CHAPTER – II
REVIEW OF RELATED LITERATURE

A huge amount of research literature is available in the field of Psychology, Physiology and anthropometry. Every day the research studies and their reports are pouring in and getting available from one corner to another corner of globe. The present study encompasses the area like psychology, physiology and anthropometry; hence the review is here undertaken of research literature from the concerned area.

“Practically one human knowledge can be found in books and libraries. Unlike other animals that must start a new with generation, man builds upon the accumulated and recorded knowledge of past,” Best(1965). These words give the investigator some knowledge about the steps already undertaken in a particular direction by other scholars and also save him from the onus of repeating the same or similar activities all over again. Mouly (1964) stated man is the only animal who does not have to begin a new in every generation but can take advantage of the knowledge which has accumulated through the centuries. Though this investigation amid at a comprehensive and through survey of the literature related to the subject of his research. It is quite possible that some studies might have escaped her attention. The present study review is based upon the literature available on the variables under investigation and therefore is confined to only those studies, which the investigator could lay his hands upon.

“The orientation provided survey of related literature is helpful in making a straight forward statement of need for investigation and of avoiding two extremes of apologetic attitudes and aggravated claims.” C.V. Good (1956).
This chapter focuses to locate, to read and to evaluate the research literature related to the planned study, which have been made in the past as well as recent. The review of the related literature serves multiple purposes and is essential for a well designed research study. The review may be useful in many ways. It is useful in limiting and identifying the research problem and hypotheses. It can help identifying possible gaps in the research.

Taking into consideration the need of survey of related literature, the investigator has put up his best to review the literature. The references of research literature enlisted in this chapter are mostly based on search of available sources of literature including books, research abstracts, periodicals, journals and the proceedings of various conferences available at Punjabi university, Patiala library, NSNIS, Patiala library, Govt. college of physical education, Patiala library, LNUPE, Gwalior library, Punjab university, Chandigarh library and Kurukshetra university, Kurukshetra library.

The genesis of any scientific research is based on studies, which have been conducted by experts and references of such studies determine the further cause of research in the same direction. So, in order to find out literature related to the present study, researcher had referred various types of studies. Keeping in view the objectives of the study, the research worker reported related literature under the following heads.

(i) Studies related to Psychological variables.
(ii) Studies related to Physiological variables.
(iii) Studies related to Anthropometric variables.
STUDIES RELATED TO PSYCHOLOGICAL VARIABLES

Level of Aspiration

The notion of aspirations can be vague, from dreams and fantasies to concrete ambitions and goals. Aspirations, however, usually connote the achievement of something high or great. They also address both present and future perspectives. In this sense, aspirations can be defined as an individual’s “ability to identify and set goals for the future, while being inspired in the present to work toward those goals” Oligive and Cobb (1996).

The term “Level of aspiration” was first used by Dembo (1931) in connection with a study of the dynamics of anger. An individual’s aspiration level represents him not only as he is at that particular moment but also as he would like to be. It is a “measure” of his intentional dispositions, an important element of his long range behavior. By knowing a person’s level of aspirations we learn a great deal about him. Like personality, level of aspiration cannot be divorced from the rest of reality. Striving for a goal encompasses several social and cultural influences determining a person’s degree of goal integration. Whether he will enjoy performing a task below his level of aspiration will depend not only on his own ambition but upon the evaluation level of performance by others (Dembo, 1976).

The level of aspiration is thus a conspicuous index of the person as an individual and as a member of society which is determined by the amount of self esteem he needs to maintain. A person whose image is wavering and unstable will go to extreme length to prop it up. He may deliberately set sights low to convince himself that he has succeeded, or aim so high that although failure is imminent he gains prestige in his
own eyes by impressing others with his high aspirations. Level of aspiration did affect both males and females. But the female students to a greater degree there was a significant interaction affect of sex and aspiration level.

Some studies have reported significant relationship between the performance and Level of aspiration. Muthayaa (1962), Empey (1956). It has also been shown that the level of aspiration one has, is itself a function of many social factors like socio-economic status (Weiner and Murry 1963), social climate (Smith and Anderson 1962). It has also been reported that the race, religion and socio-economic status may be a factor which would inhibit or help students with their aspirations.

