

Effect of using specific exercises according to wind directions on some physical abilities and the effectiveness of skill performance among the players of the National Beach Volleyball Team

Dr/ Ahmed Mohamed Abdallah¹

Introduction and Statement of the Problem:

A successful trainer plans a training program for developing the qualities of the player's specialized activity, including the exercises of developing the elements relied upon by the player in the relevant field. The same movements of the activity must focus on the working and shared muscle groups in a specialized sports activity. Designing any training program should be based on analyzing the needs of the specialized activity (17: 188).

Abdul Basit Mohammed Abdul Halim and Ashraf Abdulaziz Ahmed (2006) report that sand training is a means of training body resistance because it is difficult to move on. This training is used to enhance the physiological and physical efficiency of the player to continue to perform for a long time because it is a means to stand fatigue (16: 237).

Many volleyball players may be defeated by lower-level players when playing on the sand because this sport requires the competence of basic skills, unusual physical characteristics, withstanding the constant pressure of the strong impact of sand, and high-level understanding and coordination with the only teammate on the field (13:2).

Beach volleyball has unique characteristics than the usual volleyball (played indoors or outdoors) in terms of the different performance of some skills, such as service and reception and different surfaces of beach courts (sand) from others (wood- synthetic fibers). Therefore, it is harder for players to do skill and physical performances and move on the court. They are also unable to keep balance while performing the skills. The court lacks lines, e.g., attack and center. Consequently, a player is urged to utilize certain skills more than others, such as digging, deep and flying blocking, setting, and individual blocking (13: 235) (8) (15).

Wind movement greatly influences weather phenomena, such as high temperature, cloud formation, and rainfall. It also affects the earth's surface due to weathering and erosion. Dust and dirt move from one region to another significantly in the atmosphere constituents, which, in turn, affects the change of physical characteristics and ratios of the weather, such as temperature, humidity, and sun rays. Thus, knowing wind characteristics, speed, and direction is essential. (10)

Wind speed changes daily, affected by the cycle of temperature. Surface winds are calm at night, but wind speed gradually increases to a

¹ Assistant Professor, Department of Athletic Training and Movement Sciences, Faculty of Physical Education, Sohag University.

peak in the early afternoon after sunrise. Then, it declines gradually to reach the minimum before sunrise. Wind direction is more regular and less volatile during the day than at night. Winds at higher altitudes change their daily speed, contrary to that of surface winds in terms of speed and direction. (24)

Mohamed Hassan Allawi (2007) and Essam Eddine Abdel-Khaleq (2005) report that specific exercises are movements that are similar in the motor composition to movements of players in sports contests in terms of force, speed, time tracking, and direction of the muscle work. They are a direct method for the basic preparation of a player in terms of motor compatibility and the sequence of the motor performance and direction. (20) (22)

Therefore, theory and practice should be complemented and arranged. That is, developing validated specific exercises should be complemented with the technical analysis, which details the parts of the skill with the real application, inevitably entailing the development of the performance level (26: 26).

Nariman Al-Khatib (1991) stresses this issue when discussing the importance of the correlation between training and skill through intensive training on skill performance and the need to train the working muscles in a special manner following how to use them in the practiced activity. (25)

Beach volleyball is greatly influenced by climatic conditions and external factors because of the nature of its performance, such as wind

movement from all directions in the match and single performance, sunray directions, and rainfall. It is important academically to follow up on all aspects that affect the performance of the player. Further specialized studies shall be conducted to develop the performance and level of players and achieve advanced positions in world championships.

As a coach of the Egyptian National Volleyball Team, the researcher noticed the low effectiveness of the skill performance of players in championships because of playing at high wind speed and the inability to control this issue in terms of directions and speeds.

Due to the game's nature and holding its competitions in open courts on the beach, the player's performance is prone to the significant influence of the wind speed, in addition to the inability to employ wind speed in its various directions, utilize this feature to increase the effectiveness in the match results, and control the performance of the opponent based on a set of exercises and contexts that a player may experience in similar circumstances in competitions, such as unusual wind speed.

Several studies have been conducted on the technical performances of basic skills, and others have been related to other sciences, such as psychology and physical capabilities that develop beach volleyball and other sports (1) (2) (3) (4) (5) (6) (9) (11) (14) (18) (21) (23).

To the author's knowledge, the present study is the first to use specific exercises in volleyball similar to the

nature of competition in using wind training to develop some physical capabilities and increase the effectiveness of the skill of service, setting, and reception skills to win Arab, African, and world championships with the national team.

Study Objectives:

The study aims to identify

- 1- The effect of using specific exercises according to wind directions on some physical abilities.
- 2- Effect of using specific exercises according to wind directions on the effectiveness of skill performance (serving, reception, and setting) among the female players of the National Beach Volleyball Team.

Study Hypotheses:

- 1- There are statistically significant differences between the mean scores of the pre-test and post-test of some physical abilities of the female players of the National Beach Volleyball Team in favor of the post-test.
- 2- There are statistically significant differences between the mean scores of the pre-test and post-test of the effectiveness of skill performance of the female players of the National Beach Volleyball Team in favor of the post-test.

