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A STUDY ON THE HANDBALL PLAYING ABILITY AMONG COLLEGE LEVEL PLAYERS

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A Study on the Handball Playing Ability among College Level Players

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Abstract – Handball is an ideal synthesis of the three fundamental athletic disciplines of running, jumping and throwing. Therefore it is not only a purely competitive sport but also a fine sport to be taken up with advantage by many for purposes of training and health. The player must be able to start quickly, he must be a persevering runner, he must be able to skillfully deceive his opponent, he must be able to swiftly pick up the ball or catch it in the air, he must pass the ball with precision to his team-mates and he must be able to execute all sorts of throws; in short, his body, his arms and his legs will have to be harmoniously trained.

As the name of the game suggests, hands play the most important role; hands being naturally the deftest members of the body, the growing popularity of Handball is easily explained. Many kinds of throws to score a goal are possible. The Handball player is inspired to use his hands as a means of carrying out his ideas. The game is, of course, also faster than other ball-games.

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INTRODUCTION:-

Technique and elegance combine with courage and physical strength, anthropometric characteristics, physiological parameters and psychological status, the dynamic nature of this manly sport makes it exciting to watch. Handball can be played by everybody and everywhere, nothing more being needed than a ball, a playing-field and two goal posts. Handball is not an expensive sport. They need small playing fields or gymnasiums may be used, there is a comparatively smaller number of players and a simple outfit will do. Basically it is a game played by two teams of seven (six ground player and one goal keeper) whose object is to score goals by throwing a small ball towards a goalkeeper into the goal. The ball is passed around by players using their upper body only - any contact with the ball below the knee is a foul.

A player can run with the ball, as long as they bounce it, - as in Basketball. However, they can take three steps without bouncing the ball. Players can not cross the D shaped goal area, and generally the goalkeeper stays within this D circle. This often results in players attempting to take their three steps and jumping into this area to shoot, which is allowed as long as they are off the ground when the shot is taken. Handball is mainly a contact sport, where defenders can block an opposing attacker to prevent them shooting. This tactic means that the defending team tends to guard their own D circle, whilst the attacking team passes the ball around to try to find a way to attack and run in to get a clear shot on goal. Once an attack breaks down, due perhaps to the defense intercepting a pass or the goalkeeper saving a shot, then the situation is reversed and players quickly counter attack to try to score a goal before the opposing team has had sufficient time to organise their defense.

The fact that the human being also differs from the animals in its ability to use its hands in an extremely skilled way leads to amazing phenomena. Probably the most beautiful one when it comes to sports is Handball. In year of 1928, the International Amateur Handball Federation (IAHF) was founded in Amsterdam on the occasion of the IX Olympic Games. One of the member of the foundation was Avery. Brundage (USA) who later became IOC President in 1933, Handball was included in the Olympic Programme. At the XI Olympic Games in Berlin, host Germany won the final and therefore the gold medal was received by them – in the pouring rain in front of an audience of 100.000 people, beating Austria 10:6. During the Olympic Games, the International Amateur Handball Federation held at a congress in which delegates of the 40 nations represented in the federation. Two years later at the first Field Handball World Championship, the German team – benefiting again from home advantage, also won this title. Once again, Austria came in second best. Then Germany started to impose a disastrous war on the nations of the world – resulting in immeasurable consequences also for Handball.

The International Handball Federation has also planned to allocate more funds to the developing and under-developed countries as they do not have the facilities to develop Handball. Records show that many members have profited from the development aid given to them by the federation. The International Handball Federation announces the financial conditions before organizing a competition. The dates

and the location shall be left for a public draw which shall be supervised by an International Handball Federation representative. It is also necessary to display the flags of the International Handball Federation, the member federation and the participants in the world championships. Today 183 national countries are member of the sport in International Handball federations representing approximately 800,000 teams and more than nearly 19 million sportsmen and women.

REVIEW OF LITERATURE:

Debanne and Laffaye (2011) conducted a study to predict the throwing velocity of the ball in Handball with anthropometric variables and isotonic tests. The aims of this study were to

•   investigate the influence of general anthropometric variables, Handball specific anthropometric variables, and upper-limb power and strength on ball-throwing velocity in a standing position and

•   predict this velocity using multiple regression methods. Forty two skilled male Handball players (age 21.0 ± 3.0 years; height = 1.81 ± 0.07 m; body mass = 78.3+11.3 kg) participated in the study.

