

Aerobic Training on the Physical Fitness and Technical Variables of Male Ice Hockey Players

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Abstract: Hockey attained greater level of popularity all over the World and played on sand, natural grass and artificial turf ground. The modern game of hockey demands that each member of the team be able to play in all positions. The purpose of the study was to find out the effect of aerobic training on physical fitness and skill variables of men hockey players. The selected physical fitness and skill variables were hitting and dribbling. To achieve this purpose total (N=30) subjects selected from Faculty of General Adapted Physical Education and Yoga, Ramakrishna Mission Vivekananda Educational and Research Institute, Coimbatore. The subjects are selected by purposive sampling method. The subjects are equally divided into two groups namely group - I (n - 15) Aerobic training with Skill Training group and group -II (n - 15) acted as control group. Their age ranged between 18 to 25 years. The physical fitness variable cardio respiratory endurance was measured with 12 minutes run/walk test and skill variables namely dribbling was tested with SAI Hockey Skill Test. The training periods consists a total of eight weeks, which includes training for 5 days a week from evening 5 to 6 pm. The collected data were treated with paired 't' test. The results of the study shows that aerobic training play a significant role in improving physical fitness variables namely cardio respiratory endurance and skill performance variables namely hitting and dribbling of college men hockey players.

Keywords: Hockey, Physical Fitness, Aerobic Training, Skill performance

1. Introduction

The game hockey wants great skills, concentration of the ball and body control and determination. Ability to execute all strokes with real skill and necessary speed are the essential qualities for a top player. Since hockey is a game consisting of several skills the investigator has taken only the dribbling, pushing, hitting and playing ability. Aerobics is a form of physical exercise that combines rhythmic aerobic exercise with stretching and strength training routines with the goal of improving all elements of fitness such as flexibility, muscular strength, and cardio - vascular fitness. Aerobic fitness reduces the body fat and risk of disease and promotes weight loss. However, there is a controversy regarding the "optimal exercise" technique. In the past, most individuals have been taught to exercise aerobically at the constant percentage of their Heart Rate Reserve (HRR) or Maximal Oxygen intake (VO₂ max). Human body composition and physical fitness factors that plays a governing role in team game sports performance at elite as well as professional level. Further, the success of team sports also involves physiological and physical well - being factors which are prerequisite for excellence in sports.

2. Methodology

To achieve the purpose of the study, thirty hockey players were selected from RKMVERI GAPEY Coimbatore Tamil Nadu, were selected for this study. All participants were eligible for inclusion in this study on the basis of their medical record and determined that they could co - operate with the assessment and exercise procedures and that they could undertake exercise safely. Their age ranged from 18 to 25 years. The selected participants were divided randomly into two groups, as experimental group (n=15) and control group (n=15). The research scholar reviewed the available literature pertaining to the varied modalities with skill training from books, journals, periodicals, magazines and research papers. Taking into consideration feasibility of researcher the following variables and availability of instrument and the relevance of the variables of the present study the following variables were selected. Independent Variables are Aerobic Training, Dependent Variables Physical Fitness Variables are Cardio Respiratory Endurance and Skill variables is Hitting, Dribbling. The pretest and post test data were statistically examined for significant difference through paired 't' test for each and every variable selected for this study. The entire statistical analysis tests were computed at 0.05 was level of significance.

Table IV: Eight Weeks Aerobic Exercise for Hockey Players

Weeks	Aerobic Exercises	Intensity	Repetition	Set	Frequency	Rest
1 - 2	VStep BenchStep Grapevine Turn Step Back Lunging	40 To 50%	5	5	3	30 Sec
3 - 4	VStep BenchStep Grapevine	45 To 55%	6	6	3	30 Sec

	OverTheTop Back Lunging Leg Curl					
5 - 6	VStep BenchStep Grapevine BasicStraddle Step DoubleStep Side KickForward Back Lunging	55 To 65%	7	6	3	30 Sec
7 - 8	VStep BenchStep Grapevine Over The Top KickForward Back Lunging LStep AStep	65 To 80%	8	5	3	30 Sec

Table 1: Test Selection of Variables

S. No	Test Selection	Variables Test
1	Cardio respiratory endurance	Cooper 12 min run / walk test
2	Hitting	SAI Hockey Skill Test
3	Dribbling	SAI Hockey Skill Test

3. Results

The obtained data underwent the analysis of covariance and examined the effect of independent variables on the criterion variables that were selected the choice of 0.05 as significant level was considered to be adequate for the present study for the examination of the procured outcomes on the variables.

