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THE EFFECT OF CORE STABILITY TRAINING ON THE ACCURACY OF BACK ROW ATTACK FOR VOLLEYBALL BEGINNERS

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Abstract **Recently, sports training and its goals go beyond the mere general proposals. It aims at upper levels achievements. We should seek enhancing performance in volleyball as it is popular worldwide. This is why it's so important to prepare Core stability training programs using different tools, e.g: different sizes Swiss balls, rubbers… Etc. Lovelace (2009) pointed that the center (core) of the body includes about thirty different muscles. The terminal "Core Stabilization" is used to show the role of core / trunk muscles to keep the balance and stability of spinal cord and the whole body chabut (2009 – 29). That's why we're trying to search the effect of core stability training on the accuracy of back row attack and related physical quality.**

Index Terms: **Volleyball, Core Stabilization, Back Row Attack**

I. INTRODUCTION

Recently, sports training and its goals go beyond the mere general proposals. It aims at upper levels achievements. It also aims at considering sports training one of the modern sciences that presented great development through integrating with other sciences' theories, rules and conclusions. Sports training is considered the main method to develop the recent level to higher levels. Sports training is systematic process aims at developing beginners' physical and skillful abilities to reach the highest level possible in performance.

We Count on spike skill when talking about team winning, audience enjoyment. This skill is full of excitement and guarantees scoring points if performed correctly, otherwise its risky, players should master the skill before performing it .Lovelace (2009) pointed that the center (core) of the body includes about thirty different muscles. These muscles wrap the area between chest and hip joint, this area links upper and lower body parts, so they function as one; this area is considered the fundamental for body movement. One can't perform/ make any movement without involving the core (trunk). The terminal "Core Stabilization " is used to show the role of core / trunk muscles to keep the balance and stability of spinal card and the whole body chabut (2009 – 29). Although volleyball involves many skills, spike is considered the most difficult and used. Most of time performing spike skill requires great speed and power, the speed of the ball reaches 28m per second. Elite Volleyball players perform 250:300 of high strength activities through five matches jumping is the most repeated skill attacking and blocking present 45% of activities and skills. 80% of scored points in international matches relates to attacking and blocking.

By analyzing what has been presented it sounds clear for the researcher that there's a bad need to establish effective training programs, using these effective training programs, we will achieve maximum benefit and gain a lot for both sides' skills and physically, all this will affect the actual performance during competition. That's why we're trying to search the effect of core stability training on the accuracy of back row attack and related physical quality; also we found few researches in the field of using trunk exercises for athletes in general and for volleyball players in particular. Although volleyball involves many skills, spike is considered the most difficult and used. Most of time performing spike skill requires great speed and power, the speed of the ball reaches 28m per second. Elite Volleyball players perform 250:300 of high strength activities through five matches jumping is the most repeated skill attacking and blocking present 45% of activities and skills. 80% of scored points in international matches relates to attacking and blocking. Through the beginning of the season, trainers apply routine exercises they try to prepare the players with the max effort for the coming competitive season. It's doubtful that we can train players correctly in such a short period (Time is needed for high intense exercise them needed rest and restoring recovery periods between training units) to achieve required effects completely trunk exercise are considered the best way to improve athletes' performance (Allison, s and Thorpe, R 1997). It's agreed that to enhance volleyball performance, beginners should be trained according to volleyball specialty adding

specific exercises (resistance, speed, and Agility) Scates, A Linn M (2003).By analyzing what has been presented it sounds clear for the researcher that there's a bad need to establish effective training programs, using these effective training programs, we will achieve maximum benefit and gain a lot for both sides' skills and physically, all this will affect the actual performance during competition. That's why we're trying to search the effect of core stability training on the accuracy of back row attack and related physical quality; also we found few researches in the field of using trunk exercises for athletes in general and for volleyball players in particular..

II. AIM OF RESEARCH

To know the effect of core stability training on the accuracy of back row attack for volleyball beginners

III. HYPOTHESIS OF THE RESEARCH

1-There are significant statistical differences between pre and post measurements for control group in accuracy of back row attack for volleyball beginners for the favor of the post measurement

2-There are significant statistical differences between pre and post measurements for experimental group in accuracy of back row attack for volleyball beginners for the favor of the post measurements.

3-There are significant statistical differences between the two post measurements of the control and experimental group in accuracy of back row attack for volleyball beginners for the favor of experimental group.

IV. METHODS

The researcher have used an experimental method for two groups; the first group is experimental and the other one is controlled ,with a sample that has (16) beginners (age 18.2 ±1.1 year, height 191.5± 4.2 centimeters, mass of the body 74.4 ± 3.5 kilograms) .They were distributed randomly for two groups; the experimental one has 8 beginners ,and the controlled group has 8 beginners ,and the experimental group has applied exercises of torso stability for (8) weeks by 3 training units a week , the duration of the training unit is (60) minutes , the accuracy of the rear spiking test had been tested for the two groups by using test (T).

