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EFFECT OF ISOLATED CONVENTIONAL, VISION TRAINING AND YOGIC PRACTICES ON SPEED, AGILITY AND PLAYING ABILITY OF HOCKEY PLAYERS

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Abstract:

The purpose of the study was to find out the effect of isolated conventional, vision training and yogic practices on speed, agility and playing ability of hockey players. To achieve the purpose of the present study, one hundred and fifty Inter-Collegiate male hockey players from Chennai district, Tamilnadu, India were selected as subjects at random and their age ranged from 18 to 25 years. Selected subjects were divided into three equal groups consisting of 50 subjects each, such as conventional training group (CTG), vision training group (VTG) and yogic practice group (YPG). Training was given on three days a week for 12weeks. Before and after the training speed, agility and hockey playing ability was measured and the collected data was analysed by using ANCOVA at 0.05 level of significance. It was concluded that all the three training had improved speed, agility and hockey playing ability. Further, it was concluded that conventional training group showed more speed improvement than other two groups. Vision training had better agility and hockey playing ability than the conventional training and yogic practice groups.

Key Words: Speed, Agility, Hockey Playing Ability, Conventional, Vision Training & Yogic Practice

Introduction:

The purpose of the study was to find out the importance and effect of conventional, vision training and yogic practice on speed, agility and hockey playing ability of hockey players. Conventional training is required to cover essential work related skills, techniques and knowledge. Importantly however, the most effective way to develop fundamental skills is through conventional skills training method was found throughout the history. The following are the conventional method of training followed traditionally in our country. The training methods are aerobic training, strength training, flexibility training, game skills, minor games etc. As the sport is played on a synthetic surface, strains on the body may occur when compared to grass. While the principle of specificity would dictate that a hockey training program should mirror the game as closely as possible, in this case there may be good cause to argue against training exclusively on artificial turf. Anaerobic power and anaerobic endurance is must for elite hockey performance. Although the majority of the game is spent in low level activity such as walking and light jogging, repeated back to back sprints make speed and tolerance to lactic acid an important characteristic in players. A player with good aerobic fitness will be able to play very hard without getting as tired as a less fit opponent. Having sufficient fitness is also likely to mean a player can do more training over prolonged periods of time.

Strength (Dureha K Dilip and Akhil Mehrotra, 2003) is also central to a hockey training program. Although players aren't required to hold off physical challenges, power is required for acceleration, speed and quick changes in direction. Upper body strength allows players to shoot more powerfully and pass over a greater range of distances. Better flexibility allows a greater range of limb and joint motion during play, and therefore more power. The conventional training helps to develop all the requirements to become a successful hockey player. Vision training is the training of visual perception and recognition, and is used throughout the optical world as a method of training the eye. Vision is the first step of information processing and visual skills can improve learning. A number of abilities are not only significance of sport, but that some are found at a higher level in athletes than non-athletes. Time and patience are necessary for the significance of sports vision to be reorganized by every individual participating in sports, whether amateur or professional in reorganized athletes or recreational sports (Kluka, 2000).

Hockey is spontaneous situational game. Most real deal play situations have deficit of time and information. Hockey players must make proper decisions and effectively perform mental skills within that time. Situational thinking becomes the most important hockey skill. Many hockey players with good physical abilities get tired quickly at the game. Most of them believe that they need to focus more and more on their strength conditioning. A hockey player with a significant level of visual thinking ability can demonstrate stable individual hockey technique for a longer time. Yogic practice aims at both prevention and treatment of various diseases. Breathing exercises like Pranayama, including Kapalabhati, is very effective for keeping the lungs

healthy. With yoga deep breathing air circulates to every part of lungs, whereas with most other physical exercises there is mainly an increase in respiratory rate. Yogic postures are generally mild.It is necessary to note that the nature of all yogic practices is psychological and physiological. Some exercises emphasizing the control of mental processes directly are more psychological and other exercises are more physical or physiological. It is this later part of yogic practices that has become more popular and is being extensively used for the development and promotion of health and fitness. During the practice of asana, muscles, which do not support weight or which are not actively involved are relaxed. With relaxation, the muscles return to normality after contraction and therefore yogic exercises keep the body more flexible. Yogic exercises aim at improving blood circulation to all the vital organs and thus improve their functions.

