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THE EFFECT OF COMPOUND EXERCISES USING THE VERTI MAX DEVICE ON DEVELOPING MOTOR SPEED AND DEFENSIVE ACCURACY IN BEACH VOLLEYBALL PLAYERS

PENGARUH LATIHAN GABUNGAN MENGGUNAKAN ALAT VERTI MAX TERHADAP PERKEMBANGAN KECEPATAN MOTORIK DAN AKURASI BERTAHAN PADA PEMAIN BOLA VOLI PANTAI

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ABSTRACT

Beach volleyball is a popular game in which players must possess different physical abilities to achieve the desired goal, including explosive power, speed, motor speed, reaction speed, agility, flexibility, and endurance, which play a significant role in developing skill capabilities. This study aims to prepare complex (physical-skill) exercises using the Verti Max device to establish the motor speed of the legs and the accuracy of performing the skill of defending the court for beach volleyball players, as well as to know the effect of complex exercises using the Verti Max device on developing the motor speed of the legs and the accuracy of performing the skill of defending the court for beach volleyball players. To solve his problem, the researcher employed the experimental method by designing two equivalent groups: an experimental and a control group, with pre- and post-tests. The researcher deliberately selected the research sample, which is the players of the Akso Club in beach volleyball for the season (2024/2025), whose number is (4) players, constituting (50%) of the total community. The results showed statistical significance for the post-tests for both groups, but more in favor of the experimental group and for all variables. The researcher reached several conclusions, the most important of which is that the compound exercises using the Verti Max device have a positive effect on developing the motor speed of the legs and the accuracy of performing the skill of defending the court for beach volleyball players, which contributes to guiding coaches, teachers and players based on such exercises for the purpose of developing their physical and skill level.

Keywords: Compound exercises, Verti Max, speed, defensive skills, beach volleyball.

ABSTRAK

Bola voli pantai merupakan permainan populer yang mengharuskan pemain memiliki berbagai kemampuan fisik untuk mencapai tujuan yang diinginkan, termasuk daya ledak, kecepatan, kecepatan motorik, kecepatan reaksi, kelincahan, fleksibilitas, dan daya tahan, yang berperan penting dalam mengembangkan kemampuan keterampilan. Penelitian ini bertujuan untuk menyusun latihan kompleks (keterampilan fisik) menggunakan perangkat Verti Max untuk menentukan kecepatan motorik kaki dan akurasi keterampilan bertahan lapangan bagi pemain bola voli pantai, serta untuk mengetahui pengaruh latihan kompleks menggunakan perangkat Verti Max terhadap pengembangan kecepatan motorik kaki dan akurasi keterampilan bertahan lapangan bagi pemain bola voli pantai. Untuk mengatasi permasalahan ini, peneliti menggunakan metode eksperimen dengan merancang dua kelompok ekuivalen: kelompok eksperimen dan kelompok kontrol, dengan tes pra dan pasca. Peneliti sengaja memilih sampel penelitian, yaitu pemain Klub Bola Voli Pantai Akso untuk musim (2024/2025), yang berjumlah (4) pemain, yang merupakan (50%) dari total populasi. Hasil menunjukkan signifikansi statistik untuk post-test kedua kelompok, tetapi lebih menguntungkan kelompok eksperimen dan untuk semua variabel. Peneliti mencapai beberapa kesimpulan, yang terpenting adalah bahwa latihan gabungan menggunakan perangkat Verti Max memiliki efek positif terhadap perkembangan kecepatan motorik kaki dan akurasi dalam melakukan keterampilan bertahan lapangan bagi pemain voli pantai, yang berkontribusi dalam membimbing pelatih, guru, dan pemain berdasarkan latihan tersebut untuk mengembangkan tingkat fisik dan keterampilan mereka.

Kata kunci: Latihan gabungan, Verti Max, kecepatan, keterampilan bertahan, voli pantai.

INTRODUCTION

The sports development that has occurred in various sports activities is a direct result of scientific research, studies, and efforts that have contributed significantly to the advancement

of the sports movement. The science of sports training has taken significant steps in the field of progress and in various sports. This progress must continue through the application of the foundations of training, its principles and laws, and the introduction of modern training methods or devices to use various exercises, including complex exercises (physical skill) to keep pace with the tremendous and rapid development in all sciences and specializations as a result of the modern scientific development in all areas of human knowledge. (Ameen et al., 2023).

