

The Effect of Competitive Group Exercises on Improving Offensive Skill Speed in Basketball for 12–14 Year Olds

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ORIGINAL STUDY

The Effect of Competitive Group Exercises on Improving Offensive Skill Speed in Basketball for 12–14 Year Olds

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Abstract

Basketball is characterized by great speed, especially physical speed and speed of skill performance, as they play an important role in achieving sporting performances. Therefore, their importance has become apparent through interest in developing them according to specialized group exercises and a competitive atmosphere that helps them to adapt to the playing atmosphere for age groups of 12–14 years and building a correct Basketball base in the future. The research problem was: Skill and physical performance speed are not at the desired level as they progress through the training stages, including for youth and advanced players. Therefore, paying attention to these skills during the early stages of basketball practice, such as those aged 12–14, will help build a more athletic gymnasium that will be capable of achieving speed in the future. Therefore, choosing appropriate exercises, such as group competitive exercises, may help solve the research problem and improve the players' performance. The aim of the research was to identify the effect of competitive group exercises on raising the level of offensive skill speed performance in basketball for 12–14 years old as in [Appendix \(1\)](#). The experimental approach was used, and the research sample was a specialized basketball school in Basra Governorate. After implementing the exercises, the most important conclusions were reached: Competitive group exercises are important and essential in raising the level of offensive skill speed performance in basketball for 12–14 year olds. It was recommended to adopt competitive group exercises because they are important and essential in raising the level of offensive skill speed performance in basketball for 12–14 years old.

Keywords: Competitive group exercises, Offensive skill speed

1. Research definition

1.1. Research introduction and importance

Various results and achievements are achieved as a result of focusing on the methods that develop them and facilitate the process of training and practicing them. This includes all areas that require research and attention, whether in educational, social, economic, or even sports aspects.

In the sports aspect, achieving sports achievements and championships requires the development of various training exercises, methods, and methods to raise the physical, skill, tactical, and psychological levels in the game practiced by the athlete. Exercises are most effective when conducted in an atmosphere similar

to that of competition and the game, as they reduce the time required for effort and training and prevent the waste of training outside of the game. Thus, competitive exercises have become more effective than other exercises [Mustafa \(2001\)](#) Competitive exercises “resemble what happens in a match, both offensively and defensively, so that they can effectively execute their required tactical duties during matches. It also emphasizes the importance of tactical innovation to surprise opposing team players with unexpected skill and tactical performances, which have been previously trained for, resembling what happens during competition”(p. 20).

[Bastawisi \(1999\)](#) emphasizes performing movements according to the specific rules for practicing

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the type of sporting activity in which the individual specializes. Competitive exercises are characterized by stimulating the psyche to persevere, exert effort, and create suspense. They strengthen the muscles involved in the specialized activity and contribute to the development of various specific volitional traits necessary for young players. They also play an important role in all stages of the training season for various activities, and their impact is most effective when linked to the requirements of competition, as they are an important means with multiple requirements for the components of the training situation. They also raise the level of efficiency of the player's integrated performance, bringing it to a high level, enabling it to perform under various conditions.

Therefore, we find that competitive exercises are characterized with a great importance, especially in age groups, as they help them perform more effectively and energetically, due to their enthusiasm and excitement. Given the existence of multiple competitive exercises, including individual, team, and group, group exercises provide greater speed, as in basketball, which is a team game and requires quick, skillful offensive performance. When the exercise is performed between two or three players, it results in faster movement, as in cases of rapid attack. Hence, the importance of research into raising the level of players in age groups (12–14) in terms of physical speed and skillful performance, and in a competitive environment, according to specialized group competitive exercises that help them adapt to the playing environment. Thus, we contribute to building a sound behavioral foundation for the future.

1.2. Research problem

Entering a competitive atmosphere from a training perspective is of great importance in raising the demands of the game. In basketball, the main requirement is speed in performance, whether physical or motor-skill-related. It is essential that training be competitive, characterized by a fast-paced atmosphere and consistent with the specific nature of the game, including group competitive training. Through the researcher's experience in the field of sports training science and basketball, he found that the level of speed, skill, and physical performance are not at the desired level as training levels advance, including for youth and advanced players. Therefore, focusing on these skills at the early ages of basketball practice, such as ages 12–14, will help build a fast-paced basketball gymnasium in the future. Therefore, choosing appropriate training, such as group competitive training, may help solve the research problem and raise the level of players.