Literature Review:

Sendhil (2015) determined the relationship study on the hockey playing ability with selected physical fitness physiological and skill variables. District level hundred hockey players from Puducherry were selected for the study. All the selected players were with good physique and training status. The main aim of this study was to appraise the selected physical fitness components namely, speed and agility, physiological variables namely, resting pulse rate and vital capacity, and skills (dribbling and hitting and dribbling and shooting) as prerequisites for hockey performance. The following statistical applications were employed to analyze the data. Pearson's product moment correlation and multiple correlations were used to find out the relationship of playing ability with selected physical, physiological and skill variables. The results proved that the selected skill variables namely, dribbling and hitting, dribbling and goal shooting were significantly correlated with the criterion variable hockey playing ability as the obtained r values -0.597 and 0.745 respectively were greater than the required r value 0.195 to be significant at 0.05 level. The results proved that the selected physical fitness variables, namely agility and speed were significantly correlated with the criterion variable hockey playing ability as the obtained r values -0.777 and -0.666 respectively were greater than the required r value 0.195 to be significant at 0.05 level. The results proved that the selected physiological variables namely vital capacity and resting pulse rate were significantly correlated with the criterion variable hockey playing ability as the obtained r values -0.520 and -0.828 respectively were greater than the required r value 0.195 to be significant at 0.05 level.

Suresh (2011) examined the impact of sport vision training for enhancing selected visual skills and performance factors of novice Hockey players.To achieve the purpose of the study 30 novice Hockey players, age ranged between 17 and 22 years were selected. They were divided into experimental and control group randomly. The experimental group alone underwent the sports vision training programme for six weeks while the control group was not given any training. Prior to the administration of the test the investigator had a meeting with the subjects. The objectives and purpose of the test was made clear to the subjects so that they are aware of what they are expected to do. The selected variables and test items were speed of recognition & visual search in Tachistoscope test, eye –hand speed & eye-foot speed in visual reaction timer and Speed dribbling & Shooting accuracy in Henry-Friedal field Hockey. The paired 't' test was used to find out the difference between experimental and control group. The present findings supports that vision training has significant effect upon the speed of recognition & visual search that was measured through the test of Tachistoscope, eye hand speed and eye foot speed that was measured through the test of Audio visual reaction timer and Speed dribbling & Shooting accuracy was measured through the Henry-Friedal field Hockey test for experimental group. The control group showed no significant improvement in speed of recognition & visual search, eye –hand speed, eye-foot speed, Speed dribbling and Shooting accuracy. Thus the hypothesis stated by the researcher was accepted. It clearly shows that vision training programme given to the players was effective and it can be improved by means of sincere practice.

Saroja (2012) designed a study to find out the effects of complex training and the combined effects of complex training and yogic practices on selected physical and physiological variables among college boys. To achieve the purpose 45 college boys were randomly from Alagappa University College of Physical Education, Karaikudui, Tamilnadu in the age group of 18 to 25 years were selected as subjects. They were divided into three equal groups namely complex training group, combination of complex training and yogic practices group and control group. The variables such as speed, strength, explosive power were the physical fitness variables and resting pulse rate, blood pressure were physiological variables. All the subjects were tested on before and after the training period of six weeks. The analysis of covariance was used to analyse the data. It was concluded that combined effects of complex training and yogic practices significantly improved the selected physical and physiological variables greater in magnitude than the complex training alone among the college male students.

Hypotheses:

- It was hypothesized that there would be no significant difference on speed between conventional, vision training and yogic practice groups.
- It was hypothesized that there would be no significant difference on agility between conventional, vision training and yogic practice groups.

