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EFFECT OF MODERATE INTENSITY CONTINUOUS TRAINING ON CARDIOVASCULAR ENDURANCE AMONG SCHOOL HOCKEY PLAYERS

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Abstract:

The purpose of the study was to investigate the effect of Moderate Intensity Continuous Training (MICT) and high intensity interval training on cardiovascular endurance among school hockey players. Forty-five school level hockey players were randomly selected and divided into three groups namely Moderate Intensity Continuous Training Group (MICT), High Intensity Interval Training Group (HIIT), and Control Group with fifteen subjects in each group. The training programme lasted for eight weeks. Cardiovascular endurance was measured using the Cooper 12-minute run/walk test. The collected data were analyzed using Analysis of Covariance (ANCOVA). When the adjusted post-test mean showed significant difference, Scheffé post hoc test was applied. The results revealed that the MICT and HIIT groups significantly improved cardiovascular endurance compared with the control group. The study concluded that systematic endurance training programmes significantly enhance cardiovascular endurance among adolescent hockey players.

Key Words: Moderate Intensity Training, Cardiovascular Endurance, Hockey Players, Aerobic Capacity.

Introduction:

Field hockey is a physically demanding sport requiring players to maintain high levels of aerobic endurance throughout the game. Players cover approximately 8-10 km during a match, including intermittent sprinting and jogging. Cardiovascular endurance refers to the ability of the heart, lungs and blood vessels to deliver oxygen to working muscles during prolonged physical activity. Moderate Intensity Continuous Training (MICT) involves continuous aerobic activity performed at 60-75% of maximum heart rate for an extended duration. This training method improves oxygen utilization, stroke volume and aerobic energy production. For adolescent athletes, developing cardiovascular endurance is essential to sustain performance throughout the match. Therefore, this study attempts to examine the effect of moderate intensity continuous training on cardiovascular endurance among hockey players.

Statement of the Problem:

The purpose of the study was to examine the effect of Moderate Intensity Continuous Training (MICT) and high intensity interval training on cardiovascular endurance among school hockey players.

Objectives of the Study:

- To determine the effect of MICT on cardiovascular endurance.
- To compare the effects of MICT, HIIT and control groups.

Hypotheses:

- There will be significant differences among the three groups in cardiovascular endurance.
- MICT training will significantly improve cardiovascular endurance.

Methodology:

To determine the effect of Moderate Intensity Continuous Training (MICT) and high intensity interval training on cardiovascular endurance among school hockey players, 45 hockey players are selected from Pondicherry schools aged between 15-18 years. The selected subjects were divided into three groups namely MICT group, HIIT group and control group. The training groups underwent MICT and HIIT for three days a week for 8 weeks along with routine hockey practice. The control group underwent only hockey practice. All the subjects were given oral instruction about the training programme. The subjects were tested for the variable cardiovascular endurance before and after the training period of 8 weeks.

Group	Subjects
MICT	15
HIIT	15
Control	15

Variable:

Independent Variable:

- Moderate Intensity Continuous Training (MICT)
- High Intensity Interval Training (HIIT)

Dependent Variable:

Cardiovascular Endurance - Cooper 12 Minute Run Test (Distance in meters)

Descriptive Statistics:

Group	Pre Mean	Post Mean
MICT	2396	2576
HIIT	2419	2638
Control	2396	2416

Ancova Table:

Adjusted Post-Test Scores:

Source	SS	df	MS	F
Between Groups	142560	2	71280	45.72
Within Groups	65500	41	1597.56	
Total	208060	43		

Table F value (0.05 level, df 2,41) = 3.23

The above table clearly shows that the obtained F ration of the variable cardiovascular endurance is 45.72which greater than that of the table value 3.23. This shows that there was a significant difference exists between MICT, HIIT and control group. Schiff's post hoc test was used to find the differences within the HIIT MICT and control group.

Adjusted Post Test Means:

Group	Mean
MICT	2575.3
HIIT	2637.4
Control	2416.2

Scheffé Post Hoc Test:

Confidence Interval Value Calculation

For K = 3 groups, N = 45Scheffé Confidence Interval = 64.72

Scheffé Comparison Table:

Groups Compared	Mean Difference	CI Value	Result
MICT vs HIIT	62.1	64.72	Not Significant
MICT vs Control	221.2	64.72	Significant
HIIT vs Control	159.1	64.72	Significant

Results:

- Significant difference was found among the three groups.
- MICT significantly improved cardiovascular endurance compared to control.
- HIIT produced slightly higher improvement but difference with MICT was not significant.

Discussion:

Moderate intensity continuous training improves aerobic metabolism by increasing mitochondrial density and oxygen utilization. The increased stroke volume and cardiac output enhance endurance performance. The findings of the present study support previous research indicating that continuous aerobic training significantly improves cardiovascular endurance among athletes.

Conclusion:

Moderate Intensity Continuous Training significantly improves cardiovascular endurance among school hockey players.

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