Volleyball is one of the most popular and beloved sports among its players, as it is played in most places, whether in indoor sports halls or in open fields, and is practiced by all categories of children, youth, older people, and women. This is what made it popular(Muhammad & Korsheed, 2023). There are several types of this game, including beach volleyball, which is a game affected by climatic conditions and external influences on the nature of the game. Therefore, it is necessary to study some aspects that affect a player's performance and attempt to develop them and bring them to the required levels, especially the various physical abilities, including explosive power, strength characterized by speed, motor speed, reaction speed, agility, flexibility, and endurance, which play a significant role in developing skill capabilities(Abdullah & Aal, 2023) (Abdullah & Abdullah, 2023), and the importance of the research lies in the use of complex (physical-skill) exercises with the Verti Max device to develop the motor speed of the legs and the accuracy of performing the skill of defending the court for beach volleyball players. Verti Max is a mechanical device used in the training process for beach volleyball to develop some of the physical and skill capabilities of players by attaching its rubber ropes to the waist and arms. By following up on some beach volleyball training sessions, including those of the national team players, the researcher noticed that there is little reliance on devices with rubber ropes to develop the motor speed of the legs and the accuracy of performing the skill of defending the court among beach volleyball players. Therefore, the researcher decided to prepare complex exercises (physical-skill) with a Verti Max device for volleyball to develop the motor speed of the legs and the accuracy of performing the skill of defending the court, to bring the players to a distinguished physical and skill level. The researcher assumes that there are statistically significant differences between the results of the pre- and post-tests in developing the motor speed of the legs and the accuracy of performing the skill of defending the court for beach volleyball players of the experimental group in favor of the post-tests, as well as statistically significant differences between the results of the post-tests in developing the motor speed of the legs and the accuracy of performing the skill of defending the court for beach volleyball players of the experimental and control groups in favor of the experimental group.

METHODS

Research methodology:

The researcher used the experimental method by designing two equivalent groups, the control and the experimental, with pre -and post-tests to solve the research problem. “The experimental method is one of the best and most appropriate methods because it allows for direct and accurate observation, and it is the most efficient means of arriving at knowledge” (Dawood, 2025), (Alawi & Rateb, 1999).

Research community and sample:

The research community consists of eight beach volleyball players from Salah Al-Din clubs. The researcher chose the research sample intentionally, which included the players of the Akso Beach Volleyball Club for the season (2024/2025), numbering 4 four players,

constituting 50% of the total community. The skewness coefficient was used to homogeneously match the research sample with the variables (height, weight, biological age, training age as in Table No. (1).

Tools, devices and means of collecting information :
Legal volleyball court, legal volleyballs of Japanese Mikasa type (2), whistle (1) of Fox type, rubber ropes of different lengths "they are ropes of different lengths and thicknesses from one rope to another, and each rope has a certain tension" (Sakhi et al., 2020). video camera of Sony type (1) to document the experiment , electronic computer of Dell type (1) of Dell type, hand calculator (1) of Dell, belts used for the waist.

- Verti Max device: "It is a mechanical device that works in volleyball sports training, in which special exercises are used with rubber ropes as resistance, whether physical or a combination of physical and skill. Among the exercises that can be used with this device are jumping and leaping exercises, movement exercises, and moving from one position to another inside the volleyball court, which lead to the development of some of the physical and skill capabilities specific to beach volleyball" (Dawood & Sakhi, 2018). as shown in Figure No. (1) below.

Figure (1) shows the Verti Max device.

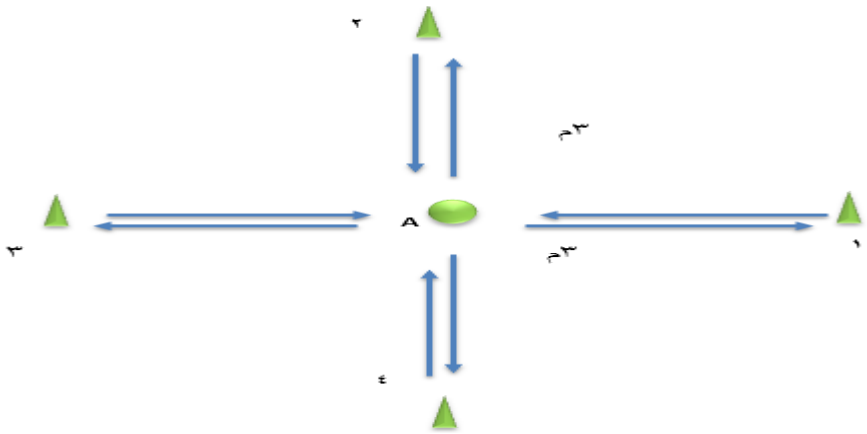
Tests used in the research:

