

The effect of using the vision exercises on some physical abilities, perceptions kinetic sense And skillful performance level for volleyball female juniors

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Introduction:

Scientific research is considered one of the most important factors in developing societies so as to achieve the most advanced levels in all fields in general and especially in sport field.

In the past sport teams coaches did not recognize the importance of vision abilities for sport performance level although they unintentionally practiced vision skills as sport performance requires caring of the vision and kinetic aspects as ineffective vision abilities will affect kinetic aspects.

Recently sport has developed as a result of its link with other sciences such as Health, Biomechanics, physiology, Anatomy, and Engineering resulted in numerous studies and a lot of information and Theories contributing to the development of performance

level and opened new fields for new applied researches enabling to determine the benefits of practicing the regular sport activity the matter that reflected on performance levels.

Isabel Walker 2001 pointed out that sport scientists and coaches are permanently searching for the advanced trends and training programs aiming at improving sport performance and gaining competitive abilities. Visual programs are considered one of these advanced training trends in sport field as being exercises for the used eye so as to improve the main visual abilities (5:203).

Scientific researchers have proved the importance of visual abilities for sport performance revealing that athletes have distinguished visual skills in comparison with non-athletes and results of

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other studies revealed the positive results of training (3:16).

Ziemane et al (1993) said that visual training in the field of sport is considered a small point in the sport performance system but very important thus this topic greatly occupies the interest of researches in the last period (17:234).

Francine Eisner (2001) indicated that visual exercises are used in various fields as being gradual training program graded from the easiness to the difficulty so as to improve the flexibility and compatibility of eye muscles (18).

Elsayed aly Ahmed, Fayeqa Mohamed Badr (2001) mentioned that in volleyball matches, players were directed to different places and various directions as body takes different positions while the eyes track the ball path and follow his colleagues and the movements of the other team players. The player visual system can follow all these movements and accurately determine their directions, speed, and source whether they are resulted from individuals' movements or things movements (3:227).

Mohamed sobhi Hasanein, Hamdy Abdel Moneam (1997) revealed that 90% of Volleyball players information derived from the surrounding vision (11:411).

Zaki Mohamed Hasan (2002) pointed out that eye sense is the member responsible for vision via determining the distance of seen things, and the existence of the two eyes increase the horizon of vision. The importance of this sense in Volleyball may be divided into two parts; the first part is concerned with training and the second one related to the player himself during the match as the sight plays a vital role in performing skills as player can locate his place in comparison with the opponent players and determine the kind of skills that can be performed as realizing the movements of the competitor team will enable him to perform the suitable situations whether offensive or defensive (16:269).

The researchers thought that the success of volleyball team relies on making a good use of its use of compound and main skills for each player in collective way provided that all these skills must be performed

in the suitable place, time, and directions via good vision so as to achieve the target of these movements and skills, as every player should see everything around him directly or peripheral in addition to the player visual sense for the whole court.

Research problem emerged from the researchers' work in codify training loads and volleyball training as they noticed that the sight sense is very important for volleyball juniors in increasing their abilities of attention concentration, movements, realizing distance, direction, and time consequently increasing their abilities of collecting points. The researchers noticed that some female juniors achieved good results and distinguished performance during training and experimental matches while their performance suddenly decreases and achieved unexpected results during official tournament. The researchers tried to interpret this phenomenon and they attributed it to the distraction of attention and lack of concentration as a result of different stimulus such as opponent movements and its

sudden change of directions, referees' signals, coach's comments, and public signals thus performance level will be affected during official tournament. In the light of what is mentioned above the study has been conducted with the objective of laying out some exercises to improve visual abilities skills and determining their impact on some physical abilities, kinetic sense perceptions and skills performance level of volleyball female juniors.

Research Objective:

The present research aims at designing a training program with vision exercises and identify its effect on some physical abilities, perceptions kinetic sense and skilful performance level for Female juniors of volleyball.

Research Hypotheses:

- 1- There are statistically significant differences between the mean scores of the sample on the pre- and post-tests in the physical abilities under study in favor of the post-test.
- 2- There are statistically significant differences between the mean scores of the sample on the pre- and post-tests in perceptions kinetic sense under study in favor of the post-test

3- There are statistically significant differences between the mean scores of the sample on the pre- and post-tests in the skilful performance level under study in favor of the post-test

Methods:

Methodology:

The researchers adopted the experimental approach by designing pre and post measurements for a single experimental group.

