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FULL LENGTH ARTICLE

The Effect of Visual Practices on Vision and Movement Performance of novice Athletics in Badminton Sport

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ABSTRACT

The purpose of this research was to study the effect of visualpractice on vision and movementperformance of novice athletics in Badminton sport. The participants of this research were the students ofphysical education ofMobarakeh Azad University who had gotten the specialized course of Badminton. From 90 volunteers, 30 persons [range of age: of 20-40] were divided into control and experimental groups randomly. After the presence of the two groups in pre-test, the experimental groupparticipated in vision practices for six weeks and three sessions per week and in the last session, both groups participated in post-test. These tests included movement skill of Smash ;close-far chart test [hart chart], two rows Saccades test, test of bringing closes a pencil [prism test], coordination of eye-hand test, and the time of vision reaction test. The results were analyzed by independent T-test with a significant level [p≤0.05]. The results showed that the control group was weaker than the experimental group in all tests and it shows the effect of vision practices on vision and movement performance in beginner athletics.

Keywords:Visual Practices, Movement Performance

INTRODUCTION

One of the valuable advantages that every player can have in sport competitions is the efficient vision skills [21]. Eventually, the evolution of vision system makes all body systems are coordinated and the athletic has an appropriate and efficient performance.

One of the subjects that recently have drawn the researchers' attention is "sport vision". Sport vision refers to a set of techniques that is used for the improvement of vision system function with the purpose of the improvement of sport performance.

These techniques are used for training the vision behaviors needed for sports activities [10].

Coordination, concentration, balance, and precision are considered as the needed skills for every sport event and some researchers believes that they are improved by vision practices, because they showed that vision system reacts well to overload in vision practices [21] and also we can improve the conceptual components of vision system by sport vision practices. The effects of vision practices on reaction time, conception of depth, adaption, Saccade movements of eye and also the skill performance have been surveyed. The results of this research show a considerable improvement in vision characteristics and skill performance of the experimental group. But about the control group, similar findings have not been observed[4,23,17,2,8]

Some researchers have showed the inefficacity of vision practices in the improvement of vision skills and skill performance [1,22,7]. With studying of the mentioned researches, we can understand that there are some doubts between the efficiency and inefficiency of vision practices against the physical practices. Maybe one of the reasons of not being specified the effect of vision practices is the less attention to conceptual and cognitive components of vision in contents of these programs.

Although many researches have paid attention to the identification study of physiologic and biomechanics factors effective in efficiency of athletics of racket branch like Tennis and Squash [12], there is little information for determining the desired and effective factors on athletic success in Badminton competitions [10,16]. Now, practice programs are performed for the improvement of precise decision-making and awareness in Badminton, but these programs are limit and they do not improve athletics in a desired level or in a way that they must perform in the completion[11].

According to the points mentioned, this research attempts to answer this question: Are vision practices effective in Badminton athletics' performance and also do the practice of both movement and conceptual components of vision in one program [accordance, concentration, tracing, Vergence of eyes, coordination, and prediction and making-decision] can promote these components more than the pure physical practices in Badminton athletics?

METHODOLOGY

Participants

The participants of this research included the students of physical education of Mobarakeh Azad University who had gotten the specialized unit of Badminton in school year of 91-92. From 90 volunteers, 30 persons [range of age: of 20-40] were selected in a simple random way, an din a simple random way, they were divided into two equal groups of 15 persons in control and experimental groups.

The research will include four administrative stages in this order: 1] Selection of the participants, 2 To perform a pre-test [immediately after absorption], 3 To perform a practice program for research groups for about six months, 4] To perform a post-test. Physical practices have been as multi-shuttle practices and vision practices have included 12 vision movements [8] with purpose of the improvement of concentration, coordination, and peripheral perspective related to the sport branch of Badminton.

Research groupswill participate in a particular practice program for about six months, three sessions per week, and 1 hour per session. In the first practice session, Smash test and vision tests were held as a pre-test for all participants. The program stages in practice sessions are, 1] to become warm, including quiet running and tensional movements [10-15 minutes], 2]Smash practices for experimental and control groups [20minutes], 3] vision practices for experimental group [20minutes], 4]to become cool, including strength-tensional movements[10-15 minutes].