Definition of Terms:

Specific Exercises (Procedural Definition):

These exercises are similar to the nature of the technical performance of beach volleyball skills according to the changing wind directions in the competition. They are a direct preparation and improvement of beach volleyball players.

Wind:

It is the movement of air masses from one region to another horizontally in the atmosphere according to the difference in air pressure. Wind often accelerates from high-pressure to low-pressure areas.(12)

Review of Literature:

1- Ahmed Mohamed Abdullah (2014) (2) aimed to determine the technical and cognitive aspects related to beach volleyball. The researcher adopted the descriptive approach by surveying the opinions of experts on the major and minor domains and intentionally selected a sample of trainers of (11) Egyptian experts and Arab coaches and (6) beach volleyball players. The results showed determining the technical domains of volleyball players and the number of each domain's items as follows: The physical domain included (13) items, the skill domain included (82) items, the planning domain included (106) items, the law domain included (37) items, and the external influences domain included (22). Moreover, the cognitive aspects and items were determined as follows: The mental and psychological domain included (36) items, the sports culture domain included (14) items, the fitness domain included (16) items, and the communication and interaction in the game domain included (5) items.

2- Ahmed Mohamed Abdullah (2016) (4) aimed to design a training program using competition game contexts and identify its impact on the effectiveness of skill performance of the National Beach Volleyball Team-Men. The researcher used the

descriptive approach by analyzing games to determine the technical aspects and the experimental approach to applying the training program to an intentionally selected sample of (8) games (21 matches) in the African qualifying rounds for the Brazil Olympics (2016). **A training program was designed** with a set of specific exercises for each skill to be applied competitively by dividing the court area and competitive matches. A form of the effectiveness of the players' skill performance was used. **The results** showed the increased effectiveness of the skill performance and the improvement of players in the serving, spiking, and blocking on the court in favor of the post-test.

3- Ahmed Mohamed Abdallah (2016) (15) aimed to identify the effect of the proposed training program using hypoxic training on some physiological and physical variables among the female players of the National Beach Volleyball Team. **The experimental approach** (one training group design) was applied to an intentionally selected sample of (4) female players, i.e., the National Egyptian Beach Volleyball Team in the African qualifying rounds for the Brazil Olympics. **A training program was designed** using training masks to reduce the amount of breathed oxygen in the various physical, skill, and planning exercises in a similar manner to that experienced by players in latitudes with reduced oxygen in the African championships. The researcher used the Biodex balance system. **The results** illustrated improved physiological variables (vc-ERV- IRV- Tv- Ic) and improved physical variables (vertical jump test-throwing a medical ball- 20 meter

speed- flexibility- directions agility exercises).

4- Mohamed Hany Saeed (2021) (24) aimed to explore the daily variation of summertime wind speed and temperature and its relevance to street design in the central region of Giza. The study adopted the loop monitoring approach of temperature and wind speed as a source of data to determine the daily variation of temperature and wind speed. The results revealed that wind speed is responsible for estimating temperature by 54%. Moreover, wind speed and temperature increase directly with the width of the street.

5- Badr Al-Araj and Bahgat Ibrahim (2004) (10) aimed to identify the effect of wind on sea waves on the beach of Latakia. The study primarily aimed to have a clear and consistent description of the direction of wind carrying waste. The results illustrated that the most severe wave of storms hit the beach of Latakia in December 2002.

Methodology:

Method:

The researcher used **the experimental approach (one group pre-test post-test design)**.

Population:

The population included the female players of the Egyptian national team registered with the Egyptian Volleyball Federation.

Sample:

The research sample comprised (8) intentionally selected players from the Egyptian beach volleyball team. Appendix (1)

Statistical description of the research sample

Table (1)
Homogeneity of the research sample in the basic variables (n=8)

No.	Variable	Unit of Measurement	Arithmetic mean	Standard deviation	Skewness coefficient	Kurtosis coefficient
1	Height	Centimeter	175.88	8.10	-0.49	-0.80
2	Weight	Kilogram	73.25	8.27	-0.93	-0.41
3	Chronological age	Month/ Year	17.13	0.64	-0.07	0.74
4	Training Age	Month/ Year	9.63	1.41	0.48	-0.56

Twice the standard error of the skewness coefficient= 1.50

Twice the standard error of the kurtosis coefficient= 2.96

Table (1) shows the moderately selected measurements of the sample. The skewness coefficients ranged (0.07- 0.48), which is less than the significance value of skewness. Additionally, the kurtosis coefficients ranged (-0.41: 0.56-), which is less than the significance value of kurtosis, suggesting that the research sample is moderately distributed in the basic variables.