First test :"Measuring the speed of the legs' movements (touching the four cones)

- Objective of the test: To measure the speed of leg movements in volleyball players.
- Performance specifications: Four cones are placed so that the distance between point) A (and each cone is (3) m, which is the distance determined by the experts as in Figure (2).

The tester stands at point) A (in a ready position to perform any skill and upon hearing the start signal, he moves to cone (1) using lateral movements to touch the cone with his hand, then returns with the same movement to cone number (2) using forward movements, passing through point) A ,(then moving back to cone (3), passing through point) A ,(to touch the cones with his hand, then to cone (4), passing through point) A) ,then to the starting point) A ,(and then the recorder stops the timer and records the performance time.

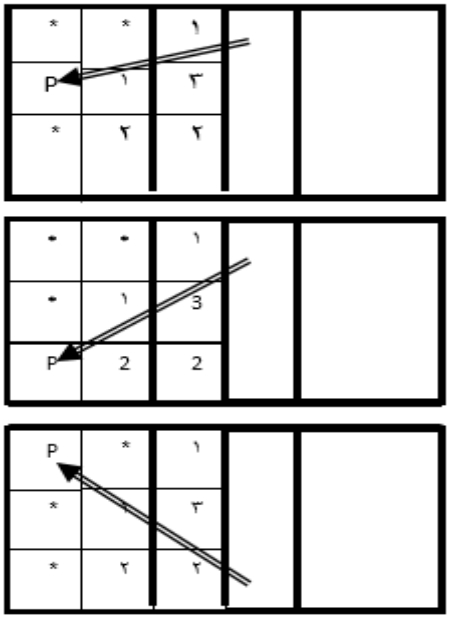
- Performance Terms: When performing a lateral movement (right or left), the player must maintain the defensive movement form to suit the conditions of the competition (crossing the step or crawling with the feet without crossing.
- Registration: The time is recorded for the tested player from the time the starting signal is sounded until he reaches the starting point, passing through touching the four cones ,and the time is recorded in seconds" (Al-Maslamawi, 2006) .



The form (2)Leg movement speed test (touching the four cones)

The second test: "Evaluating the accuracy of the skill of defending the field from the back areas

- Objective of the test: To measure the accuracy of the skill of defending the field.
- Equipment used: a legal volleyball court, (5) legal balls, colored tape to divide the court as shown in Figure (3) below.
- Performance specifications: The player stands ready to defend against smashed balls in the center (1) and the coach stands on the opposite court on a table to perform the smash towards the backcourt and the player performs the defense as the situation requires.
- Performance conditions: Each player is given (3) attempts for each area (1, 6, 5) and the highest score for a single attempt is (3) such that the maximum score for all attempts is (27) points. However, if the defended ball goes outside, (zero) is given for the attempt.
- Scoring :The player is given a score for the area in which the ball lands, as in Figure (3)" (Tarfi, 2016).



Figure(3) Accuracy test for backcourt defense skill

Exploratory experiment:

" The exploratory experiment is considered a practical training for the researcher to identify the positives and negatives that he encounters while conducting the tests in order to avoid them" (Mohamed, 2025), The researcher conducted an exploratory experiment before starting the

main experiment, in the Aq Club stadium. A beach volleyball tournament was held on Saturday, January 4, 2025, with the help of the support team for the following purposes:

1- Make players understand the vocabulary of the tests.
2- Identify the obstacles and difficulties that researchers face when conducting tests in order to overcome them.
3- Find out how long it takes to run tests.
4- Learn about the device's contents and how to operate it.
5- Learn how to apply the exercises
6- Determine the appropriate number of exercises in the training unit
7- Determine the intensity and volume of exercises used.

Pre-tests:

The pre-tests for the research sample were conducted on Saturday, January 11, 2025, at five o'clock in the afternoon, at the Akso Sports Club stadium, with the help of the support team. The conditions for the pre-tests were standardized to ensure consistency in the post-tests.

