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Using Basketball Game as an Educational Instrument for Children's Motor Qualities Development

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Abstract: *This work aims to reproducing the partial results of a study carried out at the level of the 11-14-year-old age group, which involves an initial approach to the identification of children's motor skills, as well as the creation of a planning framework proposed by a specialized program - by choosing some basketball-related content for the development of physical and general motor skills. The study started from the premise that the degree of development and evolution of speed and skill in a group with a basketball profile (11-14 years) can be enhanced by objectively placing some tests at the beginning and end of each stage of development during a specific period of time. The study was carried out using an experimental group (8 boys and 10 girls) and a control group (8 boys and 9 girls) during 9 months of activity, within a private sports club. The variety of technical methods specific to the basketball game, associated with the environmental conditions and material conditions of the experiment, contributed to the development of a large number of specific skills and motor skills, all of which were associated with the experimental results and contributed to the improvement of the physical health of the children.*

Keywords: *motor qualities development; Basketball game; physical development; skills; dexterity.*

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Introduction

Basketball is a specific form of expression and practice that is characterized by a playful nature of physical exercise (Gottlieb et al., 2021). The educational value of basketball is exceptional due to its multiple positive effects on the human personality (Cortis, 2019). The value-formative properties of basketball explain its widespread popularity in the educational environment, including the motivation of physical education teachers to promote the sport at the level of school sports (Ransone, 2016). At the level of the basketball game, speed is developed in all its forms, compared to other sports, in terms of speed of response and execution. In this sense, through the study undertaken, we want to demonstrate that the application of different technical procedures in the game requires a speed of reaction, such as: the speed of their entry into action, the sudden stop of the action and the start, without breaks, of a new action that is part from the previous one (Lucia et al., 2023).

The ability primarily based on coordination, speed and relaxation, located primarily in the segments that hold the ball is greatly increased and educated due to the dynamic nature of technical-tactical skills. These specific skills require, among other things, specific movements in planes and with different body segments that are rhythmic in nature. The movements require neuromuscular coordination of high precision and finesse, which is unique to the skill. Their use in the game in combat conditions, speed, balance and various forms of physical and mental stress, as well as their ability to self-manage and self-regulate, all increase the growth of self-management ability.

Due to its specificity, the effects of basketball at the educational level are similar to other sports and other forms of physical exercise. In addition to mental development, basketball has a particularly significant impact on the development of a person's personality. If we consider the contributions of the basketball game at the psycho-emotional level, we should mention the cultivation of a collective spirit, oriented towards the team, the organization of the spirit and conscious discipline (freely consented and chosen); raising and educating initiative, consistency and the desire to overcome obstacles; enhancing creativity, developing practical thinking and expressing creativity in various fields. Moreover, the activity of play typically inspires the young person to consider situations, contrast them with prior knowledge and that of others, and quickly deduce practical solutions.

On how physical activity supports the healthy development of children

Studies such as "Physical activity, fitness, and physical education: Effects on academic performance" from the volume "Educating the student body: Taking physical activity and physical education to school" address the importance of physical education in relation to child development, the structure and function of the brain (Kohl III & Cook, 2013). Thus, it was observed how there is a complex interaction between genetic programming and environmental influences, starting from the demonstration of the fact that, in particular, synaptic connections are partially dependent on experience (Taylor, 2006; Kohl III & Cook, 2013). Moreover, the brain has a special ability to reorganize itself in response to what it receives from sensory systems, other cortical systems or insults (Huttenlocher & Dabholkar, 1997; Kohl III & Cook, 2013). What is worthy of consideration when we approach the importance of physical activity in the good development of children, is that experience shapes the pruning process - by strengthening the neural networks that support relevant thoughts and actions and by eliminating unnecessary or redundant connections (Stephan et al., 2012). Thus, the brain will respond to experience in an adaptive manner, resulting in the efficient and effective adoption of thoughts, skills, and actions relevant to one's interactions with the environment (Stephan et al., 2012; Kohl III & Cook,2013). In addition to music participation (Elbert et al., 1995; Chan et al., 1998; Münte et al., 2001), examples of neural plasticity in response to unique environmental interaction are exhibited in human neuroimaging studies of sport activity participation (Hatfield & Hillman, 2001; Aglioti et al., 2008). This evidence helps support the educational practice of providing children with musical education and opportunities for physical activity as wide as possible.

