A STUDY ON PHYSIOLOGICAL VARIABLES ON PLAYING ABILITY OF NATIONAL LEVEL MEN HOCKEY PLAYERS

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Introduction: The professionals must be aware of the latest and sophisticated tool that can facilitate the measurement of various physiological and morphological characteristics .For sports event proper extensive training must be given over a prolong period. Physiological variables may be defined as those variables which are directly linked with various physiological systems such as heart rate, blood pressure, vital capacity, fat percentage, respiratory rate and haemoglobin. Men's hockey develop separately from women's hockey. Hockey is a national game of India and is very popular in the country, but very less scientific work as been done especially in the field physiological profiles of men hockey players. Research work is very important for advancement of game through which we can educate the coaches, physical education teachers and hockey players regarding the role played by physiological variables in achieving high performance efficiency. Hence the scholar has undertaken the present study.

Methodology To conduct the study, Participant (N=25) men hockey players from karnataka State of IHF were selected as subjects. The age of subject ranged from 14 to 19 years. On the basis of literature available pertaining to physiological variables of hockey players, opinion of coaches, teachers as well as personal experience of scholar, the following physiological variables were selected for the purpose of the present study. Vital capacity, Breath holding capacity, Peak flow rate, VO2 max, Resting heart rate and Percentage of fat. Breath holding capacity was measured in seconds by manual breath holding capacity, Vo2 max for aerobic capacity, was measured in (mls/kg /min) by cooper 12 minute run and walk, Vital capacity (lung volume) was measured in liters by dry spirometer and Peak flow rate was measured in liter/minute by peak flow meter, Resting heart rate was measured in beats/minute as well as Skinfold thickness

measured by applying skin fold caliper on Biceps, triceps, subscapulries and suprailliac sites of the body and recorded nearest to one tenth of a millimeter. The percentage of fat was calculated by referring to assessment of fat percentage table suggested by Durnin and Rahman. Results To examine the relationship of physiological variables with performance of hockey playing ability, Pearson's Product Correlation Method was used. The level of significance was set at .05, which was considered as adequate for the purpose of the study. Table Shows Physiological Variable Physiological Variables to Playing Ability in Hockey S.NO Physiological Variables Correlation Coefficient 'r' 1. Vital Capacity and Playing ability .728 2. Breath holding capacity and Playing ability .605 3. Peak flow rate and Playing ability .705 4. Vo2 max and Playing ability .450 5. Resting heart rate and Playing ability -.61 6. Percentage of fat and Playing ability 0.04 339 Conclusion Physiological variables of male hockey players of Karnataka State and hockey playing ability was found by administering appropriate tests as well as utilization appropriate statistics. It has been found that there is a positive relationship between vital capacity and hockey playing ability. Vital capacity is important for hockey players because the greater vital capacity means greater capacity of individual to inhale air into lungs as well as efficiency of exhale. Oxygen is directly proportional to the amount of air inhaled. The greater amount of oxygen is helpful to a player as adequate oxygen is supplied to the working muscle. Excess of oxygen in the blood delays the onset of lactic acid which may further help players to exhibit performance. A Significant relationship between breath holding capacity and hockey playing ability may be because it is usually seen that player hold their breath while executing any explosive action or stroke. The holding of breath may assist individual to minimize unwanted movement of the body which may lead to the improvement of the co-ordination, thereby executing the stroke with greater force as well as accuracy. Further, holding of breath prior execution of stokes may also help an individual to concentrate better. Peak flow rate denotes the highest rate of expiratory output per minute during highest respiratory function. As and when individual play hockey she is to go for hyper ventilation in order to cope up with highest oxygen demand at that movement. Therefore higher peak flow rate will result in higher ventilation efficiency which will lead to conversation of more oxygen and ultimately producing more energy. Therefore, positive relationship of peak flow rate and playing ability was obtained. The Significant relationship between VO2 max and playing ability may be due to the reason that the game of hockey is mainly endurance dominating game and ability of individual to utilize greater oxygen during

work. It may significantly help the player to play the game with ease as sufficient oxygen is being utilized by him during contraction of muscles. The finding of the study is supported by M. J. cosgrove and F.M. Impellizzeeri. A Significant negative relationship between resting heart rate and playing ability may be because resting heart rate and efficiency of heart rate are very closely related. The lower the resting heart rate, the better the efficiency of the heart and this may help in individual to play the game better as hockey is the game where endurance and speed endurance play a very important role. Further, a player may be able to adjust/adopt to the demand of the game as heart rate may not increase to that level where individual may feel uncomfortable. The Insignificant relationship between percentage of fat and hockey playing ability may be because of the sample selected. As all men were fairly fit and had been undergoing training for last two years. The percentage of fat was optimum in their body. Further keeping the nature in the mind where players play in different position and demand of different position are different. Usually it is seen that goalkeeper and fullbacks are taller and well built is in comparison to other players but such body structure supports the position of the player, hence insignificant relationship obtained.