Table V: Computation with ‘t’ test between the pre and post tests on cardio respiratory endurance of aerobic training and control groups

Variable	Group	Test	Mean	S. D	D. M	σ DM	‘t’
Cardio respiratory endurance	Aerobic Training with Skill Training Group	Pre Test	2272.67	149.01	510.63	149.33	3.41*
		Post Test	2783.3	573.73			
	Control Group	Pre Test	2269.30	146.5	8.33	14.57	
		Post Test	2261.00	145.75			

*Significant level of significant was fixed at 0.05 with df14 Table value 2.14

It observes from the Table - V that the aerobic training with skill training group’s means value for pre test was 2272.67 and post test was 2261.00. The standard deviation for the pre test was 149.01 and post test 145.75. The mean difference for the pre test and post test was 510.63. The standard error

of the difference between the mean was 149.33. It revealed that the obtained’ ratio 3.41. The results of the study indicated that there was a significant improvement in the physical fitness due to the aerobic training with skill variables of men hockey players.

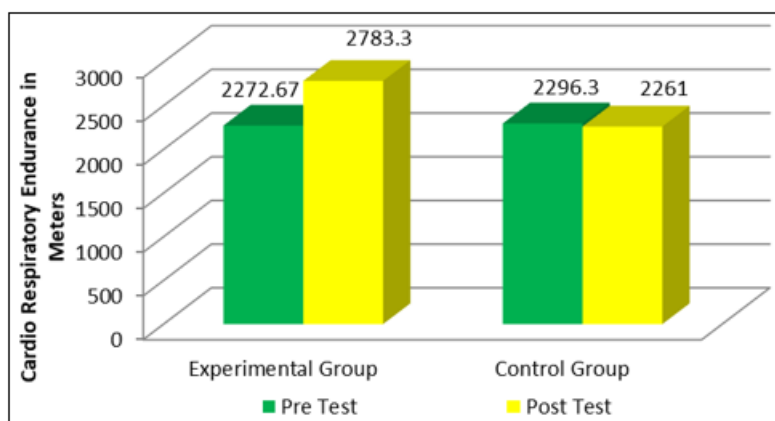


Figure 1: Bar Diagram showing the Mean Values of Cardio Respiratory Endurance Pre and Post Tests and Control Groups

Table VI: Computation with ‘t’ test between the Pre and Post Tests on Hitting of Aerobic Training and Control Groups

Variable	Group	Test	Mean	S. D	D. M	σ DM	‘t’
Hitting	Aerobic Training with Skill Training Group	Pre Test	5.86	1.50	1.07	0.206	5.19*
		Post Test	6.93	1.98			
	Control Group	Pre Test	5.86	1.50	0.06	0.11	
		Post Test	5.80	1.37			

*Level of significant was fixed at 0.05 with df14 Table value 2.14

Table - VI Indicates that experimental and control group of skill variables on mean and standard deviation of men hockey players. The experimental group pre and post test mean values are 5.86 and 6.98 and standard deviation values are 1.50 and 1.98 and obtained 't' value is 5.19 which is

greater than table value 2.14 with df 14. And control group mean values are 5.86 and 5.80 and standard deviation 1.56 and 1.37 and obtained 't' value 2.0 which is lesser than table value 2.14. The finding of the study indicates that experimental group significant improvement on hitting.

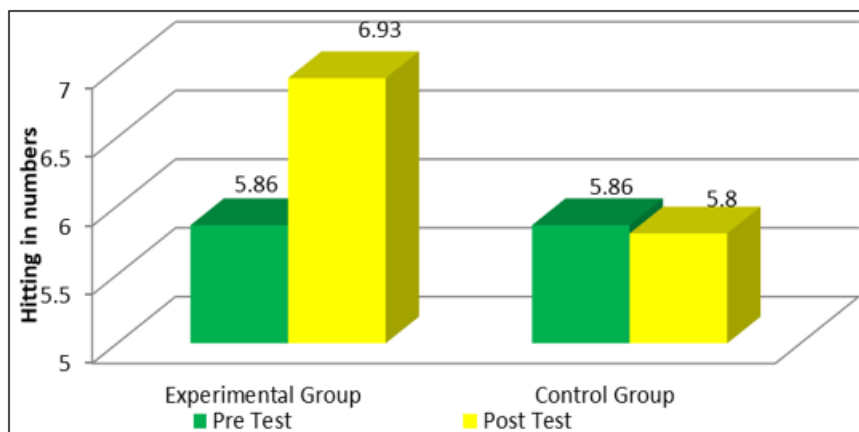


Figure 2: Bar Diagram Showing the Mean Values of Hitting Pre and Post Tests and Control Groups

