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Original Research Paper

Physical Education

A COMPARITIVE ANALYSIS OF SPEED AND ENDURANCE OF SCHOOL HOCKEY PLAYERS IN HIGH AND LOW ALTITUDE

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ABSTRACT Hockey is a game played by both sexes and mainly requires physical fitness components such as speed endurance and coordinative ability. There may be various reasons, but the investigator felt that the altitude difference may help in better performance of Hockey players.

Fifteen male school Hockey players in high and low altitude were selected as subjects. Their performance of speed and endurance were measured by 50 yards run and 12 minutes run and walk test respectively. School hockey players living in high altitude have more endurance than the School hockey players living in low altitude. There is no difference in Speed between the School hockey players in high and low altitude. Based on the calculation of t ratio the study proves that there is no difference in speed between the school hockey players in high and low altitude. The study also proves that there is a significance difference in the performance of endurance between the school hockey players of high and low altitude. The school hockey players living in high altitude have more endurance than the school hockey players living on low altitude.

KEYWORDS : Physical Education, Speed, Endurance, Altitude training.

INTRODUCTION

Hockey is a team game played by both sexes requiring high level of skills and physical fitness components such as Speed Endurance and coordinative ability. The game is largely dependent upon skill, physical, physiological and motor qualities of players. The goal of physical fitness program is to improve the performance of daily living, job demands, sports and recreational activities. Physical fitness is the basic fitness of all sports. It is a combination of strength, speed, flexibility, agility and endurance. Different sports persons require different types of fitness according to their profession. Donald quoted that, "Fitness is composed of many complex factors where complete evaluation cannot be done by testing a single factor. Many variables those which include measuring cardio-respiratory, balance, flexibility and nutrition reflex each in special way and some aspects of total physical fitness. High altitude is considered to be between 5000 to 11500 feet (1524 and 3505.2 meters) above sea level. Atmospheric pressure or barometric pressure is a measurement of airs force against a surface. At low elevation the pressure is greater since the molecules of air are compressed from the weight of the air above them. At higher elevations because of less pressure the molecules are more depressed.

The percentage of oxygen in the air at sea level is the same at high altitude, but because the air molecules are more depressed and oxygen is delivered less, at high altitude our bodies make adjustments creating more RBC's to carry oxygen through the blood streams pushing the air into normally unused portions of the lungs and producing citrate synthesis that helps the oxygen make its way into body tissues, found in hemoglobin.

Speed is defined as the ability to move the entire body rapidly from one place to another. Running speed can be discussed in terms of two factors; rate of acceleration and maximal velocity. Endurance is defined as the capacity to continue to work under strain for long period of time without any undue fatigue. It is the ability to persist in strenuous activity. Endurance is one of the basic component of general athletic ability and it is usually considered to be the most important component of physical fitness. In most of the activities such as running, swimming hockey, basketball and football endurance training occupies an important place in preparation and performance.

NEED FOR THE STUDY

A Hockey player must have speed, endurance and coordination in order to perform skill and play a better game. To acquire the required skills and develop the game. A hockey player needs to practice continuously with strenuous physical exercise which is directly related to fitness. Players at high altitude have more endurance due to the climatic conditions where more RBC's are created in our body to carry oxygen. The hemoglobin level will be more in high altitude which may be the reason for the players at high altitude to have more endurance than the players living in low altitude. Athletes performing primarily anaerobic activity do not benefit from altitude training as they do not rely on oxygen to fuel their performance.

OBJECTIVES OF THE STUDY

1. The main objective of the study is to determine the difference between speed and endurance of school hockey players living in high and low altitude.
2. It is helpful to identify the motor components of players in high and low altitude.
3. To examine the efficiency of hockey players.

METHODOLOGY

The study is mainly based on the primary data. In this study fifteen school hockey players were selected randomly from the Nilgiris and the Coimbatore District who have represented their district under the age of sixteen. 50 yards run and 12 minutes run and walk test were conducted for the school hockey players. The best of two trails for 50 yards run were conducted and the best timing was taken as data. The distance covered in 12 minutes were measured as data for the endurance.

VARIABLES OF THE STUDY

SL.NO	VARIABLE	EQUIPMENT
1	Speed	Stop watch
2	Endurance	Stop watch

Table 1

Fitness components	Subjects	No of players	Mean	SD	Obtained T- Ratio	t-value
Speed	High altitude	**15**	**8.23**	**0.3574**	**0.20**	**2.131**
	Low altitude	**15**	**8.21**	**0.3051**		

Table 2

Fitness components	Subjects	No of players	Mean	SD	Obtained T- Ratio	T-value
Endurance	High altitude	**15**	**2355.33**	**299.47**	**88.68**	**2.131**
	Low altitude	**15**	**2886.67**	**243.21**		

SUMMARY AND CONCLUSION

Based on the study the investigator has drawn the following conclusions. School hockey players of high altitude and low altitude have no difference in speed. The School hockey players living in high altitude have more endurance than the players living in low altitude. The reason is that altitude doesn't make a difference in speed because no oxygen is required to perform a 50 yards run in high and low altitude. Since Speed is an anaerobic activity altitude difference doesn't affect the performance of School hockey players in high and low altitude. Endurance is an aerobic activity performed for longer time and oxygen plays an important role in the performance of school hockey players in high and low altitude. Since the oxygen is less in high altitude the body creates more hemoglobin to carry oxygen. the increase of hemoglobin may be a reason for the performance of school hockey players in high altitude to perform better than the school hockey players living in low altitude. This study proves that basically training in high altitude before competition may result in better performance due to the increase of hemoglobin during practice in high altitude.

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