- It was hypothesized that there would be no significant difference on hockey playing ability between conventional, vision training and yogic practice groups.

Materials and Methods:

The purpose of the study was to find out the individualized effect of conventional training, vision training and yogic practices on selected physical variablesspeed, agility and hockey playing ability among hockey players. To achieve the purpose of the present study, one hundred and fifty Inter-Collegiate male hockey players from Chennai district, Tamilnadu, India were selected as subjects at random and their age ranged from 18 to 25 years. The subjects were divided into three equal groups of fifty each. Group I acted as Experimental Group I (Conventional Training), Group II acted as Experimental Group II (Vision Training), Group III acted as Experimental Group III (Yogic Practices). The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study.

The subjects (N=140) were randomly assigned to three equal groups of fifty subjects each. Pre test was conducted for all the subjects on selected physicalvariablesspeed, agility and hockey playing ability. This initial test scores formed as pre test scores of the subjects.The duration of experimental period was 12 weeks and three days in a week. After the experimental treatment, all the one hundred and fifty inter-collegiate subjects were tested on their physicalvariables and hockey playing ability. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses.

Speed, agility and hockey playing ability was tested by using 40 yards run test, 'T' agility run test and subjective rating for 100 marks for playing ability respectively.

Training Programme:

Table 1: Conventional Training Programme (CTG)

Day	Training	Exercises	Sets/Rep	Duration	Rest
Day 1	Strength Training	Commando Pull Up, Dead Lift, Military Press, Squat	8 x 3	15 Mins	3 Mins between Training
	Mental Training	Imagery, Progressive Muscular Relaxation	---	10 Mins	
	Game Practice	Playing Match	---	20 Mins	
Day 2	Specific Exercises	Game Specific Exercises	---	15 Mins	3 Mins between Training
	Flexibility Training	PNF Stretching	---	10 Mins	
	Game Practice	Playing Match	---	20 Mins	
Day 3	Strength Training	Dead Lift, Bent Over Row, Back Squat, Leg Press, Lunge	8 x 3	15 Mins	3 Mins between Training
	Mental Training	Imagery, Progressive Muscular Relaxation	---	10 Mins	
	Game Practice	Playing Match	---	20 Mins	

Every four weeks strength training intensity was increased to 5% percentage starting from 60% and repetition was decreased from 8 to 7 and 6 respectively. Training was started with proper warm up and completed with cool down. In between the training subjects were given 3minutesof rest period. Every four weeks mental training and game practice was duration was increased to 5 minutes starting from 10 and 20 minutes respectively.

Table 2: Vision Training Programme (VTG)

Exercises	Exercises	Repetition	Set	Duration
Side to Side Eye Movements	Visual Concentration and Reaction	2	2	60 Mins
Top to Bottom Eye Movements	Exercises with Ball	2	2	
Near to far Eye Movements	Exercises with colours Ball	2	2	
Training for Visual Acuity	Game Practice with Different Colour Balls	2	2	
Visual Accommodation and Conditioning	Training for Visual Acuity	2	2	
Contrast and Focused Attention	Exercises with Different Colour balls	2	2	

Every four weeks repetition of the exercises was doubled starting from 2 and number of set was increased from 2 to 3 and 4 respectively.

Table 3: Yogic Practices Group Programme (YPG)

List of Yogic Practices	Weeks	Duration for each Practices	Recovery in between Asana	Repetitions
Suryanamaskar	1-4	7 minutes	30 seconds	---
Dhanurasana, Bhujangasana, Naukasana, Halasana, Ardha Matsyendrasana, Trikonasana, Shalabhasana		Each asana 1 minute	15 seconds	2
Suryanamaskar	5-8	7 minutes	30 seconds	---
Pawanmuktasana, Vajrasana, Pachimottasana, Yogamudra, Vrikshasana, Trikonasana, Shalabhasana		Each asana 1 minute	15 seconds	2
Suryanamaskar	9-12	7 minutes	30 seconds	---
Pachimottasana, Vajrasana, Vrikshasana, ArdhaMatsyendrasana, Trikonasana, Shalabhasana, Yogamudra		Each asana 1 minute	15 seconds	2

Every yogic practice day training was completed with practicing pranayama and meditation for 10 minutes respectively. Total duration was 60 minutes.

