

The Effect of Using Circular Training on Developing Maximum Strength and Performing the Skill of Overwhelming Beating among Young Volleyball players

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Abstract: The study aimed to identify the effect of using circular training in developing the maximum strength of the muscles of the legs and arms, among the players of Kufa Sports Club, as well as identifying the effect of using circular training in improving the accuracy of performance for the skill of overwhelming beating, the researcher used the experimental method in the method of pre- and post-measurement, as the number of training units reached (12) weeks and the research sample of (20) players representing Kufa Sports Club in volleyball.

The players were divided into two groups of equal number, the first group experimental and the second group control, the researcher used the statistical bag to know the results of the search (SPSS), the results of the study showed that circular training has an effective impact on the development of (maximum strength of the muscles of the legs and arms), and contributed to improving the accuracy of performance of the skill of overwhelming beating, the researcher recommended the need to pay attention to physical and skill variables for their importance in raising the level of performance of players, the study also recommended circulating the results of the study to the rest of the Iraqi club players to raise the physical and skill responses of volleyball players.

Keywords: circular training, maximum strength, overwhelming beating ‘Performing the Skill ‘Young Volleyball players

Part One

1- Research Definition

The training process plays an important and essential role in the areas of learning the sports skills of players to reach the highest level of sports achievement, methods and programs have shown improving sports performance and rising to higher levels by employing all sciences that serve sports (Al-Raqqad, 2010).

Sports training methods also aim to develop the level of sports performance, according to the diversity of training methods and their effects, all this motivated researchers and those interested to choose the appropriate means and training method, one of these methods is the circular training method, which works to develop the maximum strength and the strength characteristic of speed, which contributes to the development of achievement (Al-Khatib, 2008).

1.1 Introduction and Importance of Research

The use of this method of training (circular training) is credited to Adamson and Morgan in the early fifties of the last century, and since then it has been used by many teachers and trainers, amendments and changes have been introduced to it so that it becomes dependent on training and organizational principles and foundations that can be used and relied upon when forming and setting programs in all sports activities to achieve the objectives of the training process.

The performance of basic skills in volleyball also requires special physical abilities that contribute to upgrading the skill level, therefore, there is a direct relationship between the level of development of the special physical condition and the upgrading of the skill state to reach sports achievement (Khamis, 2005), (Ibrahimi, 2001) indicates that the game of volleyball needs physical, skill, tactical and psychological preparation, and the great development in the performance of offensive skills, such as the skill of overwhelming hitting, which all players must master from all positions, as the volleyball player jumps in one game the number of jumps exceeds (100) jumps, he points out (Abu Qamar, 2003) that the game of volleyball

has achieved a wide spread as a result of upgrading the skill level of the players, this progress came as a result of the efforts of scientists, researchers and scholars in the academic and applied field, using different training models, the most important of which was the use of circular training, which works to develop the physical and skill abilities of the players.

1.2 Research Problem

The development witnessed by the game of volleyball in its various aspects came as a result of the efforts of researchers and scholars in employing scientific information in training operations, in line with the capabilities and ability of the athlete according to the different requirements of play, especially after the recent substantial amendments to the law of the game, through the experience of the researcher, a teacher and practitioner of this game, they noticed that there is a clear weakness in the players of Kufa Club in the skill and physical performance, especially in the accuracy of the performance of the skills of the overwhelming blow with volleyball, this is due to the low level of concentration in performance.

1.3 Research Objectives

1. The effect of the circular training method in developing the maximum strength of the players of Kufa Volleyball Club.
2. The effect of circular training on improving the accuracy of performance of the skill of overwhelming beating among the players of Kufa Sports Club.

1.4 Research Hypotheses

- 1- There are statistically significant differences between the pre- and post-measurements in the development of maximum strength among the players of Kufa Sports Club and in favor of the post-measurement.
- 2- There are statistically significant differences between the pre- and post-measurements in developing the accuracy of performance for the skill of overwhelming beating among the players of Kufa Sports Club and in favor of the post-measurement.

1.5 Research Fields

1.5.1 Human field: Kufa Youth Sports Club players in Najaf province.

1.5.2 Time field: Period from 25/10/2021 to 30/12/2021.

1-5-3 Spatial field: Kufa Club Stadium.

Part Two

Part Two (Theoretical and Similar Studies)

2- Theoretical studies

2.1 The concept of sports training:

Training as a term has broad connotations that include many areas of life related to human societies, whether their basic material is of the human race or other beings, training is linked to the human being as a conscious act complex requirements elevates the gradient studied to the goals set insistently and pigmented during the process of upgrading the character of the goal of this process (Laith Ibrahim, 2008).