We measured general anthropometric variables (height, body mass, lean mass, body mass index) and Handball specific anthropometric parameters (hand size, arm span). Upper-limb dynamic strength was assessed using a medicine ball (2 kg) throwing test, and power using a one repetition maximum bench press test. All the variables studied were correlated with ball velocity. Medicine ball throwing performance was the best predictor (r = 0.80). General anthropometric variables were better predictors (r = 0.55–0.70) than Handball specific anthropometric variables (r = 0.35–0.51). The best multiple regression model accounted for 74% of the total variance and included body mass, medicine ball throwing performance, and power output in the 20kg bench press. The equation formulated could help trainers, athletes, and professionals detect future talent and test athletes' current fitness.

Needhiraja and Kalidasan (2011) predicted the playing ability from selected anthropometrical, physical and physiological characteristics of Inter collegiate Handball Players. For this purpose one hundred and fifty eight male inter collegiate Handball players from various colleges in Tamilnadu in the year 2009 to 2011 selected as a subjects for this study and their age ranged between 17 and 25 years. The anthropometrical variables namely Body weight, Length measurements (cm) – Standing height, Arm length, Arm span, Leg length, Hand length, Hand breadth, Palm length and Palm breadth; Breadth measurements (cm) - Humerus breadth and Femur breadth; Girth measurements (cm) - Arm girth relaxed,

Arm girth flexed, Fore arm, Chest, Waist, Hip, Thigh and Calf were selected. Physical variables namely Speed, Agility, Flexibility, Leg explosive power and Muscular strength were selected and Physiological variables namely Vital Capacity, Resting heart rate, Diastolic blood pressure, Systolic blood pressure, Peak expiratory flow rate and Breath holding time were chosen as variables taken for this study. The playing ability was assessed by three qualified Handball coaches as taken as the performance factor. The data were collected by following standard techniques of International Society for the Advancement of Kinanthropometry (ISAK) during the competition using scientifically approved equipments. To determine the relationship between the selected anthropometrical, physical and physiological variables and the coaches rating on playing ability, the coefficient of correlation was used. Anthropometrical, physical and physiological variables that statistically correlated with performance were used to form respective linear predictive models . The results revealed that there exits relationship among selected anthropometrical, physical and physiological characteristics and playing ability among inter collegiate Handball players. The results also revealed that arm span, diastolic blood pressure, palm span, Peak expiratory flow rate, resting heart rate, palm length, flexibility, systolic blood pressure, agility, leg explosive power and breadth holding time were common anthropometrical, physical and physiological characteristics which can predict the playing ability in Handball players.

Natarajan and Vijayaragavan (2011) predicted the Handball playing ability from selected psychological variables among college level Handball players. To achieve the purpose of the study, the investigator selected 100 College Handball Players from different colleges. In this study the Handball playing ability was predicted from 100 College Handball Players with the help of selected Predictor variables namely Psychological Variables such as Anxiety, Aggression, Achievement Motivation and Self Confidence.

The Handball playing ability was determined by subjective rating by 3 experts and was use as the Criterion variables. The Backward multiple regression method was used to determine the prediction equation (Thomas and Nelson, 1990). Based on the limitation and delimitation of the present Research study, it was concluded that the Handball playing ability could be best predicted from psychological variables namely Anxiety, Aggression, Achievement Motivation and Self Confidence.

Needhiraja (2011) predicted the Playing ability from selected anthropometric characteristics of elite Indian Handball players. Eighty two male Junior Handball players from 13 states of India participated in the 33rd Junior National Handball Boys Championship held at Chennai during 22nd to 27th June 2010, were randomly selected as the subjects. The mean age of the subject was 18.1 (±0.83) years, and 3.41(±1.67)

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years of playing experience. Body mass, Length measurements namely Body height, arm span, arm length & hand span and Girth measurements upper arm, fore arm, chest, waist, hip and thigh were selected as anthropometrical variables for this study. The playing ability was assessed by three qualified Handball coaches as taken as the performance factor. The data were collected by following standard techniques of International Society for the Advancement of Kinanthropometry (ISAK) during the competition using scientifically approved equipments. To determine the relationship between the selected anthropometric variables and the coaches rating on playing ability, the coefficient of correlation was used. Anthropometric variables that statistically correlated with performance were used to form respective linear predictive models (stepwise argument selection). The results revealed that

there exits relationship among selected anthropometric characteristics and playing ability among elite Indian Handball players. The results also revealed that height, arm span, arm length and hand span becomes the common anthropometrical characteristics which can predict the playing ability in Handball players.

RESEARCH METHODOLOGY:

Research methodology involves the systematic procedure by which the investigator starts from the initial identification of the problem to its final conclusion. The role of the methodology was to carry out the research work in a scientific and valid manner. This part of the thesis explains the methods adopted in this study which includes selection of subjects, selection and justification of the variables, pilot study, orientation procedures, collection of data, test administration and statistical methods in this study.