Table VII: Computation With 't' TEST between the Pre and Post Tests on Dribbling of Aerobic Training and Control Groups

Variable	Group	Test	Mean	S. D	D. M	σ DM	't'
Dribbling	Aerobic Training with Skill Training Group	Pre - Test	20.30	23.77	2.39	0.80	2.98*
		Post Test	22.69	26.64			
	Control Group	Pre - Test	20.30	23.11	0.15	0.13	
		Post Test	0.15	23.65			

*Significant level of significant was fixed at 0.05 with df 14 Table value 2.14

Table - VII Indicates that experimental and control group of dribbling on mean and standard deviation of men hockey players. The experimental group pre and post - test mean values are 20.30 and 22.96 and standard deviation values are 23.77 and 26.64 and obtained 't' value is 2.98 which is

greater than table value 2.14 with df 14. And control group mean values are 20.30 and 20.15 and standard deviation 23.11 and 23.65 and obtained 't' value 1.52 which is lesser than table value 2.14. The finding of the study indicates that experimental group significant improved on dribbling.

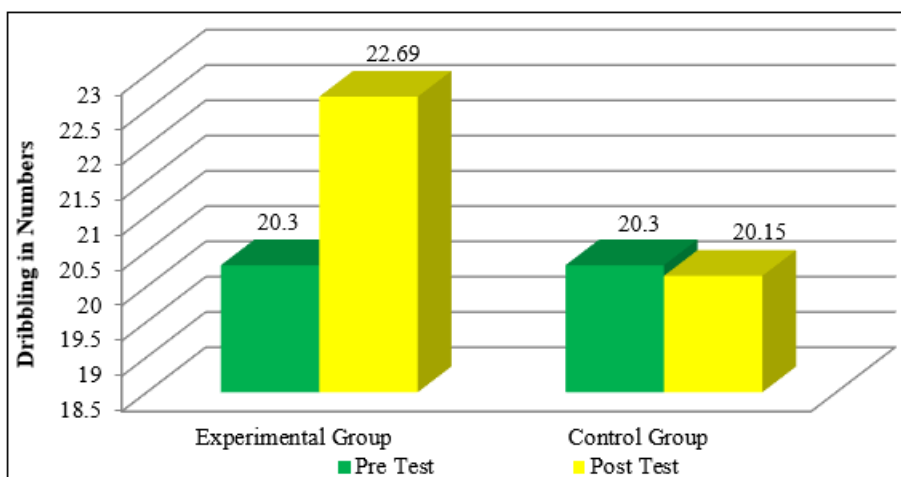


Figure 3: Bar Diagram Showing the Mean Values of Pre and Post Tests Dribbling of and Control Groups

4. Discussion on Findings

The results of the study indicates that the effect of aerobic training on physical fitness and skill variables of men hockey players. The analysis of all the physical fitness and skill variables of revealed that the after experimental period, Hence the obtained 't' ratio. The analysis of the skill variables hitting 6.93 and dribbling 22.69 of revealed that the after experimental period. The aerobic training had

significantly increased the all - skill variables dribbling and hitting of when compared with control group. which was further supported by Kumar, S. R et al., (2019) and Muniraj, S., & Sasikumar, C V. (2019). The analysis of physical fitness test for cardio respiratory endurance has significantly increased in experimental group 2783.3 when compared with control group 2261 during the pretest and posttest.

5. Conclusions

From the result of the study, it was concluded that aerobic training play a significant role in improving physical fitness variables namely cardiorespiratory endurance and skill performance variables namely hitting and dribbling of college men hockey players.

6. Recommendations

- 1) The similar study may be conducted on school, university and all India level hockey Players.
- 2) The similar study may be conducted on female subjects.
- 3) The similar study may be conducted on various age levels.
- 4) The similar study may be conducted different variables like anthropometric, body Composition, psychological and bio chemical and hormonal variables.
- 5) The similar study may be conducted various educational category of students (Poly technic, Engineering, medical and agri students).

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