When a Person attempts to task, he has some expectations of mind. If he attains the expected results, he is in one sense of the word, satisfied. If some degree of failure is there, this leads to seemingly paradoxical results. Academic over achievement and under-achievement are respectively indicative of successful and unsuccessful experiences. It was felt that over-achievement would be associated with reasonably and rationally higher level of aspiration whereas under achievement would be bound up with irrationally lower level of aspiration. So at present investigator proposes to present below some selected studies directly or indirectly related to this investigation in their historical perspective for interpretation and conclusion regarding the factor i.e. level of aspiration.

Hoppe (1930) defined the level of aspiration (LOA) as a person's expectations, goals or claims on his own future achievement in a given task. On the basis of experimental analysis, Hoppe found that a given performance is accompanied by a feeling of failure if it fails below the
LOA and a given performance is accompanied by a feeling of success if it goes above the LOA. Therefore, LOA according to Hoppe was essentially qualitative in nature, he ascertains LOA through the following lines of evidence: (i) the subjective nature of an individual's goal, (ii) the occurrence of success and failure experienced after the goal is achieved, conflicting and decision taking experiences, and (iii) the influence of immediate past experience on the subsequent level of goal setting behavior. Not only this, Hoppe has also investigated the various factors which effect goal setting behavior. He concluded that individual variations are found in level of aspiration. In his view, a realistic person always set a goal on the basis of his past experience keeping in view of his capabilities for doing a particular task. Thus Hoppe conceived level of aspiration as a technique for studying dynamic factors which operate in the prediction of feeling of success and failure.

Frank (1935) altered Hoppe's concept of level of aspiration (LOA) behavior in the light of his quantitative techniques, where the goodness of performance was measured in terms of the time taken to complete the set task. The subject was acquainted with the task, given a number of trials and after each trial told how long he had taken. He was subsequently asked to state how long he thought he would take to complete the next trial. By this method, the goal was expressed in the same units in which the goodness of performance was measured thus enabling direct comparison to be made between the level of aspiration and the level of performance. Frank offered evidence that the LOA is a stable personality characteristic relatively independent of specific task. He then redefined Hoppe's concept of level of aspiration
as "the term level of aspiration... is defined as level of future performance in a familiar task which an individual, knowing his level of past performance in that task, explicitly undertakes to reach. Following pioneer work of Gould et. al. (1939) employed Frank's method but made clear her conviction that there is "no one to one relationship between what we might call true aspiration level, and the quantitative measures of level aspiration." She has offered evidence that level of aspiration of a given individual is not independent of a given task., Gardner(1940) described level of aspiration as a truly quantitative concept, which has two requirements that the subject make some public indication of his arms and that he make this in quantitative terms.

Sears (1940) found one group of children who sets their level of aspiration LOA high either as a goal for achievement or as a way of gaining social approval. She found another group who seemed to be using the LOA as a defense mechanism, since by placing their LOA low they could avoid the pains of failure.

The study of Gould and Kaplan (1940) indicated that LOA has a consistent but low positive correlation with dominance and extroversion.

Gould (1941) referred to level of aspiration (LOA) as a possible method for studies, how much further is weighted how much of an upward pull it has..." but concluded with reference to earlier experiment (1939) that the nature and relationship between explicit goal strivings and for expressed LOA were yet to be discovered. She also emphasized that the action goal need not coincide with an ideal goal. The later researches mostly utilized action goals because of its
availability for its use as much or as an indirect means of access to ideal goals of the three needs. Gould regarded the first need - the need to keep the level high, as an expressions, either of the individual's desire to do well or of his desires to appear to want do well. The second need - the need become a value in itself irrespective of other consequences.

According to Festinger (1942), wish, expectations and group standards are factors influencing level of aspiration. Rotter has pointed out that the goal an individual set for himself is dependent upon two factors. First, there is a wish to excel to do better on the next trial and to do better than other subjects. Their desire for improvement tends to raise the level of aspiration. Second, there is a realistic estimate of one's ability that is based upon information concerning previous post tends to hold the level of aspiration down to a realistic level.

According to Boyd (1952) level of aspiration means an individual ambition in a dynamic situation, that is it is an individual's goal or expectation in regard to the goodness of his own future performance for a given task." Backer and Seigal referred level of aspiration, as individual strives for a particular goal or level of achievement.