- Tools of data collection:

1- The form of surveying the opinions of experts on wind directions related to performance in beach volleyball; appendix (2)

2- The form of the physical abilities of the national beach volleyball team female players; appendix (3)

3- The form of skill performance effectiveness of beach volleyball players; appendix (4)

Scientific procedures:

The researcher conducted scientific procedures on a pilot sample of (4) female players from the population, which was not involved in the basic experiment. Some physical abilities of

female beach volleyball players were measured.

Validity of the used physical tests:

To measure the validity of the physical tests under study (appendix 4), the researcher used discriminant validity by applying the tests to a pilot sample of two groups of beach volleyball players: The first group of (4) non-discriminated players from the population, and the second group of (4) discriminant players. The means of test results were compared, and the significance of differences was highlighted.

Validity:

The researcher utilized discriminant validity by making measurements on a discriminant sample of female beach volleyball players from 1/5/2022 to 2/5/2022. The first group (8 players) was from the population but not included in the main sample, and the second group (8 players) was indiscriminate. The researcher calculated the significance of differences between the two groups to ensure the validity of some physical abilities under study, as shown in table (2).

Table (2)
Significance of differences between the discriminant and indiscriminate group in physical measurements (understudy) n1= n2 = (8)

Test	Unit of measurement	Discriminant group		Indiscriminate group		T value	Significance level	
		Means	±SD	Means	±SD			
Physical	Vertical jump test	cm	35.04	3.92	25.52	2.71	5.65	Significant
	Broad jump test	h/m	2.13	0.23	1.70	0.06	18.79	Significant
	Transition speed test (30m)	S	5.64	0.72	8.23	0.55	8.08	Significant
	Trunk bending test	cm	20.25	1.28	13.25	1.04	12.02	Significant
	Medical ball push test (weight 3) by hand	cm	6.68	0.58	4.88	0.53	6.46	Significant

Tabular "T" value at the significance level of 05. 0= 1.76

Table (2) shows statistically significant differences at the level of (0.05) between the discriminate and indiscriminate groups in physical abilities with the calculated value of "T" of (5.65) and (18.79), indicating

that the tests in question discriminate the participants, denoting validity.

The researcher conducted the criterion validity of the service and reception skill, as shown in table (3).

Table (3)
Percentage of expert opinions of wind directions in beach volleyball (n=10)

No.	Skill	Wind type	Wind directions and angles	Expert opinions	Percentage		
1	Service	Front winds	Right- left- front- back (left- right player)	10	100		
		Tailwind					
		Side wind (right-left player)					
2	Reception	Front winds		Right- left- front- back (left- right player)	9	90%	
		Tailwind					
		Side wind (right-left player)					
3	Setting	Front winds			Right- left- front- back (left- right player)	8	80%
		Tailwind					
		Side wind (right-left player)					

Table (3) illustrates the opinions of experts on the means of communication between beach volleyball players. The researcher

accepted the variables that obtained 80%; accordingly, no means of communication were deleted.

Reliability of the physical tests:
The researcher calculated the reliability of the test using (Test-Retest) from 1/5/2022 to 15/5/2022 on a sample of

(8) female players of the population but not from the main sample, as shown in table (4).

Table (4)
Correlation coefficient between the first and second test of physical measurements (under study) N= (8)

Tests	Unit Test	Test		Retest		Correlation coefficient	Significance level	
		Means	±SD	Means	±SD			
Physical	Vertical jump test	cm	35.04	3.92	35.04	3.92	**0.99	Significant
	Broad jump test	h/m	2.13	0.23	2.11	0.89	**0.81	Significant
	Transition speed test (30m)	w	5.64	0.72	4.76	0.55	**0.88	Significant
	Trunk bending test	cm	20.25	1.28	21.63	1.88	**0.92	Significant
	Medical ball push test (weight 3) by hand	cm	6.68	0.58	7.37	0.51	**0.94	Significant

* Tabular “R” value at the significance level of (0.05)= 0.622

Table (4) illustrates that the correlation coefficient between the test and retest of physical abilities is statistically

significant and ranges from (**0.81) to (**0.99), which is larger than the tabular “r” value at the level of (0.05).

Table (5)
Homogeneity of the research sample in the basic variables under study (n=8)

Tests	Unit Measurement	Arithmetic means	Standard deviation	Skewness coefficient	Kurtosis coefficient	
Physical	Vertical jump test	cm	31.67	3.51	-0.91	0.55
	Broad jump test	m/ s	1.95	0.12	0.35	-0.81
	Transition speed test (30m)	w	6.63	0.66	-0.78	0.30
	Trunk bending test	m/ s	16.88	1.64	0.78	0.87
	Medical ball push test (weight 3) by hand	m/ s	5.55	0.71	-0.36	-0.51

Twice the standard error of the skewness coefficient= 1.50

Twice the standard error of the kurtosis coefficient= 2.96

Table (5) shows that the skewness coefficients of physical abilities (under study) score (0.35:

0.78), which is less than twice the standard error of the skewness coefficient (significance level).

The value of the kurtosis coefficient ranges from (0.55) to (0.87), which is less than twice the standard error of the kurtosis coefficient (significance level), suggesting the moderate distribution of the sample in the variables.