RESULTS

Smash movement skill test

The Badminton playground is marked, in this way that some squares are drawn in the two edge areas of longitudinal lines and in the middle part of the court. The athletic should hit his Smash in such a way that it descend in theseareas. From the 20 Smashes that the person hits, some Smashes that descend in the marked areas have 2 scores and the othershave no score. The formal validity of Smash skill test is affirmed by questionnaire and with the assessment of 20 coaches of 1 and 2 rank of Federation.

Close-far chart test [Hart charttest 21]

The upper cases chart, is placed at the farthest possible point that the athletic can see its upper cases clearly. The lower cases chart, is placed at 4 inches [10/16 cm] distance of the athletic face at his nose level. The athletic should read letters from left to right and alternatively from the close chart towards the far chart. The number of the read letters by athletic during 1 minute, is accounted. This test is performed for three times and the mean of grades is recorded.

Two rows Saccades **[**21]

Two columns of letters are installed on the wall at the 91/4 cm distance from each other and the participant should stand at one hand distance [participant hand] from the wall. The athletic is said to hold his/her head fixed during this test. The athletic should start from the top of the left column and then alternatively reads letters from this column to the other. As soon as reaching to the end of the first column, the athletic should go from the bottom of the second column to the other chart. He/she continues this work for 1 minute. The grade of this test is accounted based on the number of read letters during 1 minute. This test is performed three times and the mean of the three grades is recorded.

Bringing closes a pencil [Prism test[14]

The experimenter places a pencil at the 60/7 cm distance from the athletic nose and the tip of the pencil should be up. Then the experimenter brings the pencil towards the athletic nose slowly and wants the athletic to inform him when he saw the pencil in a binary way. At this time, the distance between the pencil tip and the nose is measured and recorded. This test is performed three times and the mean of the grades is recorded.

Coordination of eye-hand test [21]

In the upper part and in the left hand side of the box, the number one is written, the number 2 is written under 1exactly [below andleft hand side] and this work is continued to number 12 [the below corner of

rightmost]. It means that we have a box with two rows of numbers from 1 to 12 which the odd numbers have placed in the first row and the even numbers have placed in the second row. The coin is placed within number one and the participant should hold the box in his/her hand at the standing position [at his/her own preferential state]. The athletic should throw the coin [by shaking the box] and with this throwing, he/she should drop the coin from number 1 into the number 2 and do this work until number 12. If the coin dropped down to the ground or it dropped into a wrong number, the athletic again should place the coin within its previous number and again continue the movement from there. The time of the complete performance of movement is recorded. This test is performed three times and the mean of the three grades [to second] is noted.

The time of vision reaction test**[**21]
The athletic stands in front of a board with 8 lamps which their placement form is similar those points that are under the person's feet.When each of the lamps is lighted, the person should jump rapidly on the relevant point to that lamp under his/her feet. The system records the time between lighting the lamp and placement of the person on the relevant point as the reaction time of the person. Lighting of the lamps has a random array.

Statistical analysis
The data were analyzed statistically by using the SPSS software, version 16, and at the significant level of. /05. At first, for assurance from the normal distribution of the sample grades, the Kolmogorov–Smirnov test was used and for assurance from the presence of variance congruence, the Levene's test was used. With attention to this point that there were pre-conditions of parametric statistics test, the T test was used for the comparison of pre-testsmeans with each other and post-tests of the two groups.

RESULTS AND DISCUSSION
In table 1, the demographic indexes have been characterized.
Table 1: The demographic index of participants

	number	mean	Standard derivation
Age	30	18.7	0.75

For division of the two groups, the random manner was used and also after the division, for assurance of groups' homology, the primary grades of both groups [table 2] were compared with the T statistical test [Table 3] and the results showed that none of the groups had significant difference in primary grades of all dependent variable indexes.

