incorrectly, there may be problems.

3. CREZ Complete Basketball System
The program includes Modules: Personnel / Roster Screens, CREZscorer, CREZvideo, CREZstats, CREZscout, allowing you to maintain game statistics, post videos for later installation (moments), create animations, etc. The first 30 days are running without restriction, after which you are offered to buy the product (either individual modules or entirely). Otherwise, it works with Restricted Functionality. Cost 1250 USD - Complete set. Instal - 71.1 MB

We offer the creation of models with the help of Flash - technologies, which allow the creation of an unlimited number of dynamic models.

Consider the possibility of modeling tactical situations, for example, band press 1-2-1-1.

Placing players with zone press 1-2-1-1 throughout the site, it should be noted that the playground is divided into several zones. Longitudinal zones determine the placement of players and their functions. at any placement, all three zones must be filled. Moreover, the central zone
(the shortest path from the ring) becomes especially important and saturated (Fig. 3).

The actions are determined by the location of the ball on the site. Under zone pressure, it is conditionally divided into areas of action of the team.

Let's consider how the basic interactions are organized with zone press 1-2-1-1 throughout the site.

Defender 1 - usually a back-end player. It should be a low, mobile player, equally active in defense and assault. He pushes the enemy in a direction favorable to his team. The average player connects the second to the partner in order to remove the ball and, if necessary, should be able to quickly retreat back.

Players 2 and 3 are higher players. The more mobile they become in the position of defender 2, when the defending team wants to force the development of the attack in its direction. Players 2 and 3, depending on the movement of the ball should be able to quickly move to the rear zone, covering the weak spot under the basket.

The fourth player (No. 4), should feel the situation well and anticipate the development of events. He has to travel a lot, because he is responsible for the game in the middle of the playground. The back player (No. 5), usually the center, the highest, is stronger than the others playing under the shield.

The last line of defense covers the basket, and this player prevents light throws from a close distance.

During the application of zone pressure preservation actively protect the team has the ability to at least three - four times to create a situation of group selection of the ball and force the enemy to act with maximum strain.

In fig. 3 shows individual frames when creating a movie in Flash.

Fig. 3. Frames of the film - a dynamic model of tactical interactions with zone press 1-2-1-1

The first shot shows the initial set-up of defenders with zone press 1-2-1-1, the second frame shows the movement of defenders 1 and 2 to the striker who got the ball in order to force him to move him from the ball to the side lines In the third shot, we see the interception, perfect defenders, and the fourth - the attack ring. The movie, when created in Flash, is exported to a format suitable for display (swf, avi, animated gif, etc.).

In this case, only one of the variants of possible development of events is shown in the application of zone pressure 1-2-1-1. Such options may be many. The use of dynamic models greatly facilitates the perception and understanding of tactical combinations, reducing the time spent by the trainer and athletes on the development of various tactical interactions. In addition, the developed method involves the use of a large number of special exercises for the development of tactical thinking and learning tactical schemes. Here are examples of developed exercises.

Exercise 1 (Fig. 4). Striker 2 makes foam on the movement to the front line, forcing the defender to move, a short jerk opens in the opposite direction and gets the ball from the attacker 1. The defender 7 counteracts, the defender 8 goes to the opposite column, the forward 1 becomes the defender, the exercise continues, and so on.
Exercise 2 (Fig. 5). Half a basketball court is divided into 4 parts. In each of them there is a forward and defender. Forward 1, having a ball, with active counteraction defender 1 performs failures and turns, trying to pass the ball to the player, released into the free "squad" forward 2, which also overcomes the active resistance of defender 2. Striker 2, catching the ball, begins to perform strokes and turns, trying to pass the ball to the attacker 3, which goes into the "squared", freed, and so on.

To improve the basic training of players, the developed methodology also included exercises aimed at the development of force alternating with exercises for the development of speed [2,8,9].

As an active rest were carried out exercises to increase the "feeling of the ball", the development of agility and coordination of movements. When constructing a training session, exercises were carried out using the method of circular training in the following sequence: 2 exercises aimed at the development of force, after which there was an exercise on possession of the ball; further - the station for performing 2 speed exercises and again the station with exercises to increase the "feeling of the ball".