1.3. Research objective

- 1- To identify the effect of competitive group exercises on improving the speed of offensive skill performance in basketball for students aged (12–14) years.

1.4. Research hypothesis

- 1- There is a positive effect of competitive group exercises in raising the level of speed and offensive skill performance in basketball for students aged (12–14) years.

1.5. Research areas

1.5.1. Human scope

Basketball players at the specialized school in Basra Governorate, aged 12–14 years.

1.5.2. Spatial scope

The indoor hall at the specialized basketball school in Basra Governorate.

1.5.3. Time scope

From January 13, 2025 to March 25, 2025.

2. Research methodology and field procedures

2.1. Research methodology

The experimental method was used to address the research problem and achieve its objectives, particularly with the two-group design (control and experimental), thus becoming an experimental design.

2.2. Research population and sample

The research population was defined as specialized school basketball players aged (12–14) years for the 2024–2025 sports season, using a deliberate method. The total number of players was (25) at this age. (12) players were selected as the main players in the competitions, constituting (48%). They were randomly divided into two groups (control and experimental), each consisting of (6) players. The sample was homogeneous within each group using the coefficient of variation, while the two groups were equalized using the (T) test for unrelated samples, as shown in [Table 1](#).

2.3. Data collection methods, tools, and devices used

- 1- References
- 2- Tests

Table 1. Shows the homogeneity of the control and experimental samples and the equivalence of the two groups in the research variables.

Research variables	Unit of measurement	experimental group			control group			Calculated (T) value	Significance level
		coefficient of variation	A	S	coefficient of variation	A	S		
Height	Cm	1.586	1.75	110.32	1.416	1.56	110.14	0.171	Non-moral
Weight	Kg	3.001	0.674	22.46	1.876	0.423	22.54	0.225	Non-moral
Arm speed	Number	6.287	0.542	8.62	5.575	0.475	8.52	0.31	Non-moral
Legs speed	Number	5.555	0.365	6.57	8.713	0.562	6.45	0.401	Non-moral
Speed endurance	Second	1.238	0.896	42.36	2.189	0.925	42.25	0.191	Non-moral
Slamming speed	Second	3.61	0.674	18.67	4.022	0.745	18.52	0.334	Non-moral
Passing speed	Second	3.862	0.871	22.55	2.342	0.526	22.45	0.219	Non-moral
Tap speed	Cm	4.072	0.964	23.67	3.645	0.854	23.425	0.426	Non-moral

*Tabled (T) value at (10) degrees of freedom and (0.05) probability of error = 2.228.

2.3.1. Devices and tools used

- 1- Stopwatch
- 2- Metric tape measure
- 3- (6) basketballs
- 4- Basketball court
- 5- Medical scale
- 6- Basket diameter 30 cm
- 7- Rubber rope length 1 meter
- 8- (2) posts
- 9- Three markers

2.4. Field research procedures

2.4.1. Determining research variables

Based on the requirements of the research problem, the researcher's experience, and with the approval of references, the research variables under study, specifically speed and speed of offensive skill performance, were selected.

2.4.2. Tests used

2.4.2.1. Arm motor speed test (Hassanein, 1997)

Purpose: To measure arm motor speed.

Tools: Stopwatch, 30 cm diameter basket.

Performance: The subject stands near the basket and, upon receiving the start signal, circles the arm around the basket with the palm aligned with the top of the basket. The number is repeated within (20) seconds.

Recording: The number of complete circles within 20 seconds.

2.4.2.2. Leg motor speed test (Al-Hussein, 2012)

Purpose: To measure the motor speed of the leg muscles.

Tools: Stopwatch, 1 meter long elastic rope.

Performance: The player stands in front of a rope secured on both sides with one leg, with the knee level with the rope. Upon signal, the player begins running, starting with his right leg in place at maximum speed,

provided that his knee touches the rope while running in place. This continues for (10) seconds.