Findings and Analysis:

Computation of 't' Ratio of Isolated Conventional Training, Vision Training and Yogic Practices on Speed, Agility and Playing Ability

Table 4: Conventional Training Group

Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	't' Ratio
Speed	5.49	5.07	0.42	0.13	0.03	13.44*
Agility	11.50	11.10	0.39	0.21	0.04	8.41*
Playing ability	44.95	61.65	16.70	6.38	1.42	11.70*

Vision Training Group

Speed	5.50	5.10	0.40	0.19	0.04	9.16*
Agility	11.52	11.07	0.45	0.16	0.03	12.30*
Playing ability	45.85	63.10	17.25	5.41	1.21	14.23*

Yogic Practices Group

Speed	5.55	5.09	0.45	0.20	0.04	9.95*
Agility	11.55	11.08	0.46	0.16	0.03	12.66*
Playing ability	44.65	59.40	14.75	5.42	1.21	12.15*

Table 4 showed the pretest, posttest mean, standard deviation and t-ratio value of conventional, vision training and yogic practice group on speed, agility and hockey playing ability of selected subjects. The obtained 't' ratio values of all the groups showed significant difference between pretest and posttest scores at 0.05levle of significance.

Table 5: Computation of Analysis of Covariance of Isolated Conventional Training, Vision Training and Yogic Practices on Speed

	CTG	VTG	YPG	SOV	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	5.49	5.50	5.55	BG	0.10	2	0.05	2.041
				WG	3.60	147	0.0245	
Post-Test Means	5.07	5.10	5.09	BG	4.04	2	2.02	183.63*
				WG	1.66	147	0.011	
Adjusted Post-Test Means	5.07	5.10	5.09	BG	3.88	2	1.94	176.36*
				WG	1.65	146	0.011	

* Significant (Table Value for 0.05 Level for df 2 & 147= 3.057 & 2 & 146=3.058)

As mentioned in table 5 the pretest 'F' ratio value of 2.041 was lesser than the required table value. Posttest and adjusted posttest 'F' ratio value of 183.63 and 176.36 were greater than the required table value at 0.05 level of significance. It was proved that there was significant difference on speed between the different training groups.

Table 6: Scheffe's Test for the Differences between the Adjusted Post Test Means on Speed

Groups	Adjusted Mean	CTG	VTG	YPG	CI
Conventional Training Group	5.07	--	0.03	--	0.11
Vision Training Group	5.10	--	--	0.01	
Yogic Practice Group	5.09	0.02	--	--	

Not ssignificant at 0.05 level

Scheffe'sposthoc test showed in table VI that there was no further significant difference between the adjusted posttest means of three training groups on speed. Conventional training group had (5.07sec) better speed than the vision training (5.10sec) and yogic practice group(5.09sec).

Figure 1: Pretest, posttest and adjusted posttest mean values of three experimental groups on speed (seconds)

