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Relationship of Selected Physiological and Mental Toughness of College Men Hockey Players with the Game Performance

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ABSTRACT

This study examined the relationship between game performance with selected physiological and mental toughness of Hockey players who have represented intercollegiate level, their age ranged from 18-21 years. The subjects were taken from Ludhania district studying in Bachelor Degree only. The parameters of physiological variables like blood pressure, heart rate and lung capacity were assessed. For the purpose to examine Mental Toughness, Mental Toughness Questionnaire (1995) prepared by Allan Goldberg was administered. The questionnaire comprised of 30 statements. Every statement had 2 possible responses i.e. True or False. The four point rating scale was employed to assess the game performances of the Hockey players during game situations. Data in the four skills namely serve, pass (service reception), attack and block were rated on a scale from zero to three. The rating of the players was done by three experienced and well known judges as per the rating scale during match situations. The statistical tool used was Pearson product moment correlation. The results of the study showed that there was a significant correlation between heart rate and lung capacity with the game performance of Hockey players except blood pressure. The Hockey players have good heart rate and lung capacity which influences on skill performance of the players. It is also exemplified that there exists a positive correlation between game performances with mental toughness. Developing Mental Toughness contains practical guidance on delivering techniques that will radically improve player's abilities to control the effects of stress and pressure.

Keywords :Physiological, Mental Toughness, Game performance.

INTRODUCTION :

Successful game of Hockey needs ability of the players to generate good speed, agility, flexibility and incredible power in relation to anthropometrical, physiological and psychological effects during the play of game. Skills like serving, passing, attack and block are of utmost importance for a player at any level of play. Not merely skills but also physiological and psychological effects of a player will also contribute to the success of the player as well as of the team.

Physiology is the study of functions of the human body. Human physiology is the bird in the house of the mechanical, physical and biochemical functions of humans in good health, their organs, and the cells of which they are composed. Most aspects of human physiology and animal's experimentation have provided much of the foundation of physiological knowledge.

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Arterial blood pressure is the force of pressure, which the blood is exerting against the walls of the blood vessels in which it is contained. This pressure varies during the carding cycle. During ventricular systole, when the left ventricle is forcing blood into the aorta the pressure rises to a peak, systolic pressure. During diastole the pressure falls, the lowest value it reaches being called diastolic pressure. Systolic blood pressure is produced by the hearty muscle, which drives the contents of the ventricle into the already stretched arteries. During diastole the arteries are kept partly distended because the peripheral resistance of the arterioles prevents all the blood running off into the tissues. Thus the blood pressure depends partly on the force and volume of the blood pumped by the heart and partly o the contraction of the muscles in the walls of the arteries.

Heart rate is number of systolic and diastolic phases of heart per minute or the number of ventricular beats per minutes is heart rate. Heart rate is usually determined from pulse rate, which is number of pressure waves per minute along the carotid artery at the neck or the radial artery at the wrist. In normal individuals, Heart Rate equals pulse rate. The time period from one heart beat to the next is the internal between cardiac cycles; control of Heart Rate at rest and during work is maintained by the blood entering the heart and by the automatic nervous system. Stimulation of the vague nerves to the heart slows; down Heart Rate where as stimulation of the sympathetic nerves to the heart slows, down Heart Rate where as stimulation of the sympathetic nerves speeds up Heart Rate.

Vital capacity is defined as the largest volume of air that can be exhaled followed by deepest possible inhalation. Pulse rate as a wave of distension and elongation that is felt in an artery wall due to the contraction of the left ventricle forcing blood into the already full aorta. The basis of peak respiratory flow for monitoring the ventilatory function were the amount of air and maximum rate of flow during an expiration followed by a deepest possible inspiration. This can be measured with a peak flow meter. Vital capacity may be defined that as it's the largest volume of air that human can exert after the maximum inhalation. Many coaches are becoming aware of the importance of developing mentally tough performers and are designing programs to develop mental toughness in their athletes. Though the concept of mental toughness continues to attract the interest of researchers throughout the field of sport psychology, it remains largely unexplored in many respects.

Mental toughness is about how effectively individuals respond to stress, pressure and challenge. Understanding this concept is essential to improving performance for both the individual and organization, and this ground-breaking book explains mental toughness clearly and effectively.

The mental toughness is an important psychological characteristic of sport performance.

The assumption has been accepted that mentally tough sportsperson typically perform better, but no investigations have specifically examined this relationship. Therefore, this study sought to examine the

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relationship between physiological variables and mental toughness with sports performance in college Hockey players.

OBJECTIVE OF THE STUDY :

The objective of the present study is to examine the relationship of physiological and mental toughness with game performance of Hockey players.