The word training is derived from the Latin term (trahers) and means pulls or attracts and the word training is all the movements that carry the body extra effort and work to generate external motor harmony and change the internal organs of the body, which leads to an increase in the ability of physical performance and skills (Iyad Hamid et al., 2011, p. 14).

2.2 Circular training: It is a method that depends on the performance of exercises in a circular organized manner in the form of stations, provided that there is consistency between size, intensity and intensity in order to raise the level of players. (Al-Widyan, 2003).

2.3 Training unit: It is the physical, skill and nervous burden on the player and regulated in terms of intensity, size and intensity, and achieves a specific goal or several goals, this is according to the shape of the unit and the direction of the impact of training in a single direction or in a compound direction (Al-Bishtawi and Al-Khawaja, 2005).

2.4 Muscular strength: Muscular strength is the main element of fitness, and is also essential for optimal performance in daily activities and sports activities, muscular strength is also valuable in developing athletic skills, helping to stabilize joints and coping with emergencies in life. Some scientists believe that muscular strength is based on which the individual's access to the highest ranks of sports championships and achievement, no sports event is devoid of one of the types of strength that constitutes an essential or auxiliary element in increasing sports achievement in that game, effectiveness or skill, thus, strength is

the indicator that produces movement due to the mutual influence between muscular strength and external strength, the greater the resistance, the greater the strength used to confront it, so the strength is determined by the amount and magnitude of resistance (Al-Anbaki, 2010).

2.4.1 Types of Muscular Strength

Muscular strength has been divided by many specialists in the field of sports into types, each according to his point of view, given the importance of muscular strength in the sports field, which the researcher agrees with this division of muscular strength: maximum strength, rapid strength, constant strength, maximum strength, and strength extension.

2.4.2 Maximum Strength

Maximum strength is one of the types of muscular strength, and it is a prerequisite for the performance of most skills in handball, it must be enjoyed by players at all levels, it is necessary to start in fast running and in jumping and jumping events as well as in team games, where maximum capacity plays a major and essential role in strengthening the body's organs and developing muscle groups that have a key role in the speed of play, handball players need maximum strength and the shortest possible time, as they have the ability to score strongly and quickly (Al-Madamgha, 2008).

2.5 Basic skills in volleyball

Each of the sports games has its own basic skills, so every player who practices any sports game must recognize its basic skills and master them to a high degree so that it is easier for him to know the game plans, whether offensive or defensive, and volleyball is one of the sports that have basic skills, which is defined as "making movements in a purposeful and economical manner to reach a high level of sports, taking into account the law of the game (Najla Abbas et al., 2012).

2.5.1 Overwhelming beating skill

The skill of overwhelming beating is one of the most influential offensive skills in the game of volleyball, and overwhelming strikes of a direct offensive nature that have a great impact in the game of volleyball, its appearance dates back to 1955 in Poland it is "hitting the ball with one hand hard to completely encroach over the net and direct it to the opposing team in a legal way, it is a skill that requires a complex of timing, balance, muscular strength and speed of movement, and without the correct mechanics, all this is a wasted effort, and the skill of overwhelming beating is one of the skills that has developed significantly since its emergence, it has become one of the most important means of attack because of its strength and speed and several types of this skill have emerged, which are characterized by high rates of strength and speed in performance, this skill is characterized as an offensive weapon as the striking player hits the ball with maximum strength in the opposing team's court.

2.6 Previous studies

Many previous studies have been conducted that were limited to the effect of circular training that led to improving muscular ability and developing skill performance, and the following are these studies

First: (Jaber, 2007) conducted a study aimed at identifying the effect of exercises strength characteristic of speed in the perception of kinesthetic sense and learning volleyball skills, the researcher used the semi-experimental approach, the study sample consisted of (30) students, the results of the dimensional measurements between the members of the two groups in favor of the experimental group showed in the tests of sensory-motor perception and learning the skill performance of volleyball.

Second: (Al-Ani, 2007) conducted a study aimed at identifying the development of a proposed training program to develop some physical abilities and improve the accuracy of skill performance in volleyball, the researcher used the experimental method, the study sample consisted of (36) students and was divided into two experimental groups, numbering (18) students and officers, numbering (18) students, the results of the study showed that the training program has worked to develop the level of performance of basic skills in the game of volleyball, and to develop the level of performance of the sample in the development of fitness elements, the study recommended the need to pay attention to skill and physical tests before, during and after the implementation of the proposed training program.

