Introduction

Handball (also known as team handball, Olympic handball, European team handball, European handball, or Borden ball) is a team sport in which two teams of seven players each (six outfield players and a goalkeeper on each team) pass a ball to throw it into the goal of the other team. A standard match consists of two periods of 30 minutes, and the team with more goals scored wins.

Modern handball is usually played indoors, but outdoor variants exist in the forms of field handball and Czech handball (which were more common in the past) and beach handball (also called sandball).

The game is quite fast and includes body contact, as the defenders try to stop the attackers from approaching the goal. Contact is allowed only when the defensive player is completely in front of the offensive player; i.e., between the offensive player and the goal. Any contact from the side or especially from behind is considered dangerous and is usually met with penalties. When a defender successfully stops an attacking player (who loses the ball over a line), the play is stopped and restarted by the attacking team from the spot of the infraction or on the 9-metre line. Unlike in basketball, where players are allowed to commit only 5 fouls in a game, handball players are allowed an unlimited number of faults, which are considered good defence and disruptive to the attacking team's rhythm. Certain elements of the game are reminiscent of rugby; for instance, the degree of force that defence may use to stop the attacker with the ball, together with the lack of protections and helmets.

Goals are scored quite frequently; usually both teams score at least 20 goals each, and it is not uncommon for both teams to score more than 30 goals. This will not true in the earliest history of the game, when the scores were lower. But, as offensive play has improved since the late 1980s, particularly the use of counter-attacks (fast breaks) after a failed attack from the other team, goal-scoring has increased.

The team handball game of today will formed by the end of the 19th century in northern Europe - primarily in Denmark, Germany, Norway and Sweden. The first written set of team handball rules will published in 1906 by the Danish gym teacher, lieutenant and Olympic...
medalist Holger Nielsen from Ordrup grammar school north of Copenhagen. The modern set of rules will published on 29 October 1917 by Max Heiser, Karl Schelenz, and Erich Konigh from Germany. After 1919 these rules were improved by Karl Schelenz. The first international games were played under these rules, between Germany and Belgium for men in 1925 and between Germany and Austria for women in 1930.

In 1926, the Congress of the International Amateur Athletics Federation nominated a committee to draw up international rules for field handball. The International Amateur Handball Federation will formed in 1928, and the International Handball Federation will formed in 1946.

Men's field handball will played at the 1936 Summer Olympics in Berlin. During the next several decades, indoor handball flourished and evolved in the Scandinavian countries. The sport re-emerged onto the world stage as team handball for the 1972 Summer Olympics in Munich. Women's team handball will added at the 1976 Summer Olympics. Due to its popularity in the region, the Eastern European countries that refined the event became the dominant force in the sport when it will reintroduced.

The International Handball Federation organised the men's world championship in 1938 and every 4 (sometimes 3) years from World War II to 1995. Since the 1995 world championship in Iceland, the competition has been every two years. The women's world championship has been played since 1957. The IHF also organises women's and men's junior world championships. By July 2009, the IHF listed 166 member federations - approximately 795,000 teams and 19 million players.

Anthropometry is derived from two Greek words antthtopos ("man") and metron ("measure"), therefore, "measurement of man" refers to the measurement of the human individual. An early tool of physical anthropology, it has been used for identification, for the purposes of understanding human physical variation, in paleoanthropology and in various attempts to correlate physical with racial and psychological traits (David_Hurst).

The human physique differs in a thousand ways. It can be analyzed by studying the size, shape and form of an individual. For this purpose, a set of selected anthropometric measurements is taken on an individual. The intergroup comparisons are made to understand the physical
peculiarities of a population. From such body measurements, it is also possible to estimate the distribution of fat and development of bone muscle in the case of athletes and sportsmen where the physical fitness plays a vital role in the competitive performances. Tanner (1960) examined the physique and body composition of Olympic athletes at Rome during 1960, and inferred that the athletes were both born and made.

The measurements of different body dimensions and ratios are of great relevance to the physical activity, especially in sports. The anthropometric assessment of physique involves the use of carefully defined body landmarks, specific positioning of the subject and use of appropriate instruments. The measurements that are taken on an individual are highly objective and highly reliable in the hand of a trained anthropometrist. Malina pointed out that the biological or functional significance of many dimensions has not yet been adequately established.

