GRADIVA

Volume 63 | Issue 10 | October 2024
DOI: 10.5281/zenodo.13910953

A Proposed Training Program to Develop the Resistance Trait to Improve the Performance of Blocking Skills among Volleyball Players a Pilot Study on a School Club

Mansouri Abdallah [1], Arezki Ismail [2], Derouiche Mohammed [3] & Hamani Ibrahim [4]

1. University of Larbi Ben M'hidi - Oum El Bouaghi-, Laboratory of Biological and Psychological Responses to Physical Activity. Email: mansouri.abdallah@univ-oeb.dz
2. University of Bouira, Algeria, Laboratory of Modern Sciences in Physical and Sports Activities. Email: a.smail@univ-bouira.dz
3. University of Larbi Ben M'hidi - Oum El Bouaghi. Email: derouiche.mohammed@univ-oeb.dz
4. University of Bouira, Algeria, Laboratory of Modern Sciences in Physical and Sports Activities. Email: i.hamani@univ-bouira.dz

Abstract

The current study aimed to propose a training program to develop the resistance trait and its impact on developing the blocking technique for school volleyball players. This topic was chosen in order to highlight the great importance played by the proposed training programs based on sound scientific foundations in raising the skill and physical level of the players. This study also focused on highlighting the role of the coach in choosing the best training programs used to reach the required levels and identifying the reality of preparing and forming the younger volleyball categories at the level of Bouira State and revealing their strengths and weaknesses. As for the methodological aspect, the researcher used the experimental method due to its suitability to the nature of the research and the research community represented in the clubs active in the Bouira State Volleyball Association

Keywords: *A Proposed Training Program, Develop the Resistance, Performance of Blocking Skills.*

1. INTRODUCTION AND RESEARCH PROBLEM

Volleyball in its current form is considered one of the high-end games played in international and Olympic matches, and attracts many viewers because it is one of the ball games that is distinguished by special characteristics that distinguish it from other team games, such as its lack of connection to a specific time, as well as the way of dealing with the ball, where sometimes we find it tangible, and at other times it is hit, in addition to the wonderful combination of technical and aesthetic performance that appears through the movement of the players on the field, as well as the high level of skillful and tactical performance performed by the players. We must not miss the volatile and exciting situations that raise the level of excitement among the players and viewers, all of this during its practical practice, and all of these are characteristics that have placed the game in the ranks of the Olympic Games. Volleyball is also considered one of the team games that has a better future and image than it was, due to its constant and continuous development represented in the development of the form of skill performance, as well as defensive and offensive game plans. Perhaps among these skills we find the skill of the block wall, which is a defensive method used by teams to win matches. This technique is also a combination of technical movements covered by a required physical ability, as it requires the performer of this skill to jump high above the net in order to hinder the opponent at the moment of the overwhelming attack, as jumping high and quickly requires and requires the acquisition of a tremendous physical ability that depends mainly on

Volume 63 | Issue 10 | October 2024
DOI: 10.5281/zenodo.13910953

developing the strength of ascent, which has a great relationship with one of the important physical qualities of a volleyball player, which is the quality of resistance. The latter depends on improving the anaerobic capacity to achieve good improvement, and the resistance characteristic effectively enters into determining the strength of jumping upwards, which makes it a basic factor in determining the skill of the blocking wall, which depends on the strength of rising upwards above the net and quickly, which made us think about the resistance characteristic as a factor that we can develop to improve the blocking skill, and this is what makes us address the following question: Are there statistically significant differences between the two control and experimental groups subject to the proposed training units in developing the resistance characteristic? Through this, we can ask the following partial questions:

- Do the proposed training units have an effect on improving the blocking technique?
- Does developing the resistance characteristic affect the ability to rise?

2. RESEARCH HYPOTHESES

2.1 General hypothesis:

There are statistically significant differences between two groups, a control and an experimental group, subject to the proposed training units in developing the resistance trait.

2.2 Partial hypotheses:

- The proposed training units have an impact on improving the blocking technique.
- Developing the resistance trait affects the ability to ascend.

3. Importance of the study: The importance of the study is as follows:

- Highlighting the importance of training units in developing the resistance trait.
- Highlighting the importance of training units in improving blocking performance.
- Highlighting the importance of developing the resistance trait to improve blocking performance. Highlighting the importance of developing the resistance trait to improve the ability to ascend.

4. Study objectives:

The objectives of the study are as follows:

Reaching the effect of training units in developing the resistance trait.

Attempting to know the underlying relationship between resistance and its effect on the blocking wall. Attempting to provide a diagnosis of the subject.