- Pilot study:

To implement the wind exercises for improving and developing the physical and skill abilities, the researcher utilized the results of the pilot study conducted from 1/5/2022 to 15/5/2022 on a sample of (8) female players representing the population but not included in the main sample.

Steps of building the training program:

To build the training program, wind directions and their relationship to skills performance were determined by reviewing the opinion of the experts and players to define the major domains of the training program. Appendix (5) Appendix (8)

1- Objectives of the training program

The objectives of the program were:

(a) Educational objectives:

- Acquire and develop voluntary qualities, such as self-confidence, striving, perseverance, and initiative.
- Acquire moral qualities, such as loving the group and respecting appointments and orders.

(a) Cognitive objectives:

- Provide players with knowledge and information about (basic skills, planning and physical aspects, and external influences in beach volleyball).

- Provide players with knowledge and information about health aspects, sports culture, as well as rules and regulations of beach volleyball.

(c) Constructive objectives:

- Develop and increase the effectiveness of motor skills in different game situations.

2- Bases for developing the proposed training program:

- Relevance of the program to the sample
- Applying progression in providing skills and duties that help improve the skill, planning, and psychological level of players
- Contribution of all the module's contents to training to achieve the desired objectives
- Appropriateness of the module's structure of the contents for the purpose of the training module
- Determining the degree of load and considering the relationship between intensity and volume in implementing different exercises

3- Content of the training program:

The content of the training program is a set of specific exercises that resemble the nature of performance in the competitions, as follows:

I. Service exercises:

- 1- Service in front wind direction exercises, including a set of performances from (1) to (5)
 - 2- Service in tailwind direction exercises, including a set of performances from (1) to (5)
 - 3- Service in side wind speed exercises, including a set of performances from (1) to (5)
- 2. Reception exercise:**

4- Reception in front wind speed exercises, including a set of performances from (1) to (5)

5- Reception in tailwind speed exercises, including a set of performances from (1) to (5)

6- Reception in side wind speed exercises, including a set of performances from (1) to (5)

III. Setting exercises:

7- Setting in side wind speed exercises, including a set of performances from (1) to (5)

8- Reception in front wind speed exercises, including a set of performances from (1) to (5)

9- Reception in tailwind speed exercises, including a set of performances from (1) to (5)

4- Schedule of the proposed training program:

Schedule of the proposed training program:

Abdulaziz Al-Nimr and Nariman Al-Khatib (2000) stressed that the number of training modules for developing the physical elements is 3:5 per week to develop strength, speed, and endurance and may reach 7 per week to develop flexibility, balance, and agility. (17: 93)

Table (6)
Schedule of the proposed training program

Number of weeks	Week's number	Modules/ week	Daily module's time	Percentage of wind exercise		Total time of wind exercise per week	Total time per week	Total program time
				Percentage	Time of the training module			
8 weeks	1	4	120	15%	18 m	72 m	480	5460 m
	2	4	120	15%	18 m	72 m	480	
	3	5	150	20%	30 m	150 m	750	
	4	5	150	20%	30 m	150 m	750	
	5	5	150	30%	45 m	225 m	750	
	6	5	150	30%	45 m	225 m	750	
	7	5	150	35%	52.5 m	262.5 m	750	
	8	5	150	35%	52.5 m	262.5 m	750	
Total						1419 m	5460 m	
Percentage of wind direction exercise of the training program							26%	

I. The proposed program was implemented as follows:

Table (7)
Time distribution of the percentage of physical, skill, and planning preparation in the training program

Preparation	Percentage	Total (minutes)
Physical	$\frac{30\% \times 5460}{100}$	1638 m
Skill	$\frac{30\% \times 5460}{100}$	1638 m
Planning	$\frac{40\% \times 5460}{100}$	2184 m
Total program time		5460 m

Table (8)
General framework of the training program

Duration		Preparation period								Total program time
Phase		General preparation		Specific preparation			Before competitions			
Weeks		1	2	3	4	5	6	7	8	
Degree of load	MAX				●		●	●		
	High		●	●						
	Intermediate	●				●			●	
Module time		120	120	150	150	150	150	150	150	
Modules/ week		4	4	5	5	5	5	5	5	
Time of week		480	480	750	750	750	750	750	750	5460 m
Total time of the period		960 m		2250			2250			5460 m
General preparation	Wind exercises	15%	15%							144 m
		18 m	18 m							
Time of wind exercise in the general preparation period		72 m	72 m							
Specific preparation	Wind exercises			20%	20%	30%				525 m
				30 m	30 m	45 m				
Time of wind exercise in the specific preparation period				150 m	150 m	225 m				
Before competitions	Wind exercises						30%	35%	35%	750 m
							45 m	52.5 m	52.5 m	
Time wind exercise in the preparation period before competitions							225 m	262.5 m	262.5 m	

- Data collection tools:

