THE EFFECT OF CROSS TRAINING ON SOME PHYSICAL ABILITIES AND THE LEVEL OF PERFORMANCE OF SOME SKILLS OFFENSIVE JUNIOR VOLLEYBALL

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ABSTRACT

The research aims to identify: the effect of cross-training on some physical abilities and the level of performance of some offensive skills for junior volleyball, the experimental method was used. The experimental research sample was decided by an intentional method from the volleyball beginner’s stage less than 18 years who are registered with the Iraqi Volleyball Federation 2019/2020 season. The number of members of the experimental research sample reached 20 young people, and the most important results were that the method of cross-training had a positive effect on the special physical abilities of the volleyball juniors, which are (strength characteristic of speed - maximum speed - maximum strength - flexibility) and this effect was reflected in the level of skill performance in volleyball. Also, the use of the cross-training method positively affected the level of skill performance of some offensive skills for junior volleyball, which are (serving from the top of the front - linear crushing).

Key words: Cross- training, physical abilities, level the performance of offensive skills

I. INTRODUCTION

Today's world is going through a new revolution, which is a mixture between the amazing technological progress and the superior information revolution. Where information accelerates and its applications grow to contribute to the development and progress of society through the use of various branches of science and knowledge and the latest methods of technology. This information revolution has extended to the sports field in general and to the field of sports training in particular. With the increase in the volume of scientific applications and the expansion of the circle of information, research and sciences related to training, Scientists have invented modern training methods and methods that have brought about a qualitative leap in the performance level of athletes, which has led to amazing achievement rates. Volleyball is one of the sports that is rapidly increasing in popularity around the world, which increases the interest of officials and specialists in this sport because this spread was not a result of chance, but there are many skills that appear through continuous practice at different stages. Depending on the amazing development of the technical performance of these skills and therefore the international law of volleyball must be in line with the legality and performance of these skills in a consistent manner with the nature and beauty of the technical performance of these skills, and the sport of volleyball is characterized by high technical performance (the level of competition). (Abdel- Aty, 2004) Volleyball is one of the sports that contain many technical skills and that are performed in different and varied forms of plans through tactical formations that aim to link and integrate these skills in order to achieve the best results. Therefore, developed countries work in ball sports the plane aims to improve the physical, skill and tactical level of the players through standardized training programs aimed at developing and developing the various sciences related to the sports field, which have an impact on the physical and skill variables through the regularity of the training process. (Zaki, 2012) the Mastering Offensive Skills will become of a Fundamental Impact On The Results The Matches, On The : other Hand, Play An important ’s Role In Reaching The HIGHEST Effectiveness In The Match, color : as a well color : as Focusing On Reaching The Offensive the tactical Goal At of a High Level in volleyball. It also constitutes the final part of the plans and the first means in scoring points. (Allen, 2003) As the offensive performance in volleyball occupies a key situation in the game because of its importance in the superiority of the competing teams, as these offensive formations are designed in order to win a point, and this is consistent with what Ghazi Omran indicated, that Offensive skill performance related to sound thinking, modern scientific foundations, and correct behavior based on speed of...
response and various physical abilities are among the important factors that positively affect the results of matches for the teams provided. Therefore, the development of the physical capabilities of the players in training has a significant impact on improving the players' ability to use the correct one. And the optimum of offensive skills in sports competitions. (Rose, 2015) 0 Physical preparation is one of the most important elements of success in the performance of sports activity and is the starting step for achieving higher sports levels, in addition to considering physical preparation as one of the most important pillars on which it is based to reach the athlete to optimal performance of sports activity and aims the special physical preparation is to develop the necessary physical characteristics that are characteristic of the type of sports activity in which the athlete specializes and try to develop them and work to develop them to The maximum extent so that the highest possible level of performance can be reached (Essam, 2003). The need to develop physical abilities as the correct performance of the skill motor abilities especially since capacity development is one of the important factors to reach the highest levels of sports, especially the elements of (Q speed, explosive power and endurance) and are developed by the contestants using different methods during continuous periods of the preparation period (Asmaa, 2016). The advancement of sports levels depends on several