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EFFECT OF EXERCISES TO DEVELOP THE MOTOR EXPECTATION ON THE LEVEL OF SKILL PERFORMANCE OF THE SITTING VOLLEYBALL PLAYERS

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Abstract

Purpose. Identify the effect of exercises to develop the motor expectation on the level of skill performance (set, spiking, block, serve, and defense) for sitting volleyball players.

Methods. The researcher used the experimental method by designing two groups; one is experimental, and the other is control. The sample included 12 physically disabled volleyball players, the researcher used physical and skill tests and the tachistoscope to measure the speed of motor expectation.

Results. There was significant differences between the experimental and control groups in the post-test of the skill variables and motor expectation in favor of the experimental group.

Conclusions. These results have to be taken into account by coaches in order to develop the Motor Expectation for sitting volleyball players In order to improve skill performance level

Key words: Motor expectation, skill performance level, sitting volleyball.

Introduction

The care of the disabled and concern for them in the twenty-first century is no longer a humanly duty like before, but it is a legitimate right for this category of people whose destiny decided by fate to be on this case. The criterion of nation's development has become associated with the services provided to them, and provided all the ways and means that will help to integrate with normal society. The sitting volleyball is one of the sporting activities practiced by a large number of disabled because it is a recreational and competitive activity disabled finds in practicing it achieving self-esteem through his/her integration with others and getting the best results with the development of his/her achievements.(Amgad, 1999).Care for the disabled is one of the indicators by which the progress of countries is measured, out of their belief that the disabled person has rights on the society and that these rights make of him a positive and effective element, where the disabled persons are classified into four main categories: persons with physical disabilities, persons with intellectual disabilities, persons with sensorial disabilities, and persons with social disabilities.(Mahmoud, Adnan,1995).Sitting volleyball is a sport in which the disabled and the able bodied can play together at a high technical level and, as such, it represents a good opportunity for integration .Among advantages of sitting volleyball is also that a large scale of disabled youth and adults of both sexes can take an

active part in that game.. An exception would be when a short loss of contact with the court is permitted when playing the ball, excluding the service, the block and the attack hit, when the ball is absolutely higher than the top of the net. To stand up, raise the body or take steps is forbidden by the rules. To sit and play on the floor is basic to sitting volleyball. The height of the net follows the idea of sitting requirement. Moving on the floor could be practiced the rough various activities like maneuvering in different directions on the court, playing small games in sitting position, and orienting similar exercises. Sitting position is the key issue for any further development and progress in play. Players in sitting volleyball game use hands for moving around and if the nature of disability allows also their feet. (Rajko, 2009).The motor expectation is one of the characteristics, participating in motor building for the player. The expectation is expressed in form that the individual is ready for the following movement before the first movement begins.(Osama,1994,Amrel Allah,1994,.Amgad, 1995).The basic skills of sitting volleyball is a group of movements that player must perform from a seated position on and off the court as permitted by the law of the game with minimal effort to achieve the best results.(.Amgad, 1999).The researcher noted through his experience as a local and an international coach of sitting volleyball players to that, there is a lack in the mental preparation for sitting volleyball players in general and motor expectation

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training, in particular, which reflected negatively on the level of skill performance of the players. The researcher, hither, inspired the idea of the study to prepare training for developing motor expectation and recognize its effect on the level of skill performance of sitting volleyball players. The researcher formulated the following hypotheses to verify the objectives of the study:

- There are statistically significant differences between the pre and post-tests of both experimental and control groups in the variables of motor expectation and skill performance level in favor of post-test.
- There are statistically significant differences between both experimental and control groups in the variables of motor expectation and skill performance level in favor of the experimental group.

Method

The researcher used experimental method by designing two groups; one of them is experimental, and the other is control.

Sample was intentionally selected from sitting volleyball players form Al-Hourria Club for people with disabilities in Port Said and registered in the records of the Egyptian Federation for the disabled sports, season 2012/2013. Their number was 12 players divided randomly into two experimental and control groups. The researcher conducted the process of homogeneity and equivalence on the variables of chronological age, training age, weight, motor expectation, the level of physical, and skill performance. Table (1) indicates that skew coefficient values confined ± 3 , suggesting the moderation of distribution data for these variables and the homogeneity of the sample. Table (2) also indicates that there are no statistically significant differences between the experimental and control groups in the previous variables where the Mann-Whitney calculated values U for are greater than tabular value U indicating that both groups are equivalent.