- 1- Rastameter to estimate height (cm)
- 2- Medical scale to calculate the weight (kg)
- 3- Two (2) stopwatches
- 4- Measuring tape
- 5- Workbench of different sizes and heights
- 6- Camera
- 7- Multi-altitude camera stand
- 8- Videotape
- 9- TV set
- 10- A legal volleyball court
- 11- Slings of different sizes and widths
- 3-Stop watch
- 13- Beach and ordinary volleyballs

14. Swedish cones and benches and wooden chairs

- Pilot study:

To ensure the safety of the administrative and technical procedures before, during, and after applying the program, the researcher selected (8) players from the population but not in the sample to conduct the pilot study from 20/5/2022 to 25/5/2022. A four-module training week was applied **to achieve the following objectives:**

- 1- The objectives of the training program were

- Identify the average number of modules a player can execute during the training program.
 - Determine the time out between the exercises, the part of the module and the part of the next one, and the time out between the module and the next one.
 - Identify wind directions and test their speed while implementing the training module.
 - The average pulse of the player while implementing the exercises with different intensities.
 - Ensure the training content of the program in terms of validating the modules, the times allocated to the parts of the module, and the repetitions for each exercise.
 - Ensure the accuracy of organization and workflow in the training program.
2. Ensure the validity and adequacy of the tools and devices used in the test.

Ensure the validity and reliability of the form of skill performance effectiveness

A. Pre-test

The pre-test was conducted in some experimental matches with wind from 5/1/2022 through physical and skill tests for the players of the Egyptian beach volleyball team.

B. Applying the training program:

The training program started on 2/5/2022 to 1/7/2022 to ensure establishing the technical aspects of selecting and recalling the information that commensurate with the defensive and offensive characteristics of the

competing teams. In the program, the researcher took considered the following aspects:

- The training modules should be similar to the nature and law of the game and its requirements in terms of the difference in the time and distribution of the training modules. Additionally, there are slight differences in the proportions and times of the parts in the training modules.
- The load should be adequate to the level of players, taking into account the height of the training loads of the training modules to match the nature of the game, namely the maximum load performance.

C- Post-test

After implementing the training program, the post-test was conducted by analyzing the effectiveness of the skill performance of the players on 2/7/2022.

- Statistical processing:

The researcher statistically processed the data using these methods:

- 1- Arithmetic mean
- 2- Standard deviation
- 3- Skewness
- 4- Percentage
- 5- Percentage of improvement
- 6- Kurtosis

*** Results and Discussion**

Discussing the first hypothesis, "There are statistically significant differences between the mean scores of the pre-test and post-test of some physical abilities of the players of the National Beach Volleyball Team in favor of the post-test.

Table (9)
Significance of the differences between the mean scores and the percentage of improvement in the pre-test and post-test of the physical indicators of the sample n = (8)

Variables	Unit Test	Pre-test		Post-test		Difference between the means	T value	% Percentage of improvement	
		Means	±SD	Means	±SD				
Physical abilities	Vertical jump	cm	31.67	3.51	45.39	2.49	13.72	12.74	43.32%
	Broad jump	cm	1.95	0.12	2.41	0.60	0.46	8.97	23.59%
	Transition Speed (30)	S	6.63	0.66	4.70	0.82	1.93	8.81	29.11%
	Trunk bending	cm	16.88	1.64	23.13	0.41	6.25	65.9	37.03%
Medical ball push (weight 3 kg) by hand	cm	5.55	0.71	7.44	0.40	1.89	9.19	34.05%	

T value at the significance level of (0.05)= 1.89

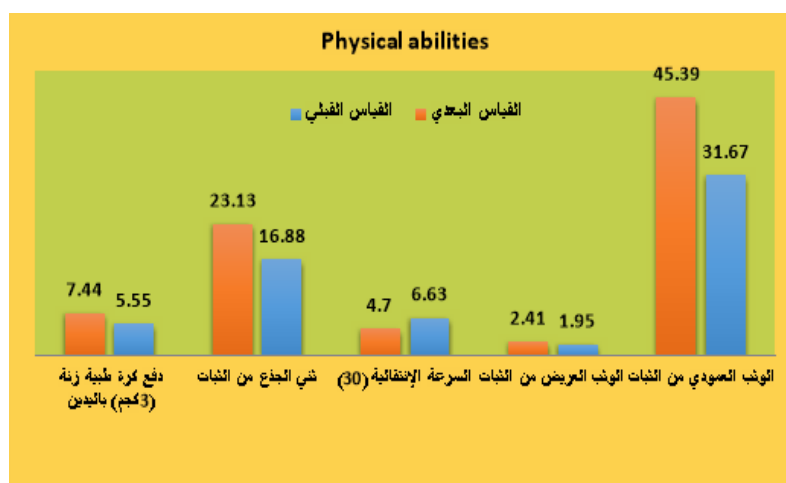


Figure (1)

Significance of differences between the mean scores of the pre-test and post-test of the physical abilities of beach volleyball players

Table (10) and Figure (1) show that there are statistically significant differences between the mean scores of the pre-test and post-test of the vertical jump in the sample, with a (T) value of (12.74) and the percentage of improvement of (43.32%). In the broad jump test, the value of (T) was (8.97), and the percentage of improvement was (23.5%). The researcher argues

that the improvement was because the training program included specific exercises similar to the skills of beach volleyball, such as blocking walls. In the transitional speed test (30m), the value of (T) was (8.81), and the percentage of improvement was (29.11%). In the trunk bending test, the value of (T) was (65.9), and the percentage of improvement was

(37.03%). In pushing the medical ball (3kg) with the hand, the value of (T) was (9.19%), and the percentage of improvement rate was (34.05%).