Among the benefits of physical activity and physical education, the specialized literature in the field shows how *cognitive performance is improved* - studies suggest that both single sessions and long-term participation in physical activity can improve cognitive function and brain health (Erickson et al., 2019; Egger et al., 2019; Ionescu at al., 2018). The benefits are also transferable to adults; moderate to vigorous physical activity is shown to be the most beneficial (Hupin et al., 2015). Another considerable benefit is *increased focus and attention* - physical activity can improve a child's ability as a student to focus and concentrate on academic tasks (Ennis, 2017). Engaging in physical activity can have a positive impact on memory function - essential for learning and retaining information, which in fact leads to

increased memory, both at the level of development of children and adults (Ruscheweyh et al., 2011; Chaddock-Heyman et al., 2014)

Furthermore, there are studies that shows how physical activity influences, and can even enhance, *decision-making skills* - studies conducted among students show how students' ability to make quick and strategic decisions is improved (Donnelly et al., 2016; Pelin et al., 2018), which it also leads to performance benefits in different academic situations (Cox, 2022).

In addition to the development of decision-making skills, regular physical activity can also contribute to the *development of problem-solving skills*, by promoting creative problem-solving skills, which are valuable for academic success (Senduran & Amman, 2015). Also, conducted scientific physical activity contribute to the *development of coordination and spatial awareness* (Ionescu et al., 2014).

Basketball game benefits in children holistic development

Globally, basketball is a high-participation sport for girls and boys of all ages, including recreational games and organized competitions. The example of the USA shows that among young Americans between the ages of 6 and 14, 14.4 million play basketball, which actually represented 39% of this age group (Simmons Reseach, 2017; DiFiori et al., 2018). Furthermore, basketball is the most popular team sport for the 12-17 age groups, with over 11 million participants. According to the National Federation of State High School Association, in the 2016-2017 academic years, basketball was recorded as being played, at the high school level, by approximately 430,000 girls and 550,000 boys (National Federation of State High School Association, 2017).

Basketball game provides an extraordinary manner for children to develop and have fun at the same time. Studies on this specific game demonstrate the various benefits that participation in basketball can bring, among whitch we consider in short the *physical benefits* (Prusak, 2005; DiFiori et al.,2018; Bayazit, 2015; Soares et al., 2023), *cognitive benefits* (Madinabeitia-Cabrera et al., 2023;Xu et al., 2022), *social and emotional benefits* (Nelson et al., 2023).

When we consider the *physical benefits* we take into account firstly the improvement on the cardiovascular health (Chittibabu & Akilan, 2013), as the basketball game requires running, jumping and bursts of speed, all of which strengthen the heart and improve cardiovascular health.

In an experimental study in which the subjects were randomly distributed into two groups - the training group in the endurance circuit specific to basketball (N=12) and the control group (N=12) - after applying specific sets of exercises and repetitions, showed that aerobic capacity, resting

heart rate and peak heart rate between groups were significant. It was also observed that after adjusting for pre-test scores, there was a significant difference between the two groups in terms of post-test scores. The study by Chittibabu & Akilan (2013) had adolescent subjects with an average age of 16 years, and the findings of the study showed that basketball-specific endurance circuit training is effective in improving aerobic capacity and increasing cardiovascular fitness in high school boys during competition phase.

