

Effect of Sports Vision Training on Selected Visual Skills of Table Tennis Players

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Abstract – The present study perceives the effect of 12 (twelve) week of sports vision training programme on visual skills of table tennis players. For the purpose of this study forty (N=40) male state level table tennis players from Zappers Table Tennis Academy Haldwani, Uttarakhand, age ranging between 14 to 17 years selected. Participants were divided in two equal group 20 (control group) and 20 (training group). Control group did their regular table tennis practice and training group performs the sports vision training programme too. Pre data collected before the training for both of the groups and post data collected after 12 (twelve) week of training. Level of significance was set at .05. Results of the study showed the significant improvement in visual skills of training group in comparison of control group. Study showed the relationship between the sports vision training programme and table tennis performance.

Key Words: Sports Vision Training, Visual Skills, Table Tennis etc.

INTRODUCTION

Athletes prepare to achieve a specific goal through structured and focused training. The intent of training is to increase the athlete's skills and work capacity to optimize athletic performance. Training is undertaken across a long period of time and involves many physiological, psychological, and sociological variables. During this time, training is progressively and individually graded. Throughout training, human physiological and psychological functions are modeled to meet demanding tasks. (Haf, 2009)

Vision is the signal that directs the body to respond and provides athletes with the information regarding where and when to perform. If the visual system is not receiving messages accurately or quickly enough, performance may suffer. (Berman, 1990)

It is important for visual systems to be functioning at advanced levels because athletic performance can be one of the most rigorous activities for the visual system. (SA, 1993)

The term 'sports vision' has many different meanings to both optometrists and the public, from the very broad through to a sometimes narrow focus on the use of vision training to enhance visual and hence sporting skills. The latter tends to attract a disproportionate degree of attention, as its secrets are highly sought by coaches and optometrists. It is

easily the most controversial aspect of sports vision practice. (Erickson, 2007)

A table tennis ball is a light object, and its flight is easily affected by gusts of air or the spin on the ball. Watching the ball onto the bat is the best way to make sure your bat goes to exactly where the ball is, not to where you think it should be. The sweetspot on a table tennis bat isn't all that big - you need to be watching the ball closely in order to make sure you hit the ball in the sweet spot and not the edges of your bat. (Letts, 2017)

MATERIALS & METHODS:

Selection of subjects:

A total of Forty (N=40) male state level table tennis players from Zappers Table Tennis Academy Haldwani, Uttarakhand, age ranging between 14 to 17 years were selected for the study.

Selection of variables:

The visual skills variables selected for the study were eye-hand coordination, eye-foot coordination, visual reaction time and peripheral awareness.

Research design

The research design of the study was random group design. The selected subjects were randomly assigned into two equal groups (n=20) namely,

Group-I acted as Sports Vision Training Group (SVTG). Group-II acted as control group (CG). The pretest was conducted on both of the groups in the selected visual skills before training and after the completion of twelve weeks sports vision training the post-test was conducted.

Training protocols:

1. Control group:

The participants of the control group undertook only regular table tennis practice.

2. Experimental group:

The participants of this group went through the sports vision training program. Which was scheduled for three days (Monday, Wednesday, and Friday) per week in the morning between 7.00 a.m. to 8.30 a.m. for twelve weeks. The sports vision training programs consisted of warm up and stretching for 12- 15 minutes cool down for 8-10 minutes. In evening they went for their regular table tennis practice. The training protocol involves the following procedure:

- A. Eye-hand coordination and Peripheral awareness training includes Basic eye exercise, Swinging ball exercise, Catching drills, Juggling drills, Multiball drill, Peripheral vision chart and Ball tossing drills.
- B. Eye-foot and Visual reaction time training includes: Ladder training exercises, Reaction drills, Shuffle reaction drills, Stepping exercises, Circle drill, Multiball drill, Ball drop drill and Reaction ball exercises.

Parameters:

- 1. Eye-hand coordination: MACKENZIE, B. Hand Eye Coordination Test. (MACKENZIE, SPORTSCOACH, 2009)
- 2. Eye-foot coordination: Eye-foot coordination test. (KANSAL, 2008)
- 3. Visual Reaction Time Test: Ruler Drop Test (MACKENZIE, SPORTSCOACH, 2004)
- 4. Peripheral awareness test: Vision Protector test

Statistical Procedure

The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't' test.

