



EFFECT OF JUMP ROPE TRAINING ON SELECTED PHYSIOLOGICAL VARIABLES AMONG INTER COLLEGIATE HOCKEY PLAYERS

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Abstract: This study was to determine the effect of jump rope training on physiological variables among students. Thirty inter collegiate hockey players from Rajapalayam Rajus' College and Senthikumara Nadar College of Virudhunagar Hindu Nadar, were selected at random as the study's subjects. They were between the ages of 18 and 25 years. The selected participants were randomly divided into two groups, with group I Jump rope training (n=15) and group II serving as a control (n=15). For eight weeks, members of Group I underwent jump rope training on alternate days, attending one session per day. Group II took part in regular activities but did not receive any particular training. The dependent-t test and Analysis of Covariance (ANCOVA) were set at the 0.05 level of confidence for statistical analysis of the collected data. The statistical package SPSS-22 version was used to analyse all of the data. It was determined that the group that jump rope training had significantly better in their physiological performance like vital capacity and breath holding time than the control group, and that there were also significant differences between the experimental and control groups among inter collegiate hockey players.

Keywords: Jump Rope Training, Vital Capacity, Breath Holding Time

1. INTRODUCTION

It is a generally played group activity of the hockey family. In addition to an indoor boarded surface, the game must be played on grass, watered turf, artificial turf, or synthetic field. Each group plays with ten field players and a goalkeeper. The players normally use sticks put together with wood, carbon fiber, fiber glass or a blend of carbon fiber and fiber glass in various amounts (with the higher carbon fiber stick being more costly and less inclined to break) to hit a round, hard, plastic hockey ball. The height of the player determines the length of the hockey stick; the top of the stick typically touches the player's ship, and taller players typically have longer sticks. The sticks have a flat side and a round side. Only the flat side can be used; using the other side is considered a foul. However, goalies can also use a standard field hockey stick.

Jump Rope Training (JRT) was likely acquainted with America during the 1600s by the Dutch pilgrims of New Amsterdam. It may come as a surprise that, at least in Western culture, rope jumping was once strictly a body sport. Jump ropes were primarily in the hands of schoolchildren during playtime in the 1960s. They started to show rope bouncing as an activity with unrivaled athletic preparation properties. A new era for exercise, including jump roping, began in the late 1960s and early 1970s. Despite the fact that numerous individuals have long maintained that physical and mental health benefit from exercise. The scientific evidence wasn't strong enough until this point to back up their claims. The public was then persuaded by health professionals that our sedentary lifestyles were increasing our risk of

heart disease, obesity, low back pain, certain cancers, osteoporosis, depression, and other conditions. According to Solis (1992), jump rope training demonstrated that regular exercise like rope jumping not only decreased the likelihood of these ailments but also frequently reversed them. Through their sponsorship of Jump Rope for Heart (JRFH), the largest rope jumping competition in the world, the American Heart Association (AHA) and the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD) have actively promoted rope jumping since 1978. JRFH happens principally in grade schools. Rope jumping insisted on educating participants and the community about heart disease and introducing them to health-promoting behaviors like rope jumping (Solis, 1992).

2. MATERIAL AND METHODS

The initiative of this study was to determine how the effect of jump rope training on the physiological variables among the students. Thirty inter collegiate hockey players from Rajapalayam Rajus' College and Senthikumara Nadar College of Virudhunagar Hindu Nadar were selected at random as the study's subjects. They were between the ages of 18 to 25 years. The selected participants were randomly divided into two groups, with group I Jump rope training (n=15) and group II serving as a control (n=15). For Eight weeks, members of Group I practiced Jump rope training on alternate days, attending one session per day. Group II took part in regular activities but did not receive any particular training. The subjects were medically examined by a qualified physician, and the results showed that they were suitable for the study. Before each training session, the subjects went through their respective program under the strict supervision of the investigator. Throughout the training, all of the participants were questioned about their health. None of the new participants reported an injury, but muscle soreness was reported in the first few weeks, but it went away later. By dividing the total number of training sessions by the number of sessions that were attended, the experimental group's attendance was determined to be 96.5 percent respectively.

2.1 Training Schedule

Start Slow:

If you're new to jump rope training, begin with shorter sessions and gradually increase the duration and intensity.

Focus on Form:

Proper technique is crucial to avoid injury and maximize effectiveness. Keep your jumps low and use your wrists to swing the rope.

Consistency:

Incorporate jump rope training into your regular fitness routine for the best results. Aim for 2-3 sessions per week.

Jump rope training offers a dynamic way to improve key attributes needed for hockey, including agility, endurance, and explosiveness. By integrating these drills into your training regimen, you can enhance your on-ice performance and overall athleticism.

2.2 Selected Means

- Basic Jumps: 2 minutes
- Alternate Foot Jumps: 1 minute
- High Knees: 1 minute
- Double Unders: 1 minute
- Criss-Cross: 1 minute
- Side-to-Side Jumps: 1 minute
- Backward Jumps: 1 minute

3. STATISTICAL ANALYSIS

The collected data were statistically analyzed through the dependent-t test and Analysis of Covariance (ANCOVA) were set at the 0.05 level of confidence for statistical analysis of the collected data. The statistical package SPSS-22 version was used to analyze all of the data.

3.1 Analysis of Data

Table - I

Means, Standard Deviation and Dependent-‘T’ Test Values on Physiological Variables of Experimental and Control Groups

Variable Name	Test	Experimental Group	Control Group
Vital Capacity	Pre Test	3.17	3.18
	Post Test	3.78	3.21
	t- test	15.04*	1.54
Breath holding time	Pre Test	25.64	24.81
	Post Test	31.19	25.42
	t- test	9.04*	1.73

*Significant at .05 level. (Table value required for significance at .05 level for ‘t’-test with df 9 is 2.26)

From the table-I, the experimental group had significantly improved on vital capacity and breath holding time while compared than the control group. Therefore the result of this present study proved that the experimental group had significant positive changes physiological variables among inter collegiate hockey players. However, the control group has not shown any changes significantly. The obtained ‘t’ value is less than the table value, as they were not participated to any specific training. The analysis of covariance on physiological variables of experimental and control groups have been analyzed and presented in Table II.