Main experience :

The researcher prepared a set of complex exercises (physical and skill-based) using the Verti Max device and presented them to the experts via a special form. The exercises were selected to develop the motor speed of the legs and the accuracy of performing the skill of defending the field, which were applied to the experimental group by the assistant work team. As for the control group, it used the exercises prepared by the club's coach. The exercise components that the experimental group applied were as follows:

- Duration of training on compound exercises: (6) weeks .Abu Al-Ala also pointed out that "most changes resulting from training usually occur within 6-8 weeks" (Ahmed, 1996).
- Total number of training units: (18) units.
- Number of training units per week: (3) units.
- Time taken from the main section in the training units :between (25-50) minutes.
- Due to the nature of the research sample and the aim of the research, the appropriate intensity of the exercises was determined and graduated from medium intensity to maximum intensity, i.e .between (60%-95%) of the maximum intensity for the player, and the principle of gradual progression is "starting with movements and exercises from easy to difficult in a gradual manner" (Shaghati, 2011).
- Training days per week: Monday - Wednesday - Friday.
- The exercises included a special preparation period.
- Compound exercises using the Verti Max device began on 2025/6/1 and were completed on 2/14/2025.
- In applying his compound exercises, the researcher used the high-intensity interval training method and the repetitive training method.
- The researcher relied on the principle of undulation in training the units with load at a ratio of (1:2)
- The researcher used a work-to-rest ratio between repetitions from (1:3) to (1:6)

❖ The training intensity of the rubber rope used was determined as follows:

The maximum elongation for each (1) cm of the rubber rope is equal to (3.5) cm.

The maximum tensile force per (1) cm of the rubber rope is equal to (0.108) kg ,i.e. (108 g).

Compound exercises using the Verti Max device:

number	Exercise name	Purpose	Performance description
1	An exercise to defend the field from below with the arms after advancing forward from the middle of the field with the rope to the waist from behind	Developing the motor speed of the legs and the skill of defending the field from below with the arms	The device is placed on the middle of the end line from the outside in a horizontal manner, and two players stand facing the net of the court, then rubber ropes are tied to their waists from the rings of the two poles. Then the two players, one after the other, advance forward and defend from below with their arms the ball that is thrown by the coach standing on the opposite side.
2	An exercise to defend the field from above with the hands after advancing forward from the middle of the field with the rope to the waist from behind	Developing the motor speed of the legs and the skill of defending the field from above with the hands	The device is placed on the middle of the end line from the outside in a horizontal manner, and two players stand facing the net of the field, then rubber ropes are tied to their waists from the rings of the two poles. After that, the two players, one after the other, advance forward from the middle of the field, then defend the field from above with their hands for the ball that is thrown by the coach standing on the opposite side.
3	An exercise to defend the field from below with the arms after retreating backward from the middle of the field with the rope to the waist from behind	Developing the motor speed of the legs and the skill of defending the field from below with the arms	The device is placed near the net, in the middle , transverse to the net, and two players stand facing the court net. Then, the rubber ropes are tied from the rings of the two poles to the waist from the front. After that, the two players, one after the other, move back and defend the court from below with their arms for the ball that is thrown by the coach standing near the device.
4	An exercise to defend the field from above with the hands after retreating backward from the middle of the field with the rope to the waist from the front	Developing the motor speed of the legs and the skill of defending the field from above with the hands	The device is placed near the net, in the middle , transverse to the net, and two players stand facing the court net. Then, the rubber ropes are tied from the rings of the two poles to the waist from the front. After that, the two players, one after the other, move back and defend from above with their hands the ball that is thrown by the coach standing near the device.
5	An exercise to defend the court from below with the arms near the net from the right side after moving from the middle of the court with the rope to the waist from the left side.	Developing the motor speed of the legs and the skill of defending the field from below with the arms	The device is placed on the left side line near the service area lengthwise to the court net. Two players stand on the right side of the device facing the court net. Then, the rubber ropes are tied from the rings of the two poles to the waist on the left side. After that, the two players move one after the other to near the net on the right side and defend from below with their arms the ball that is thrown by the coach standing in the middle of the net.
6	An exercise to defend the court from below with the arms near the net from the right side after moving from the middle of the court with the rope to the waist from the right side	Developing the motor speed of the legs and the skill of defending the field from below with the arms	The device is placed on the right side line lengthwise of the court net, and two players stand on the left side of the device facing the court net. Then, the rubber ropes are tied from the rings of the two poles to the waist on the right side. After that, the two players move one after the other to the left side line and defend from below with their arms the ball that is thrown by the coach standing in the middle of the net.