factors, including raising the level of physical, skill and planning, and this comes through the development of training methods and methods that aim to improve results and reach the highest levels of achievement, where training methods play an important role towards achieving this goal, which reflects the importance of designing standardized training programs which aims to improve the components of the training condition of the player by following the scientific method (Lamp, 2004). In light of the development witness by the sports field, an organizational form called cross-training has recently emerged that aims to improve the physical and physiological capabilities of the activity through the use of activities, sports and various means, and the employment of devices, tools and techniques related to the specialized activity, and this is what may gain players fun and excitement to improve the psychological situation, which increases motivation when carrying out training duties and reduces the chances of injury, which in turn is reflected in the level of performance in the competition, where cross-training works to get rid of performance stereotypes, which may negatively affect the high components of the training situation and cause some players to refrain from regular training It also works to avoid two negative effects of unregulated training, namely over training and burnout (Zaki, 2004). Cross training means diversity in the use of modern technologies of tools, devices, activities and exercises that differ from the basic activity to achieve the main goal of improving performance, acquiring technical expertise and developing special physical abilities. Cross training is a tool for the latent strength of training, which helps competitors reach the top of competition in their sport. It is therefore used by many high-level, Olympic and professional athletes to improve their performance in the specialized sports activity. (Fitzgerald, 2004) Cross-training activities include both weight training using a few repetitions and large repetitions and plyometric exercises such as jumping on the box, which works to build body strength and develop muscle strength and muscle power for the legs, and also includes Activities related to aerobic endurance, including water jogging and using the moving walk and the stationary training wheel, as well as anaerobic endurance activities, including sprint training (Moran, 2007). Hence, the researcher believes that the sport of volleyball depends on many special physical abilities, and is prepared for it through many methods and training methods to improve technical performance, especially offensive, and raise the physical efficiency of juniors because of its important impact on the Sporting achievement achieved by the youth and by watching and following up on some teams The Iraqi volleyball team shows the weakness of the level of the physical and skill abilities, especially offensive, and the irregularity of some of the juniors in training, in addition to the reluctance of some of them to practice volleyball. The abandonment of young people from continuing training at an early age as a result of strict training systems that lack factors of fun and excitement, and the trainers' dependence on typical training methods and methods that cause boredom and boredom with the lack of use of modern methods in training, including cross training, where cross training takes into account the comprehensive development of young people and includes diverse activities and the use of modern technologies that ensure maintaining fun and excitement and work to prevent the dangers of Overload injury and exposure of young people to high training loads and lack of diversification in training methods and methods, and thus it becomes clear the importance of building a cross-training program as a modern direction for sports training to develop and develop special physical abilities and the level of skillful performance of some offensive skills for volleyball juniors, which may provide trainers with a guiding application program they From developing their training programs in a scientific way to confront the negative phenomena that may result from training and reduce the weakness of the junior level, especially in the performance of offensive skills. This study may be a scientific addition to specialists in developing training programs to raise high levels. In the light of the reference survey of Arab reference studies and research that dealt with ways and means of developing the special physical abilities of volleyball juniors, the researcher found a lack of studies within the limits of the researcher's knowledge that dealt with the extent to which Cross-training affects the special physical abilities and the level of performance of some offensive skills for
volleyball juniors. This prompted the researcher to address this topic by studying the effect of cross-training on special physical abilities and the level of performance of some offensive skills for volleyball juniors by designing a program using cross-training to develop special physical abilities and the level of performance of some offensive skills for volleyball juniors.

Research objective: The research aims to identify: The effect of cross training on some physical abilities and the level of performance of some offensive skills of volleyball juniors.

Research hypotheses: There are statistically significant differences between the pre and post measurements of the experimental group in physical abilities in favor of the post measurement. There are statistically significant differences between the pre and post measurements of the experimental group in the skill performance level of some offensive skills in favor of the post measurement.