Computation of Analysis of Covariance

The descriptive measures and the results of analysis of covariance on the criterion measures were given in the following tables.

Table – II

Computation of Mean and Analysis of Covariance on physiological variables of Experimental and Control Groups

Test	Experimental Group	Control Group	SOV	SS	Df	MS	F-ratio
Vital Capacity	3.86	3.23	B.M	57.80	1	57.80	19.46*
			W.G	50.49	17	2.97	
Breath holding time	31.28	25.51	B.M	129.13	1	129.13	30.17*
			W.G	72.76	17	4.28	

* Significant at 0.05 level. Table value for df 1, 17 was 4.45

According to the aforementioned table II, the adjusted mean scores for the experimental and control groups' vital capacity and breath holding time were 3.86 & 3.23 and 31.28 & 25.51 respectively. For the degrees of freedom 1 and 17 necessary for significance at the 0.05 level of confidence, the calculated F-ratio of 19.46 & 30.17 for the adjusted mean was higher than the table value of 4.45. According to the study's findings, there was a substantial difference in the physiological variables between the experimental and control groups.

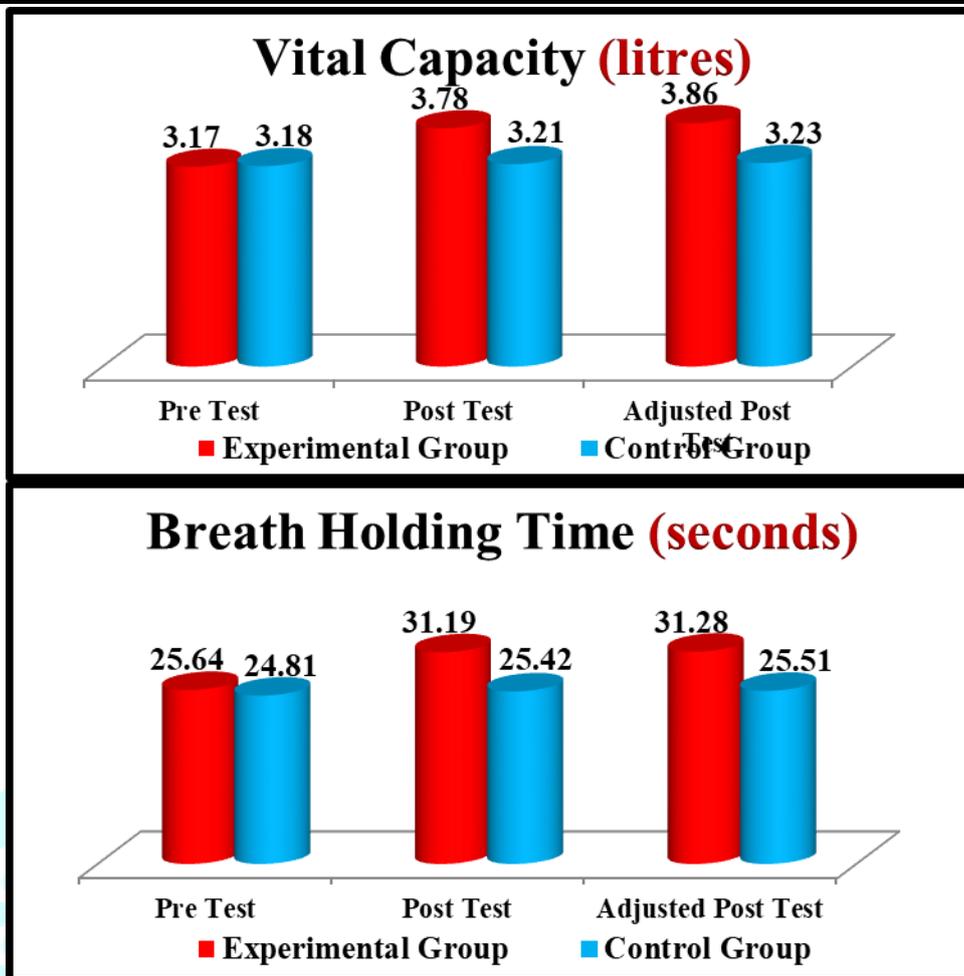


Figure I: Pre-Test, Post Test and Adjusted Post Test Mean values of Experimental Group and Control Group on physiological variables.

4. DISCUSSION ON FINDINGS

The result of the study indicates that the experimental group namely aqua aerobic exercises group had shown significant improvement in physiological variables among the inter-collegiate hockey players. The control group had not shown significant changes in any of the selected variables. The consistency is determining the significant contribution of specific soccer training on developing variables in this study was similar to the findings of other studies. They are Wang, (2007) conducted the study on the effects of aquatic exercise on flexibility, strength and aerobic fitness in adults with osteoarthritis of the hip or knee. Ward, (2005) analyzed the immediate blood pressure changes and aquatic physiotherapy.

5. CONCLUSIONS

1. There was a considerable positive change in vital capacity among inter collegiate hockey players due to the effect of jump rope training.
2. There was a considerable positive change in breath holding time among inter collegiate hockey players due to the effect of jump rope training.
3. There was a substantial difference in the physiological variables like vital capacity and breath holding time between the experimental and control groups.
4. However, none of the examined characteristics had shown any significantly improved in the control group.

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