An in-depth analysis of the effectiveness of the use of the experimental methodology on the indicators of technical preparedness was carried out by an expert assessment of the technique of one of the main technical techniques in basketball - a throw one hand at the top of the middle distance (Table 3.6).

As can be seen from Table 1, before the experiment, the average values of the expert evaluation of the technique of running a throw with one hand at the top of the middle distance in the athletes of the control and experimental group did not differ statistically. In the experimental group, the average expert evaluation of the casting technique was 5.00 points, while in the control group it was 5.42 points (t = 0.42; p > 0.05).

The results of the initial testing showed that the indicators of expert assessment of the technology of the throw are random. In the initial testing, the indicators of expert evaluation of the technique of throwing athletes in the control group slightly exceeded (albeit statistically insignificant) indicators of the experimental group.

### Table 1

<table>
<thead>
<tr>
<th>Testing period</th>
<th>Group</th>
<th>n</th>
<th>( \bar{x} )</th>
<th>( \sigma )</th>
<th>m</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>To the experiment</td>
<td>experimental</td>
<td>11</td>
<td>5.00</td>
<td>1.34</td>
<td>0.40</td>
<td>-0.82</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>control</td>
<td>12</td>
<td>5.42</td>
<td>1.08</td>
<td>0.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After the experiment</td>
<td>experimental</td>
<td>11</td>
<td>7.55</td>
<td>0.82</td>
<td>0.25</td>
<td>4.15</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>control</td>
<td>12</td>
<td>6.00</td>
<td>0.95</td>
<td>0.28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The results of the comparative analysis of changes in the indicators of the expert evaluation of the technique of running a throw with one hand above the basketball players of the control and experimental groups (t-test for dependent samples) (n = 11 in the experimental group, n = 12 in the control group)

<table>
<thead>
<tr>
<th>Group</th>
<th>Testing period</th>
<th>$\bar{X}$</th>
<th>n</th>
<th>$\sigma$</th>
<th>m</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>experimental</td>
<td>To the experiment</td>
<td>5.00</td>
<td>1.34</td>
<td>0.40</td>
<td>5.00</td>
<td>10.293</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
<td>7.55</td>
<td>0.82</td>
<td>0.25</td>
<td>7.55</td>
<td>3.023</td>
<td>0.012</td>
</tr>
<tr>
<td>control</td>
<td>To the experiment</td>
<td>5.42</td>
<td>1.08</td>
<td>0.31</td>
<td>5.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
<td>6.00</td>
<td>0.95</td>
<td>0.28</td>
<td>6.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

During the experiment period, in both groups the indicators, which characterize the efficiency of possession of a throw with one hand on the top of the middle distance, improved. However, this improvement in different groups of participants in the experiment was of a different nature. As shown in Table 1, after the experiment, experimental and control groups began to differ significantly among themselves. In the experimental group, the average expert evaluation of the technique of running the throw with one hand from above was 7.55 points, and in the control 6.00 points ($t = 4.15; p = 0.00$). The obtained data testify to the positive influence of the technique developed by us on the technique of throwing one hand from above. Since this technique is one of the main in basketball, which integrates various motor action of basketball player, we can conclude that the method developed by us influenced the indicators of technical preparedness of basketball players of universities.

During 7 months of the pedagogical experiment in basketball players of the experimental group, the technique of running the throw with one hand from above moved to a new, qualitatively higher degree (Table 2). As can be seen from Table 2, as a result of the application of the developed method, a reliable growth of the indicators of expert estimation of the technique of the throwing performance in both the experimental group and the control one was revealed. In the experimental group, the increment of the expert assessment by 2.55 points as a result of the application of the experimental method is reliable at $p <0.001$ ($t = 10.29$) (Table 2), ie at the highest level of significance. In the control group, the increase in the indicator of the expert assessment of the technique of running the throw with one hand from above is 0.58 points, which is likely at a lower level of significance compared with the experimental group ($t = 3.02, p <0.05$) (Table 2).

The analysis of the results obtained in the experimental group and their comparison with the data obtained in the control group, give grounds to assert that the method proposed by us increases the effectiveness of the training process of student basketball teams in terms of possession of basic technical techniques.