II. METHODOLOGY

Research Methodology: The researcher used the experimental method by the pre and post measurements for one experimental sample.

The research sample: The experimental research sample was selected in a deliberate way from volleyball juniors under 18 years of age who are registered with the Iraqi Volleyball Federation for the 2019/2020 season. Homogeneity and equivalence of the two groups to neutralize them, which would affect the results. It has been proven that the two samples are homogeneous and equivalent.

Measuring the skill level of the research sample:

1. AAPHER test of transmission from above.
2. Linear multiplication accuracy test.

Equipment, tools and playgrounds used in the research:

1. Rasta meter for measuring lengths in centimeters and weights in kilograms (Rastameter).
2. A dynamometer to measure the strength of the muscles of the legs in kilograms.
3. Stopwatch to measure the time to the nearest millisecond (stopwatch).
4. An approved measuring tape and a ruler included to measure the distance in centimeters.

<table>
<thead>
<tr>
<th>Moving device.</th>
<th>Weights fixed on the legs (jitter).</th>
<th>Foam mattresses.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary bike device.</td>
<td>Legal jumping pit.</td>
<td>Jump ropes.</td>
</tr>
<tr>
<td>Weight jackets.</td>
<td>Boxes of different heights.</td>
<td>Your ass is elastic.</td>
</tr>
<tr>
<td>Cones.</td>
<td>plane core</td>
<td>medicine balls.</td>
</tr>
<tr>
<td>Sand bags.</td>
<td>Volleyball court and equipment.</td>
<td>Training hurdles.</td>
</tr>
<tr>
<td>Jump ladders.</td>
<td>collars.</td>
<td>Swedish seats.</td>
</tr>
<tr>
<td>Chalk and lime.</td>
<td>Control marks.</td>
<td>step boxes.</td>
</tr>
</tbody>
</table>

Suggested training program

Program Objectives: The proposed training program aims to try to achieve the following:

- Developing (strength characterized by speed - maximum speed - maximum strength - flexibility) for volleyball juniors using cross training.
- Improving the offensive skill level of volleyball juniors using cross training.

The foundations of the proposed training program design: The researcher tried to take into account the following principles when designing the proposed training program:
• Achieving program objectives.
• Diversity of training methods used between high-intensity interval training to develop strength characterized by speed with intensity between 75-90% of the maximum and between repetitive training to develop the motor rhythm severely from 80-100% of the maximum
  ▪ Perform the exercises as quickly as possible.
  ▪ Gradual increase in the training load after each intermediate measurement by the level in relation to the maximum strength of each member of the sample in stages to determine the progress of the level on the one hand, and to determine the intensity of the new training stimulus on the other hand.
  ▪ Providing the material capabilities (devices and tools) required to implement the research procedures.
  ▪ Providing an element of diversity and suspense in the activities and exercises used.
  ▪ The form of performing the special exercises is similar to the nature of performance in the volleyball competition, so that the muscles work in a kinetic and temporal path almost similar to the performance during the competition.
  ▪ Good rationing of the components of the training load (performance time - rest time between performance times - number of repetitions - number of groups - rest time between groups) to avoid the phenomenon of overload.
  ▪ Appropriateness of the program content to the level of the research sample in terms of age, gender, physical level and competitions
  ▪ Comprehensiveness and integration between the components of the proposed training program using cross-training, with the aim of comprehensive and integrated development to raise the components of the player's training status.
  ▪ Taking into account the gradual rise in pregnancy levels during the training program
  ▪ Taking into account the development of the three energy production systems during the training program.
  ▪ Determining the general time distribution of the proposed training program:
  ▪ The time of the program has been determined to consist of three months divided as follows: 3 weeks for general preparation, 5 weeks for private preparation, and 4 weeks for competitive preparation.
  ▪ Determining the number of training units in the proposed training program:
  ▪ The researcher determined the number of program units to consist of three months, comprising three main training phases, and including (12) weekly training units by (6) daily training units per week for the period of general preparation, private preparation and competitive preparation, and thus the program includes (72) training units daily
  ▪ Determining the training load formation system in the proposed training program:
  ▪ The researcher used the undulating method in shaping the training during the preparation stage using the basic formation (2:1) during the pregnancy cycle over a period of (3) months for the duration of the proposed training program, where the dose during the first month was an average pregnancy, the second month was a high pregnancy, the third month was high.
  ▪ The researcher used the formation (2:1) during the pregnancy cycle over the weeks of the preparation phase.