Third: (Al-Rahim. 2004) conducted a study aimed at identifying the impact of the use of circular training in improving the cognitive aspect of physical education teachers in the basic stage, the study used the experimental approach and the pre- and post-method on a sample of (50) teachers in the Koura District, the results of the study showed that there are statistically significant differences between the pre- and post-measurement and in favor of the post-measurement in the acquisition of physical education teachers of cognitive competencies in the field of circular training, there are statistically significant differences in the impact of the training program for the post-test attributed to the variable of scientific qualification and in favor of the bachelor's degree and the variable of experience and in favor of experience (5-10) years.

Part Three

Research Methodology and Field Procedures

3- Research Methodology

The scientific program is a method of thinking adopted by the researcher to organize his ideas, analyze and present them and then reach reasonable results and facts about the phenomenon under study, the researcher used the experimental approach and the design of the two equivalent groups to suit the nature of the problem to be solved.

3.1 Research community

The research community was selected from all the 25 players of Kufa Sports Club, the youth volleyball category.

3.1.1 Research sample

The sample was selected in a deliberate way, from the (20) players of Kufa Sports Club, and (5) players were excluded due to their special circumstances.

3.2 Devices and tools

- Stopwatch.
- Leather tape measure with a length of (5) m.
- Medicine ball weighing (2) kg.
- Volleyballs.
- Pens.
- Chair.
- Rope.
- Whistle.
- Rubber ropes.
- Swedish seats of different heights.

3.3 Determination of physical and skill test

3.3.1 Physical examination

Maximum Strength Test

Medical ball push test (3) kg with hands from sitting

Necessary tools: flat space area, 3 kg medical balls, chair, tape measure, wide belt.

Performance Description: The laboratory sits on a chair holding the medical ball so that the ball is in front of the chest and below the level of the chin and raised to throw it over the head, the trunk must also be adjacent to the edge of the chair, and a belt is placed around the chest of the tester so that it is held from behind by a tight way in order to prevent the movement of the tester forward while pushing the ball with the hands, the movement of pushing the ball is done using the hands only.

Test instructions: The laboratory is given three consecutive attempts, the best of which are counted (Alaa Ibrahim, 2012).

3.3.2 Skill test

Test the accuracy of the overwhelming multiplication from the center (2) in the straight direction.

Purpose of the test: Measuring the accuracy of the overwhelming multiplication from the center (2) in the straight and diagonal direction.

Tools: Volleyball court square area chart (1.5 m x 1.5 m) as shown in Figure (6) ten volleyballs adhesive tape measure.

Performance specifications: The player performs the skill of overwhelming beating from the position of (2) legally, the player performs (10) attempts distributed by (5) attempts towards the straight and then in the diagonal direction.

How to register:

- The overwhelming blow that falls inside square (A) (5 degrees).
- The overwhelming blow that falls inside square (B) (3 degrees).
- The overwhelming blow that falls inside the shaded area (two degrees).
- The overwhelming blow that falls outside the specified area and easily (zero) the total score of the test is (40) (Sadah Ibrahim, 2016).

3.4 Scientific foundations of tests

3.4.1 Validity

It is that the test is designed to measure what was developed to measure the field or phenomenon studied (Kadhim Karim Redha Al-Jabri, 2011, 217) The apparent validity was adopted from the presentation of skill tests to experts and specialists.

3.4.2 Stability

The stability of the test is the one that gives the same results or close results if the test is applied and in the same conditions, as the test was applied and on the same sample to know the stability of the test, and to ensure the stability of the tests, the researcher used the Pearson correlation coefficient between the results of the tests and the results showed a "significant" correlation between them.

3.5 Exploratory experiment

The researcher applied the study tests to a sample of (7) players from outside the original study sample to verify the following:

- Ensure the validity and appropriateness of conducting tests and identify the duration of time they take.
- Ensure the validity and appropriateness of measurement tools and training on them.
- Identify the difficulties and obstacles that the researcher may face during the tests in order to avoid them when implementing the program.

3.6 Pre-tests

Physical and skill exercises were conducted on the research sample (20) players and the conditions in which the pre-tests were conducted were recorded as much as possible and applied in the post-tests.

3.7 Training Program

The training program aims to use the circular training method to develop some elements of physical fitness to improve the accuracy of skill performance in the game of volleyball, the researcher implemented the units of the training program within the club's training, taking into account the possibilities and individual differences between the players, he was keen that the vocabulary of the program is consistent with the exercises previously scheduled and prepared for the club, and the researcher relied when developing the contents of the training program on the principles of sports training science, and the training curriculum included (12) training units by three training units per week, and that the time of the training unit reached (40) minutes and the training units were implemented in the main section during the special preparation period.