The Competitive sports demand event specific physique and body composition to achieve the success. De Garay et al. (1974) concluded that top-level performance in a particular event demands a particular type of body size and shape, if other aspects are being similar. They showed high correlation between the body profile of an athlete and specific task (event) in which he/she excelled. Various other studies also suggest that different body sizes, shapes and proportions are beneficial in different physical activities. Hirata (1966) suggested that a nation with people whose general physique is limited to the characteristics of champions in certain events must concentrate their sports training on those specific events only. He also concluded that Japanese with small body-builds are best for gymnastics, long-distance running, boxing and weight lifting etc. whereas the Americans who are large and lean are best for basketball, volleyball, swimming, long jump, short and middle distance running. Carter (1982) suggested that the athletes who wish to achieve success in sports at a high level should compare their physique with Olympic athletes. If the athlete's bodily structure is within the limit of the Olympians, he/she may achieve high performance subjected to the optimization of other factors. Behnke and Royce (1996) concluded that long distance runners are characterized by excessive leanness, relatively small body size and a deficiency of arm girth compared to chest size and leg length. The anthropometric and compositional study on cross-country runners revealed that runners are characterized by a relatively large calf and small biceps and abdominal girths. Mc
Ardle et al. pointed out that athletes generally have physique characteristics unique to their specific sports. For example, field event athletes have relatively large quantities of lean tissues and a high percentage of body fat whereas long distance runners have the least amount of lean tissue and fat mass. He also pointed out that football players are amongst the heaviest and leanest of all sports men.

In complex kinesiologic activities such as sport games, successful performance is determined by a number of factors, first of all by anthropologic features of the players. Motor abilities are the main anthropologic component that is responsible for kinesiologic performance. In modern elite sports based on the scientific approach to the training process, athletes have been ever more aligned according to their motor, morphological and functional characteristics, thus psychologic features becoming ever more important for achievement of top results. Kinesiologists are interested in motor abilities because some of them can to a considerable extent be modified via kinesiologic operators, whereas Psychologic characteristics, being mostly genetically determined, are more important in player selection. In sport games including handball, some playing positions that require appropriate anthropologic types of players consistent with specific functions and needs of the position have been distinguished. According to playing positions, players mainly differ in their morphological features. Studies tackling differences in other anthropologic and technical-tactical player properties according to playing position are lacking. Considering the role of motor and psychologic characteristics in the players’ performance in handball, and inadequate scientific knowledge of the respective variation according to particular playing positions, the aim of the present study will to identify differences in the basic motor abilities and psychologic characteristics of elite female handball players according to playing positions (Rogulj et al. 2005).

Sport can be characterized as an environment where physical activities can be developed. Participation in athletic activities is accompanied with an increasing anxiety. This leads to young or beginner players not performing according to their potentialities (Hardy, Jones, & Gould, 1996; Orlick & Partington, 1988). The anxiety refers to situations of emotional arousal and intensity.
The evidence has illustrated that playing different ball games requires different characteristics of physical fitness, however, other researchers have questioned that due to the limited number of variables used in the analysis and the selection of fitness tests being generally used for all sport events, these differences may not exist in ball games. Moreover, attempts have not been made to investigate the differences among different ball game sports to dig out the physical fitness variables that discriminate effectively among them (Hong 2002).

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The specificity about the anthropometrics aspects seems to turn different when observed in different modalities and, even in different geographical areas, could have an implementation, not only about the training planning, as well as of the process of athletes’ selection, when there is knowledge of those specific aspects form, for position. The importance is observed in some of the anthropometrics aspects for the choice and, for consequence, gets better the athlete’s performance when is in a game, as it will emphasized by Queiroga et al. (2005) in anthropometrics analyses done in indoor soccer players, in the different positions of the game.

The development of a sport branch depends on the process of talent seeking and also on the scientifically based selection; therefore, selection of the players by their height is very important. The problem in selection correlates with the prediction of sportsmen accomplishments. Different sports disciplines have some specific demands concerning body posture, the level of development of motorics and functional abilities of the sportsmen. “Selection”, according to Vujaklia (1980), is by dictionary definition: a choice, in our case a choice of future volleyball players who could satisfy the basic requirements of volleyball, as far as anthropometric features are concerned. The criteria of selection in specific sport branches are different; one of the most important is physical posture, especially the process of determining the final height and body proportions. At the initial level of sport practice (in branches such as basketball, volleyball, high jump, etc), selection plays a crucial role. These sports demands sportsmen with accelerating height, while other sports (gymnastics) demand sportsmen with impeded height.

