



Effect of Visual Skill Fitness Training Programme on Selected Psychomotor Variables of Male Volleyball Players

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Abstract: To achieve this purpose, 30 Volleyball players were selected randomly as subjects for this present study. The subjects selected (N=30), were assigned randomly into two groups namely experimental group-1 and control group, consisting of 15 each. Thus they were named experimental group-1 as Visual Skills Fitness Training Group (VSFTG), and Control Group (CG). Their age was fixed in the range of 19 – 24 years. VSFTG underwent visual skill fitness training programme for two days a week for about twelve weeks. Subjects in the control group were not engaged in any activity. Before and after the training period data will be taken to all the subjects. The collected data were processed with Paired t-test was used. The obtained result was tested at 0.05 level of significance. The results of the study show that experimental group shows better improvement on selected psychomotor variables when compared to control group.

Keywords: visual skills, volleyball, reaction time and coordination

1. Introduction

To participate in a competitive sport, such as volleyball, one of the main aspects any coach should always keep in mind is that it is vital to achieve the best possible performance from the whole body – including the visual system [1]. Accuracy, balance, concentration and co-ordination, are a few of the visually related abilities a player uses during sports event. There is a wide range of visual skills that can be tested, but it is important to recognize which of these visual skills are important for the specific sport that is investigated [2]. Previously published a sport vision testing battery and applied a 5-point performance scale for the different skills.

In recent years, there has been a growing acceptance that perceptual skills precedes and determines skillful actions in sport and other contexts [3, 4]. In particular, the visual system plays a crucial role in guiding the player's search for essential information underlying skillful



behavior. One of the best explanations of what “visual search strategies” entails is that it can be said that visual search strategies refers to the way that the eyes move around the field in an attempt to direct visual attention towards relevant sources of information. According to [5] eye movement registration systems only provide information about the orientation of the fovea and, consequently, visual fixation may not always be indicative of information extraction. Many circumstances require the effective integration of information from the fovea, para-fovea and periphery [6]. It is a perceptual- motor skill that involves the integration and processing of visual information in the central nervous system so that purposeful motor movements can be made [7]. It was mentioned earlier, that the skills and the ability to perform the skills are very important. Visual reaction time is the time the athlete receives information from the environment and decides to act on it in a certain way [8, 9].

2. Literature survey

Literature survey comprises locating, reading and evaluating reports of research as well as reports of casual observation and opinion that are related to the individuals planned as research report. A study of relevant literature is an essential step to get a full picture of what has been done with regard to the problem under study. The investigator has made an attempt to bring a brief review of research related to the present study to form the background for the present study and presented the same with appropriate headings. In this section the studies related to effects of visual skills fitness training variables related to the present study are presented.

2.1 Previous work

Balasaheb et.al. (2008) to investigate the influence of specific visual training program on attacking performance in volleyball players. Thirty club level male volley ball attacking were randomly divided into three equal groups. The experimental group followed six weeks of visual training program, on alternate days. The placebo group was given simple reading material and watched televised volley ball matches for six weeks' duration, while the control group followed routine cricket practice. Pre- and post- test results were obtained for reaction time, depth perception, accommodation, saccadic eye movements and attacking performance. It can be concluded that the visual training program improves visual skills of volleyball players, which could lead to improvement in the attacking performance.

3. Methodology

To achieve the purpose of the study, seventy two volley ball players were selected as samples from the team qualified for the quarterfinals in the Coimbatore district intercollegiate volleyball tournament. Finally 30 players were selected randomly as subjects for this present study. The subjects selected (N=30), were assigned randomly into two groups namely experimental group-1 and control group, consisting of 15 each. Thus they were named



experimental group-1 as Visual Skills Fitness Training Group (VSFTG), and conventional training Control Group (CG). The subjects of two groups were measured on the following variables: eye-hand coordination and visual reaction. Thus the data collected were considered as pre-test score. After completion of above task, the players of each group were moved to respective treatments. The Visual Skill Fitness Training Group (VSFTG) underwent visual skill fitness training programme for two days a week for about twelve weeks. Subjects in the control group were not engaged in any activity other than their regular volleyball game practice during the training period. After the completion of twelve weeks of treatment, the subjects of VSFTG and CG were tested on selected psychomotor variables as such in the case of pretest. It was considered as post test score. The collected data were processed with appropriate statistical tool. To test the individualized effect of both combinations of VSFTG and CG on selected psychomotor variables Paired t-test was used. The obtained result was tested at 0.05 level of significance.