SELECTION OF SUBJECTS

The purpose of the study was to predict the Handball playing ability from the selected anthropometrical, physical, physiological, and psychological variables among College level players. To achieve the purpose three hundred and four male inter - collegiate Handball players were randomly selected from various colleges in Tamilnadu state, India and their age ranged between 17 and 25 years. The subjects had past playing experience of at least three years in Handball and only those who represented their respective college teams were taken as subjects.

SELECTION OF VARIABLES

The present study mainly focus on selected anthropometrical, physical, physiological, and psychological variables. As far as the performance of Handball team is concerned above said variables are vital. The researcher reviewed number of journals,

books, e-resources, unpublished thesis, dissertations and coaching manuals in which he found that the standard skills of Handball players are based on these selected anthropometrical, physical, physiological, and psychological variables. Based on these observations, the investigator selected the following independent variables for this study.

Independent variables

The anthropometrical variables namely – Body weight;

Length measurements – Height, Arm length, Arm span, Leg length, Hand length, Hand breadth, Palm length, Palm span;

Breadth measurements – Humerus breadth and Femur breadth;

Girth measurements – Arm girth relaxed, Arm girth flexed, Forearm girth, Chest girth, Waist girth, Hip girth, Thigh girth and Calf girth. Physical variables namely – Speed, Agility, Flexibility, Leg explosive power, Leg explosive strength and Muscular endurance.

Physiological variables namely – Cardiovascular endurance, Resting heart rate, Peak expiratory flow rate and Breath holding time.

Psychological variables namely – Somatic anxiety, Cognitive anxiety, Self-confidence and Sports achievement motivation.

Handball is a sport that consists of activities of short duration but high intensity during the course of the game. There are great physical demands on the functional capabilities of the players. Great physiological demands necessarily influence the morphological characteristics. Team Handball is a complex intermittent game, which requires players to have well developed aerobic and anaerobic capacities. Motor ability, sprinting, jumping, flexibility and throwing velocity represent physical activities that are considered as important aspects of the game and contribute to the high performance of the team.

High level of performance of a Handball might be dependent upon his physiological make up and recognized that physiological fitness was needed for high level performance. Team Handball, nowadays, is becoming a mind game. Despite excellent physical condition, techniques and tactics, some player/ teams perform very badly, the reason being lack of mental fitness. In Handball, several psychological parameters play role in performance. To name a few are competitive state anxiety - somatic, cognitive, self-confidence, sports achievement motivation and sports competitive anxiety test etcetera. Successful performance requires combination of all variables like

anthropometrical, physical, physiological and psychological response. However, some authors reported that Handball is a sport that demands predominately all characteristics above mentioned.

ANALYSIS OF THE STUDY:

In this study, the Handball playing ability was predicted from the following Anthropometrical, Physical, Physiological and Psychological predictor variables such as body weight; *length measurements* – height, arm length, arm span, leg length, hand length, hand breadth, palm length, palm span; *breadth measurements* – humerus breadth and femur breadth; *girth measurements* – arm girth relaxed, arm girth flexed, forearm girth, chest girth, waist girth, hip girth, thigh girth, calf girth and other factors such as speed, agility, flexibility, leg explosive power, leg explosive strength, muscular endurance, cardiovascular endurance, resting heart rate, peak expiratory flow rate, breath holding time, somatic anxiety, cognitive anxiety, self-confidence and sports achievement motivation. The playing ability which was taken as the performance factor was subjectively assessed by three qualified Handball coaches.

Mean and Standard deviations were calculated for each of the selected variables. The inter-relationship among the selected anthropometrical, physical, physiological, psychological variables and Handball playing ability, were computed by using Pearson' product-moment correlation coefficients. The computation of multiple regressions was also used. In multiple regressions, a criterion variable from a set of predictors was predicted. Stepwise argument methods of multiple regression was used to find out the predictor variable that has the highest correlation with the criterion variables were entered in the equation depending on the contribution of each predictor.

CONCLUSION:

1. The results revealed that an Inter-relationship exists significantly between the anthropometrical, physical, physiological, psychological and performance variables among male inter - collegiate Handball players.

2. The results revealed that arm span, speed, palm span, cardiovascular endurance, somatic anxiety, palm length, peak expiratory flow rate, humerus breadth, hip girth, chest girth, arm length, waist girth, leg explosive power, standing height, sports achievement motivation and hand breadth become the common characteristics which can predict the playing ability in Handball players.

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