This result suggests that the value of calculated (T) is greater than the table value of tabulated (T) at the level of (0.05) and the percentage of improvement in favor of the post-test.

The researcher discusses these differences because of using specific exercises similar to those in beach volleyball competitions according to the wind direction, which positively affected improving physical performance. This improvement resulted from various exercises using different wind directions and resistance during the performance, sand resistance, and the type of exercises designed. These factors greatly affected fitness elements that significantly influenced the

effectiveness of the skill performance of the same players.

This result agrees with what Issam Abdul Khaliq (19) that pointed out the importance of physical qualities in promoting the performance of players, especially in the skill and planning aspects and the importance of training on sand that enhanced the physical performance of players in doing the basic skills, as demonstrated by (3) (4) (5) (7) (8) (13) (15) (24) (27) (28).

2-Discussing the results of the second hypothesis, "There are statistically significant differences between the mean scores of the pre-test and post-test of the effectiveness of skill performance of the female players of the National Beach Volleyball Team in favor of the post-test."

I. Service– reception– setting for the youth team

Table (10)
Percentage of matches in the sample (males) in the pre-test and post-test in the service-reception-setting

Players	Service						Reception						Setting					
	Pre			Post			Pre			Post			Pre			Post		
	Percentage in the matches			Percentage in the matches			Percentage in the matches			Percentage in the matches			Percentage in the matches			Percentage in the matches		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1	54	40	56.1	68.2	77.5	74.3	56.1	66.7	55.6	70.7	68.3	64.7	44.1	51.5	48.7	70.7	68.3	64.7
2	61.9	57.7	46.1	71.4	79.2	75	48.4	40.4	51.4	62.5	60	75	44.1	56.6	52.1	70.8	77.8	70.8
3	65.4	44.4	55	68	61.1	71.9	58.8	57.1	69.6	61.1	62.5	75	57.1	61	61.1	61.1	65	66.7
4	50.5	66.7	62	78.8	87.5	66.7	68.1	61.1	55	68.3	72.2	70.8	62.5	58	51.5	70.7	66.7	83.3

Table (10) illustrates that there are statistically significant differences in the percentage of matches in the

sample in the pre-test and post-test in favor of the post-test.

Table (11)
The mean of effectiveness of skill performance and the percentage of improvement in the matches (males) in the pre-test and post-test of service-reception-setting

Players	Service			Reception			Setting		
	Mean of effectiveness and percentage of improvement			Mean of effectiveness and percentage of improvement			Mean of effectiveness and percentage of improvement		
	Pre	Post	Improvement	Pre	Improvement	Improvement	Pre	Improvement	Improvement
1	50	73.3	46.6	59.4	67.9	14.3	48.1	67.9	41.1
2	55.2	75.2	36.2	46.7	65.8	40.9	50.9	73.1	43.6
3	54.9	67	22	61.8	66.2	7.1	59.7	64.3	7.7
4	59.7	77.7	18.8	61.4	70.4	14.7	57.3	73.6	28.4

Table (11) illustrates that there are differences between the mean score of the effectiveness of skill performance in the matches in service – reception – setting between the pre-

test and post-test in favor of the post-test. Additionally, the percentage of improvement in the effectiveness of these matches increased in the pre-test and post-test in favor of the post-test.

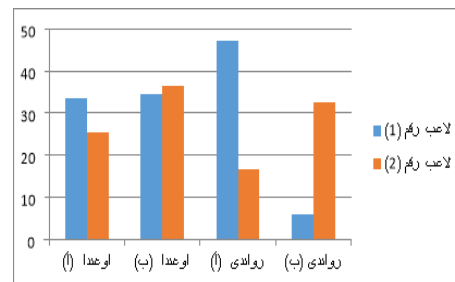
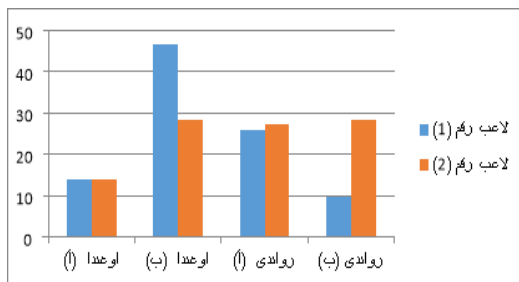


Figure (2) shows the percentage of improvement between the matches in the service skill of the Egyptian team (A).