Attempting to improve the performance of the blocking wall. The applied aspect:

A. Methodological procedures:

1. The used method:

The used method that was chosen based on the nature of the problem that we want to study is the experimental method, which is considered the most important method used in the sports field. We supported our study with data that enabled us to choose appropriate tests and a training program that serves the subject of our study, so that two groups were chosen, one experimental and the other control, each group consisting of 10 players who underwent pre- and post-tests, so that the experimental group underwent integrated training units.

Volume 63 | Issue 10 | October 2024
DOI: 10.5281/zenodo.13910953

2. Controlling the study variables:

Controlling the variables is an essential element in any field study, and this is for the purpose of controlling them as much as possible so that this control helps in interpreting and analyzing the results of the field study without falling into obstacles.

The control of the study variables came as follows:

- Independent variable: Training units.
- Dependent variable: Resistance, blocking.

3. Research sample and how to choose it:

The research sample was the team of the Wilaya Association for School Sports in Bordj Bou Arreridj, and we divided the team into two groups:

- The experimental group, which includes 10 players.
- The control group, which includes 10 players.

The sample was chosen randomly and in a way that serves the research, and we chose 20% of the team as a sample to calculate the stability and validity of the test.

4. Study tools:

The first step we followed in our study is to provide means of transportation that help distribute the aspects of the research, which is collecting information from various references, and this is in order to master the theoretical aspect, while for the practical aspect, we provide the means and sports equipment for the purpose of conducting tests on the sample community in school sports.

4.1 Tests used:

- Climbing test.
- Offensive blocking test.
- Defensive blocking test.
- Forward jump test.

5. Statistical methods:

- Arithmetic mean.
- Standard deviation.
- Student's "t".

6. Field application procedures:

Our applied study included a set of exercises:

- **First exercise:**

Forward jump the player stands in place and upon the coach's signal, the player closes his legs and then jumps from a standing position forward a distance of 3 meters, then repeats the exercise for 5 minutes, so that the rest period is 30 seconds.

Volume 63 | Issue 10 | October 2024
DOI: 10.5281/zenodo.13910953

- **Second exercise:**

Climbing the stands the player climbs the stands and upon the coach's signal, which consists of 12 steps, and he must run, the rest period is during the return or return to the starting point, the exercise duration is 20 minutes.

- **Exercise 3:**

Running at medium speed the coach determines the starting and arrival line, the player stands at the starting line and then runs at medium speed estimated at: 70% of his speed for a distance of 30 meters, rest period is one minute, exercise duration is 10 minutes.

- **Exercise 4:**

Running between cones the coach places cones 6 meters apart, and the distance between one cone and the other is 50 cm. The player runs between them with one leg and then repeats the process with the other leg, rest period is one minute, exercise duration is 10 minutes.

- **Exercise 5:**

Moving forward with a jump from a squatting position The player stands with his knees slightly bent and his hands above his head, then he jumps forward in a springy manner, rest period is one minute, exercise duration is 5 minutes.

- **Exercise 6:**

Duck walk the player duck walks a distance of 3 meters, then jumps over a 1-meter high barrier. The rest period is one minute, the duration of the exercise is 10 minutes. (Dr. Zaki Muhammad Muhammad Hassan, 1999, p. 158.)

B. Presentation and analysis of the results:

1. Forward jump test:

B. Experimental group:

Table No. (2): Shows the results of the pre-test and post-test in the forward jump test for the experimental group

Statistical Significance At level (0.05)	Tabled t	Calculated t	Standard deviation	Arithmetic mean	Lowest value	Highest value	Sample number	
Statistically significant	1.81	4.68	0.55	6.15	5.23	6.94	10	Pre-test
			0.31	7.18	6.75	7.60	10	Post-test

From Table No. (2), it is clear to us that the arithmetic mean in the pre-test is 6.15 m and the standard deviation is 0.55 m, while the arithmetic mean for the post-test was 7.18 m and the standard deviation is 0.31 m. After calculating the "t" at the degree of freedom (n-1) and the significance level of 0.05, we found it to be 4.68.

In comparison with the tabular "T" which is equal to 1.81, we find that the calculated "T" is greater than the tabular "T" which indicates that the results are statistically significant, meaning that there are significant differences. Frequency histogram No. (11) Shows the results of the pre- and post-test in the defensive blocking test for the experimental group.

Volume 63 | Issue 10 | October 2024
DOI: 10.5281/zenodo.13910953

3. DISCUSSION OF THE RESULTS

Within the framework of our research topic, which addresses the study of the effect of training units in developing the resistance characteristic to improve the blocking performance in volleyball (15-18 years), and through the results obtained from conducting the tests that included the forward jumping test, the ascent test to measure the explosive strength of the legs, and the blocking test to measure the blocking skill against the crushing blow, used with the control and experimental groups, which were recorded in Tables 1 to 12.