Before and after the experiment, the number of group interactions implemented (that is, those that ended with a successful ring attack) during the game was analyzed. The following group interactions were recorded: "pass-out", "blind", "guiding", "triple", "quick breakthrough." In total, 10 games of championship among the universities of Kharkiv region were analyzed up to the experiment and 10 games after the experiment. The average value of the number of interactions used during one game was calculated. Prior to the experiment, the control and experimental groups according to the results of the t-test for independent samples probably did not differ in the amount of tactical interactions used in the game ($p> 0.05$) (Table 3).

Before the experiment, the average values of the number of tactical interactions in both the control and experimental groups ranged from 1 to 2 (Table 3). However, after the experiment, the difference between the groups according to the number of tactical interactions implemented during the game, according to the results of the t-test for independent samples, became reliable ($p <0.001$) (Table 4).

In the experimental group, the average value of the number of tactical interactions used was: 2.8 for the "pass-out" interaction; 2.10 for interaction "blind"; 2.30 for interaction of "guidance"; 2.20 for the interaction of the "three"; 3.70 for the "quick breakthrough" interaction. Average values of the increase in the number of interactions used in the game from the basketball players of the experimental group ranged from 1.60 to 3.70 interactions. These changes are reliable at the highest level of significance ($p <0.001$) (Table 5).
### Table 3
The number of tactical receptions, implemented in the game from the basketball players experimental and control groups to conduct the experiment (the number of games - 10)

<table>
<thead>
<tr>
<th>Action name</th>
<th>Group</th>
<th>$\bar{X}$</th>
<th>$\sigma$</th>
<th>$m$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass it out</td>
<td>experimental</td>
<td>1,2</td>
<td>0,42</td>
<td>0,13</td>
<td>0,33</td>
<td>0,75</td>
</tr>
<tr>
<td></td>
<td>control</td>
<td>1,1</td>
<td>0,88</td>
<td>0,28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barrier</td>
<td>experimental</td>
<td>0,42</td>
<td>0,2</td>
<td>0,13</td>
<td>-0,49</td>
<td>0,63</td>
</tr>
<tr>
<td></td>
<td>control</td>
<td>0,48</td>
<td>0,3</td>
<td>0,15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance</td>
<td>Group</td>
<td>0,42</td>
<td>0,2</td>
<td>0,13</td>
<td>-0,49</td>
<td>0,63</td>
</tr>
<tr>
<td></td>
<td>experimental</td>
<td>0,48</td>
<td>0,3</td>
<td>0,15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three</td>
<td>control</td>
<td>0,32</td>
<td>0,1</td>
<td>0,10</td>
<td>-0,85</td>
<td>0,41</td>
</tr>
<tr>
<td></td>
<td>experimental</td>
<td>0,67</td>
<td>0,3</td>
<td>0,21</td>
<td></td>
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<tr>
<td>A quick breakthrough</td>
<td>control</td>
<td>0,84</td>
<td>0,6</td>
<td>0,27</td>
<td>-0,23</td>
<td>0,82</td>
</tr>
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<td></td>
<td>Group</td>
<td>1,06</td>
<td>0,7</td>
<td>0,34</td>
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### Table 4
The number of tactical techniques implemented in the game of basketball players experimental and control groups after the experiment (the number of games - 10)