Recording: The number of times the right leg touches the ground within 10 seconds.

2.4.2.3. Speed endurance test (Faris & Abdul Razzaq, 2016)

- **Test name:** Speed endurance with three markers.

- **Test purpose:** Measuring speed endurance time (seconds and parts thereof).

- **Equipment used:** (3) markers, basketball court, whistle, electronic timer.

- **Performance description:** The player stands at the starting point, which is in the middle of the baseline in the shooting area on the right side, and upon hearing the whistle, he starts to the marker (1), which is in the middle of the three-point line, and circles around it and returns to the starting point. This is repeated (4) times, then starts to the second marker, which is in the middle of the court, and circles around it (3) times and returns to the starting point, then heads to the third marker, which is in the middle of the three-point line. Points on the other side of the field and circle around it and return to the starting point and repeat (2) times and return to the starting point.

- **Test Conditions:**

- Perform the test quickly.

- Two attempts are required.

- **Test Administration:**

* **Timer:** Gives the start and end signals via whistle to keep track of the time.

* **Recorder:** Calls out names, notes, and records the test time.

* **Score Calculation:** The player's attempt time (best of two attempts) is recorded using the start and end whistles.

2.4.2.4. Ladder speed test (Al-Diouji & Hamoudat, 1999)

Purpose of the test: To measure ladder speed.

Equipment and tools used: (3) posts, a basketball, and a timer. The distance between the starting line,

which is (19.5) meters from the point descending from the center of the hoop, and the first post is (6) meters, and the distance between the posts is (4.5) meters.

Test conditions: The examinee stands at the starting line and, upon hearing the start signal, begins to dribble the ball between the posts, starting to the right of the first post (for right-armed players). When he reaches a suitable distance to the basket, he performs a ladder shot and quickly returns with the ball if the shot is successful. If the shot is unsuccessful, he returns from under the hoop until the ball is successfully hit, then quickly returns. The time is calculated, which serves as a guide for the test.

2.4.2.5. *Passing speed test (Al-Diouji & Hamoudat, 1999)*

The purpose of this test is to measure the tester's ability to quickly pass and receive the ball.

Equipment and tools used: Stopwatch, basketball, flat floor, smooth wall.

Test Method: The tester stands behind a line drawn on the floor, 9 feet (2.70 m) from the wall. Upon hearing the start signal, the tester passes the ball to the wall in a manner of their choice. This pass should be at head level and as quickly as possible. The tester then receives the ball after it bounces off the wall and repeats the process until ten successful passes are completed.

Test Conditions:

- The ball may touch the wall at any height.
- It is not permitted to hit the ball when it rebounds from the wall; it must first be received and then passed again.
- All passes must be made from behind a line drawn on the floor.
- If the ball falls to the floor during the test, the tester must regain possession and continue the test from behind the line. Only valid passes that travel from the tester to the wall and then directly back to the tester without the ball touching the floor are counted.
- The tester is allowed only two attempts, and the best attempt is credited.

Recording: The time in this test is calculated from the time the ball touches the wall on the first successful pass and continues until the ball touches the wall on the tenth and final successful pass.

The time is calculated in seconds and tenths of a second, provided that the tester records both permitted attempts. In this case, the tester must record the attempt with a shorter time than these two attempts. The time is calculated for performing ten successful passes.

2.4.2.6. *Tapping speed test (Al-Diouji & Hamoudat, 1999)*

Purpose of the Test: This test aims to test tapping speed between a set of markers.

Equipment and Tools Used: Six markers, a stopwatch, and a basketball. The markers are arranged noting that a starting line and a finishing line are drawn. The starting line is 5 feet, 1.5 m away from the first marker, while the remaining markers are 8 feet, 2.40 m apart.

Test Conditions: At the start, the examinee stands behind the starting line with the ball. Upon hearing the start signal, they run zigzag between the markers, continuously tapping the ball. The examinee performs this action back and forth to the finish line until they cross the starting line. In this case, the timer calculates the time taken for this attempt, i.e., the distance from (start - finish - start).

Test Conditions:

- The examinee is allowed to practice the test before beginning.
- The examinee must perform the tapping procedure legally.
- The examinee may perform the tapping procedure with either hand (right or left).
- The examinee is allowed only two attempts, with the best attempt being counted.