We will discuss the results obtained in light of the hypotheses proposed and the statistical analysis of the latter in an attempt to highlight some of the main factors that have an impact on determining the results obtained and that may contribute to understanding the ambiguity surrounding them. The results obtained by the experimental group in the forward jump test were as follows: In the pre-test, the result was 6.15 m as an arithmetic mean, while in the post-test, the result was 7.18 m as an arithmetic mean, to cause statistically significant differences in favor of "T" calculated on the tabular "T" (4.68>1.81).

In contrast to the control group, whose results in this test and in the pre-test were 6.02 m as an arithmetic mean, while for the post-test, the result was 6 m as an arithmetic mean, which explains the lack of significant statistical differences in favor of "T" calculated on the tabular (T) (0.24 < 1.81). Therefore, the significant improvement of the experimental group and its opposite for the control group in the forward jump test highlights to us the effect of the integrated training units to improve the forward jump, which makes training have a major role in developing the ability to jump.

What we have learned about the integration of training units with the experimental group in the research, which showed differences in improving the ability of its members to jump, is in contrast to its control theory, whose members showed an absence of this characteristic, and even a decline in its level compared to the pre-test of the latter, which did not benefit from the training units, which makes the physiological changes that occurred affect the result of this group.

These results obtained in the forward jump test led us to obtain similar results in the ascent test, which resulted in significant moral differences between the pre- and post-tests in favor of the latter for the experimental group, which are recorded in Table No. (5), such that the group obtained a result of 55.9 cm as an arithmetic mean in the pre-test and a result of 60.2 cm as an arithmetic mean in the post-test, to create significant statistical differences in favor of “t” calculated on the tabular “t” (2.33>1.81), while the control group obtained in the same test a result of 49.8 cm as an arithmetic mean in the pre-test and a result of 50.5 cm as an arithmetic mean in the post-test without creating significant moral differences in favor of “t” calculated on the tabular “t” (0.12 < 1.81), which are recorded in Table (4).

These results explain to us the effect of the training units to improve the explosive ability of the two men, which were integrated with the experimental group in the research, such that its elements showed differences in improving the ability to ascend, unlike the control group, which was not subjected to these training units, and what its elements showed is the best evidence of that, such that we saw a decrease in its level compared to the experimental group.

The same thing happened in the results of the offensive and defensive blocking test, where the experimental group had obtained a result of 8 points as an arithmetic mean in the pre-test for the offensive blocking test and a result of 9.8 points as an arithmetic mean in the

Volume 63 | Issue 10 | October 2024
DOI: 10.5281/zenodo.13910953

post-test, thus creating statistically significant differences in favor of “t” calculated on the tabular “t” (3.67 > 1.81) and recorded in Table No. (8).

The same group obtained a result of 8 points in the defensive blocking test as an arithmetic mean in the pre-test and a result of 10.2 points as an arithmetic mean in the post-test, creating statistically significant differences in favor of “t” calculated on the tabular “t” (3.33 > 1.81), and recorded in Table No. (11).

In contrast to the control group, which obtained a result of 7.1 points as an arithmetic mean in the pre-test for the offensive block and a result of 7.7 points as an arithmetic mean in the post-test to explain the absence of significant differences in favor of "T" calculated on the tabular "T" (0.84 < 1.81), and recorded in Table No. (7), the same group obtained a result of 7.2 points in the defensive block test as an arithmetic mean in the pre-test and a result of 7.8 points as an arithmetic mean in the post-test to explain the absence of significant differences in favor of "T" calculated on the tabular "T" (0.82 < 1.81), despite the presence of a slight increase, perhaps due to this group undergoing continuous exercise, i.e. continuous training.

These results are recorded in Table (10). This noticeable difference between the two groups in choosing the offensive block and the defensive block, and in view of the results obtained in the rise and jump forward test, which were previously mentioned, supports the relationship between improving the block and the ability to rise. Good ascent facilitates the process of repelling and mastering it, something that was absent in the control group.

The elements of which showed that there were no significant differences between the pre- and post-tests due to the difficulties that the players (the control group) encountered in the tests to measure the offensive and defensive blocking technique, which requires the player to be close to the net and the necessity of acquiring a good ability to rise above the net in this case. In order for the player to acquire the ability to rise, he must continue the exercise or training.

Through the results obtained for the experimental group, which created significant significant differences and were subject to the integrated training units in the forward jump test, which helps to gain explosive strength for the legs, i.e. gain great resistance and thus strength in endurance, this is consistent with the general hypothesis of this research, which states that there are statistically significant differences between two groups, a control and an experimental group, subject to integrated training units in developing the resistance characteristic.