Muthayya, B.C. (1959) conducted a study on level of aspiration and saw its relation to modes of reaction and frustration among adolescents. He tried to explore the relationship between frustration - reaction categories and different aspiration measure such as goal discrepancy score, attainment discrepancy score.

The level of aspiration was measured through six tasks, viz. card sorting, Rotter's level of aspiration board, figure dexterity and symbol
digit, computation and letter cancellation. Madras picture frustration study was developed by the investigator to collect the data as per need. Major findings of the study were: (i) aspirations were set above the past performance in all cases, (ii) the educational level had no influence over one's aspiration level, (iii) flexibility was more in the lower standards, (ix & x) than in higher standard (xi), (iv) rigidity after success was more in standard ix and x and after failure in standards xi (v) There was negligible correlation between aspiration and school achievement, (vi) the past performance had significant correlation with the future aspiration, (vii) aspiration pattern (high-positive, low positive and negative) have significant association with the frustration-reaction categories.

Koch (1961) has argued that when a person engages in an intrinsically motivated activity he becomes fully absorbed in fatigue and committed to it. He can tolerate substantial fatigue and suppress primary drives such as hunger. Such activities are highly organized and envisaged hence better performance.

Weinner and Murray (1963) through a study reported that the level of aspiration one has, is itself a function of many social factors like socio-economic status.

Joshi (1963) pointed out that in level of aspiration; individual strives positively toward the goal which is generally in keeping with his assets, whereas in wish fulfillment fantasies one is lost in them.

In the words of Hurlock (1967) aspiration means a longing for what is above one's achieved level with advancement on it as its end. In other words, aspiration means the goal an individual sets for himself in a task which has intense personal significance for him or in which he is ego-involved.
Clark and Clark (1971) investigated the relationship between level of aspiration and static strength of hand gripping muscles. He found that the mean physical fitness index (PFI) scores of high and zero discrepancy groups were statistically significant.

Robert (1975) has found significant relationship between aspiration level, achievement and intelligence.

Richard (1976) has found significant relationship between sex and aspirations. He found male had higher aspirations than female.

Singh (1982) found that positive correlations between scholastic attainment with academic motivation and college attendance.

Khan et al (1982) made an attempt to examine the scholastic achievement of pre-university students as influenced by their educational and vocational aspiration, religion and socio-economic status. They found that the students with low education and vocational aspirations were poor achievers when compared with students with high educational and vocational aspirations.

Reidi, M. (1982) reported that academically able pupils were over represented in more prestigious school activities and sports team.

Bhargava, Keerti (1982) conducted a study on 'human relationship in a classroom'. He gave the conclusions: The three most important reasons given by acceptors for accepting a classmate are good habits, brilliant in studies and proficient in games.

Prettic (1984) tried to find out the relationship between sex, aspiration level of perceptual discriminations. The author attempted to investigate some of the differences in a perceptual discriminations performance task due to (i) sex and (ii) level of aspiration of eighty-
seven female and fifty-six male undergraduates. It was found that the discrimination performance of females was greater than that of males. Level of aspiration did affect both males and females. But the female students to a greater degree there was a significant interaction effect of sex and aspiration level.

Kuepto and Kayser (1984) conducted a study on high school students participating in athletic events to evaluate the effect of athletic participation upon educational goals and attainment. They found that high school athletes received higher grades than non-athletes.

Mehra (1985) revealed significant negative relationship between goal discrepancy score and intellectual level and nonverbal creativity performance. She did not notice any relationship between level of aspiration and security and verbal creativity.

Kanwal and Kaur (1987) conducted a study to see the differences in educational aspiration and academic achievement between athletes and non-athletes of university and colleges students. They selected a sample of two hundred students comprising of fifty males athletes, fifty female athletes, fifty male non athletes and fifty female non athletes, equal number from same class and institution. They administered educational Aspiration Test by saxena to measure educational aspiration and academic achievement scores were worked out against the percent age of marks secured by the subject in the previous university examination. After analyzing the data they found that mean of educational aspiration scores of athletes and non athletes differed significantly at .01 level and similar results were reported when subjects were compared for educational aspiration within sex groups. It
was finally concluded that on the average the athletes have significantly high educational aspiration as compared to non athletes group. This study has taken into consideration the educational aspiration of the athletes and non athletes. To draw generalizations regarding aspiration level in a broader sense the need is there to study the general aspiration level of individuals.

