

The Impact of Extra-Weighted Exercises in Improving Physical Abilities Towards Accurate Ace Shots in Volleyball Game

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Abstract

This study aimed to prepare special exercises to develop some of the physical and skill aspects of volleyball players, and to pay attention to the use of additional weights and thus stand on one of the main and important aspects and its money in the role of preparing players in accordance with the requirements of the game and to identify the effect of these exercises using different resistances in some physical abilities and my skills Serving and crushing volleyball players, and the research sample consisted of (12) players in the specialized training center for volleyball aged (15-17) years and in a deliberate manner for the academic year (2019-2020), and the researchers concluded that the training curriculum has a positive effect on developing physical abilities And skill, which indicates the impact of the training curriculum prepared by the researchers in developing these abilities. As the research objectives are achieved, the researchers recommended making use of the prepared training curriculum in building similar approaches to develop some physical and skillful abilities of volleyball players.

Keywords: Volleyball, physical abilities, Fitness, extra-weighted.

Introduction

Proper planning based on solid scientific foundations and principles in the field of training and the use of various tools and resistances leads to rapid development in various games and sporting events, whether individual or collective, so the specialists in the field of training have paid attention to the physical aspects and focus on special approaches that seek to develop them. Physical preparation is one of the most important pillars on which the trainer relies to reach the individual to the optimal performance of sports activity, as it aims to develop the capabilities and improve the level of his physical capabilities to meet the requirements of progress in the methods of practice for sporting activities until the individual reaches the level required to perform in competition to achieve the goal.

Fitness is one of the important and basic elements for volleyball players, as the better the player's level of

physical fitness, the greater his ability to improve his skill and planning level, and the poor physical fitness of volleyball players leads to a weakening of the skill performance of volleyball skills depending on physical fitness. As for how can a player implement offensive skills unless he has the strength in the legs to jump up¹.

Researchers reviewed the training curriculum developed by the school coaches. Notice that the coach does not pay much attention to the use of different resistances, thus this is reflected in some physical characteristics and abilities. The physical aspect of performance has a great influence in raising the level of the players' skillful performance. This was shown in the intermediate test results for special physical and skill aspects. To address the problem. First preparing exercises using different external resistances for the players of the specialized volleyball training center. Second identify the effect of exercises using different resistances on some physical abilities and the accuracy

of the crushing skill performance of the Volleyball Training Center players.

The importance of this paper lies in preparing special exercises to develop some of the physical and skill aspects of the players of the Specialized Volleyball Training Center and paying attention to the use of additional weights. Thus standing on one of the basic and important aspects and its role in preparing the players in accordance with the requirements of the game, the player who is well-prepared physically and skillfully is in a good condition to perform and implement technical skills and economy in an effort, and then the achievement is towards the best.

Areas of Research:

1. The human field: the players of the Specialized Volleyball Training Center-aged (15-17) years in the district of Hit - Anbar province.

2. The Time field: the period from 6/8/2019 to 5/11/2019.

3. The place field: Hit middle school for boys.

Methodology

The researchers used the experimental method and the experimental design method for one group with two pre and post-tests.

The Research Sample:

The researchers selected the research sample from the players of the Specialized Volleyball Training Center at the ages of (15-17) years, according to the deliberate method for the academic year (2019-2020). The research sample included (12) players, and (Libero) players were excluded from the research sample, as the research sample became (10). Thus, the percentage of the sample represented (83.33%) of the research community.

Devices:

Electronic Stopwatch - Video Camera - Digital Electronic Calculator - Pulse Meter.

Tools:

Volleyball arena - ball holder - volleyballs - tape measure (30) m - extra weights - colored adhesive tape - various medical balls (2-3-4) kg - chalk - whistle - different height surfaces - different height barriers (30-40-50) cm.

Means of gathering Information:

Arab and foreign sources - tests and measurements - questionnaire and data collection form - exploratory experience - the Internet.

Procedures:

Determine the research variables (physical and skill)

Determining the research variables is one of the important and basic matters in the subject of the research, which is to be developed for the players of the specialized volleyball training center, as the physical and skill variables were determined by the researchers and their reliance on previous studies in this aspect. And on Tuesday, 6/8/2019, as well as their reliance on the research problem that was extracted as a result of the researchers observing the tracer (intermediate) tests performed by the trainers of the training center.

Table (1) Shows the research variables that have been identified

Variables	Ability	Notes
Physical aspects of selected	Distinctive power as speedily of arms	
	The explosive power of the arms	
	The explosive power of the legs	
Artistic skills	Beating overwhelming	

Tests Used:

After determining the research variables by the two researchers, the following tests were used:

A- the test of the force of characteristic velocity of the muscles of the arms ¹.

Title of the test: - Flexing and extending the arms continuously for a period of (10) seconds.

The purpose of the test: - To measure the velocity force of the muscles of the arms.

Used tools: - Electronic stopwatch.