Table 2: the grades of pre-test and post-test of control and experimental groups

	Smash skill	Far-close table	Two rows Saccades	Bringing closes the pencil	Coordination of eye-hand	Reaction time
Pre-test of control group	1.20	52.26	55.53	13.73	51.06	0.174
Post- test of experimental group	4.60	62.60	63.46	12.05	40.40	0.168
Post-test of control group	1.13	51.66	58.93	15.43	48.73	0.184
Post-test of control group	2.66	55.13	55.66	13.71	47.80	0.190

Table 3: The results of T test, the comparison of vision performance testes

	Levene's test		Independent T test	
	F	sing	T	sing
Vergence	0.491	0.489	2.540-	0.001
Coordination of eye-hand	3.951	0.057	-2.091	0.023
Saccade	1.999	0.168	2.937	.003
Reaction time	7.538	0.010	-3.272	0.002
Far-close	0.350	0.987	3.018	0.002

According to table 3, it is clear that in all vision performance tests, two different types of practices create a significant difference in beginner group's persons [t_v=-2.540, p≤0.001- t_c=-2.091, p≤0.05 – t_s=2.937,

$p \leq 0.05 - t_r = 03.272$, $p \leq 0.05 - t_n = 3.018$, $p \leq 0.05$]which in comparison with vision practice circumstances, in physical-vision practice condition, all vision performance tests have been improved more.

Table 4: The results of T test, the comparison of movement performance [Smash skill]

	Levene's test		Independent T test	
	F	sing	T	sing
Smash test	0.012	0.914	3.327	0.001

According to table 4, it is clear thatin Smash test, in both experimental and control groups, it creates a significant difference [t= 3.327, p≤.001]whichexperimental group has had a better performancein comparison with control group.

CONCLUSION

During the past years, many researches have been done about the effectiveness of movement practices which some of them point to efficiency [4,23,18,2,8,7] and some of them point to inefficiency[1,22,7] . Few researches have measured the effect of vision practices on sport performance. The present research showed that vision sport practices can make a specific improvement on vision and performance functions in beginner athletics of Badminton. The results of this research were compatible with some other previous researches [3,5,11,20] . The results of the research showed thatvisionpracticescaneffect on vision abilities and functions, even at the beginning of learning the sport skills.

The reaction time test shows the reaction time and actually it is the decision-making time plus action time. The results show that by performing vision practices, the reaction time rate has decreased in control group, but no significant difference has been observed in control group. So, we can conclude that maybe vision practices have had an effect on reaction speed due to a decrease in the stimulus recognition time and also practically, vision practices may have a positive effect on reaction time decrease. Because of the presence of the control group, we cannot attribute this improvement to acquaintance of persons with test.

This research has been done during six weeks and it has had significant effects on vision and movement performance, but in previous researches, during four weeks, no significant difference has been observed. In one research, the effect of eight weeks has been measured in which the effectiveness has been cleared significantly[19].It seems that for conclusion and effectiveness of vision practices, we need at least six weeks of practice.

One of the remarkable points in results of this research was the improvement of persons in performing the Smash skill. Since Smash skill in Badminton needs the coordination of vision andupper organ performance and also other vision functions can affect it, with vision performance improvements, this improvement is also expected.

It is true that the results of this research showed a significant improvement in movement performance of Badminton athletics, but in some researches [19] this improvement was not observed in movement performance of other sports such as Basketball. From this difference, we can conclude that the use of vision practices is also dependent on the specific needs of that sport branch and we should consider the needs of that specific performance in selection of the type of practices.

About the performing test method, it should be noted that because most tests have been done by a field method and the instruments have not been very precise, it is better to do this research with laboratory instruments and with more precision. Of course, its performance with field method helps its application and generalization.

In future researches, there should be more focus on the time of this intervention for utilization and study of the effect of practice. The time of practice in this research was six weeks. It may be noted that this time is the minimum practice time in comparison with other researches in this field [6,18].It seems that infuture researches, it is better to use the combination of field and laboratory method in a longer period of time.

Eventually, one of the limitations of the research has been the use of beginner persons in this research. Some researchers believe that vision practices are effective and some others have claimed their uncertainty about its effectiveness for expert persons [1]. For studying of this subject, it is proposed that a research is done for studying the effectiveness and comparison of the effect of vision practices on expert and beginner persons.

REFERENCES

1. Abernethy, B., & Wood, J. M.2001. Do generalized visual training programmes for sport really work? An experimental investigation. J Sports Sci., 19: 203-222.