<table>
<thead>
<tr>
<th>Action name</th>
<th>Group</th>
<th>$\bar{X}$</th>
<th>$\sigma$</th>
<th>$m$</th>
<th>$t$</th>
<th>$p$</th>
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<tr>
<td>Pass it out</td>
<td>experimental</td>
<td>2,80</td>
<td>1,32</td>
<td>0,42</td>
<td>3,66</td>
<td>0,00</td>
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<tr>
<td></td>
<td>control</td>
<td>1,20</td>
<td>0,42</td>
<td>0,13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barrier</td>
<td>experimental</td>
<td>2,10</td>
<td>0,74</td>
<td>0,23</td>
<td>7,07</td>
<td>0,00</td>
</tr>
<tr>
<td></td>
<td>control</td>
<td>0,20</td>
<td>0,42</td>
<td>0,13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance</td>
<td>Group</td>
<td>2,30</td>
<td>0,48</td>
<td>0,15</td>
<td>10,36</td>
<td>0,00</td>
</tr>
<tr>
<td></td>
<td>experimental</td>
<td>0,20</td>
<td>0,42</td>
<td>0,13</td>
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<td></td>
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<tr>
<td>Three</td>
<td>control</td>
<td>2,20</td>
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<td>0,25</td>
<td>7,81</td>
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</tr>
<tr>
<td></td>
<td>experimental</td>
<td>0,10</td>
<td>0,32</td>
<td>0,10</td>
<td></td>
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</tr>
<tr>
<td>A quick breakthrough</td>
<td>control</td>
<td>4,30</td>
<td>0,82</td>
<td>0,26</td>
<td>9,93</td>
<td>0,00</td>
</tr>
<tr>
<td></td>
<td>Group</td>
<td>0,60</td>
<td>0,84</td>
<td>0,27</td>
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</tr>
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</table>

### Table 5
The number of tactical receptions implemented in the game of basketball players of the experimental group before and after the experiment

<table>
<thead>
<tr>
<th>Action name</th>
<th>Testing period</th>
<th>$\bar{X}$</th>
<th>$n$</th>
<th>$\sigma$</th>
<th>$m$</th>
<th>$t$</th>
<th>$p$</th>
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<td>Pass it out</td>
<td>To the experiment</td>
<td>1,2</td>
<td>10</td>
<td>0,42</td>
<td>0,13</td>
<td>4,00</td>
<td>0,000</td>
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<tr>
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<td>After the experiment</td>
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<td>10</td>
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<td>0,42</td>
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<td></td>
</tr>
<tr>
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<td>0,2</td>
<td>10</td>
<td>0,42</td>
<td>0,13</td>
<td>5,46</td>
<td>0,000</td>
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<td></td>
<td>After the experiment</td>
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<td>10</td>
<td>0,74</td>
<td>0,23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance</td>
<td>To the experiment</td>
<td>0,2</td>
<td>10</td>
<td>0,42</td>
<td>0,13</td>
<td>9,00</td>
<td>0,000</td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
<td>2,3</td>
<td>10</td>
<td>0,48</td>
<td>0,15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three</td>
<td>To the experiment</td>
<td>0,1</td>
<td>10</td>
<td>0,32</td>
<td>0,10</td>
<td>9,00</td>
<td>0,000</td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
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<td>10</td>
<td>0,79</td>
<td>0,25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A quick breakthrough</td>
<td>To the experiment</td>
<td>0,6</td>
<td>10</td>
<td>0,84</td>
<td>0,27</td>
<td>9,35</td>
<td>0,000</td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
<td>4,3</td>
<td>10</td>
<td>0,82</td>
<td>0,26</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the control group, similar changes in the number of tactical interactions used during the game are practically not expressed. Thus, the average values of the number of tactical interactions in the control group, both before the experiment and after the experiment, consisted of 0 to 2 interactions.
Changes in these indicators during the experiment are unreliable (p> 0.05) (Table 6).

At the same time, such changes were not detected in the control group. We believe that the changes in the organizing level of the game in the basketball players of the experimental group are due mainly to the purposeful influence on the understanding of tactical schemes by players through the use of information technology and specially selected exercises.

### The number of tactical receptions implemented in the game by basketball players of the control group before and after the experiment