Smith (1987) studied the relationship between level of aspiration among third and sixth grade boys and motor performance using three motor skills: (a) softball throw for distance, (b) standing broad jump, and (c) wall volley. He found that there was no relationship between level of aspiration and performance in motor task.

Bhatnagar (1993) stated that the correlation between level of aspiration and involvement in studies was found .042 which is insignificant and denotes almost no relationship between these two variables. The result also showed when the high involvement girls and boys were compared, significant difference (at .05 levels) in the level of aspiration with boys showing higher mean score than girls. Same pattern is evident where both the sexes having low involvement are compared. The difference was significant at .01 levels with boys showing higher level of aspiration than girls.

Sarbjit Kaur (1994) in her study “Value dimensions of postgraduate student in relation to level of aspiration and intelligence” concluded that high and low aspiration male group vary in their preferences for different value-dimensions. The values of high group are: theoretical, political, economic, social, religious and ascetic, while for the low group these are political, theoretical, ascetic, economic, social and religious.
Hernandez-Pozo, et al. (1994), Among sport people level of aspiration is a behavioral tendency that is selectively reinforced for the role it plays both during training and competitions. Level of aspiration is defined as the tendency to increase performance in terms of precision or speed. A computer simulation task was administered by means of a video game that had embedded a schedule of reinforcement. The procedure consisted of exposing individuals for 8 minutes to an RV30, letting him or her know about the points made, asking how many points he or she expected to earn in another exposure to the same task and repeating the procedure once more. The verbal estimation was compared to the score of the previous and following performance and scores from actual performance were compared as well, in that manner verbal and non-verbal scores were assessed for all subjects. 90 top Mexican athletes, 45 per sex, participated in the task. Sports were collapsed in terms of their belonging to force, resistance or ball categories. Response rate, interresponse times and reinforcement density were analyzed per sport category and gender. Results suggest differential patterns associated to gender and whether the specialty was performed as an individual or team sport.

Sharma and Joshi (2000) stated that competition in sports is connected with the aspiration of the individual for achieving higher goal in other field along plans to create a new record or to become the champion in particular sports - the higher the category of competition, the higher the aspiration. This might be the reason that athlete female may have higher aspiration.

AGGRESSION:

Some behaviors in sport may be labeled: bad, unnecessary and distasteful. Sport psychologists have used concepts of aggression to
understand and lesson these behaviors. To date, most research has conceptualized aggression as a product of individual cognition. Specifically, aggression is defined in the sport psychology literature as any behavior motivated by the intent to harm one’s opponent (Baron, 1977; Bredemeier & Shields, 1986b; Husman & Silva, 1984; Kirker, Tenenbaum & Mattson, 2000). Consequently, sport psychology analyses of aggression tend to reproduce take-for granted conceptions of aggression as male, physical and other-directed. To better understand sport aggression, it has been argued that symbolic interactions has much to offer (Baird & McGannon, 2009). By utilizing symbolic interactionism we can reconceptualize aggression as a social construct given meaning in and through interaction with self and others. From this perspective, self notions and interactions with others are important “locations” of meaning making and are significant in the study of behavior.

Muzafar, Carolyng and Sherif (1953) provides us with insight into the compelling role of competitive sports on aggression. This study was carried out in a summer camp for boys and involved three stages. (1) Boys were given maximum freedom to participate in camp wide activities through informal groups. (2) Two teams were formed in which all camp activities were done separately. (3) The Sherif wanted to study intergroup relationship, so they presented the terms with a series of competitive games and also arranged some frustrating situation for each team. In stage one and two aggression was very frequent, but the competition among the two teams in stage three resulted in considerable aggression. Two additional points about this study merit mention. First, while the loser of the contest were prone to
initiate aggression after the activity, both the lesser and winner were quick to resort to aggression and counter-aggression during the activity when frustrated. Second, although competition appears to have provoked aggression among the boys in the camp, other factors were operative in the competitive spirit.