Basketball game also supports the development of motor skills, throught the actions of dribbling, throwing and passing, moves that require coordination, agility and balance. Playing basketball helps children develop and refine these essential motor skills (Montella et al., 2019). Montella et al. (2019) starting from the premise that there is a correlation between specific workout and preparation and higher results in the basketball game. The noticed that usually there are planned the training planning large amounts of technical skills and tactical work, but despite that it is neglected the part of athletic physical training. They wanted to focus on how, in fact, for better results in basketball game it is necessary to combine both the athletic phase with the technical one, conisdering to principle of the complexity of the sports performance. This principle of complexity comes to integrate both the quantitative part and the qualitative one. Furthermore, thier study aimed at argueing on how specific workouts contributed at developing and consolidating the basic motor patterns then lead to an improvement in performance in basketball (Montella et al., 2019).

Into a more specific investigation, and age related to our study, Bayazit (2015) studied the effects of basketball basic skills training on gross motor skills development of female children in Turkey. The study was carried out with 40 female children, aiming also, to determine changes with respect to the gross motor skills - locomotor, manipulative and balancing trainings. As a result of this study, it was found that there was a significant difference between pretest and posttest for all parameters ($p<0.05$) (Bayazit, 2015).

Participation in basketball offers children a multitude of benefits in the physical, cognitive, social and emotional domains. When implemented with care and an emphasis on enjoyment, basketball can be a valuable addition to a child's life, promoting a healthy lifestyle, valuable skills, and a love of physical activity.

Study methodology

Through this experiment, we aimed to identify the children's ability to acquire habbits and motor skills associated with the game of basketball.

The speed and accuracy of the subjects will be analyzed, with an emphasis on the development of motor skills.

Taking into account the significant weight of the means associated with the game of basketball in the physical development of children, we start from the premise that the habbits and specific motor skills associated with the game of basketball will have a positive impact on the physical development of the children involved.

At each level of sports training, speed and expertise, it was necessary to introduce tests and control metrics that would allow an objective assessment of the development and evolution of these qualities.

The aim of the experiment was to demonstrate the value of objective testing at all stages of training of basketball players aged 11-14 years in terms of improving motor skills, speed and proficiency. The method of pedagogical observation was used in two directions: tracking and recording the results of the control tests as well as the individual performance in training and verification games and establishing the way of manifestation of the motor qualities.

Establishing the way of manifestation of the motor qualities in the basketball game was achieved by following through direct observation, measuring the dynamics of the results obtained by the players. After the selection of the specific means for the development of speed and skill, they were introduced into the planning and used in the preparation process, and periodically the result was verified through tests and control norms.

The experiment started with the passing of control activities and norms: control activity for general skill: (jump with rotation; combined relay); control activity for the specific skill (complex technical exercise; basket shots); control activity aimed at general speed (running for 30 meters starting from the feet); control activity for specific speed (control test with change of direction); combined speed-skill activity (commuting).

Experiment subjects

The experiment was carried out in a private sports club, during 9 months, and included initial and final tests for the previously mentioned sport activities. The research subjects were children between the ages of 11 and 14, grouped into two groups: the experimental group (8 boys and 10 girls), and the control group (8 boys and 9 girls). The selection of the subjects of the study was based on the children's participation in the activities of the sports club. Ethics approval and consent of the children' caregivers for their children to participate was granted. After receiving information on the objectives and procedures of the study, the participants' caregivers gave their informed

consent for participation in the study (were informed of the withdrawing possibility, with no other consequences on their status etc.), which complied with the ethical standards internationally accepted. The theme proposed in the activity plans had the following objectives: ensuring harmonious physical development and correct body posture; consolidating knowledge about the body diagram and training the ability to orientate in space; improving the control and regulation of the respiratory cycle; creation and improvement of basic skills; improving static and dynamic balance; favoring coordination and improving dexterity; development of strength and psychomotor resistance; the development of cognitive, affective and volitional processes; increasing awareness and regulation of playful behavior, practicing relationships within the community.