3.1 Training Procedure

Table 1: Visual skill Fitness Training Program for 12 weeks

S.NO	Running drills	Duration of exe. in station	Sets			Rest in between station	Rest in between sets	Visual skills
			P-I	P-II	P-III			
1	Speed - and - Agility	30 sec	3	4	5	30 sec	3 min	Push-Up and ball smash
2	x4 P – x4 Shuttles	30 sec	3	4	5	30 sec	3 min	Simultaneous Ball Throw
3	Carioca	30 sec	3	4	5	30 sec	3 min	2 Vs 1
4	S - Touch - R	30 sec	3	4	5	30 sec	3 min	Box Drill - Call
5	Medicine Ball - Forward Throw	30 sec	3	4	5	30 sec	3 min	Box Drill – Throw
6	S ½ - R - S - P - R	30 sec	3	4	5	30 sec	3 min	Ball Drop
7	Shuffel Drill	30 sec	3	4	5	30 sec	3 min	2 Vs 1 - Variation
8	Static Hold and Run	30 sec	3	4	5	30 sec	3 min	Chasers
9	Ladder Work	30 sec	3	4	5	30 sec	3 min	Lateral Shuffle and ball Change

S – Sprint Forward, **R** – Running Backwards, **P** - Push –up



The procedure used for the visual skill fitness training(VSFT) is as follows. The total duration of VSFT was 12weeks. These twelve weeks VSFT was segmented into three phases. The duration of training programme for each phase was four week. Thus the Phase – 1 was executed in first four weeks (1st, 2nd, 3rd & 4th), Phase – 2 was executed in the second four weeks (5th, 6th, 7th & 8th) and the Phase –3 was executed in the third four weeks (9th, 10th, 11th &12th). Visual skill fitness training programme administered for subjects for two days a week for about 12 weeks. The duration of training for a day was 60 - 75 minutes. Of this10 minutes used for warm – up, 5 minutes used for cool down. The detailed and structure of for VSFT programs 45– 60 minutes for three phases are described above. Table 3.1 indicates that the subjects of VSFT were treated with running drills and visual skills station for 45 – 60minutes. Subjects of this VSFT group were started with first running station after completion of running drills which they moved into visual skill training stations. In these training program nine exercises was fixed. 3 sets for Phase –I, 4 sets for Phase –II, 5 sets for Phase –III, were fixed for 12 week training programme. Duration of exercise in station was fixed for 30 seconds, the rest in between the station was fixed for 30 seconds and rest in between sets was fixed for 3 minutes.

4. Results

Table 2: Significance of mean gains / losses between pre and post test Visual Skill Fitness training Group (VSFTG) on selected psychomotor variables of male volleyball players

<i>Variables</i>	<i>Pre test (Mean and ±S.D)</i>	<i>Post test (Mean and ±S.D)</i>	<i>MD</i>	<i>SE</i>	<i>t' ratio</i>
VSFTG					
Eye-hand co-ordination	31.11 ±6.27	21.56 ±4.11	9.5 5	1.1 4	8.36*
Visual Reaction time	0.29 ±0.04	0.20 ±0.02	0.0 8	0.0 1	8.92*
CG					
Eye-hand co-ordination	29.29 ±12.46	28.46 ±11.66	0.8 3	0.4 3	1.93
Visual Reaction time	0.27 ±0.03	0.28 ±0.03	0.0 2	0.0 1	1.75