The best way of developing the skill of an individual in a competitive situation is working. In the game of handball we find several physical challenges. We may find two players having same skill but their performances can be different due to their physical and mental response.
We can experience the conditions of athletes at a time of poor performance. At this time, they are uptight and anxious. The nature of anxiety is shown by a feeling of apprehension and uncertainty and the experiencing of physical symptoms like butterflies in the stomach, sweaty palms and a thumping heart. More than any thing else, during the competition one can feel these anxiety symptoms. The tendency for individuals to remain anxious in sport has made ready investigators to attempt to identify the sources of anxiety and to know how different individuals perceive them.

Anxiety experienced during competition, known as competitive anxiety, can be defined as the feeling of apprehension an individual may experience in response to perceived threats during competition (Martens, 1977). Clearly there are situations in sport where athletes will doubt their own ability to put across a desired impression, either because of their own perceived lack of ability or due to external factors. For example, a skilled athlete who feels he needs to win to demonstrate his ability may still lose to a better competitor or because of factors beyond his control such as illness or injury. In these situations the inability to convey the desired impression may be perceived as a threat to athletes, social-identity, which may result in feelings of anxiety.

Spielberger and his colleagues (Spielberger 1966. Spielberger et al. 1970) drew attention to the distinction between State Anxiety and Trait Anxiety. State Anxiety is considered to be a changing emotional State, which is characterized by feelings of tension and apprehension and increased activity in the autonomous nervous system. On the other hand Trait Anxiety is considered to be a personality trait – a relatively stable tendency of disposition to perceive a wide variety of objectivity non-dangerous situations as threatening.

Although Trait & State Anxiety are considered different, these are inter-related, since it is believed that individuals with greater trait anxiety will respond to threatening situations with more intense state anxiety.

The first pre-requisite for success in any activity lies, as is well known is high motivation. Therefore, while preparing the athletes, it is the important first of all to form and develop in his striving constability induce in him an urge to systematically useful results. Desire for around harmonious development of personality through preparation for creative work and defence, the
desire to make one’s contribution to the progress of the sports and to glorify one’s collective and countering by sporting achievement.

Motivation in general is a process, which indicates why people participate in sports, the way they do. The urge to run and play when young to excel, when competing to struggle, when hindered to prove something, when challenged to escape, when confined to be aggressive, when angered and to flee, when frightened are typical of man as he matures and develops and moves through life ‘s many dangerous and competitive situations.

Thus we see that the size, shape and form of the players are known to play a significant role in the performance of sports persons. Numerous factors are responsible for the performance of handball players. Fundamental skills of handball requires a specific type of physique having specific proportions with certain conditional abilities, which can be seen in psychological variables such as anxiety , achievement motivation and competition anxiety. The purpose of this research work is to place the role of anthropometrical and psychological variables on the performance level of Indian handball players.

Statement of the problem

The Objectives of the study and the exhaustive survey of related literature had led the researcher to state the problem as “a study on Psycho-Physical profile of high and low performance of women handball players”.

Hypothesis

After contemplating various aspects of the study, it is hypothesised that significant difference will be observed between the psychological and physical characteristics of high and low performance handball players.

Delimitation

Keeping in view the resources at hand and various restrains, the study is delimited to following variables.

1. High and low performance Indian handball women players

   **High performers;** All India inter-varsity winners, runners and national players.

   **Low performers;** District, state, zonal and inter-varsity players.
2. **Selected anthropometrical parameters**

   Stature, sitting height, weight, femur biepic condyler diameter, humerus biepic condyler diameter, shoulder width, hip width, upper arm length, lower arm length, thigh length, lower leg length, biceps muscle girth, calf muscle girth, skin folds (*biceps, triceps, calf, suprailiac and sub-scapular skin folds*), wrist width, hand length, total arm length.

   *Somatotype* – (Heath carter method, 1990).

3. **Selected psychological parameters**

   * State and trait anxiety
   * Achievement motivation
   * Competition anxiety

**Significance of study**

   In India, choice of sports is determined by the child's interest, facilities available and popularity of the sports in that particular society. It is immaterial whether, his body structure is fulfilling the mechanical requirements of the game or not. If he chooses a wrong activity for which his body structure is not suited, a limit is set beyond which, his performance cannot be improved, however hard he and his coach may try.

   The findings of our study are having theoretical as well as practical implications. It is showing us clear difference in majority of the anthropometrical and psychological variables of high and low performance handball women players of our country and thus indicating the performance limits decided by the undertaken variables of our study.

   This research work shall in turn provide guidelines to our coaches, physical educationists, and sports scientists to select appropriate talent at an early age according to the inherited anthropometrical and psychological traits, comparable with model high performance women
handball players of our country. As talent selected at early childhood is the best period for nurturing the required neuro-muscular coordination for various handball skills.