2. Ahmed MaysaFouad&shosha Nadia Taher,2010. Efficiency of the program of visual training On some visual skills and visual perceptual skills and their relationship to performance level synchronized swimming juniors, Social and Behavioral Sciences, 5, 2082–2088.
3. Tracking. Applied Cognitive Psychology 18, 337-347.
4. Balasaheb T., Maman P&Sandhu JS.2008.The impact of visual skills training on batting performance in cricketers .Serb J Sports Sci ,2[1]: 17-23.
5. Bellenkes, A.H., Wickens, C.D. & Kramer, A.F. .1997.Visual scanning and pilo expertise: the role of attentional flexibility and mental model development. Aviation, Space, and Environmental Medicine 68, 569-579.
6. Campher, J.2008. The role of visual skills and its impact on skills performance of cricket players[Unpublished master's Dissertation], University of Pretoria.Pretoria
7. Cohn, T. E&Chapik, D. D. Visual training in soccer. Perceptual and Motor Skills, v. 72, p. 1238-1240, 1991.
8. Du Toit PJ, Kruger PE, Fowler KF, Govender C& Clark J.2010. Influence of sports vision techniques on adult male rugby players. African Journal for Physical, Health Education, Recreation and Dance;16[3]:510-517.
9. Du Toit PJ, Kruger PE, Joubert A. &Lunsky J.2007.Effects of exercise on the visual performance of female rugby players. African Journal for Physical, Health Education, Recreation and Dance;13:267-273.
10. Farrow, D. & Abernethy, B.2002. Can anticipatory skills be learned through implicit video-based perceptual training, Journal of Sports Sciences, 20, 471-485.
11. Green, C.S. &Bavelier, D.2003. Action video game modifies visual selective attention. Nature 423, 534-537.
12. Huynh, M .2011.Training and evaluating champions: a skills acquisition training tool in badminton, Master's Thesis, Mathematical and Geospatial Sciences, RMIT University.
13. Huynh, M., & Bedford, A. .2010,July. Skills acquisition in badminton: A visual approach totraining. Proceedings of the 10th Australian Conference of Mathematics in Sport; 5-7; Darwin, Australia.
14. Jafarzadehpur E, Yarigholi MR.2004.Comparison of Visual Acuity in Reduced Lumination and Facility of Ocular Accommodation in Table Tennis Champions and Non- Players , Journal of Sports Science and Medicine.;3[1]:44-8.
15. Maman, P., Sandeep, K.B. &Jaspal, S.S. .2011. Role of sports vision and eye hand coordination training in performance of table tennis players. Brazilian Journal of Biomotricity 5[2], 106-116.
16. ManriqueD&González-Badillo JJ.2003. Analysis of the characteristics of competitive badminton. , Br J Sports Med. Feb;37[1]:62-6.
17. Quevedo, L., Sole, J., Palmi, J., Planas, T. &Saona, C.1999. Experimental study of visual training effects in shooting iniciation. Clinical and Experimental Optometry 82[I], 30-36.
18. Quevedo-Junyenta, José Antonio&et al.2011. Comparison of Dynamic Visual Acuity Between Water Polo Players and Sedentary Students, Research Quarterly for Exercise and Sport, , Volume 82, Issue 4.
19. Rezaee. M., Ghasemi A. and et. al,2012. Visual and athletic skills training enhance sport performance, European Journal of Experimental Biology, 2 [6]:2243-2250.
20. Schwab, S. &Memmert, D. 2012. The impact of a sports vision training program in youth field hockey players. Journal of Sports Science and Medicine, 11[4], 624-631.
21. Wilson Thomas&FalkelJeff .2004 .ports vision: Training for Better Performance, Human Kinetics; 1 edition.USA.
22. Wood, J.M. & Abernethy, B. 1997. An assessment of the efficacy of sports vision training programs. Optometry and Vision Science 74, 646-659.
23. Zupan ,Michael F.,Arata Alan W , Wile Alfred & Parker Ryan .[2006]. Visual adaptations to sports vision enhancement training, A study of collegiate athletes at the US Air Force Academy. CLINICAL.43-48.
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