Figure (3) shows the percentage of improvement between the matches in the service skill of the Egyptian team (B).

Table (12)
Percentage of matches in the sample (females) in the pre-test and post-test in the service- reception - setting

Players	Service						Reception						Setting					
	Pre			Post			Pre			Post			Pre			Post		
	Percentage in the matches			Percentage in the matches			Percentage in the matches			Percentage in the matches			Percentage in the matches			Percentage in the matches		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1	65	56.6	61.9	71.4	75	70.8	53.2	44.4	52.1	78.3	71.4	70.8	58	61.1	55	66.7	70.8	71.9
2	48.4	40.4	51.4	60	61.1	70.7	65.4	57.6	55.4	69.6	66.7	77.8	58	44.4	62.5	62.5	66.7	78.3
3	44.1	62.5	46	78.3	66.7	66.7	58.8	57.1	50.1	68	61.1	71.9	51.5	57.7	46.1	68	61.1	83.3
4	57.3	46	51.5	62.5	68	61.1	70.8	51.5	48.4	73.9	62.5	66.7	44.1	44.4	52.1	70.8	66.7	71.4

Table (12) illustrates statistically significant differences in the percentage of matches in the sample in

the pre-test and post-test in favor of the post-test.

Table (13)
Mean of effectiveness of skill performance and the percentage of improvement in the matches (females) in the pre-test and post-test of service- reception- setting

Players	Service			Reception			Setting		
	Mean of effectiveness and percentage of improvement		Mean of effectiveness and percentage of improvement	Mean of effectiveness and percentage of improvement		Mean of effectiveness and percentage of improvement	Mean of effectiveness and percentage of improvement		Mean of effectiveness and percentage of improvement
	Pre	Post		Pre	Post		Pre	Post	
1	61.2	72.4	18.3	49.9	73.5	47.3	58	69.8	20.3
2	46.7	63.9	36.8	59.5	71.4	20	55	69.2	25.8
3	50.9	70.6	38.7	55.3	67	21.1	51.8	70.8	36.7
4	51.6	63.8	23.6	56.9	67.7	19	46.9	69.6	48.4

Table (13) illustrates that there are differences between the mean score of the effectiveness of skill performance in the matches in service – reception – setting between the pre-

test and post-test in favor of the post-test. Additionally, the percentage of improvement in the effectiveness of these matches increased in the pre-test and post-test in favor of the post-test.

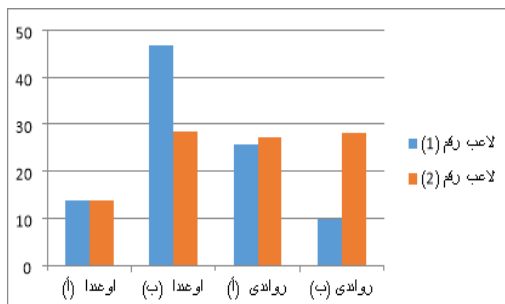


Figure (4) shows the percentage of improvement between the matches in the service skill of the Egyptian team (A).

Figure (5) shows the percentage of improvement between the matches in the service skill of the Egyptian team (B).

Discussion:

The differences between the pre-test and post-test in the matches in some skills of the sample can be explained as follows:

I. Service

Table (10) illustrates that the percentage of male players in the

service skill in the pre-test ranged (40%- 66.7%), while this percentage increased in the post-test to be (66.7% to 87.5%). **The mean effectiveness of the skill performance** of players in the pre-test was between (50%- 59.7%) and in the post-test was (67% -77.7%).

The team improved the performance of service (18.8% -46.6%). Thus, there were clear differences in favor of the post-test, and shown in Table (11) and Figures (2)-(3).

Table (12) shows that the **percentage of female players** in the service in the pre-test was (40.4%-65%) that increased in the post-test to be (60% -75%). **The mean of effectiveness of the skill performance** in the pre-test was (50.9% -61.2%), and in the post-test was (63.8% -72.4%). Additionally, the percentage of improvement of the service skill was (18.3% -38.7%). Therefore, there were clear differences in favor of the post-test, and this is shown in Table (13) and Figures (4)-(5).

Comparing the percentages of improvement for the males and females shows greater improvement in handling different wind directions and control of performance between the males.

Based on the training program, the researcher could modify the performance of the players and increase their ability to handle the different directions of the service skill after training in the different wind directions, knowing their effect on the performance of the player, and illustrating the effect of the wind in the event of the inability to handle the wind direction effectively using statistics in the court. The players could handle wind directions in a way that enabled them to exploit them to influence the performance of the opposing team. The players were trained after defining all wind directions distributed in the time

allocated along with ongoing training individually or in a group by linking the skill with more than one skill through training at different levels to make the player employ a clear strategy to control wind directions (front, tail, and side). This training greatly impacted winning matches with knowing the knowledge and technical aspects, moving from the performance of random serves to the performance of serves in difficult places of the court and promoting the ability to use the types and forms of service (float-top spin etc.) according to the influence of external factors, e.g., wind speed, rain, and sunlight. Additionally, the player could implement the serves according to the requirements of the tactical performance on the court to control and impose a certain style of game on the opposing team. The players' thinking improved when performing serves by developing individual exercises. These results agree with the results of (4) (5) (10) (12) (13)(14) (18) (24) (27)(28) (29) (34).