Table (1): Statistical characterization of the study sample in the variables of chronological age, training age,

Variables	Measure Unit	Arithmeti c Mean	M	SD	Skew coefficient	
Chronological age	Year	27.6	27.5	1.13	0.26	
Training Age	Year	5.8	5.7	2.60	0.11	
Weight	Kg	78.40	77.82	0.77	2.25	
Motor Expectation	To 0.01 sec	0.3215	0.3200	0.1231	0.036	
The strength of right hand grip	Kg	50.60	51.10	3.60	-0.41	
The strength of left hand grip	Kg	49.25	48.20	2.55	1.23	
Phy sical Vari able s	Throwing a three- kg medical ball with right hand	Meter	4.50	4.45	1.11	0.13
	Throwing a three- kg medical ball with left hand	Meter	4.11	4.14	0.50	-0.18
	Sit-Up	Number	28.45	28.40	0.90	0.16
	Running forward for 10 M.	Second	4.75	4.82	1.40	-0.15
Skill Vari able s	Running to the right side for 10 M.	Second	4.49	4.45	2.22	0.05
	Running to the left side for 10 M.	Second	4.37	4.30	3.50	0.06
	Serving accuracy	Degree	8.17	8.11	1.17	0.15
	Setting accuracy	Degree	8.25	8.29	1.35	-0.08
	Block accuracy	Degree	8.19	8.10	2.16	0.12
	Spiking accuracy	Degree	8.14	8.12	0.15	0.4
	defense accuracy	Degree	8.35	8.30	0.75	0.2

Weight, motor expectation

n = 12

Table (2): The significant differences between both experimental and control groups in the variables under study

Variables	Rank Sum		Rank Values		Mann Whitney Calculated Value U
	Exp.	Con.	Exp.	Con.	
Chronological age	42	36	15	21	15
Training Age	44.50	33.50	12.5	23.50	12.50
Weight	34	44	23	13	13
Motor Expectation	32	46	25	11	11
The strength of right hand grip	43.50	34.50	13.50	22.50	13.50



The strength of left hand grip	43	35	14	22	14
Throwing a three- kg medical ball with right hand	45	33	12	24	12
Throwing a three- kg medical ball with left hand	32.50	45.50	24.50	11.50	11.50
Sit-Up	32	46	25	11	11
Running forward for 10 M.	71	7	14	22	14
Running to the right side for 10 M.	10.50	67.50	24.50	11.50	11.50
Running to the left side for 10 M.	6	72	21	15	15
Serving accuracy	68	10	11	25	11
Setting accuracy	6.5	71.50	20.5	15.5	15.50
Block accuracy	69	9	12	24	12
Spiking accuracy	71	7	14	22	14
Defense accuracy	32	46	25	11	11

Tabular value U at 0.05 = 8

Data collection Tools

Physical and skill tests appropriate for sitting volleyball players were identified through Literature review of related studies and scientific references. (.Amgad, 1999 , .Amgad, 1995, Helmi, F.Laila, 1998) Those tests have high validity and reliability coefficients.(.Moustafa,1998, .Moustafa, 1992)

A- Physical Tests:

- Dynamometer to measure the grip force
- Throwing a medical ball to the farthest distance to measure the muscle ability.
- Sit-Up to measure force endurance.
- Sitting forward and side running to measure speed.

B- Skill Tests:

- Serving accuracy
- Block accuracy
- Setting accuracy
- Defense accuracy
- Spiking accuracy

C- The researcher used tachistoscope to measure the speed of motor expectation. He used it in the related studies (Adel, .Ahmed, 2007, .Suleiman, 2001). which has high validity and reliability coefficients

The Bases of Developing Motor Expectation Training:

The researcher identified the time and content of motor expectation training through the literature review for

related studies and scientific literature. (Moustafa,1998, Adel, Ahmed, 2007, , A.Moustafa, 1992, F.Suleiman, 2001)The researcher found that the number of training modules on the motor expectation in one week should be four training modules, and the number of weeks training should be 8 weeks. The total training units in the entire program are 32 training units. The time of one training unit is 90 to 120 sec, while the time of motor expectation exercises are 30 to 40 sec in the part of skill preparation. The program has been applied to the experimental group rather the control one which only used skill training. Post-tests were conducted on both experimental and control groups from 20/06/2012 to 27/06/2012. The program was applied to the experimental group from 05/07/2012 to 05/09/2012, while the post-tests were applied from 08/09/2012 to 15/09/2012.

Statistical Treatments:

The researcher used the following statistical treatments (mean, median, and standard deviation, skewness) to test the significant differences between the two groups of Mann-Whitney and Wilcoxon Signed Ranks Test to calculate the significant differences between pre and post-tests for one group.