The distribution of pregnancy degrees over the training weeks in the training program:

The degrees of pregnancy were distributed over the training weeks during the stages of the training program, provided that the degree of medium load was between (50-74%), the high load was between (75-84%) and the maximum load was between (85-85).

Tribal measurements: A tribal measurement was carried out for the juniors of the research sample from 26/9/2019 to 28/9/2019.

The basic experiment: The program under study was applied to the members of the research sample using cross-training for the experimental group, during the period from 1/10/2019 to 22/12/2019 for a period of (12) weeks, with (6) training units per week.

Post-measurements: The dimensional measurements were carried out after the completion of the implementation of the stages of the proposed training program, in the period from December 25, 2019 to December 28, 2019.

Statistical transactions: The researcher used the statistical package (SPSS) version (23).
III. RESULTS

Presentation of the results of the pre and post tests in the physical abilities of the experimental group.

Table (1) the significance of the differences between the tribal and remote measurements of the experimental group in physical abilities

<table>
<thead>
<tr>
<th>Physical abilities</th>
<th>Tribal measurement</th>
<th>Dimensional measurement</th>
<th>The difference between the two averages</th>
<th>T value</th>
<th>Indication</th>
<th>Improvement rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>average Arithmeti c</td>
<td>deviation normative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed power</td>
<td>224.5</td>
<td>15.848</td>
<td>246.3</td>
<td>7.469</td>
<td>21.8</td>
<td>4.961</td>
</tr>
<tr>
<td>Maximum speed</td>
<td>3.844</td>
<td>313.</td>
<td>3.53</td>
<td>0.159</td>
<td>0.314</td>
<td>4.869</td>
</tr>
<tr>
<td>Maximum strength</td>
<td>173.5</td>
<td>28,582</td>
<td>196.5</td>
<td>18.863</td>
<td>23</td>
<td>4.929</td>
</tr>
<tr>
<td>Flexibility</td>
<td>13.3</td>
<td>1.888</td>
<td>16.5</td>
<td>1.354</td>
<td>3.2</td>
<td>5.58</td>
</tr>
</tbody>
</table>

It is clear from Table (1) that there are significant differences between the tribal and posterior measurements of the experimental group at the level of significance of 0.05 in favor of the dimensional measurements in the physical abilities under study. (8.194%, 24.06%), which indicates the progress of the level of the experimental group contestants in the fitness components under study. The researcher attributed this progress to the impact of the experimental program that depends on regular and varied training in using the latest training methods as well as the number of training units for this group, which it reached (6) training units per week by (72) units over the course of the program. The researchers attribute the improvement in the level of physical abilities to the diversity in the selection of exercises with weights and ballistic exercises for the legs and arms and their distribution during the periods of the program. The resultant increase in muscular ability as a result of using weight training, which stimulates the motor units, which leads to the participation of a large number of them in performance, as the intermittent training program affects the improvement of movement and elastic energy, which have A significant impact on the development of strength characterized by speed a cycle the lengthening and shortening of the muscle fibers, and thus the proposed program through the rapid response of the muscles as a reflex reaction carried out by the muscle spindles, and thus we obtain a rapid force contraction that increases explosive performance and also strength training characterized by speed, as well as the use of repetitive training methods of low and high intensity with the rationing of training loads Suitable for competitors. Muhammad Bariqa and Ihab Al- Badawi (2004) believe that cross-training is a highly effective tool that helps the athlete reaches the necessary competitive threshold while avoiding the disadvantages of excessive training and running out of energy. It also allows the use of other muscle groups that are not used in specialized sports or the use of muscle groups working in basic sports. But in different ways and methods, which distributes the training pressure and reduces stress on the bones, muscles, ligaments and tendons through the use of sports or other activities to maintain the training level without stopping the training and gives this diversity a new atmosphere that increases the motivation for training (8:2-5). The results of this study are also in agreement with the findings of Muhammad Husayn Juwaid (2004), Muhammad Lotfy al- Sayed and Ashraf Muhammad Zain (2003), Muhammad Hassan Muhammad (2002), that the training program using cross-training has a positive impact on the development of various physical abilities.
Table (2) the significance of the differences between the pre- and post-measurement of the experimental group in the level of skill performance