<table>
<thead>
<tr>
<th>Action name</th>
<th>Testing period</th>
<th>( \bar{X} )</th>
<th>n</th>
<th>( \sigma )</th>
<th>( m )</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass it out</td>
<td>To the experiment</td>
<td>1,1</td>
<td>10</td>
<td>0,88</td>
<td>0,28</td>
<td>-0,43</td>
<td>0,68</td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
<td>1,2</td>
<td>10</td>
<td>0,42</td>
<td>0,13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barrier</td>
<td>To the experiment</td>
<td>0,3</td>
<td>10</td>
<td>0,48</td>
<td>0,15</td>
<td>0,56</td>
<td>0,59</td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
<td>0,2</td>
<td>10</td>
<td>0,42</td>
<td>0,13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance</td>
<td>To the experiment</td>
<td>0,3</td>
<td>10</td>
<td>0,48</td>
<td>0,15</td>
<td>0,56</td>
<td>0,59</td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
<td>0,2</td>
<td>10</td>
<td>0,42</td>
<td>0,13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three</td>
<td>To the experiment</td>
<td>0,3</td>
<td>10</td>
<td>0,67</td>
<td>0,21</td>
<td>1,50</td>
<td>0,17</td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
<td>0,1</td>
<td>10</td>
<td>0,32</td>
<td>0,10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A quick breakthrough</td>
<td>To the experiment</td>
<td>0,7</td>
<td>10</td>
<td>1,06</td>
<td>0,34</td>
<td>0,56</td>
<td>0,59</td>
</tr>
<tr>
<td></td>
<td>After the experiment</td>
<td>0,6</td>
<td>10</td>
<td>0,84</td>
<td>0,27</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Discussion.

The concept of individualization is based on the personal aspect of the system approach, since without the conscious goal-setting it is impossible to direct the development of self-organizing [3; 10; 11; 12; 16; 20]. Various means can be used to activate a personal beginning in the concept of individualization, which help the athlete to show the maximum of their capabilities. In fact, there is a drop that overflows the "cup" of athletic fitness and allows the athlete to reveal their individual potential, to show an exceptional result.

To this end, we recommend the use of arts in the training of athletes, which can be implemented in the modern training process through the use of interactive and multimedia technologies, the creation of video and audio devices, the introduction of active forms of art instruction into the training process.

Our experimental studies have confirmed this theoretical position of the concept. The positive influence of printed and dynamic video tutorials, methods of autogenous training on indicators of the functional state of athletes and indicators of competitive performance was revealed.

The results obtained are not accidental, since sports and art have a similar aesthetic structure for the athlete as well as for the observer, and in this regard, further improvement of sporting skill is not related to the development of physical qualities having a certain limit, but with improvement of technical skill, which, like the aspects of art, has no natural boundary.

It should be noted that at present, the creation of a video guide on sports games is usually directed to the illustration of individual matches, a selection of the best rolls of gear, impacts and other technical and tactical elements in sports games.

At the same time, we practically did not find methodical films aimed at teaching technical and tactical elements.

Thus, through the use of modern information technologies, the process of visibility was provided, which significantly increases the effectiveness of perception of information. The created films were viewed and analyzed as a group of athletes in cooperation with the coach, and were provided for independent reviews by athletes.

The use of additional methods of individualization of the training of athletes, in themselves and in combination with individual training programs developed on the basis of the analysis of the factor structure of preparedness and dynamics of competitive performance of athletes, has allowed to increase the competitive efficiency and competitive reliability of high-level athletes, level of functional readiness and adaptation possibilities of athletes [1; 6; 14; 15; 20].

### Conclusions

1. In order to increase the effectiveness of the training process of student basketball players, it is advisable to use the methodology developed by us, which implies the application of methods for activating the figurative perception of the elements of technology and basketball tactics on the basis of modern information technologies, as well as the emphasis on the tactical training of players with the help of specially designed exercises.

2. Developed a comprehensive method of training students basketball players based on the use of tactical exercises contributes to improving the quality of techniques for the implementation of technical methods of basketball, the effectiveness of
action games, increasing the number of tactical interactions implemented in the game.

3. In the experimental group there is an increase in the expert assessment by 2.55 points as a result of the application of the experimental method (p <0.001). In the control group, the increase in the indicator of expert evaluation of the technique of running a throw with one hand from above is 0.58 points, which is likely at a lower level of significance compared with the experimental group (p <0.05).

4. Average values of the increase in the number of interactions used in the game from the basketball players of the experimental group ranged from 1.60 to 3.70 interactions. These changes are reliable at the highest level of significance (p <0.001). In the control group, such changes in the number of tactical interactions used during the game are unreliable (p > 0.05).

5. The developed system is adequate for solving the tasks of the training process in student–basketball players and can be recommended in the wide practice of basketball teams training in higher education institutions.

In the future, further research is expected to expand research to improve the tactical training of student basketball teams.

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