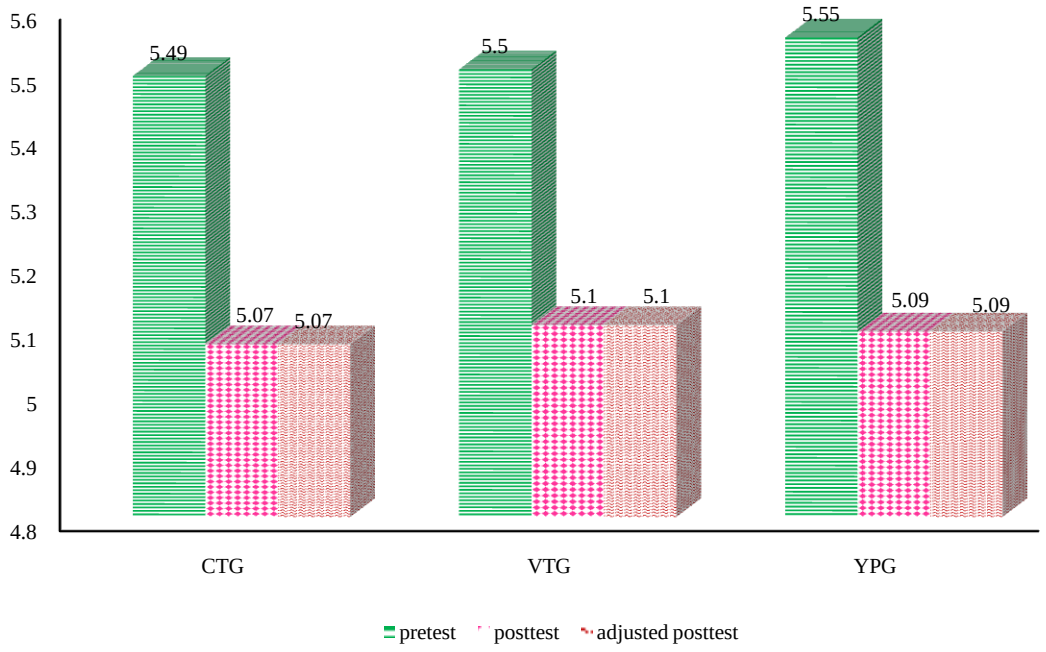


Table 7: Computation of Analysis of Covariance of Individualized Conventional Training, Vision Training and Yogic Practices on Agility

	CTG	VTG	YPG	SOV	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	11.50	11.52	11.55	BG	0.07	2	0.035	2.917
				WG	1.78	147	0.012	
Post-Test Means	11.10	11.07	11.08	BG	5.89	2	2.945	173.235*
				WG	2.48	147	0.017	
Adjusted Post-Test Means	11.11	11.07	11.08	BG	5.91	2	2.955	173.823*
				WG	2.45	146	0.017	

* Significant (Table Value for 0.05 Level for df 2 & 147= 3.057 & 2 & 146=3.058)

As mentioned in table 7 there was no significant difference on agility between three groups pretest means, since obtained 'F' ratio value was 2.917 which was lesser than the required table value. The 'F' ratio obtained 173.235 and 173.823 for posttest and adjusted posttest means showed significant difference between the groups on agility at 0.05 level of significance. Hence, there was a significant difference on the agility between the three experimental groups.

Table 8: Scheffe's Test for the Differences between the Adjusted Post Test Means on Agility

Groups	Adjusted Mean	CTG	VTG	YPG	CI
Conventional Training Group	11.11	--	0.04	--	0.11
Vision Training Group	11.07	--	--	0.01	
Yogic Practice Group	11.08	0.03	--	--	

Not significant at 0.05 level

Table 8 clearly revealed that there was no further significant difference on agility of adjusted posttest means of three experimental groups. Whereas vision training group (11.07sec) had better agility than the yogic practice (11.08sec) and conventional training group (11.11sec).

Figure 2: Pretest, posttest and adjusted posttest mean values of three experimental groups on agility (seconds)