7	An exercise to defend the field from below with the arms near the right side line after moving from the middle of the field with the rope to the waist from the left side.	Developing the motor speed of the legs and the skill of defending the field from below with the arms	The device is placed on the left side line lengthwise of the court net, and two players stand on the right side of the device facing the court net. Then, the rubber ropes are tied from the rings of the two poles to the waist on the left side. After that, the two players move one after the other to near the net from the right side and defend from below with their arms the ball that is thrown by the coach standing in the middle of the net.
8	Defending the field from below with the arms near the left side line after moving from the middle of the field with the rope to the waist from the right side	Developing the motor speed of the legs and the skill of defending the field from below with the arms	The device is placed on the right side line lengthwise of the court net, and two players stand on the left side of the device facing the court net. Then, the rubber ropes are tied from the rings of the two poles to the waist on the right side. After that, the two players move one after the other to the left side line and defend from below with their arms the ball that is thrown by the coach standing in the middle of the net.

Post-tests:

The two post-tests were conducted in accordance with the points followed in the two pre-tests, specifically in terms of location, climatic conditions, measurement tools, and tests, on Saturday, February 15, 2025.

Statistical methods:

The researcher used the statistical package SPSS to process the results, which included the application of a set of statistical laws, namely, the arithmetic mean, median, standard deviation, t-value for independent and correlated samples, p-value for significance, and degrees of freedom.

RESULTS AND DISCUSSION

After using statistical processing of the test results, the data were as follows:

Table No. (1) Sample homogeneity for morphological variables

Variables	**The middle**	**deviation**	**The mediator**	**Coefficient of skewness**
Length (cm)	**173.00**	**2.44**	**173.50**	**-0.54**
Body mass (kg)	**72.25**	**2.21**	**72.00**	**0.48**
Biological age (years)	**19.50**	**0.57**	**19.50**	**0.00**
Training age (month)	**7.50**	**0.57**	**7.50**	**0.00**

The table above shows that the arithmetic mean of the lengths of the research sample was (173.00), the median was (173.50), the standard deviation was (2.44), and the skewness coefficient was (-0.54). The arithmetic mean of the weights of the research sample was 72.25, the median was 72.00, the standard deviation was 2.21, and the skewness coefficient was 0.48. The arithmetic mean of the ages in the research sample was 19.50; the median was also 19.50. The standard deviation was 0.57, and the skewness coefficient was 0.00. The arithmetic mean of the training age of the research sample was 7.50, the median was 7.50, the standard deviation was 0.57, and the skewness coefficient was 0.00. Therefore, all the above results indicate that the sample is homogeneous and similar to the community in terms of height, weight, and age, as the values of the skewness coefficient range between +1 and -1.

Table No. (2) Sample equivalence between the control and experimental groups (pre-test results)

Tests	**Unit of**	**The officer**	**Empiricism**	**t value**	**p -value**

	measurement	S	A	S	A	The calculated	significance
Speed of foot movements by touching four cones	Second	11.62	0.75	11.75	0.28	-0.31	0.77
Accuracy of defensive skill on the field	Degree	18.75	0.50	18.87	0.62	-0.31	0.76

Under the significance level (0.05) and with a degree of freedom (n-2) = (10)

Table 2 shows that the arithmetic mean of the speed of the legs' movements when touching four cones for the control group reached 11.62, and the standard deviation reached 0.75. In contrast, the arithmetic mean of the speed of the legs' movements for the experimental group reached 11.75, and the standard deviation reached 0.28. The calculated value of the t-test reached -0.31. The significance value (p) reached 0.77, which is greater than 0.05. This indicates that the differences between the two groups are not significant (random), i.e., the two groups are equivalent.

The arithmetic mean of the accuracy of the skill of defending the field for the control group reached 18.75, and the standard deviation reached 0.58. The arithmetic mean of the accuracy of the skill of defending the field for the experimental group reached 18.87. The standard deviation reached (0.62), and the calculated value of the t-test reached (-0.31), and the significance value(p) reached (0.76), which is greater than (0.05). This indicates that the differences between the two groups are not significant (random), i.e., the two groups are equivalent.