MATERIAL AND METHODS :

Sample:

The present study was carried out on forty male Hockey players who have represented intercollegiate level, their age ranged from 18-21 years under the V.T.U. jurisdiction. The subjects were taken from Bangalore district studying Bachelor Degree in Engineering stream coming under Bangalore Regional jurisdiction only

Variables selected:

The parameters of physiological variables such as systolic and diastolic blood pressure, heart rate by step up test and lung capacity by using peak flow meter were assessed. For the purpose to examine Mental Toughness, Mental Toughness Questionnaire (1995) prepared by Allan Goldberg was administered. The questionnaire comprised of 30 statements. Every statement had 2 possible responses i.e. True or False. The four point rating scale was employed to assess the game performances of the Hockey players during game situations. Data in the four skills namely serve, pass (service reception), attack and block were rated on a scale from zero to three. The rating of the players was done by three experienced and well known judges as per the rating scale during match situations.

Statistical Analysis:

Pearson's Coefficient of Correlation was applied to establish the relationship among the variables measured. Data were analyzed using SPSS (Statistical Package for Social Science) version 11.5 at 0.05 and 0.01 level of probability was used to indicate statistical significance.

ANALYSIS AND INTERPRETATION OF DATA:

The results pertaining to the significant relationship between the selected physiological variables and game performance of Hockey players by using Pearson's Coefficient of Correlation are presented in the following tables.

Table-1

Table showing relationship between selected physiological variables and game performance of Hockey players.

Game Performance and Physiological Variable		N	Df (N-2)	'r' value	Level of significance
Game Performance with	**Blood Pressure**				
	- Systolic Blood Pressure	40	38	-0.117	NS
	- Diastolic Blood Pressure	40	38	- 0.038	NS
	Heart Rate	40	38	0.624	**
	Lung Capacity	40	38	0.592	**

*** Significant at 0.05 level ; ** Significant at 0.01 level.**

The above table shows the analysis of the game performance with the selected physiological variables is represented. From the above table it is clearly illustrated that there exists a positive correlation between game performance with heart rate ('r'=0.624; P<0.01) and Long capacity ('r'=0.592; P<0.01), in addition it is also showed that the game performance is not correlated with blood pressure.

Table-2

Table showing relationship between mental toughness and game performance of Hockey players.

Game Performance and Mental Toughness with facets		N	Df (N2)	'r' value	Level of significance
Game Performance with	Rebound ability	40	38	0.333	*
	Ability to Handle Pressure	40	38	0.435	**
	Winning Concentration Ability	40	38	0.632	**
	Self Confidence	40	38	0.487	**
	Goal Setting	40	38	0.567	**
	Mental Toughness (Total)	40	38	0.683	**

*** Significant at 0.05 level ; ** Significant at 0.01 level**

The above table illustrated the analysis of the game performance with the mental toughness is represented. From the above table it is clearly exemplified that there exists

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a positive correlation between game performance with reboundability ('r'=0.333; P<0.05), handle pressure ability ('r'=0.435; P<0.01), winning concentration ability ('r'=0.632; P<0.01), self confidence ('r'=0.487; P<0.01), goal setting ('r'=0.567; P<0.01) and mental toughness (total) ('r'=0.683; P<0.01).

DISCUSSION OF RESULTS

Hockey is a game played indoor or outdoor by teams whose members seek to score points in the course of hitting a ball back and forth across a net. It is a popular game in the matter of techniques, blocking as well as jumps and smashes play a crucial part in Hockey. The results of the study showed that there was a significant correlation between heart rate and lung capacity with the game performance of Hockey players except blood pressure. The Hockey players have good heart rate and lung capacity which influences on skill performance of the players. The study also concluded that there was a significant correlation between mental toughness and its facets with game performance of Hockey players. The Hockey players should involve preparing mentally to participate in various tactical moves in different situations and body contact positions during the game. Necessary care needs to be taken in training to enhance or cope up the mental toughness of Hockey players in specific and team games in general.

CONCLUSION :

Past studies have shown certain characteristics to be advantageous to players, including greater height, greater vertical jump greater mass, greater upper body strength and lower body fat %. However, each study compared the variables to some measure of overall laying ability and not to the skill performance. Hockey player can have a high overall playing ability but be weak in one specific skill. Identifying those factors that are characteristic to high performance in a certain skill may provide a focus for improvement in that skill. Once weaknesses are revealed, the player may then concentrate on improving the factors that lead to high performance in that skill. Interventions that manipulate threat assessments among low mentally tough sportspersons have the potential to facilitate better emotional and coping responses, which ultimately may enhance sport performance. Developing Mental Toughness contains practical guidance on delivering techniques that will radically improve sportsperson's abilities to control the effects of stress and pressure. Mental toughness is having the natural or developed psychological edge that predicts Athletes success. Exposure hard conditions (competition; exercise) can Development Mental Toughness.

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Various factors such as time situation; competitive experience; age; activity level; nature of sport and individual differences…have important roles in shaping and creating good mental skills.

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