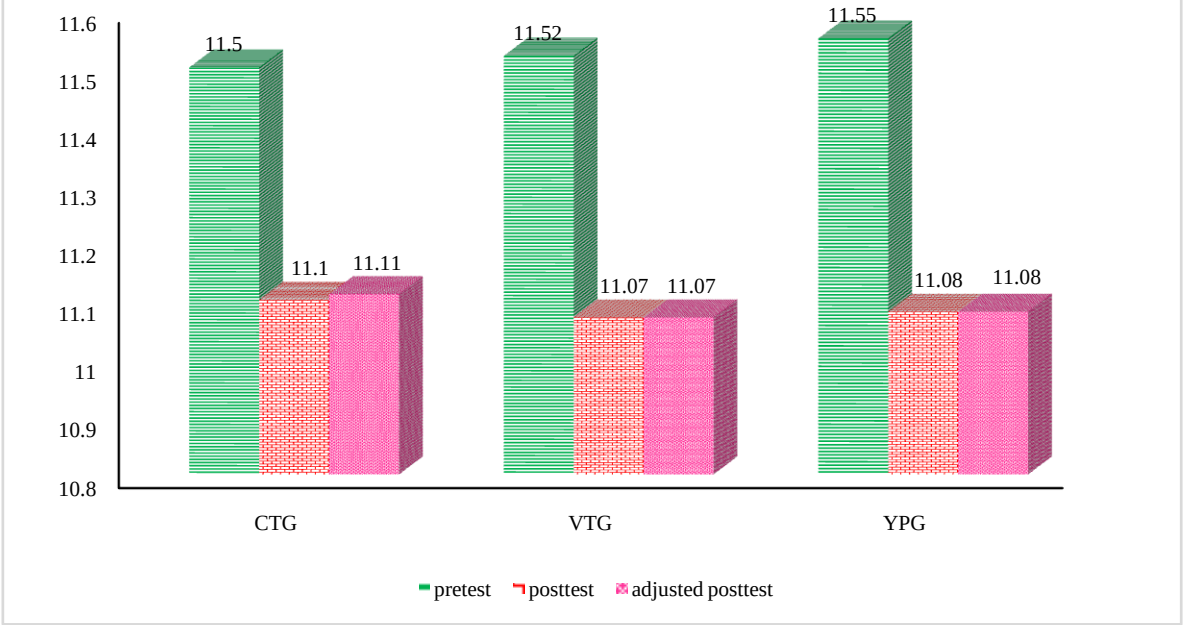


Table 9: Computation of Analysis of Covariance of Individualized Conventional Training, Vision Training and Yogic Practices on Playing Ability

	CTG	VTG	YPG	SOV	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	44.95	45.84	44.65	BG	148.98	2	74.49	2.972
				WG	3683.90	147	25.061	
Post-Test Means	61.65	63.10	59.40	BG	3442.54	2	1721.27	197.303*
				WG	1282.45	147	8.724	
Adjusted Post-Test Means	61.65	63.10	59.40	BG	3439.06	2	1719.53	195.757*
				WG	1282.44	146	8.784	

* Significant (Table Value for 0.05 Level for df 2 & 147= 3.057 & 2 & 146=3.058)

As noted in the table 9 'F' ratio value of 2.972 on hockey playing ability of three experimental groups for pretest showed no significant difference, 'F' ratio value of 197.303 and 195.757 posttest and adjusted posttest means showed significant difference at 0.05 level of significance. Hence, there was significant difference between three experimental groups on hockey playing ability.

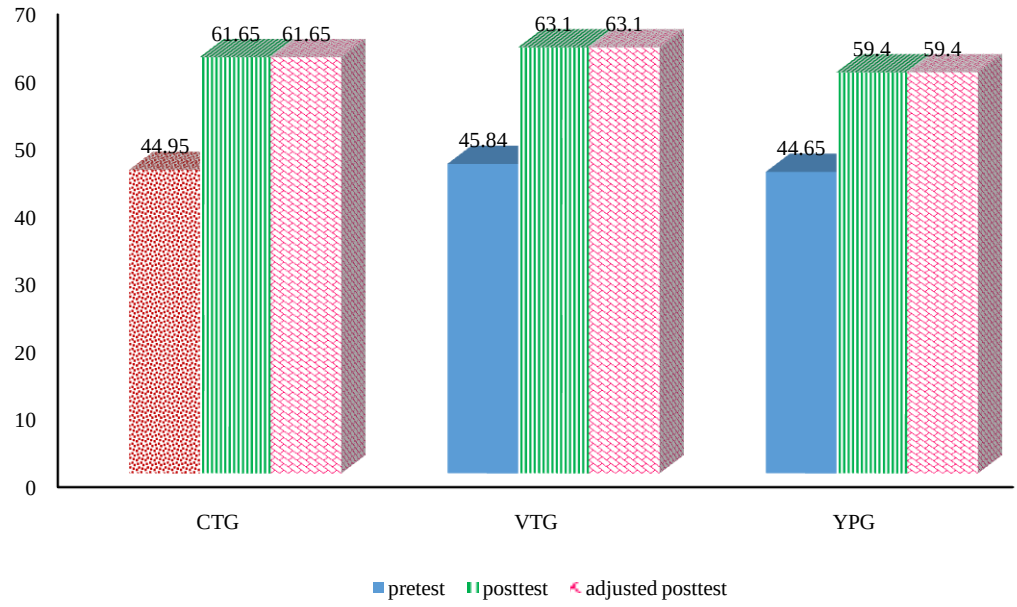
Table 10: Scheffe's Test for the Differences between the Adjusted Post Test Means on Playing Ability