Community sample:

The sample has been selected intentionally from female juniors who recorded in the FIVA seson 2013/ 2014. It has been selected intentionally from female juniors (12) under 14 from Nasser club in Assiut. Homogeneity has been measured for the sample for the basic variables (age- height- weight- training age) and also for physical abilities, perceptions kinetic sense and skilful performance level for research sample. The results was the value of the sample's inflection coefficient for the pre measurements used to measure homogeneity reached 3: -3 and this confirms the sample homogeneity.

Data collection:

First: tools and systems of measurement and training:

- Restameter- Paper and pens
- colored signs- Light battery
- Balance chart- Mirror- Cards- Chairs- Colored volley balls- Tennis balls- Ropes- Training plates- Measuring tape- Trampoline

Second tests:

The researchers have determined physical, perceptions kinetic sense and skilful tests through reviewing previous related studies and they have surveyed (7) experts to identify how these tests are suitable for volleyball female juniors under 14. The researchers agree to use 70% minimum for experts opinions.

The Pilot Study:

The pilot study was conducted on a sample of the study community and out of the study consisted of 5 female juniors from 3/8/2013 to 10/8/2013 aiming at :

- Assuring the validity of tools and used equipments.
- Recognizing the required time for applying tests.
- Getting the test coefficients (Validity-Reliability)

Scientific coefficient of tests:

- **Validity:** the researchers used valid distinction by applying tests on two groups, one is

(indistinct) from volleyball female juniors under 14 and the other is (distinct) group of (5) juniors under 16. Results of the study revealed statistical significant differences between the two groups in favor of the group of older age under 16. The calculated value of "t" varied from (4.63: 13.69) between means of the two groups and it is higher than the table value of "t" and this indicates validity of the tests.

- **Reliability:** in order to measure reliability of tests, the researchers used test re-test method on a sample of (5) female juniors with time difference (7 days) with same conditions. Conclusions revealed that correlation coefficient (0.72: 0.97) between first and second application which is statistically significant and this proves tests are reliable.

Third: the proposed program:

Program Objectives:

The program aims to:

1- Improve some physical abilities (motor speed, reaction speed, coordination, agility and balance) for volleyball female juniors under 14.

2- Improve some perceptions kinetic sense variables (jump distance, vertical distance and

motion size) for volleyball female juniors under 14.

3- Improve the level of skilful performance (sending, receiving, defense, crushing hit) for volleyball female juniors under 14.

Program bases:

- Set limitations of the proposed program in a scientific standardized manner based on concerned experts.

- Standardize training loads according to scientific principles and views of physical training experts.

- Course of daily used loads is (1:1), (1:2).

- Duration of the proposed training program 8 weeks (3 units/week).

- Duration of training unit is 60 minutes.

- Loads used in the program middle- high- maximum.

- The following training methods have been used: low interval- high intensity- and repetitive.

- Work instructions should be clear.

- Adapting the program to the age of the subjects.

- Observing security and safety factors.

- Observing the subjects' individual differences into account.

Implementation:

Pre measurements:

Pre measurements have been conducted on the study sample from 3/8 to 8/8/2012.

Basic Experiment:

The training program has been implemented on the sample for (8) weeks from 9/8 to 4/10/2013 (3 units/week) and the unit time is 60 min. Load intensity during the program should gradual from easy to hard or difficult.

Post measurements:

Post measurements have been conducted for the sample from 5/10 to 12/10/2013 then data

have been collected, tabled, and statistically processed.

Statistical processing:

Researcher used the following statistical coefficients:

- Arithmetic mean - standard deviation
- Inflection coefficient
- "t" test of significance of differences
- Pearson's correlation coefficient

The researchers agree to use significance level (0.05) for all results

Results and discussion:

Table (1)

Significant differences between pre and post measurements of the sample for physical, perceptions kinetic sense and skilful performance (S=12)

Variables		Pre measurement		Post measurement		Value of "t"	significance
		M	D	M	D		
Physical	Motor speed	16.25	1.54	22.66	1.15	-9.77	Significant
	Reaction speed,	20	3.83	6.41	2.31	10.74	Significant
	Coordination,	4.58	0.51	7.41	1.08	-7.34	Significant
	Agility	6.65	0.33	4.59	1.04	6.89	Significant
	Balance	8.08	0.79	5.83	0.38	9.00	Significant
perceptions kinetic	Jump distance	4.08	0.79	7.08	0.79	-12.18	Significant
	Vertical distance	4.41	0.51	6.83	1.33	-5.8	Significant
	Motion size	3.25	0.45	5.16	1.02	-8.37	Significant
Skilful	Sending	69.25	3.41	86.91	4.66	-9.78	Significant
	Receiving	41.75	2.14	65.91	13.69	-6.00	Significant
	Defense	30.50	1.73	52.25	11.20	-6.58	Significant
	Crushing hit	17.50	0.90	23.58	4.5	-4.7	Significant