Table (3): Temporal distribution of physical preparation and public sectors and skill and tactical preparation and Motor Expectation Exercises Over the weeks training program

Stages and weeks	General Preparation												Total
	1	2	3	4	5	6	7	8	9	10	11	12	
Aspects Preparation													
Total physical preparation	287	249	210	189	147	126	105	84	63	66	66	61	1653
The preparation of a general physical	258	199	147	113	73	50	32	16	7	0	0	0	895
Prepare a special physical	28	50	63	76	73	76	73	67	56	66	66	60	754
Skill preparation	84	124	147	126	168	168	147	147	147	132	132	102	1624
motor expectation Exercises	25	30	45	45	64	64	54	54	53	46	46	30	556



Tactical preparation	40	42	63	84	105	126	168	189	210	242	242	246	1757
Total training time	722	694	675	633	630	610	579	557	536	552	552	499	7218

Table :(4) Forms of exercise used in the training unit:

Drill no	name	Purpose of drill	Number of athletes	Description	Progressions
1	Ball Control Shuttle	Warm-Up/ Movement/ Ball Control	Groups of 4	-Athletes line up in two lines facing each other about 2m apart -Continuously tossing the ball back and forth they follow the ball with different sides, switching lines, so everyone must think where the ball come next time. Variations: -Underhand tossing and overhead tossing -Athletes toss laterally to partner so partner has to move side to side	-One line remains catching and tossing, other line progresses to overhead passing -Both lines progress to overhead passing and then forearm passing
2	Triangle Drill	Movement/ Ball Control	Groups of 4	- Athlete starts in centre of triangle and moves to one corner about 1.5m away, catches a ball and tosses back to partner who will call him as a signal from coach before he call him. - Athlete returns to the centre, catches a ball and tosses it back to partner then goes to next corner and repeats. -Athlete starts on sideline and catches tossed ball and passes back to coach. -Then moves back to the second point, catches and tosses back to coach and then does the same for all five points of the in different places.	-Athlete overhead/ forearm passes each contact back to partner. -Athlete passes each contact with either left or right arm. -Two balls at each point – once athlete plays first ball, toss a second, lower ball to them right away. Athlete catches and tosses both and then moves to next point. -Use overhead or forearm contacts at each point. -Two contacts at each point using overhead or forearm Contacts.
3	W-Passing	Movement/ Ball Control	Groups of 3 or 4		
4	Partner Passing with Lateral Movement	Movement/ Ball Control/ Expectation	Partners	-Partners face each other Through the net on the net cover to hide another side and pass the ball Continuously back and forth When playing the ball back to partner, focus and put the ball to one side or another of partner	-Have partner play first ball to self and then hit down ball To partner on each side.
5	Star Drill	Movement/ Ball Control/ Expectation	3-4 per group	-Player starts in middle of court and goes to sideline to play ball After playing ball, athlete moves back to middle and plays ball then goes to deep to play ball - Athlete plays ball on all sidelines and corners as he expectation the coach will make pass for him.	-Have athlete play two balls at each spot on the court Have athlete dive on stomach or on back at each spot on court and then recover and play ball.



6	Four-Corner Defense	Movement/ Ball Control/ Attacking/ Expectation	6	<p>-Athletes position themselves one on each corner of court and one athlete in the middle court another side.</p> <p>-Athlete in the middle sets athlete on one corner who will attack directly on the side he will move to it cross court All athletes attacking converge cross court and prepare to defend attack</p> <p>- After digging attacked ball to athlete in the middle, corner athletes must reset to respective corner and athlete in the middle sets another corner</p>	<p>-Target at net can progress to setting outside hitters to transition.</p> <p>Athlete in the middle (setter) can set to themselves before setting corner to slow the drill down in the beginning .</p>
7	Continuous Dig-Set	Movement/ Ball Control/ Attacking/ Transition/ Expectation	6	<p>-Three athletes line up behind each other in position 5 and three athletes line up behind each other in position 1. Coach at net in position 4 and assistant. Coach in position 2.</p> <p>-Ball is initiated by coach in position 2 tossing free ball to position 5</p> <p>-Position 5 athlete passes ball to position 1 athlete (middle of the court) who sets it to position 4 and follows ball to position 4.</p> <p>-Position 4 attacks ball back to position 1 where next player in line has filled in (attacking athlete in position 4 then follows ball to position 1)</p> <p>-Position 1 passes to position 5, who sets position 2 and follows ball</p> <p>-Cycle repeats continuously with attackers always following ball and defenders <u>only following ball to attack positions once they set.</u></p>	<p>Each time change the direction of the ball back from the coach and the other time assistant coach and the side.</p>
8	Serve to Catch Defense	Ball Contact/Attacking / Expectation	6	<p>-Athletes line up in position 1 (server), position 3 (setter), position 4 (attacker)</p> <p>-Server in position 5 serves down the line to passer in position 5</p> <p>-Rally plays out and position 4 attacks at position (1 , 6 , 5) who comes into court after serving in</p>	<p>-Add blockers with changes side he will block for it</p> <p>-Serve and receive cross-court or down opposite line</p>
9	Partner Attacking Sequence	2nd Ball Contact/ Attacking/ Attack Recovery/ Expectation	2-4	<p>-One athlete in position 2, one athlete in position 4 at net blocking.</p> <p>-Coach tosses ball to position that passes it to position 4 who sets back to position 2 to attack.</p> <p>-As soon as position 4 sets ball, coach tosses ball to them and they pass to position 2 who recovers from the attack and sets back to position 4 to attack.</p> <p>-blocker moving as he expectation the attacker moving and side attack.</p> <p>-Once position 2 sets ball, coach tosses to them and cycle restarts.</p>	<p>Have attackers perform blocking movements between attacking and receiving free ball from coach (set –block – pass – attack).</p>
10	Serve	Serve	6	<p>-Three serve receivers, one setter and</p>	<p>- Add blockers on</p>