Recording:

- The time taken for the tester to complete the required test is calculated from the moment the test begins until the tester crosses the starting line with the ball.
- The time for both attempts is recorded.
- The best time for one of the two attempts is considered.

2.4.3. *Exploratory experiment*

The researcher conducted an exploratory experiment on January 13, 2025, on some of the players in the research sample (the experimental sample). The purpose was to standardize group competitive exercises, calculate the correct training volume, and identify difficulties and obstacles.

2.5. *Field experiment*

2.5.1. *Pre-tests*

The tests were conducted on January 26, 2025.

2.5.2. *Competitive exercises*

Group competitive basketball exercises were determined, relying on two or three players in an offensive competitive manner. The performance intensity was (80–90%). Repetitions were determined according to the competitive environment, having been previously repeated in tournaments and measured by number and time. Rest was standardized

based on heart rate as an indicator of rest between repetitions (120–130 beats/min) and between sets (120–130 beats/min). The number of months was two months, while the number of weeks was (8) weeks. The number of training units included (24) training units, with the days of the units being Sunday, Tuesday, and Thursday. It was programmed in the main section of the coach's training units and implemented during the special preparation period. The training program began on January 27, 2025, and ended on March 24, 2025.

2.5.3. Post-tests

Post-tests were conducted on March 25, 2025.

2.6. Statistical methods: The SPSS system was used to determine the following variables

- 1- Arithmetic mean
- 2- Standard deviation
- 3- Coefficient of variation
- 4- T-test for unrelated samples
- 5- T-test for related samples.

3. Presentation, analysis, and discussion of the results

By observing [Tables 2 and 3](#), we find that there was an improvement in speed in all its forms, including kinetic and speed endurance, in addition to the speed of skill performance, for both the control and experimental groups. This indicates that the training used achieved the desired training goal and improved the

level of both groups. [Ibrahim and Al Yasiri \(2010\)](#) believe that “the goal of the sports training process is to enable the athlete to reach the highest level of athletic achievement in the event or activity in which the player specializes”(p. 22).

Furthermore, organizing exercises according to a standardized and correct program helped develop skill performance and speed simultaneously. Therefore, [Al-Saadoun \(2010\)](#) asserts that “standardized and scientifically organized training programs work to develop the physical and skill levels of players” (p. 104). By observing [Table 4](#), it became clear to us that there are, according to the dimensional differences between the control and experimental groups, the superiority of the experimental group in the types of speed, especially the motor speed of the arms and legs, speed endurance, and speed of skill performance, which is due to the use of group competitive exercises and their great role in bringing about this change, as speed is the most important in this research, which [Bastawisi \(1999\)](#) sees in “sports games, including running, football, or basketball, which depend on the speed of motor performance, which is shown through the distinctive rhythms and can be deduced from the intervals and standardized time spaces between the parts of the movement on the one hand and the speed of performance on the other hand” (p. 105).

Speed, its importance, and its role are explained by [Ali \(1999\)](#): “It is the speed of contraction of a muscle or muscle group when performing single movements, such as kicking a ball or jumping, as well as when

Table 2. Shows the arithmetic means, pre- and post-test standard deviations, and calculated and tabulated T-test values for the control group in the tests used.

Tests used	Unit of measurement	For the post-test		For pre-test		standard error	Calculated value of (T)	Significance level
		A	S	A	S			
Arm motor speed	Number	0.865	10.147	0.475	8.52	0.664	2.45	Moral
Legging motor speed	Number	0.745	8.234	0.562	6.45	0.655	2.723	Moral
Speed endurance	Second	0.965	40.63	0.925	42.25	0.571	2.837	Moral
Slamming speed	Second	0.745	16.24	0.745	18.52	0.889	2.564	Moral
Swift passing speed	Second	0.558	20.36	0.526	22.45	0.871	2.399	Moral
Tapping speed	Second	0.967	21.07	0.854	23.425	0.797	2.954	Moral

Table 3. Shows the arithmetic means and standard deviations before and after the tests, and the calculated and tabulated (T) values for the experimental group in the tests used.