Table (3) shows the arithmetic means, standard deviations, the calculated (t) value, and the significance of the differences between the results of the pre- and post-test for the control group.

Variables	Unit of measurement	Tribal		The dimensional		t value The calculated	p -value Significance
		S	A	S	A		
The speed of the legs' movements is measured by touching the four cones.	second	11.62	0.75	7 11.5	0.53	0.17	0.87
Accuracy of field defense	Degree	18.75	0.50	19.25	0.50	-1.73	0.18

Below the significance level (0.05) and at a degree of freedom (5)

Table 3 shows that the arithmetic mean of the speed of the legs' movements by touching four cones for the pre-test of the control group reached 11.62. The standard deviation reached(0.75), while the arithmetic mean of the speed of the legs' movements for the post-test of the control group reached (11.57). The standard deviation reached(0.53), and the calculated value of the t-test reached (0.17), and the significance value (p) reached (0.87), which is less than(0.05). This indicates the presence of significant differences between the pre- and post-tests in favour of the post-test.

The arithmetic mean of the accuracy of the skill in defending the field for the pre-test of the control group was 18.75, and the standard deviation was 0.50. The arithmetic mean of the accuracy of the skill of defending the field for the post-test of the control group reached 19.25. The standard deviation reached (0.50), and the calculated value of the t-test reached (-1.73), and the significance value(p) reached (0.18), which is less than (0.05). This indicates the presence of significant differences between the pre- and post-tests in favour of the post-test.

Table (4) shows the arithmetic means, standard deviations, the calculated(t) value, and the significance of the differences between the results of the pre- and post-test for the experimental group.

Variables	Unit of measurement	Tribal		The dimensional		t value The calculated	p -value Significance
		S	A	S	A		
The speed of the two men when touching the four cones	Second	11.75	0.28	10.50	0.40	8.66	0.003
Accuracy of field defense	Degree	18.87	0.62	22.00	0.81	-4.75	0.01

Below the significance level (0.05) and at a degree of freedom (5)

Table 4 shows that the arithmetic mean of the speed of the legs' movements by touching four cones for the pre-test of the experimental group reached 11.75. The standard deviation reached (0.28), while the arithmetic mean of the speed of the legs' movements for the post-test of the experimental group reached(10.50), and the standard deviation reached(0.40), and the calculated value of the t-test reached (8.66). The significance value(p) reached(0.003), which is less than(0.05). This indicates the presence of significant differences between the pre- and post-tests in favour of the post-test.

The arithmetic mean of the accuracy of the skill of defending the field for the pre-test of the experimental group reached 18.87, and the standard deviation reached 0.62. The arithmetic mean of the accuracy of the skill in defending the field for the post-test of the experimental group was 22.00, and the standard deviation was 0.81. The calculated value of the t-test reached(-4.75), and the significance value (p) reached (0.01), which is less than(0.05). This indicates the presence of significant differences between the pre- and post-tests in favour of the post-test.Table (5) shows the arithmetic means, standard deviations, the calculated(t) value, and the significance of the differences between the results of the post-tests for the control and experimental groups.

Variables	Unit of measurement	The officer		Empiricism		t value The calculated	p -value significance
		S	A	S	A		
The speed of the two men when touching the four cones	Second	7 11.5	0.53	10.50	0.40	3.20	0.02
Accuracy of field defense	Degree	19.25	0.50	22.00	0.81	-5.74	0.002

Below the significance level (0.05) and at a degree of freedom (10)

Table 3 shows that the arithmetic mean of the speed of the legs' movements when touching four cones for the control group reached 11.57, and the standard deviation reached 0.53. In contrast, the arithmetic mean of the speed of the legs' movements for the post-test for the experimental group reached 10.50. The standard deviation reached(0.40), and the calculated value of the t-test reached (3.20), and the significance value(p) reached (0.02), which is less than(0.05). This indicates the presence of significant differences between the control and experimental groups in favour of the experimental group.