Results and interpretations

Motor tests for experimental group (boys & girls)

Table 1. Dynamics of motor indices in boys. Experimental group (n=8) control group (n=8)

Control activity	Group	Initial Testing	Final testing	Difference
Throwing the oina (rounders) ball (m)	Experiment	30.57	34	3.43
	Control	24.71	25.29	0.58
Speed running (50 m-sec)	Experiment	9.16	8.99	0.17
	Control	7.64	7.59	0.05
Endurance running (1000m)	Experiment	4.15	4.02	0.13
	Control	4.2	4.19	0.01
Chest lifts (number of repetitions)	Experiment	24.57	26.14	1.57
	Control	25.14	25.57	0.43
Trunk extensions (number of repetitions)	Experiment	30.45	32.75	2.30
	Control	24.65	25.15	0.50
Long jump (cm)	Experiment	1.62	1.74	0.12
	Control	1.6	1.7	0.10

Table 2. Dynamics of motor indices in girls. Experimental group (n=10) control group (n=9)

Control activity	Group	Initial Testing	Final testing	Difference
Throwing the oina (rounders) ball (m)	Experiment	22.22	24.33	2.11
	Control	19.7	20.39	0.69
Speed running (50 m-sec)	Experiment	8.65	8.7	0.05
	Control	9.85	9.87	0.02
Endurance running (1000m)	Experiment	4.18	4.19	0.01
	Control	4.08	4.2	0.12
Chest lifts (number of repetitions)	Experiment	23.4	25.67	2.27
	Control	21.7	22.14	0.44
Trunk extensions (number of repetitions)	Experiment	25.57	27	1.43
	Control	24.89	25.3	0.41
Long jump (cm)	Experiment	1.6	1.8	0.2
	Control	1.55	1.65	0.1

Somatic data: height, weight, thoracic perimeter, wingspan

The initial and final tests for the measurement of somatic parameters: Experiment group

Table 3. Somatic parameters. Experiment group – Initial testing (boys)

Crt. No.	Name & Surname Initials	Hight (m)	Weight (kg)	Thoracic perimeter (cm)	Wingspan (cm)
1	A. D.	1.59	43	74	156
2	B. V.	1.55	40	69	151
3	B. E.	1.75	58	71	173
4	C. F.	1.58	41	71	156
5	L. D.	1.76	55	78	172
6	S. F.	1.65	44	76	159
7	E. F	1.64	43	75	160
8	B. V.	1.55	39	74	153
Arithmetic mean		1.63375	45.375	73.5	160

Table 4. Somatic parameters - Experiment group - Final test (boys)

Crt. No.	Name & Surname Initials	Hight (m)	Weight (kg)	Thoracic perimeter (cm)	Wingspan (cm)
1	A. D.	1.63	45	75	159
2	B. V.	1.58	43	70	154
3	B. E.	1.79	64	72	175
4	C. F.	1.62	45	72	159
5	L. D.	1.8	59	81	177
6	S. F.	1.69	47	77	164
7	E. F	1.67	45	77	164
8	B. V.	1.57	41	75	156
Arithmetic mean		1.66875	48.625	74.875	163.5

Table 5. Somatic parameters - Experiment group - Initial test (girls)

Crt. No.	Name & Surname Initials	Hight (m)	Weight (kg)	Thoracic perimeter (cm)	Wingspan (cm)
1	A. F.	1.65	65	86	158
2	E. E.	1.56	54	83	155
3	D. C.	1.61	61	93	159
4	H. C.	1.64	47	81	163
5	M. R.	1.7	45	76	167
6	D. L.	1.71	46	77	168
5	B. F	1.66	56	87	161
6	G. V.	1.46	39	69	143
7	E. L	1.5	38	69	143
8	C. C.	1.61	45	76	160
9	S.D	1.62	45	76	159
10	A.H.	1.59	44	74	142
Arithmetic mean		1.609167	48.75	78.91666667	156.5

Table 6. Somatic parameters - Experiment group - Final test (girls)