3.8 Post-tests

After the implementation of the program prepared by the researcher on the experimental and control groups, the post-tests were conducted on the two groups on a date and the researcher prepared in advance the appropriate conditions in terms of time, place and tools necessary for the post-tests, and implement the same procedures followed in the pre-tests with the help of the same assistant team in the pre-test.

3.9 Statistical Methods

The statistical bag (SPSS) was used by the researcher to know the results of football skill tests.

Part Four

4. Presentation and discussion of results

This part includes the presentation of the results and discussing them according to the data obtained after the completion of the application of the program prepared by the researcher during the application of the

post-tests of the control and experimental research groups, it has also been converted into tables as an illustrative tool for research.

4-1 Presentation of the results of the differences between the pre- and post-tests of the control group for the physical and skill test in volleyball

Table (1)

Tests	Unit of measurement	pre-tests		post-tests		Calculated T value	Tabular T value
		+S	±P	+S	±P		
Muscular strength test	meter	82.714	6.499	85.142	5.669	1.087	2.26
Overwhelming Beating Skill Accuracy Test from Center (2)	degree	6.571	0.975	7.428	1.133	1.93	

*Significant at error rate $\leq (0.05)$

4.1.1 Presentation of the results of the differences between the pre- and post-tests of the experimental group for physical and skill testing in volleyball

Table (2)

Tests	Unit of measurement	pre-tests		post-tests		Calculated T value	Tabular T value
		+S	±P	+S	±P		
Muscular strength test	meter	81.000	10.535	99.142	14.622	5.024	2.26
Overwhelming Beating Skill Accuracy Test from Center (2)	degree	5.571	1.511	8.428	2.636	3.235	

*Significant at error rate $\leq (0.05)$

4.2 Discussion of the results

Through the results, it is found that there are significant differences between the post-tests of the experimental and control groups, and in favor of the experimental group, the reason for the development of the experimental group is attributed to the use of physical and skill exercises and the use of the ideal intensity of performance used by the researcher in the application of skill exercises, this is consistent with what Al-Hayali (2007) stated that "the performance of any skill is with an intensity less than the maximum or intensity commensurate with the requirements of the performance of the skill (ideal intensity of performance) in most cases of play, in addition, the researcher believes that the scientific methodology in the development of exercises and the adoption of the principle of gradation in repetitions has contributed to the development of the experimental group and this is confirmed by (Al-Moamen. 2008) " The adoption of the principle of gradation in increasing repetitions, making performance difficult, and using exercises similar to the specificity of the technical requirements of the game, as well as the correct sequence followed in the performance of the exercises, contributes to development (Al-Moamen, 2008, 85).

Part Five

5. Conclusions and recommendations

5.1.1 Conclusions

1. The circular training has a great impact on the development of physical abilities and accuracy of the skill performance of volleyball players.
2. There is a preference in the results of the post-tests for the two groups and in favor of the post-test in the physical and skill variables.

5.1.2 Recommendations

Through the conclusions obtained by the researcher, the following recommended:

1. The need to pay attention to physical and skill variables due to their importance in raising the level of volleyball players.
2. Conducting periodic evaluation of the extent of development of volleyball players through the physical and skill variables used in this study.
3. Benefiting from the training curriculum in building similar curricula to develop some of the physical and skill abilities of volleyball players.

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Appendix No. (1)

A sample of training modules in the first week of maximum strength

First Training Module

Module Parts	Training name	Repetitions	Rest between repetitions	Rest between trainings
Main part	Triceps leg	5× 3	2 min	3 min
	Back squat	5× 3	2 min	3 min
	Half back squat	5× 3	2 min	3 min
	Leg curls	5× 3	2 min	3 min
	Dead lift	5× 3	2 min	3 min

Second Training Module

Module Parts	Training name	Repetitions	Rest between repetitions	Rest between trainings
Main part	Leg press	5× 3	2 min	3 min
	Back squat	5× 3	2 min	3 min
	Half back squat	5× 3	2 min	3 min
	Leg curls	5× 3	2 min	3 min
	Iron Pull (T)	5× 3	2 min	3 min

Third Training Module

Module Parts	Training name	Repetitions	Rest between repetitions	Rest between trainings
Main part	Hack back	5× 3	2 min	3 min
	Back squat	5× 3	2 min	3 min
	Half back squat	5× 3	2 min	3 min
	Leg curls	5× 3	2 min	3 min
	Dead lift	5× 3	2 min	3 min