Description of the performance: - The laboratory takes the front support position on the ground so that the body is in an upright position. At the start signal, the tester bends and extends the arms completely and continues to repeat the performance to the largest number of iterations without stopping for a period of (10) seconds.

The conditions: - Are not allowed to stop. To note the straightness of the laboratory body during performance. The necessity of touching the chest to the ground when performing. Notice the bending and extension of the arms completely.



Figure 1: shows the test method

Scoring method: The laboratory score is the number of correct repetitions during a period of (10) seconds, as shown in the following figure:

B- Second: Throwing a medical ball weighing (3 kg) with two hands¹.

The purpose of the test: to measure the explosive force of the muscles of the arms and shoulders.

Devices and tools: medicine ball weighing (2 kg), chair, trunk fixation belt, tape measure, flat space area, airtight.

Performance specifications: The laboratory sits on the chair and the medical ball is carried by hands over the head, with the torso adjacent to the edge of the chair.

The conditions: The tester is given three attempts to score the best. When the chair vibrates or moves during the performance, the result is not counted.

Scoring method: The distance between the front edge of the chair and the nearest point the ball places on the ground is calculated, as shown in Figure (2).



Figure 2: shows the explosive force test of the arms.

C- Third: Sargent's vertical jump test of stability ¹.

The aim of the test: to measure the muscular capacity of the two men.

Devices and tools used: a wall height (3.50 m), a tape measure, and a blackboard fixed to a wall of (0.5 m) width and length (1.50 m), on which lines are drawn in white and the distance from one line to another is (2 cm), and pieces of chalk and pieces of cloth are also used. To wipe the blackboard after reading every attempt made by the laboratory, the blackboard can also be used so that it is fixed on the wall and its lower edge is higher than the ground (1.50 m), and the board can be movable and fixed according to the length of the laboratory with the arm, and then the laboratory is jumped.

How to perform the test: The tester holds a piece of chalk and stands facing the blackboard. Knees and push the feet together to jump up with the arms swinging strongly forward and up.

Test conditions: The upward jump is done with the feet together from a steady position and not by taking a step. Measurements should be taken to the nearest centimeter. Do not extend the piece of chalk outside the fingers of the hand.

Scoring method: The recording is made by the number of centimeters reached by the laboratory from the standing position. The distance between the first mark and the second mark is calculated for the amount

of muscle capacity. See figure 3.



Figure 3: Shown the explosive force test of the legs.

D- Fourth: the crushing multiplication test ¹.

The purpose of the test: to measure the accuracy of the crushing attack in the inner triangle of the opponent's court.

Tools: five volleyballs, dividing the playing field as shown in Figure (4). So that divides the pitch into two triangles (half of the pitch opposite) and then divides the inner triangle (grid point) into three regions each display area (3 m).

Performance specifications: After preparation, the tester makes a crushing attack towards the inner triangle of the network side.

The conditions: Each laboratory has five attempts. Good preparation must be done in each attempt.

Scores are calculated according to where the ball fell as follows: (In the first region (3) degrees - In the second region (1) a degree - In the third region (5) degrees - Outside these areas the laboratory gets a (zero)).

Scoring: The laboratory records the scores he obtained in the five attempts, meaning that the final score for this test is (25) marks.

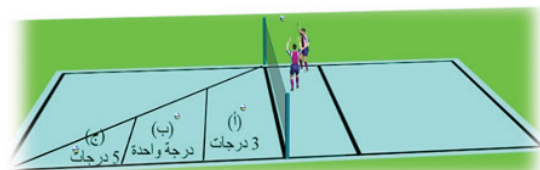


Figure 4: shows the skill test beating overwhelming.

Exploratory Experience

The two researchers conducted the pilot experiment on a sample of (4) players on Thursday, 5/9/2019 at 05:00 PM. And they were randomly selected by drawing lots from the research sample. The researchers were keen to fulfill the same conditions and circumstances in which the pre-tests are possible, and the aim of them was the following:

1. Verify suitability and ease of application of tests used for the sample.
2. Verify the safety of devices and tools used in the research.
3. Knowing the time required to carry out the tests and the suitability of the place.

Pre-Examinations (Physical and Skill):

The two researchers applied the pre-tests of the variables under study for the research sample on Saturday (14/9/2019) at 05:00 PM. The two researchers took care as much as possible to control the variables in terms of time, place, and auxiliary work team.

Main Research Experience:

Exercises have been used to develop the physical capabilities of the arms and legs. And the skills of serving and spiking. These exercises were aimed at:

1. Trying to develop physical capabilities.
2. Development of the skills side of the research sample.
3. Trying to reach the player to a high training state in terms of physical and skill.
4. Achieve the goals that have been set through the use of exercises.

Two researchers developed special exercises using extra weights to develop some physical aspects and skills of serving and spoiling with volleyball.

The exercises were applied on Thursday 19/9/2019

until Thursday 15/11/2019 on the research sample (Specialized Volleyball Training Center players). The exercises were applied by the center's coaches.