Tests used	Unit of measurement	For the post-test		For pre-test		standard error	Calculated value of (T)	Significance level
		A	S	A	S			
Arm motor speed	Number	0.745	12.27	0.542	8.62	0.884	4.128	Moral
Legging motor speed	Number	0.832	10.541	0.365	6.57	0.994	4.012	Moral
Speed endurance	Second	0.698	38.07	0.896	42.36	1.14	3.763	Moral
Slamming speed	Second	0.873	14.084	0.674	18.67	1.77	2.59	Moral
Swift passing speed	Second	0.886	18.33	0.871	22.55	1.11	3.801	Moral
Tapping speed	Second	0.994	19.45	0.964	23.67	1.22	3.459	Moral

Table (T) value at (5) degrees of freedom and (0.05) error = 2.132.

Table 4. Shows the arithmetic means, post-test standard deviations, and calculated and tabulated T-test values between the control and experimental groups in the tests used.

Tests used	Unit of measurement	experimental group		control group		Calculated T value	Significance level
		A	S distant	A	S distant		
Arm motor speed	Number	0.745	12.27	0.865	10.147	4.162	Moral
Legging motor speed	Number	0.832	10.541	0.745	8.234	4.623	Moral
Speed endurance	Second	0.698	38.07	0.965	40.63	4.812	Moral
Slamming speed	Second	0.873	14.084	0.745	16.24	4.202	Moral
Swift passing speed	Second	0.886	18.33	0.558	20.36	4.337	Moral
Tapping speed	Second	0.994	19.45	0.967	21.07	2.612	Moral

The table value of (T) at a degree of freedom of (10) and a probability of error of (0.05) = 2.228.

performing compound movements, such as receiving and passing the ball, or shooting” (p. 108).

The use of group competitive exercises provides a significant indicator of improving speed and skill performance. These exercises are similar to those performed on the field, with or without a ball. Therefore, Abu Al-Ala and Nasr El-Din (1993) emphasize that “during speed training, the player must perform the exercises with maximum effort. They must also develop the speed of decision-making, which translates into a motor response. Therefore, speed exercises and drills must be performed using balls. A sound scientific methodology must be followed in speed training that develops the player’s ability to sense, pay attention, and anticipate various game stimuli and situations, as well as the speed of decision-making based on the opponent’s movement, reactions, and responses” (p. 330).

4. Conclusions and recommendations

4.1. Conclusions

- 1- Competitive group exercises are important and essential for raising the level of speed and offensive skill performance in basketball for students aged 12–14 years.
- 2- Using group exercises of two or three players in basketball produces higher speed than other competitive exercises and is more similar to the competitive atmosphere.

4.2. Recommendations

- 1- Adopt competitive group exercises, as they are important and essential for improving the speed and skill level of offensive basketball performance in 12–14 years old.
- 2- Emphasize the use of group exercises of two or three players in basketball, as they provide greater speed than other competitive exercises and are more similar to the competitive atmospheric.

Conflicts of interest

None.

We confirm that all tables and figures in this article are ours and written by the researchers themselves.

Ethics statement

This manuscript approved by Specialized Sports School for Basketball (Coach Ahmed Abdel Hadi Aboud) on (1/12/2024).

Author’s contributions

The contribution of this study wrer done by the resercher (Jalal Abdul Zahra Kanaan) who get the main idea and work on writing and concluding also with number of experts, Haider Abdul Razzaq Kazim in Statistics, Raad Abdul Bari Turki in revision and translating.

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Data availability

The data that support the findings of this study are available on request from the corresponding author.

References

- Abdel Basir, A. (1999). Sports training and the integration of theory and practice. Dar Al-Fikr Al-Arabi.
- Abu Al-Ala, A., & Nasr El-Din, A. (1993). Physiology of physical fitness. Dar Al-Fikr Al-Arabi.
- Al-Diouji, M. A. J., & Hamoudat, F. B. (1999). Basketball (2nd ed.). Dar Al Kutub for Printing and Publishing, University of Mosul.
- Al-Saadoun, A. N. H. (2010). Evaluation of some play situations (skills and tactical) in man-to-man defense inside a quarter-court basketball (PhD thesis, University of Basra).
- Al-Hussein, A. K. (2012). Designing tests to measure some defensive skills of junior basketball teams of Baghdad clubs (Master’s thesis, University of Baghdad).
- Bastawisi, A. (1999). Foundations and theories of sports training (2nd ed.). Dar Al-Fikr Al-Arabi.