The results of the ascent, which depends in particular on the strength of the legs and the significant moral differences that occurred for the experimental group and the reliance on the previous results that stated the validity of the general hypothesis, all confirm the validity of the hypothesis that states that the development of the resistance trait affects the ability to ascend, and this is consistent with the study of Alam Hamza (Master's thesis) under the title: The extent of the influence of the ascent trait on the achievement of the blocking wall in volleyball among secondary school students (15 to 18 years).

Where he raised a question about the extent of the influence of the ascent trait on the achievement of the blocking wall and concluded that the hypothesis put forward is valid and its validity is stable.

This hypothesis states that the development of the ascent trait affects the performance of the blocking technique. As for the results obtained in the offensive and defensive blocking test for the control group, which did not cause any significant significant differences, unlike the

Volume 63 | Issue 10 | October 2024
DOI: 10.5281/zenodo.13910953

experimental group, whose elements showed the emergence of significant significant differences, we note the extent of the impact of the integrated training units in developing the resistance trait and improving the blocking technique. This proves the validity of the hypothesis that states that developing the resistance trait in a volleyball player effectively affects improving the blocking technique.

These obtained results, which prove to some extent the existence of a correlation between the resistance trait and the blocking technique and the effect of the training units, can be considered satisfactory despite the presence of some factors that affect these results. The absence of the resistance trait affects the blocking technique. Therefore, these results can be considered the beginning of the road to more comprehensive studies where we can address all the factors that contribute to improving the blocking technique in a volleyball player.

4. CONCLUSION

Among the team sports, volleyball is considered one of the most popular sports in the world due to the role it plays in alleviating daily psychological pressures. It has gone through several stages in which it has developed in several aspects, its laws, its method of playing, its concept, the popular view of it, as well as the multiplicity of methods and approaches to training it. In order for volleyball to flourish, reach the level and succeed, it was necessary to develop special programs to attract a huge number of children in order to make it the number one global sport.

This explains its early entry into the Olympic Games, and despite that, it has not lost its basic characteristic as a game to maintain fitness. Raising the physical level of volleyball players must depend on scientific rules and specificities that are applied with rigor and mastery. Achieving good results and raising the level of players' performance is not a coincidence, but rather is closely linked to scientific methods and methods of good training because the latter is of great importance in developing and enhancing the physical abilities of each athlete, which leads to raising the athlete's level.

Therefore, the training status increases as a result of repeated training. Volleyball, as you know, depends on a good ability to rise, whether when attacking or blocking. The latter requires the player to rise well above the net to facilitate and master the blocking process well. Good rise means the presence of explosive power for the legs, which requires each player to improve this characteristic (rise), which is the result of developing a physical characteristic in volleyball, which is resistance.

The results obtained, which showed statistically significant differences, are evidence of the extent of the impact of resistance on the ability to rise and the importance of integrated training units and their impact on the resistance characteristic.

Therefore, the category (15-18 years) was chosen, which has its own characteristics, which makes us apply training units to it to develop the resistance characteristic, which is related to improving the blocking technique. Based on the results obtained in the blocking tests, it became clear to us that:

- Integrated training units have an impact on developing the resistance characteristic.
- Developing the resistance characteristic affects improving the blocking technique.

Volume 63 | Issue 10 | October 2024
DOI: 10.5281/zenodo.13910953

References

References in Arabic:

1) Dr. Abu Al-Ala Ahmed Abdel Fateh, Ahmed Nasr El-Din, Physiology of Physical Fitness, Dar Al-Fikr Al-Arabi, Cairo, 2003.
2) Dr. Mohamed Sobhi Hassanein, Hamdi Abdel Moneim: Scientific Foundations of Volleyball and Measurement Methods, Kitab Publishing Center, 1st ed., Egypt, 1997.
3) Dr. Muqaddam Abdel Hafeez: Statistics and Psychological and Educational Measurement, University Publications Office, Algeria, 1993.
4) Dr. Ali Mustafa Taha: Volleyball, History, Learning, Training Law, Dar Al-Fikr Al-Arabi, 1st ed., Cairo, 1999.
5) Dr. Qasim Hassan Hassanein, Ali Naseef: Sports Training Science, Dar Al-Kutub for Printing and Publishing, Iraq, 1987.

References in Foreign Languages:

6) Brnard terpin: préparation et entraînement du foot baleur, Eden phora, paris, 1991.
7) Charles. H.C, Pelletier: cahier de l'entraîneur, Canada, 1986.
8) Jean- Michel Palau: sciences biologiques de l'enseignant sportif, doin editeurs, paris, 1985.
9) Jurgen weineck: manuel d'eritrainement édition vigot, paris.