



COMPARATIVE STUDY OF SELECTED MOTOR COMPONENTS OF OFFENSIVE AND DEFENSIVE HOCKEY PLAYERS

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Abstract

The purpose of this study was to compare the selected motor components of offensive and defensive hockey players. For this study total Sixteen (16) subjects were selected from Department of Physical Education, Institute of Professional Studies, Gwalior and Jiwaji University Gwalior (M.P). All subjects were Inter College Level Hockey Players. The age group of subject was 18 to 25 year. The data was collected for each variable by administering their respective tests. To ensure that the data was reliable, each subject was given sufficient time to perform the tests for each variable. To compare the selected motor components of offensive and defensive hockey player, Independent 't' test was applied and level of significance was set at 0.05. After analyzing the data significant difference was found in cardiovascular endurance, flexibility, grip strength and arm strength among offensive and defensive hockey players.

Keywords: Cardiovascular endurance, Grip Strength, Arm Strength and Flexibility.

Introduction

Cardiovascular endurance is the most important aspect of fitness. It is basically how strong your heart is, which can potentially add years to your life. The heart is the most important muscle in the human body and if it is

kept healthy then you can avoid numerous health problems. Another reason that cardiovascular endurance is important is because your heart controls the oxygen flow to all your muscles - meaning cardiovascular health has a direct impact on your performance, both endurance and strength wise. The reason your cardio performance can be improved is because the heart is a muscle, and like all other muscles in the body if you keep working it will adapt to the workload given. Cardiovascular endurance is also frequently called cardio-respiratory endurance, cardiovascular fitness, aerobic capacity, and aerobic fitness or is sometimes more broadly termed "endurance" — although endurance may also refer to the ability of the muscle to do repeated work without fatigue. It may be defined as the ability of heart and lungs to take in and to transport adequate amounts of oxygen to the working muscles for activities that involve large muscles masses, to be performed over long periods of time. Flexibility is definitely one of the most important aspects of fitness and has a very substantial role in every other part. It is extremely important to maintain a high flexibility, as it will reduce the risk of injury in any sport ten-fold and will also improve your performance. For some, flexibility does not



come naturally, but even so it should still be strived for. Flexibility is determined basically by how far a muscle can stretch its fibers. As the fibers can stretch more, the muscle becomes more flexible. For a good physical fitness, it is essential that a person has quite flexible joints and is able to maintain his or her body flexibility. The flexibility component of physical fitness enables the person to have free body movements, better coordinated movements requiring lesser work and to handle greater stress with lesser chances of injury. Precisely, flexibility may be defined as “the range of motion around a joint as determined by the elasticity of the muscles, tendons and ligaments associated with the joint under consideration”. Flexibility is a motor ability which is not clearly a conditional or a coordinative ability. It depends partly on energy liberation processes and partly on the coordinative processes of the CNS. In common usage flexibility is often equated with stretch ability, elasticity, suppleness, mobility etc.

Methodology

The subjects for this study were selected from Department of Physical Education, Institute of Professional Studies, Gwalior and Jiwaji University Gwalior (M.P). Total 16 (8 Offensive and 8 Defensive) inter college level hockey player were selected as subjects. The variables selected for the study were Cardiovascular Endurance, Flexibility, Arm Strength and Grip Strength. The data was collected for each variable by administering their respective tests. To ensure the reliability of data, sufficient number of trials were given to each subjects. To analyze the data

Independent ‘t’ test was applied at 0.05 level of significance.

Results and Findings

TABLE – 1
COMPARISON OF CARDIOVASCULAR ENDURANCE FOR OFFENSIVE AND DEFENSIVE HOCKEY PLAYERS

Player	Mean	S.D	M D	S E	t' ratio
Offensive	82.12	5.51	6.37	2.96	2.45*
Defensive	88.50	6.30			

*Significant at 0.05% level of significance, $t_{(14)(0.05)} = 2.14$

Table no.1 shows that there is significant difference in cardiovascular endurance among offensive and defensive hockey players as the obtained ‘t’ value 2.45 is significantly higher than the tabulated ‘t’ value 2.14 at the 0.05 level of significance.

TABLE - 2
COMPARISON OF FLEXIBILITY FOR OFFENSIVE AND DEFENSIVE HOCKEY PLAYERS

Player	Mean	S D	M D	S E	t' ratio
Offensive	13.12	4.29	4.62	1.65	2.79*
Defensive	8.50	1.85			

*Significant at 0.05% level of significance, $t_{(14)(0.05)} = 2.14$

Table no.2 shows that there is significant difference in flexibility among offensive and defensive hockey players as the obtained “t” value 2.79 is significantly higher than the tabulated “t” value 2.14 at the 0.05 level of significance.

TABLE – 3
COMPARISON OF ARM STRENGTH FOR OFFENSIVE AND DEFENSIVE HOCKEY PLAYERS

Player	Mean	S D	M D	S E	t' ratio
Offensive	5.06	0.49	0.77	0.26	2.89*
Defensive	5.83	0.57			

*Significant at 0.05% level of significance, $t_{(14)(0.05)} = 2.14$

Table no.3 shows that there is significant difference in arm strength among offensive and defensive hockey players as the obtained “t” value 2.89 is significantly higher than the tabulated “t” value 2.14 at the 0.05 level of significance.



TABLE - 4
COMPARISON OF GRIP STRENGTH FOR OFFENSIVE AND DEFENSIVE HOCKEY PLAYERS

Player	Mean	S D	MD	S E	t' ratio
Offensive	39.83	6.40	9.24	3.56	2.59*
Defensive	49.07	7.79			

*Significant at 0.05% level of significance, $t_{(14)}(0.05) = 2.14$

Table no.4 shows that there is significant difference in grip strength among offensive and defensive hockey players as the obtained "t" value 2.59 is significantly higher than the tabulated "t" value 2.14 at the 0.05 level of significance.

Discussion of Findings

After applying Independent t-statistics in the present study, it was revealed that there is significant difference in Cardiovascular Endurance, Arm Strength, Grip Strength and Flexibility of Offensive and Defensive hockey players. Cardiovascular Endurance, Arm Strength and Grip Strength were found to be more in Defensive players while Offensive players were found to be better in terms of Flexibility. The results of the study may be attributed due to the nature of the games played at the respective positions of participants i.e. Offensive and Defensive as both the positions have their own specific demands of different motor components.

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