RESULTS:

Table 1:

Descriptive Statistics (Mean and Standard Deviation) of Visual Skills

Visual skills	Control group		Training group	
	mean	Standard deviation	Mean	Standard Deviation
Pre EHC	22.300	3.540	22.800	4.479
Post EHC	22.150	4.891	27.650	4.368
Pre EFC	6.251	.662	6.687	.816
Post EFC	6.101	.730	5.654	.600
Pre VRT	.18210	.023	.2014	.013
Post VRT	.18015	.026	.1653	.127
Pre PA	122.25	7.032	118.60	11.86
Post PA	121.70	6.31	120.65	10.30

EHC: eye- hand coordination, EFC: eye foot coordination, VRT: visual reaction time, PA: peripheral awareness

Table 1 showed the descriptive statistics (mean and standard deviation) of control group and sports vision training group before 12 week of training and after 12 week of training on selected visual skills variables (eye hand coordination , eye-foot coordination, visual reaction time and peripheral awareness).

Table 2: Output of Paired T-Test on Visual Skills

	Control group			Training group		
	t-value	p-value (.05)	Sig.	t-value	p-value	Sig.
EHC	.229	.821	Not sig	14.494	.000	Sig
EFC	.932	.363	Not sig	8.958	.000	Sig
VRT	.306	.763	Not sig.	26.303	.000	Sig
PA	.589	.563	Not sig	2.486	.022	Sig

Table 2 showed the results of the paired t-test for visual skills variables of control group. For control group the p-value for eye-hand coordination (.229), eye-foot coordination (.363), visual reaction time (.306) and peripheral awareness (.589) which is >.05 it showed a non-significant difference in control group visual skills variables before 12 week of testing and after 12 week of testing on regular table tennis practice.

It also showed the results of the paired t-test for visual skills variables of sports vision training group. For sports vision training group the p-value for eye-hand coordination (.000), eye-foot coordination (.000), visual reaction time (.000) and peripheral awareness (.022) which is <.05 it showed a significant difference in sports vision training group visual skills variables before 12 week of testing and after 12 week of testing on sports vision training.

DISCUSSION:

The present study shows an improvement on visual skills variables with the help of sports vision training program. The results are in the line with previous research demonstrating Efficiency of the program of visual training (Maysa Fouad Ahmed and Nadia

Taher shosha, 2004), a constructive visual training program improves the visual skills in athletes (Cohen 1988), Influence of two sports vision training techniques on visual skills performance of university students (P.J. DU TOIT et. al. 2016). The improvement in visual abilities is in conjunction to human motor learning behavior, which involve learning of new skills and even refining of existing skills with repetition. Relating to this principle, the continuous repetition of vision exercises and task lead to improvement in visual skill variables.

It is essential for an athlete not only how good his eyesight is, as it might be measured by looking at a standard eye chart, but also how good his vision is, that is, how well his brain can interpret the information his eyes pick up, particularly when that information involves moving objects that may be glimpsed only for a split second. Hence vision training helps the athlete in having faster judgment and response in the game as visual information enhances the ball catching skill. (Laurant M, 1993)

Many studies suggested the relationship between vision training and visual skills improvement and Visual skills enhance the sports performance. The present study also showed a significant difference in sports vision training group who underwent a twelve (12) week of sports vision training programme which leads to significant improvement in the visual skills variables of training group in comparison to the control group who did their regular table tennis practice. The selected visual skills eye-hand coordination, eye-foot coordination, visual reaction time and peripheral awareness plays a crucial role in the performance factor in table tennis. Table tennis is a sport which comes under the world fastest ball game. It needs lots of quickness and excellent visual skills to perform on top level.

Nowadays Athletes and coaches are in continuous search of newer and better techniques to enhance performance, and vision playing a particular role in athletic ability can form a platform for this search. The results of the present study indicate that sports vision training improves the visual skill of the table tennis players. Also the improved visual skills were transferable into the performance as seen by improved performance evaluation scores for experimental group. As such a specific visual training program targeted to a particular sport can be productive for the performance of an athlete. The present study may help the coaches to make their trainees better so they can perform on the top level.

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