<table>
<thead>
<tr>
<th>Variables</th>
<th>Tribal measurement</th>
<th>dimensional measurement</th>
<th>The difference between the two averages</th>
<th>T value</th>
<th>indicatio n</th>
<th>improveme nt rate</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>average Arithmeti c</td>
<td>deviation normative</td>
<td>average Arithmeti c</td>
<td>deviation normative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmissio n from the front top</td>
<td>18.643</td>
<td>0.246</td>
<td>29.03</td>
<td>2.539</td>
<td>10.39</td>
<td>D</td>
</tr>
<tr>
<td>Linear Accelerator</td>
<td>1.82</td>
<td>0.178</td>
<td>3.500</td>
<td>0.470</td>
<td>1.675</td>
<td>16.16</td>
</tr>
</tbody>
</table>

It is evident from Table (8) that there is a statistically significant difference between the tribal and remote measurements of the experimental group at a level of significance of 0.05 in favor of the post measurement in the offensive skill level of the experimental group's juniors. 55.73%) to (91.78%). The attributes this improvement to the proposed training program using cross-training for the experimental group, where the cross-training program was based on the foundations and principles of raising the level of athletic achievement and taken into account when designing the training program (the correct relationship between pregnancy and comfort - the relationship between pregnancy And adaptation "privacy, overload" - continuity in training - progress in the degree of load - specificity of training - unity between training and preparation periods - individuality in training - evaluation and follow-up). The researcher attributed the reason for the improvement in offensive skill performance to the existence of a correlation between the level of skill performance and abilities, Special physical training, where the cross-training program led to the development and development of physical abilities (maximum speed - strength characterized by speed - strength flexibility) which, accordingly, led to the development of the skill level. The explanation for the reason for this development is that the members of the experimental research sample were subjected to training for a period of three months (twelve weeks) and by six training units per week, which led to the arrival of the sample members to the stage of adaptation to high loads in addition to diversification in the use of modern training devices, which led to a leap in the level of The youth and led to the development of physical abilities, which was positively reflected on their skill level. This was agreed upon by Muhammad Hussein (2004), Maha Muhammad Al-Hagrasy (2007). In addition, the proposed program "cross training" has improved the skill level.

IV. CONCLUSIONS

1. The cross-training method had a positive effect on the special physical abilities of volleyball juniors (strength characterized by speed - maximum speed - maximum strength - flexibility) and this effect was reflected on the level of skill performance in volleyball.
2. The effect of the cross-training method positively on the skill level of some offensive skills for volleyball juniors, which are (serving from the top of the frontal - the linear smash).

Recommendations

1. Working on developing the physical abilities of volleyball juniors using cross training to improve the level of skill performance and being guided by the procedures of this study when designing training programs.
2. Conducting similar research aimed at designing standardized training programs using cross-training, with different organizational forms in the field of volleyball.
3. The need for coaches to pay attention to the quality of cross-training activities and to put them in exercises of gradual difficulty in terms of composition, making them more interesting and similar to the offensive performance technique in volleyball, in order to achieve the principle of privacy, diversity and difference.
4. Following the scientific basis for planning the preparation period and rationing training loads in training program to raise the level of the components of the training situation in general and the physical and skill components in particular, and taking into account the principle of privacy in training when using the cross-training method.
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