- Faris, S. Y., & Abdul Razzaq, L. M. (2016). Constructing and standardizing physical tests for speed endurance in youth basketball. *Journal of the College of Physical Education, University of Baghdad*, 28(4).
- Hassanein, M. S. (1997). Measurement and evaluation in physical education. Dar Al-Fikr Al-Arabi.
- Ibrahim, M. A. M., & Al Yasiri, M. J. (2010). Modern trends in sports training science (1st ed.). Al Warraq Publishing and Distribution.
- Mustafa, I. S. (2001). The effect of competitive exercises on some tactical aspects of junior soccer players (Master's thesis, Suez Canal University).

Appendix (1)

Exercise Programming

Week: First

Training Unit: 1-2-3

Intensity: 80%

Time: 50–52 minutes

NO.	Competitive training	Training volume	Rest between reps	Rest between sets	Notes
1	Passing between two teammates back and forth across the field, in three groups for competitive purposes.	5 × 2	Return pulse 120–130 bpm	Return pulse 110–120 bpm	
2	Passing between three teammates back and forth across the field.	5 × 3			
3	Silver shooting across the field, in cooperation between two players. For each goal, the player is replaced. The shooting is done in groups, and the scoring is calculated for competitive purposes.	10 × 2			
4	Tapping between the markers along half the field between two players, the first going back and forth, and the second passing the ball at each end of the field.	5 × 2			
5	Passing, tapping, and shooting between three players along the field.	6 × 2			

تأثير تمرينات جماعية تنافسية في رفع مستوى سرعة الاداء المهاري الهجومي بكرة السلة بأعمار (14-12) سنة

زهير سالم عبد الرزاق

جامعة البصرة - قسم الأنشطة الطلابية

المستخلص

ان كرة السلة تتميز بالسرعة الكبيرة وخاصة السرعة البدنية وسرعة الأداء المهاري لما لهما من دور مهم في تحقيق الإنجازات الرياضية، لذا ظهرت اهميتهما من خلال الاهتمام بتطويرهما وفق تمرينات جماعية متخصصة وبأجواء تنافسية تساعدهم على التكيف في أجواء اللعب للفئات العمرية بعمر 14-12 سنة وبناء قاعدة سلوكية صحيحة مستقبلا. وكانت مشكلة البحث: سرعة الاداء المهاري والبدني ليس بالمستوى المطلوب مع التقدم بالمستوى للمراحل التدريبية منها الشباب والمتقدمين ولهذا فان الاهتمام بها في الاعمار الاولى لممارسة لعبة كرة السلة مثل بأعمار (14-12) سنة سوف يساعد على بناء القاعة الرياضية السلوية والتي تتمتع بالسرعة مستقبلا ولهذا فان اختيار التمرينات المناسبة مثل التمرينات التنافسية الجماعية ربما تساعد في حل المشكلة البحثية وترتقي بمستوى اللاعبين. وكان هدف البحث: التعرف على تأثير تمرينات جماعية تنافسية في رفع مستوى سرعة الاداء المهاري الهجومي بكرة السلة بأعمار (14-12) سنة. وتم استخدام المنهج التجريبي، اما عينة البحث كانت المدرسة التخصصية بكرة السلة في محافظة البصرة ، وبعد تطبيق التمرينات تم التوصل الى اهم الاستنتاجات: التمرينات الجماعية التنافسية مهمة واساسية في رفع مستوى سرعة الاداء المهاري الهجومي بكرة السلة بأعمار (14-12) سنة. وتم التوصية: اعتماد التمرينات الجماعية التنافسية لأنها مهمة واساسية في رفع مستوى سرعة الاداء المهاري الهجومي بكرة السلة بأعمار (14-12) سنة.

الكلمات المفتاحية: التمرينات الجماعية التنافسية، سرعة الأداء المهاري الهجومي