Groups	Adjusted Mean	CTG	VTG	YPG	CI
Conventional Training Group	61.65	--	1.45	--	3.54
Vision Training Group	63.10	--	--	3.7*	
Yogic Practice Group	59.40	2.25	--	--	

*Significant at 0.05 level

It is mentioned in the table X that there was significant difference between vision training group and yogic practice group on playing ability. There was no significant difference existed between conventional training group and vision training, yogic practice group on hockey playing ability. It was proved that vision training group had better hockey playing ability than other two groups.

Figure 3: Pretest, posttest and adjusted posttest mean values of three experimental groups on hockey playing ability (score)



Analysis:

First hypothesis stated that there would be no significant difference on speed between conventional, vision training and yogic practice groups, which was rejected at 0.05 level of significance. Conventional training showed better speed improvement than the other two trainings. Conventional training enhances the neuromuscular activity (Lee E. Brown and Vance Ferrigno, 2005) and metabolic activity which supports the ability of the players to move quick and rapid.

Second and third hypothesis stated that there would be no significant difference on agility and hockey playing ability between conventional, vision training and yogic practice groups was rejected at 0.05 level of significance. Vision training showed improvement on agility and hockey playing ability than the other two groups. Vision is the signal that directs the muscle of the body to respond. "The eyes lead the body" (Graham B. Erickson, 2007), ie., vision provides the athlete with information regarding when and where to perform. Efficient processing of visual information is essential to be agile and actively perform skills. Thus, vision training improves the static and dynamic visual characteristics of players which supports their performance.

Recommendations:

- It is recommended that coaches, physical education teacher can adopt the above mentioned training methods to improve the physical variables and playing ability of hockey players.
- Players can incorporate these training methods in their regular training programmes.
- The study enlightens the physical educationist, coaches and sports scientists about the importance of conventional, vision training and yogic practices.
- The result of the study opens the eyes of the players regarding the importance of undergoing various training sessions.
- The result of the study helps the fitness trainer to impart suitable training for the hockey players.

Conclusions:

It was concluded that the conventional, vision training and yogic practices improved the speed, agility and hockey playing ability of the hockey players. Conventional training improved speed better than other two trainings. An effective hockey player possesses high speed in order to receive, tackle and retreat. A player must have ability to move quickly to maintain possession, receiving, passing which is possible by speed. Vision training improved agility and hockey playing ability of hockey players better than other two vision training and yogic practices. Agility is important for the hockey players to move and change directions efficiently by dodging the opponents to score. While changing the direction keeping the eyes on the ball, stick and opponents move has to be considered and calculated to perform well. Player needs to hold the possession of ball. Agile, balance and vision on the ball make the player to execute the skills perfectly. Vision training enhances the players concentration sports vision concerned with vision and perception, evaluating and enhancing visual performance, etc., (Sebastian & Daniel, 2012). Thus vision training keeps the player more agile and skillful.

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