Receive with Immediate Return Receive/2nd Ball Contact/Attacking /Attack Recovery / Expectation	one attacker on one side and 2-3 servers on opposing side -Serve to receiving side and play rally out. -As soon as ball is attacked, coach tosses in fast free-ball to be transitioned -Challenge attacking side to recover quickly after attack.	serving side -Coach can introduce ball to blockers to quick attack -back at receivers for the second contact
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Results

A- Verifying the first hypothesis that there are statistically significant differences between the pre and post-test of both experimental and control groups in the variables under study in favor of the post-test:

Table (5): The significant Differences between the pre and post-tests of both experimental and control groups in the variables under study:

Variables	Experimental Group n = 6				Control Group n = 6				Wilcoxon Calculated Value W
	Rank Sum		Rank Values		Rank Sum		Rank Values		
kinetic Expectation	6	Zero	21	Zero	2	4	2	19	2
Serve	6	Zero	21	Zero	6	Zero	21	Zero	*Zero
Set	6	Zero	21	Zero	6	Zero	21	Zero	*Zero
Block	6	Zero	21	Zero	6	Zero	21	Zero	*Zero
Spiking	6	Zero	21	Zero	6	Zero	21	Zero	*Zero
defense	6	Zero	21	Zero	6	Zero	21	Zero	*Zero

* Wilcoxon tabular value W at 0.05 = zero

B- Verifying the second hypothesis that there are statistically significant differences between both experimental and control groups of the post-test in the variables under study in favor of the experimental group:

Table (6): The significant differences between both experimental and control groups in the post-test for the variables under study:

Variables	Rank Sum		Rank Values		Mann Whitney Tabular Value U
	Exp.	Con.	Exp.	Con.	
kinetic Expectation	60	18	3	33	*3
Serve	65	16	5	31	*5
Set	59.5	18.5	3.5	32.5	*3.5
Block	54	24	3	33	*3
Spiking	52	26	5	31	*5
defense	52.5	25.5	4.5	31.5	*4.5

*Tabular value U at 0.05 = 8

Discussion

Table (5) indicates that there are statistically significant difference between the pre and post-tests of the experimental group in the variables of skill and

kinetic expectation in favor of the post-test. The tabular value U equals the calculated values U for Mann Whitney. The researcher attributed that the positive effect of kinetic expectation exercises on improving the players'



skill performance level and kinetic expectation. These results are consistent with the results of studies, which indicated that the program and kinetic expectation exercises help to develop the level of skill performance and improve the expectation.. (Amgad, 1999, Amgad, 1995, Moustafa, 1998, Moustafa, 1992, Adel, Ahmed, 2007, Suleiman, 2001)

Table (5) also indicates that there are statistically significant differences between the pre and post-tests of the control group in the skill variables only. The researcher attributed that improvement despite its slightness to the traditional training, which has a positive effect on the level of skill performance of the control group players in the variable of motor expectation. This is due to that the control group is not subject to motor expectation exercises.

B- Discussion of the second hypothesis results:

Table (6) indicates that there are statistically significant differences between both experimental and control groups in the post-test of the variables of skill performance level and the motor expectation in favor of the experimental group where the U value is tabular. The researcher attributed that to the positive effect of motor expectation exercises, which helped players to think fast and have the ability to change tempo, motor, and spatial expectation. Furthermore, what expectation training has enjoyed of exciting, fun, challenge and get rid of the boredom in the traditional training program, which reflected positively on the level of skill performance of players (spiking, setting, defense, block, serve).

Conclusion

This is consistent with what researcher referred that motor expectation exercises help to develop the level of skill performance of the players through the development of quick thinking and quick action appropriate for motor timing through the analysis of the properties of competitor's intellectual building and predict his attempts in special situations. As well as being aware of his/her skill performance level led to perform a certain type of movements. (F.Suleiman, 2001)

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