The arithmetic mean of the accuracy of the skill of defending the field for the control group reached 19.25. The standard deviation reached(0.50), and the arithmetic mean of the accuracy of the skill of defending the field for the experimental group reached (22.00). The standard deviation reached(0.81), and the calculated value of the t-test reached (-5.74), and the significance value(p)

reached (0.002), which is less than(0.05). This indicates the presence of significant differences between the control and experimental groups, in favour of the experimental group.

From what was presented in Tables (3) and (4), there are varying differences between the pre- and post-tests of the physical and skill tests and the two research groups (control and experimental).

Although the control group achieved significant results in the two tests, it did not exhibit the clear and considerable development in motor speed of the legs and the accuracy of defending the field, as observed in the experimental group, as indicated by the values of (t.test) and error rates. The researcher attributes this development in the motor speed of the legs and the accuracy of performing the skill of defending the field for the experimental group to the effect of using the compound exercises prepared using the Verti Max device. This is because weighting the waist or arms (with rubber bands) that the members of the experimental group worked with according to correct scientific rules and foundations, and the reasonable determination of the levels of training intensity and the appropriate number of repetitions, as well as the proper proportions of work and rest periods and the proper number of sets and rest periods between them, which helped in developing the motor speed of the legs, and thus the movements of the legs became faster and stronger because “weighting the waist or arms during training increases the speed of motor performance, meaning that the strength acquired from this type of training leads to better motor performance in the practiced sporting activity by increasing the ability of the muscles to contract at a faster and more explosive rate” (Dawood et al., 2024), (Ismail, 1996), as explosive strength exercises occupy a large space in their physical preparation stages, which necessitated the use of exercises with modern training methods that are more effective in developing this ability and according to the skill preparation specific to the game, and “organizing the exercise in a variable manner is more effective in learning and training than organizing training in a fixed manner” (Jamil, 1994).

The researcher believes that using exercises according to modern equipment and good standardization of intensity Training in which the required objectives are achieved. The clear development in the accuracy of performing the skill of defending the field occurred as a result of the speed of the movements of the legs while moving towards the direction of the ball and delivering it to the player who was prepared in a precise manner. Motor speed is essential in developing the accuracy of performing the skill of defending the field. (Naheda Abdul Zaid et al.) Also, confirm that the motor speed “is one of the important and necessary abilities that must be available to volleyball players due to the need for motor performance in this game as it contains many diverse and unexpected variables” (Zaid & Others, 2014).

From what was presented in Table 5, it is clear that there are significant differences between the dimensional arithmetic means of the control and experimental groups in the physical and skill tests in favor of the experimental group. The researcher attributes this to the use of compound exercises prepared according to the Verti Max device, which involves exercises with resistance from rubber ropes, especially when the training or resistance used in the training units has a scientifically and gradually increasing objective intensity, and includes different repetitions consistent with the required intensity. The exercise is performed according to the allocated period, "as this training load makes the muscle or muscle groups more efficient and able to confront new resistances and effort, because it is impossible to benefit from training without increasing its intensity"(Farag et al., 2024). This naturally helped develop explosive ability and then helped build motor speed, because strength produces speed. Therefore, the development of these physical abilities using compound exercises with the Verti Max device led to an increase in the accuracy of the skill of defending the court among beach volleyball players.

CONCLUSION

In light of the statistical processing of the results of the physical and skill tests, which were presented, analyzed, and discussed, the researcher reached a set of conclusions, including that the compound exercises using the Verti Max device had a positive effect in developing the motor speed of the legs and the accuracy of performing the skill of defending the field. In addition, the rate of development of the members of the experimental group appeared better in the motor speed of the legs and the accuracy of performing the skill of defending the field, compared to the members of the control group, who obtained a lower rate of development as a result of using the Verti Max device for the experimental group. It was also found that the Verti Max device is effective in helping to develop the skill performance without restricting the players. In light of these conclusions reached by the researcher, it is recommended to benefit from the compound exercises prepared by the researcher with the Verti Max device, in preparing similar exercises to develop the motor speed of the legs and the accuracy of performing the skill of defending the court for beach volleyball players, as well as generalizing the compound exercises prepared by the researcher with the Verti Max device in training beach volleyball players by coaches and paying attention to the special preparation stage when implementing the compound exercises with the Verti Max device by coaches with the necessity of paying attention to the two tests that the researcher adopted as an indicator to measure physical and skill capabilities. The researcher also recommends conducting studies similar to this study on other skills and games, team and individual, at different ages and for both genders.

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