Crt. No.	Name & Surname Initials	Hight (m)	Weight (kg)	Thoracic perimeter (cm)	Wingspan (cm)
1	A. F.	1.67	68	89	162
2	E. E.	1.59	57	85	157
3	D. C.	1.64	63	96	162
4	H. C.	1.67	51	83	166
5	M. R.	1.73	47	78	171
6	D. L.	1.74	48	81	172
5	B. F	1.71	59	91	164
6	G. V.	1.51	42	71	147
7	E. L	1.52	42	72	147
8	C. C.	1.63	47	78	162
9	S.D	1.65	47	79	162
10	A.H.	1.66	47	77	146
Arithmetic mean		1.643333	51.5	81.66666667	159.83333

The initial and final tests for the measurement of somatic parameters: Control group

Table 7. Somatic parameters – Control group - Initial test (boys)

Crt. No.	Name & Surname Initials	Hight (m)	Weight (kg)	Thoracic perimeter (cm)	Wingspan (cm)
1	F. N.	1.79	59	73	175
2	M. V.	1.46	39	67	144
3	N.B.	1.48	38	68	145
4	N.C.	1.56	46	67	154
5	M.R.	1.59	43	69	157
6	T.R.	1.58	44	72	156
7	U.C.	1.54	48	77	156
8	M.N	1.55	47	76	155
Arithmetic mean		1.56875	45.5	71.125	155.25

Table 8. Somatic parameters – Control group - Final test (boys)

Crt. No.	Name & Surname Initials	Hight (m)	Weight (kg)	Thoracic perimeter (cm)	Wingspan (cm)
1	F. N.	1.78	58	72	174
2	M. V.	1.44	38	66	143
3	N.B.	1.47	37	67	144
4	N.C.	1.55	45	66	153
5	M.R.	1.58	43	68	156
6	T.R.	1.57	43	70	155
7	U.C.	1.53	47	75	154
8	M.N	1.54	46	75	153
Arithmetic mean		1.5575	44.625	69.875	154

Table 9. Somatic parameters – Control group - Initial test (girls)

Crt. No.	Name & Surname Initials	Hight (m)	Weight (kg)	Thoracic perimeter (cm)	Wingspan (cm)
1	A. C.	1.63	48	78	156
2	E. D.	1.55	45	67	150
3	D. R.	1.53	43	70	148
4	H. V.	1.63	43	77	160
5	M. N.	1.63	44	90	158
6	E. L.	1.48	79	67	143
7	M. F	1.59	37	70	153
8	O. V.	1.49	43	70	147
9	L. L	1.51	41	71	146
Arithmetic mean		1.56	47	73.3333333	151.2222222

Table 10. Somatic parameters – Control group - Final test (girls)

Crt. No.	Name & Surname Initials	Hight (m)	Weight (kg)	Thoracic perimeter (cm)	Wingspan (cm)
1	A. C.	1.6	46	76	154
2	E. D.	1.53	43	65	149
3	D. R.	1.5	42	69	146
4	H. V.	1.6	41	76	158
5	M. N.	1.61	43	89	155
6	E. L.	1.47	78	65	141
7	M. F	1.58	36	69	150
8	O. V.	1.48	41	68	145
9	L. L	1.5	40	68	143
Arithmetic mean		1.5411111	45.555556	71.6666667	149

Testing habits and motor skills of speed and dexterity, specific to the game of basketball

The difficulty and complexity of the effort of the game of basketball, having a multifaceted nature, requires and increases the complexity of all motor qualities. The accuracy of the basketball game negatively affects the progression of motor skills in general and specific domains.

During the basketball team training process, the development of motor skills is considered to be achieved through two different approaches: a direct approach, which is practiced through the game itself, and a more analytical approach that uses special exercises that are specific to other sports.