Researchers used the circular method in carrying out the exercises with the intensity of interval training. The researchers used the additional weights that were determined according to the relative weights of each player in the implementation of the selected exercises, and the use of the fixed ball carrier device. Exercises were carried out circularly in the form of the stations of each station in which a different exercise was carried out. The choice of exercises in the one training unit were exercises of close and equal time to carry out exercises in all stations at one time because of the presence of another player in the station. It also helps to control the time to move from one station to another. The difference is in the number of repetitions or the distance over which the selected exercise is carried out in one training unit. The components of the exercise load for the exercises used are stability in intensity, comfort, and change in exercise volume.

* The curriculum included (24) training units with (3) training units per week on Saturdays, Tuesdays, and Thursdays, and the application of the used curriculum took (8) weeks for special preparation.

* The two researchers used the calculation of the total intensity of the training units that were contained in the following equivalent exercises.

Dimensional tests:

The two researchers applied the dimensional tests for the research sample on Thursday (28-11-2019). The researchers took care as much as possible to control the variables.

Statistical means:

The statistical data were processed by using the (SPSS) program to process the results.

Table (2) shows the arithmetic mean, standard deviations, and the two calculated and tabular (T) values of the research variables.

Variables	measuring unit	Pre-tests		Posteriori tests		Value (T) calculated	The value of arithmetic mean		Indication of differences
The power of the arms with speed	Repetition	8.25	1.28	11.12	1.45	9.48	4	1.5	morally
The explosive power of the arms	M	4.44	0.94	5.26	0.82	7.06	4.82	0.32	
The explosive power of the legs	M	48.75	9.69	53.62	27.14	9.56	8.87	2.31	
Crushing beating	Degree	10.5	5.92	17.37	2.38	6.93	7.5	1.32	

Discussion

So, the table showed (the results of the search sample in the variables of physical abilities for the pre-tests, the arithmetic means were respectively (8.25, 4.44, 48.75, and 10.5) and standard deviations (1.28, 0.94, 9.69, and 5.92). Where the dimensional arithmetic mean (11.12, 5.26, 53.62, 17.37) and standard deviations (1.45, 0.82, 27.14, 2.38) and by extracting the value of (T) calculated of (9.48, 7.06, 9.56, 6.93), and It was greater than the tabular (T) value of (2.26) and at (9) temperature and with an error level (0.05). This indicates that there is a significant difference between the pre and post-tests.

There is an evolution in all physical abilities understudy in the post-tests when compared with the results of the pre-tests of the second experimental group. The researchers attribute the effectiveness of the exercises used in the program, which used times, to the development of the characteristic strength, speed, and muscle strength. The development of muscle strength as well as the raising of the degree of neuromuscular compatibility.

(Hussein and Ahmad) stated, "Weight training has a fast and effective effect on the growth of muscle strength on the one hand and the increase in muscle size on the other hand" ². And (Hammad) states, "The use of weights aims to increase the intensity of exercise performance and thus decrease the volume and increase the positive comfort, but it remains incomplete. Also, one of its main goals is to develop the characteristic of strength distinguished by speed" ³. In the explosive force variable of arms and legs to the effectiveness of interval training using strength exercises represented in jumping and throwing exercises, using additional weights, and the use of medical balls in the throwing exercise, the effect on developing this trait. "Exercises in which resistance is used are an appropriate means for developing the components of explosive force. ⁴, As strength training increases the muscle's ability to excite the largest possible number of fibers, as (Allawi and Abdel Fattah) mentioned that "the more muscle fibers participate, the more muscle fibers are involved in, the

greater the strength that the muscle can produce" ⁵.

The development in the post-test was due to the effectiveness of exercises used with additional weights, according to the researchers. This led to the development of strength characteristic of speed for the muscles of the arms and legs. And speed is possible with accuracy in directing the ball to the opponent's court, as (Wadih) states, "The development of special kinetic abilities or characteristics enables the athlete to perform the kinetic performance of the skill in the best possible way" ¹, and that the volleyball player is constantly moving on the field, whether he is in Defensive or offensive condition. Thus, in addition to possessing the main physical qualities, he needs compatibility when performing skills. Thus, when performing the serving skill, he needs neuromuscular compatibility, as well as accuracy when hitting the ball, and this is in agreement with (Abdul Khaleq). Special mobility ².

Conclusions

The training curriculum has a positive effect on developing physical and skill abilities, which indicates the effect of the training curriculum prepared by the researchers on developing these capabilities. Benefiting from the training curriculum prepared by the researchers in building similar curricula to develop some physical and skillful abilities of volleyball players. Generalizing the proposed training curriculum in training volleyball juniors. The need for coaches to pay attention to the tests adopted by the researcher to measure physical abilities and spiking skills.

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Conflict of Interest: None to declare.

Ethical Clearance: The scientific research ethics committee at Al-Anbar university has approved the research by letter No. 19 date 29-09-2019. All experiments were conducted at a specialized center at Hit city.

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