Table (10) illustrates that the **percentage of male players** in the reception skill in the pre-test ranged (40.4%- 66.7%), while this percentage increased in the post-test to be (61.1% to 75%). **The mean of effectiveness of the skill performance** of players in the pre-test was between (46.7%- -61.8%) and in the post-test was (65.8% -70.4%). The team improved the performance of reception (14.3% -40.9%). Thus, there were clear differences in favor of the post-test, as shown in Table (11) and Figures (2)-(3).

Table (12) shows that the **percentage of female players** in the reception in the pre-test was (44.4%-62.5%) that increased in the post-test to be (61.1% -78.3%). **The mean of effectiveness of the skill performance** in the pre-test was (49.9% -59.5%), and in the post-test was (67% -73.5%). Additionally, the percentage of improvement in the reception skill was (19% -47.3%). Therefore, there were clear differences in favor of the post-test, as shown in Table (13) and Figures (4)-(5).

Comparing the percentages of improvement for males and females revealed greater improvement among the males in the ability to handle different wind directions and control performance. Using the training program, the researcher could improve the ability of players to receive and direct the ball by controlling the height, direction, and speed of reception after understanding its movement, speed, and direction, and mastering the technical performance by taking the correct position on the court according to the place of the server, the type of serve, as well as the direction and speed of the serve. He argues that the adopted exercises (attachment 6) along with wind improved performance according to the nature of the game and the nature of the competition that the player must deal with and break the psychological barrier of anxiety and the inability to handle the wind according to exercises similar to the performance conditions of the real competitions. These results agree with those of (10) (12) (13) (14) (21) (30) (31) (35).

Table (10) illustrates that the **percentage of male players** in the setting skill in the pre-test ranged (44.1%- 62.5%), while this percentage increased in the post-test to be (61.1% to 83.3%). **The mean of effectiveness of the skill performance** of players in the pre-test was between (48.1%-59.7%) and in the post-test was (64.3% -73.6%). The team improved the performance of setting (7.7% -43.6%). Thus, there were clear differences in favor of the post-test, as shown in Table (11) and Figures (2)-(3).

Table (12) shows that the **percentage of female players** in the setting in the pre-test was (44.1%-62.5%) that increased in the post-test to be (62.5% -83.3%). **The mean of effectiveness of the skill performance** in the pre-test was (46.9% -58%), and in the post-test was (69.2% -70.8%). Additionally, the percentage of improvement of the setting skill was (20.3% -48.4%). Therefore, there were clear differences in favor of the post-test, as shown in Table (13) and Figures (4)-(5).

Comparing the percentages of improvement for the males and females shows greater improvement in handling different wind directions and control of performance between the males.

The percentages of improvement between the pre-test and the post-test of setting favored the post-test because of the pressure of competition that the player constantly faced, designing actual situations, with increased familiarity of the player with the items of the preparation process through the correct movement and appropriate

approach to the ball before the performance of the skill along with the appropriate type of setting according to the ball's direction, speed, height, and distance from the net. The training program and the design of exercises made the prepared players handle the received balls from different wind directions during the game by controlling the height, speed, and distance of the ball from the net and being aware of the external conditions affecting the set and received ball.

This result agrees with the results of (10) (12) (13) (14) (21) (32) (33) (36).

Conclusions and Recommendations

Conclusions:

The study concluded

1- Increasing the percentage of improvement among players in some physical variables as a result of the training program.

2- Increasing the effectiveness of skill performance and the percentage of improvement among players in the matches regarding service skill ranged (18.8%-46.6%) for males and (18.3%-38.7%) for females.

3- Increasing the effectiveness of the skill performance and the percentage of improvement among the players in the matches regarding the reception skill ranged (14.3%-40.9%) for males and (19%-47.3%) for females.

4- Increasing the effectiveness of skill performance and the percentage of improvement among players in the matches regarding the setting skill ranged (7.7%-43.6%) for males and (20.3%-48.4%) for females.

5- A proposed training program was designed using competitive game situations for beach volleyball players.

Recommendations

The study recommends

1- Designing training programs based on the player's situation and exercises on real game situations similar to wind directions

2- Dedicating a part of the training programs to the external factors that the player is exposed to during the games (sun- air- wind)

3- Providing the player with information and knowledge that help implement the skill and planning performances in the court by allocating time in the training program (lectures) to introduce how to deal with wind directions

3- Continuous focus on building training programs as a guide for players and coaches in training beach volleyball

4- Drawing the attention of the International Federation of Volleyball to the burdens faced by players as a result of the lack of a coach

5- and conducting more studies on the psychological and mental aspects of beach volleyball

6- The need to have a coach during beach volleyball matches

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