V. RESEARCH SAMPLE

Sample was selected by using intentional method players who are below (17) years old (man) and the total number was (12) players divided.

VI. DATA COLLECTION MEANS

Data collection was carried out through a restameter device to measure through a restameter length to the nearest 1cm. medical weighting scale to measure the weight of players to nearest kg. And smash accuracy performance test from backcourt area.

Table 1: equivalence between both research groups in variables age height and training age.

Statistics	Sum Of Ranks		Mean Of Ranks		U Value
	Exp	con	Exp	Con	
Age	45,5	32,50	7,58	5,42	11,50
Height	36,0	42,00	6,00	7,00	15,00
Weight	42,0	36,00	7,00	6,00	15,00
Training Age	34,50	40,50	6,25	6,75	16,50

Research sample equivalence

Research conducted equivalence between both research group according to pre-test results by Appling man Whitney test in each of the variables of (age- height, weight – training age) and such a ccuvcy performance from back court.

The Basics of how to design exercises:

The program and exercises are divided into three main phases.

Phase (1) Controlling trunk (core) muscles
Duration: 3 weeks
Muscle movement: isotonic – isometric
Used Load: Body weight

Phase (2) strengthening trunk (core) muscles
Duration: 3 weeks
Muscle movement: isotonic – isometric
Used Load: Body weight.
Phase (3) strengthening trunk (core) muscles
Duration: Two weeks
Muscle movement: isotonic – isometric
Used Load: different resistances.

2-The resistances used (Swiss balls – elastic strings)

3-Duration of the program is eight weeks applying three training units per week

4-The training unit lasts about 60: 90 minutes

5-At the beginning of the training units, warming up exercises last about 7: 10 minutes

6-At the end of the training unit, stretching and relaxing should be presented / done for 5 minutes.

7-For the isometric muscles movements' repetitions range from

8:12 For the isotonic muscles movements, repetitions range from

15: 20 In between rest periods last about 30: 45 sec.

8-During exercises due care should be given to breath organization.

STAGES OF EXERCISING THE CORE TABLE (2)

M	STAGE	STAGE 1 Core control		STAGE 2 Core stabilization		STAGE 3 Core strengthening	
1	Type	Static	dynamic	Static	Dynamic	Static	dynamic
2	position	supported	supported	unsupported	unsupported	unsupported	unsupported
3	lood	bodyweight	bodyweight	bodyweight	bodyweight	bodyweight	bodyweight
4	Repetitions	6-12	6-12	6-12	6-12	6-12	6-12
5	Sets	3-4	3-4	3-4	3-4	3-4	3-4

VII. Results and Discussion

In light of the research objectives, hypotheses, within the method used and the sample, the researcher can conclude the following:

- Training program that includes exercises of the physical and skill preparation applicable to the control group had a positive effect on some physical abilities and the strength and depth of Back Row Attack , under discussion, where Z values computed for these variables limited between (0.023,0.028).

- Training program that includes exercises of the physical and skill preparation applicable to the experimental group had a positive effect on some physical abilities and the strength and depth of Back Row Attack under discussion where z values computer for these variables limited between (0.04 ,0.026).

- The experimental program which includes physical and skill preparation exercises to which core stability training is added in the part of physical preparation that applied to the experimental group was more effective than without adding the same exercises these led to improve level of some physical abilities and the strength and depth Back Row Attack under discussion with a higher rate were y values computer for each of the variable the level of physical variables Limited between (0.003 ,0.004).

The researcher attributes the occurrence marked excellence of experimental group individuals in physical qualities for flexibility of shoulders, flexibility of vertebral column, flexibility of anterior thigh muscles, flexibility of posterior thigh muscles, to the use of trunk stability exercises which are characterized by nature of exercises performance with performance of movements with wide range of movement for the muscles working on vertebral column which leads to improvement of variables of flexibility under research for experimental group individuals better.

Also performance of some exercises of trunk stability either with use of body weight or using tools and in method similar to performance of some tests used to measure the physical abilities under research which necessitates from the player performance of isometric muscle contractions continuously in addition to participation of group of abdomen muscles > in many of the exercises of trunk stability which leads to improvement in strength endurance for abdomen muscles in experimental group individuals markedly compared to control group individuals leads on non-stable surfaces like low density surfaces (mats) and Swiss balls leads to putting the players members of experimental group in changes of body position and rolling during performance of exercises which leads to improvement of level of agility in individuals of experimental group markedly compared to the exercises of trunk stability affected the individuals of control group. Muscles group working on the vertebral

Also the exercises of trunk stability column which are the muscles erecting the lead to increase strength and stability of vertebra (Erector spine) which helped in muscles of low back, abdomen and pelvis movements of flexion, extension and which provides stable base from which rolling of the vertebral column in any strength is generated for body extremities direction, muscles tightening the vertebrae in legs and arms more powerful and rapid (Multi fudus) which gives support to the which leads to improvement of level of vertebral column which achieves stability muscular power of legs and arms in of the vertebral column and the internal individuals of experimental group oblique muscle as these muscle groups compared to individuals of control group.