***Significant at 0.05 level: 2.14. VSFTG – Visual Skill Fitness Training Group, CG – Control Group**

Table 2 indicates that the obtained t'' values of the visual skill fitness training group(VSFTG) on variables are: 8.36(eye-hand co-ordination) 8.92 (visual reaction time). The obtained t-values are significant at 0.05 levels for degree of freedom 1, 14 and the required critical value is 2.14.Hence the obtained t-values on the selected variables are higher than the required

critical value, it is concluded that the visual skill fitness training group, has produced significant changes positively from its baseline to post treatment on selected psychomotor variables of eye hand coordination (+9.55 $P < 0.5$) and visual reaction time (+0.08 $P < 0.05$). The obtained t^* values of the control group (CG) on variables are: 1.93 (eye- hand co-ordination) and 1.75 (visual reaction time). The obtained t^* - values are significant at 0.05 levels for degree of freedom 1, 14 and the required critical value is 2.14. Hence the obtained t -values on the variables were failed to reach the significant level. It was concluded that the changes made from pre-test to post test was statistically not significant.

Figure 1: Bar diagram showing the mean values of pretest and post-test on Hand-eye- coordination

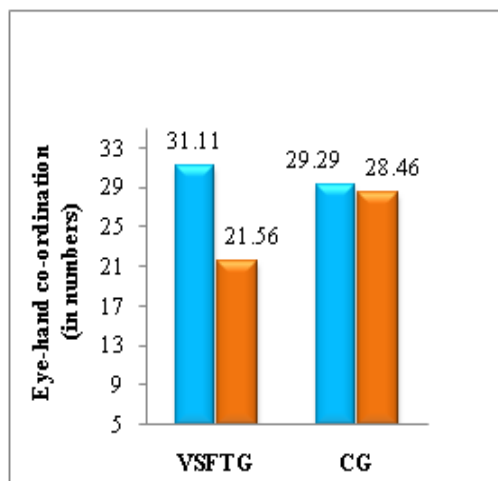
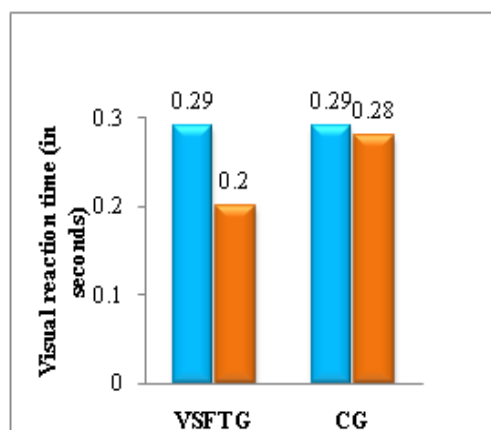


Figure 2: Bar diagram showing the mean values of pretest and post-test on visual reaction time





5. Discussion on Findings

In testing the individualized effect of visual skill fitness training and control group, the findings observed are as follows. In studying the changes observed from effect individualized effect, the derived results are as follows. Base line to post treatment on visual skills fitness, the visual skill fitness training has reduced significantly on psychomotor variables eye- hand coordination and visual reaction time. Further, in studying the changes observed from the baseline to the post treatment on subjects of control group, no significant changes was observed on selected visual skills fitness variables used in the study. It was observed that the VSFT significantly improved in above said variables eye-hand coordination 30.69% and visual reaction time 27.59 %). the results of the study supported with According to [5]“if play encourages normal gross motor development and improves eye-hand and eye-body co- ordination and peripheral vision helps develop these basic motor skills, it is then clear that vision and motor skills are linked to sports performance”.

6. Conclusions

Based on the results the following conclusions have been made. In the present study psychomotor variables such as eye-hand coordination and visual reaction time were significantly better as compared to players practiced with conventional training. In analyzing significant effect of VSFT, it was observed that the combined effect of visual skills, and running drills as they help to develop the psychomotor variables when compared to control group.



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