Table value of "t" at (0.05) = 1.80

Results of Table No.(1) pointed out that there are significant differences between

the means of pre-test and post-test measures for volleyball female juniors with a

significance of (0.05) in physical abilities in favor of post-test measure as T-test ranged between 6.89 and 10.74 and the maximum value of T-Test was for reaction speed. The researchers attributed this high value to the nature of visual exercises including numerous visual and audio stimuli with different types and directions, and training on suitable kinetic responses to event nature that has a positive effect on improving reaction speed and this result agrees with the results of the study of "Jehan Mohamed Fouad ,Eyman abdellah zaid (2005) (6), Mohamed lotfy Elsayed, Ashraf Mohamed Sayed, Abdel Aziz Mohamed Abdel Aziz (2006) (9) proving that visual Training has a positive impact on Athletes' performance. The previous table revealed that Calculated T-Test of Balance Ability was 9.00 and this indicates that there is a clear improvement in this Physical Ability (Balance) and this was compatible with Mohamed Abdel Aziz Salama study (1993) affirming that players kinetic balance rates increase in the light of Three-dimensions double vision conditions (8:15).

The results revealed that there are significant differences between the means of pre-test and post-test measures of volleyball female juniors in kinetic sense perceptions in favor of post-test measures as Calculated T-Test value ranged between 5.8: 12.18. The researchers attributed this improvement in recognizing jumping distance and vertical distance to the nature of depth recognition exercises helping volleyball juniors to estimate the distance between them and the opponent, court lines and referee and this result is consistent with the results of the study of "Garden, Shareman" (1993) affirming that recognition is considered an important factor to reach the best performance as player needs to rapidly estimate targets distance according to the dynamic factor and this result is consistent with the results of the study of "Nadyia Elsayi, Zainab Hathout" (2008) (12) affirming that visual exercises are considered very important in volleyball exercises as it has a positive impact on improving recognition skills.

The results revealed that there are significant differences between the means of pre-test and post-test measures of volleyball female juniors in skilful performance level in favor of post-test measures as Calculated T-Test value ranged between 4.7 : 9.78. Calculated T-Test value of court defense skill was 6.58 and the researchers attributed this improvement to visual exercises positive effect in improving the ability to rapidly follow the ball and the movements and this result is consistent with the results of the study of "Barry Seiller"(2004) affirming that visual abilities are extremely important in volleyball especially in defensive skills done by the players following ball serve, and shooting by the opponent and monitoring the rotation and the angle of player's approach(1) .This result also is compatible with the study of "Michal F. Zupan"(2006)(7) affirming that the development of visual skills is considered fundamental basis for the sake of performance building up .The result agrees with Harle , S.& Vickers " (2001)(4), Jehan Mohamed Fouad,Eyman

Abdella Zaid (2005) (6), " Bressen E "(2003)(2) " Rodrigues et Al" (2004) (13) Raymond E Waelti "(2002) (14)" 'Mohamed Lotfy Elsayed (2007) (10) that visual Training programs can improve visual variables and skilful performance level, in addition to what Jehan Mohamed Fouad, Eyman abdella Zaid(2005) reported that Faisal Hasan (2004) had mentioned that volleyball was one of the sports in which visual abilities plays a vital role via performance effectiveness and speed in addition to the special nature of volleyball as the court is being distinguished with its small size where the players were moving in a limited space thus the player has to recognize his position and colleagues and opponents movements in addition to the response to the performance with suitable speed and effectiveness consistent with ball speed (6:22).

Conclusions:

In the light of the objectives of the current study and its sample, the researchers concluded the following points:

- Volleyball visual exercises have a positive impact on physical, skilful variables and

kinetic sense perceptions mentioned in this study.

- Suggested visual exercises led to marked improvements of physical abilities post-test measures as value of T reached the minimum value (6.89) in compatibility and the maximum value (10.74) in reaction speed. For skillful variables T. value reached the minimum value (4.7) in line smash accuracy, and the maximum value (9.78) in Service accuracy but for Kinetic sense perceptions variables, T value reached the minimum value of(5.8) in vertical distance and the maximum value of(12.8) in recognizing jump distance.

- Some players may be similar in body size, physical abilities, or main skills performance but visual abilities distinguished them from each other.

Recommendations:

In the light of the results of the current study and its sample, the researchers concluded the following recommendations:

- The importance of visual exercises for all sport games in

general and in the field of volleyball in particular.

- Preparing coaches capable of designing integrated training programs including visual exercises so as to achieve the best performance.

- Following the scientific method in selecting and designing visual exercises so as to cope with the players' needs, characteristics and nature.

- Conducting additional studies in this field on various sports.

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