In the preparation of the (11-14 years old) teams for the development of motor skills, we mainly used the means offered by the game of basketball, justified by the following: the multitude of technical procedures, the possibility of combining them in complete exercise structures, but also the possibility of practicing them in isolation, on parts, phases, fragments, as well as the possibility of dosing the effort in relation to its parameters (volume, intensity, complexity), makes it possible to use the basketball game and its technical elements for the development of motor skills with greater efficiency; learning the game of basketball requires a lot of time, a fact that requires us to use all the training and all the time reserved for the training hours for the actual practice of the technical-tactical elements of the game; by changing the dominance in practicing the

technical-tactical elements, the motor qualities develop simultaneously with the technical-tactical skills of the game.

In the experimental group, the means associated with the basketball game were implemented, while the means associated with the football game were used as a reference; the results showed a significant increase in the physical, motor and children's skills associated with the game of basketball, as well as a significant increase in the body mass of children. After analyzing the research data and combining them, indicators were created to serve as references: weight, height, chest circumference and wingspan, parameters reported as the average of each indicator, both for the experimental group and for the control group.

To assess general physical development, we used the following tests (procedures): speed running on flat surfaces of 30 m, endurance running that is 800-1000 m (girls and boys), raising the trunk from the initial position, lying down (abdomen) and standing long jump. To assess the skills specific to the basketball game, the following tests were used: shuttle 5x10m, dribbling between the posts, the practical route - its results were interpreted by the statistical-mathematical method, then reported to the average of each indicator, calculated both for the experimental group and for the control group.

The tests regarding general physical training demonstrate that the recorded parameters are progressively increasing, the results obtained by the experimental group being better than the control group, in all tests. By comparing the two groups, the progress achieved with the experimental group compared to the classic instructional process in the control group, it is observed that the group subjected to the experiment, with specific means of the basketball game modified on modern training methods, highlights a better general physical development.

It was also observed how the children's interest in topics related to general physical development and increasing the motor number through procedures and elements specific to the basketball game, increased significantly in the experimental group, compared to the control group, which had a less significant increase.

The effort and complexity of the means dedicated to the game of basketball, which have a complex nature, positively influence the improvement of motor skills in general and, specifically, the development of complex skills.

The game of basketball relies heavily on motor skills. The development of motor skills is one of the most popular ways to provide physical education to children in schools aiming to achieve the general goals

of physical education, all of which are general physical development. General physical development through the means specific to the game of basketball is achieved through two ways: a direct one, by practicing the game itself, and analytically practicing the technical elements of the game, and an indirect way (using special exercises, specific to other sports).

Means specific to the game of basketball for the purpose of general physical development have been proposed for the following reasons: 1). the multitude of technical procedures, the possibility of combining them in complex exercise structures, but also the possibility of practicing them in isolation, in parts, phases, fragments, as well as the possibility of dosing the effort in relation to their parameters (volume, intensity, complexity), makes it possible to use with greater efficiency of the basketball game and its technical elements for the development of motor skills; 2). the general physical development of a child is facilitated by the technical-tactical components and procedures specific to the basketball game, this development requires a lot of professionalism and time, a fact that is used in the educational process of physical education; 3). by changing the dominance in practicing the technical-tactical elements, the motor qualities are simultaneously developed through the technical-tactical skills of the basketball game.

Technical-tactical exercises were used for the development of motor quality: speed (development of movement speed, execution speed, reaction speed); force; The development of motor skills through exercises specific to the game of basketball must be the main way for general physical development.

For the development of the skill, we used the exercises for the development of non-specific skills. In the second part of training for the development of the skill, we introduced more and more exercise structures that we practiced in conditions as close as possible to the game.

Conclusions

The diversity of the technical methods specific to the basketball game, associated with the environmental conditions and the material conditions of the experiment, contributed to the development of a large number of specific motor skills and abilities, all of which were associated with the experimental results and contributed to the improvement of the physical health of the students and their mental state. By comparing the results representing the developmental progress of anthropometry (height, weight, chest circumference and wingspan) between the two groups involved in the experiment, a significant increase in the developmental

progress of the experimental group compared to the control group is found, this confirms that the means associated with the game of basketball had a positive impact on physical development.