The results of this research is in used in final phases of performance of agreement with the results of Mayo clinic tennis skills, also these muscles helped in team (2001), Kebler (2006), Sameh Al providing protection to the internal organs Shabrawy (2011) that exercises of trunk and achievement of stability in pelvis area, stability work to support the area of trunk also the internal oblique muscle helped in so sometimes could exercises of lumbar rotation of the pelvis which is noted in stability, as they participate in improvement continuous change during execution of flexibility and strength endurance. (10), front and back ground strikes from strikes (8), (13)

Also Sameh Al-Shabrawy (2011) performed crossing the court, also the pointed to that exercises of trunk stability exercises of trunk stability participated in using non stable tools have effect on hip flexors responsible. (13) Flexion so it's important appeared in support the marked excellence of during performance of Back Row Attack

The marked excellence of during performance of Back Row Attack individuals of experimental group, also participated in increase due to use of exercises of the accuracy of performance, protection –trunk stability helped in marked from injury and protection of knee tendons improvement of the accuracy during performance of Back Row Attack in volleyball under research,.

As Ann Queen (2005) confirmed that application of trunk stability exercises participate in raising the sports performance.

As Ripito (2009), Mayo clinic team (2011) agreed on importance of exercises trunk stability which allowed the vertebral column to transfer strength from and to the body extremities fairly without contribution in performance which is very important for most sports activities, also the exercises helped in rise in the level of Back Row Attack accuracy in volleyball. (12), (14).

The researcher found that the volley ball player could benefit from trunk stability by making the trunk to be the body through which strength are transferred and control it as benefit from strength of ground pushing by legs to transfer this strength by extending the trunk to arms to perform different strikes with required speed and depth.

So the researcher found it important to coordinate on training the flexor and extensor muscle groups and the fixators which perform their actions in the same time as the exercises of trunk stability affects the opposing muscles working in performance of the skills, so more than one muscle group could be trained by one exercise which could increase muscle stability and improve the accuracy of Back Row Attack performance.

The results of these researches are in agreement with results of Stanton (2004), Kepler (2005), Fridrickson and Moory (2005), Sameh Al-Shabrawy (2011) as the results of these studies pointed to the effectiveness of exercises of trunk stability in improvement accuracy of Back Row Attack in volleyball. (14), (8), (1), (13)

Table 3: Significant differences in the pre-test and post-test back row Attack For experimental Group. N2=6

N	Statistics / Variables	Number Of Ranks		Sum Of Ranks		Computed by Wilcoxon
		+	-	+	-	
1-	back row Attack 1 to 5	6	0	6	0	0*
2-	back row Attack 1 to 6	6	0	6	0	0*
3-	back row Attack 1 to 1	6	0	6	0	0*

Table 4: Significant differences in the pre-test and post-test back row Attack for control Nl=6

N	Statistics / Variables	Number Of Ranks		Sum Of Ranks		Computed by Wilcoxon
		+	-	+	-	
1-	back row Attack 1 to 5	6	0	6	0	0*
2-	back row Attack 1 to 6	6	0	6	0	0*
3-	back row Attack 1 to 1	6	0	6	0	0*

Wilcoxon tabular value at the level of statistical significance (0, 05) = 0

Table 5: Significant differences between both experimental and control groups in the test post-test back row Attack
N1=N2=6

N	Statistics / Variables	Number Of Ranks		Sum Of Ranks		Computed by main Whitney
		Exp	Con	Exp	Con	
1-	back row Attack 1 to 5	19	12	5	2.5	5*
2-	back row Attack 1 to 6	21	11	2,5	3.5	2,5*
3-	back row Attack 1 to 1	22	13	4	5.5	4*

VIII. Conclusion

In light of the research objectives, hypotheses, within the method
used and the sample, the researcher can conclude the following:

-Training program that includes exercises of the skill preparation applicable to the control group had a positive effect on the accuracy performance of spike from back row attack.

-The experimental program which includes skill preparation exercises to which core stability training is added in the part of physical preparation that applied to the experimental group
was more effective than without adding the same exercises there led to improve the accuracy performance of spike from
back row attack.

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