The boys in the experimental group had an average increase in height of about 3 cm, from their starting point of 1.63 m to their final measurement of 1.66 m. The control group had an increase of 2 cm in height, from 1.56 m at 1.58 m, with an average of 2 cm. Regarding the chest perimeter, better values were recorded in the experimental group, both in boys and in girls, on average 3 cm, from 73.5 cm to 74.87 cm, at the end of the research, in boys and from 78.91 cm, at initial testing, in girls, at 81.66 cm, a difference of 2.75 cm. In the control group, in girls, there was only a difference of 1.67 cm and in the boys in the control group; there was a difference between the two tests of 1.25 cm.

The boys in the experimental group had an average increase in height of about 3 cm, from the starting point of 1.63 m to their final measurement of 1.66 m. The control group had a nursery Physical fitness tests, which were part of the activity experimental and comparing the study data, showed that the physical attributes recorded increased over time, the results from the experimental group were significant, in all categories of physical training. In the sheep ball throwing experiment, the experimental group had a higher degree of success in the throwing test than the control group, with a difference between the initial and final testing of 3.43 cm, while the control group had a difference of 0.58 cm. - for boys. The dynamics of motor indices in girls shows a difference of 2.11 cm between the initial and the final phase. teres by 2 cm in height, from 1.56 m to 1.58 m, with an average of 2 cm. Regarding the chest perimeter, better values were recorded in the experimental group, both in boys and in girls, on average 3 cm, from 73.5 cm to 74.87 cm, at the end of the research, in boys and from 78.91 cm, at initial testing, in girls, at 81.66 cm, a difference of 2.75 cm.

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The boys in the experimental group had an average increase in height of about 3 cm, from the starting point of 1.63 m to their final measurement of 1.66 m. The control group had a nursery Physical fitness tests, which were part of the activity experimental and comparing the study data, showed that the physical attributes recorded increased over time, the results from the experimental group were significant, in all categories of physical training. In the sheep ball throwing experiment, the experimental group had a higher degree of success in the throwing test than the control

group, with a difference between the initial and final testing of 3.43 cm, while the control group had a difference of 0.58 cm - for boys. The dynamics of motor indices in girls shows a difference of 2.11 cm between the initial and the final phase. Regarding the chest perimeter, better values were recorded in the experimental group, both in boys and in girls, on average 3 cm, from 73.5 cm to 74.87 cm, at the end of the study, in boys and from 78.91 cm, at initial testing, in girls, at 81.66 cm, a difference of 2.75 cm. In the control group, in girls, there was only a difference of 1.67 cm and in the boys in the control group; there was a difference between the two tests of 1.25 cm.

The physical training tests, which were part of the experimental activity and the comparison of the study data, showed that the physical attributes recorded increased over time, the results from the experimental group were significant, in all categories of physical training. In the sheep ball throwing experiment, the experimental group had a higher degree of success in the throwing test than the control group, with a difference between the initial and final testing of 3.43 cm, while the control group had a difference of 0.58 cm - for boys. The dynamics of motor indices in girls shows a difference of 2.11 cm between the initial and the final phase. Trunk extensions (number of repetitions) show a difference of 2.30 cm for the boys experiment group, and a 0.50 cm difference within the boys control group. The values for the girls' exercizes on trunk extensions show a difference of 1.43 cm between initial and final tests, while the girls control group revealed a difference of 0.41 cm.

The themed, limited-court and dual games illustrated the experimental group's superiority in the execution of procedures, the organization of technical-tactical actions, and having a quick and efficient solution of various collective tactical problems specific to the game of basketball. This combination of attributes contributed to the development of the experimental group's superiority in both technical and practical aspects of the game. The experimental design proposed for the experiment involved: classical and modern methods of work, training systems that guaranteed the greatest efficiency of physical development and control samples that best demonstrated the quality of the desired overall physical development. The experimental results indicate that the optimization of the methodological training process has a multiple training effect that is primarily influenced by the content of the basketball game.

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