Bandura (1959) and others are of the view that aggression is largely learned. Human beings are not born with a large array of aggression responses at their disposal. Rather, they must acquire these in much the same way as they acquire other complex forms of social behavior through direct experience or by observing the behavior of others. In short, the social learning perspective suggests that whether a specific person will behave aggressively in a given situation depends on a vast array of factors including the person's past experience, the current reinforcements associated with aggression, and many variables that shape the person's thoughts and perceptions concerning the appropriateness and potential effects of such behavior. In this study, psychological factors, namely sports competition anxiety and aggressiveness were studied in relation to soccer playing ability. Accordingly, 100 South Indian inter-varsity soccer players from the states of Tamilnadu, Kerala, Andhra Pradesh and Karnataka were selected. Sports Competition Anxiety Test (SCAT) questionnaire and aggressiveness questionnaire developed by Rainer Martens and Smith to measure anxiety and aggressiveness were adopted. Experts subjectively rated the soccer playing ability of the subjects (0 to 10 point scale). The obtained factors on the psychological factors were correlated with soccer playing ability using Pearson's Product Moment Correlation and Partial correlation to eliminate the influence of any
third variable. The results showed a negative correlation between playing ability and anxiety and also between playing ability and aggression. Of the two psychological factors, aggressiveness shows a relevant relation with soccer playing ability. The results of this investigation reveal that moderate levels of anxiety and aggressiveness are present among the South Indian Inter-University Soccer players.

Martin (1976) administered the Rosenzweig picture frustration study to 32 male basketball and wrestling athletes and found that following competition, the extra punitive aggression of the athletes was significantly lower. His work supported similar research by Husman (1955) whose findings also demonstrated a catharsis as a result of competition. The findings also demonstrated a catharsis as a result of competition. The evidence for Catharsis, however, has been contradicted by other research. The work of Rayan (1970-S), Zillman, Katcher and Milovsky (1972) and many laboratory studies show that the expression of successful aggression leads to an increase in aggression. This work would support the contention that at /The Key to the vast store house of published literature may open doors to the sources of significant problems and explanatory hypothesis and provide helpful orientation for definition of the problem background for selection of procedure and comparative data for interpretation of results. In order to be creative and original one must read extensively and critically as a stimulus to thinking.

Martin (1976) administered the Rosenzweig Picture Frustration Study of 32 male basketball and wrestling players and found that following competition, the extra punitive aggression of the athletes was significantly lower.
Silva (1979) in a study demonstrated that athletes could not
distinguish assertive from aggressive behaviour in a basket ball sport
setting. Silva (1984) noted the existence of three important variables
that influence the exhibition of rule violating behaviour of sports,
constitutive rules normative rules and reinforcement contends that a
more severe penalty for rule violations (i.e. modifying the
reinforcement). The term review means to organize the knowledge of
the specific area of research to evolve an edifice of knowledge, to show
that the study at hand would be an addition to this field. The term
literature refers to the knowledge of a particular area of investigation
of any discipline, which includes theoretical, practical and its research
studies.

Smith (1979) discusses how sport media influence athletes’
tendency to aggress. He reports that media often convey fighting and
violence as desirable and acceptable actions within hockey. This
portrayal of fights and the celebration of certain violent athletes lionize
and condone violence in the sport of hockey. In a study of 12-21 year
old hockey players and non-players, Smith (1978) investigated how
much professional hockey was watched and/or read by hockey players
and non-players. He found that 53 percent of players and 39 percent of
non-players read about hockey in magazines, newspapers, or books at
least once a week. Furthermore, 70 percent of players and 60 percent of
non-players watched television coverage of hockey at least once a
week. Interestingly, Smith (1978) also found that the athletes tended to
use aggressive and illegal acts they learned by watching hockey game
coverage at least once or twice. In his study of 83 high school hockey
players, Smith (1974) found that athletes who identified “rough and
“tough” players as their favorites committed more assaultive penalties throughout the season than did their peers who selected less violent players as their favorites. From the social learning perspective, these findings indicated that youth hockey players learn aggression and model their behavior after mediated sport images.

Some sports psychologists agree that aggression facilitates performances outcome (Widmeyer, 1984), whereas other feel it does not (Gill, 1986). The research is difficult to interpret because clear distinctions have not been drawn between aggression and assertive behaviour. Silva (1980) argues that aggression would not facilitate performance because it elevates a person’s arousal level and shifts attention to non-performance issues (i.e. hurting the opponent). In the end, the relation of aggression to performance may be of secondary importance. More central issues are whether you value performance at any cost, your concern about sports participants and ensuring that aggression does not pay – but that those acting aggressively do (Widmeyer, 1984).

Caplow (1984) explains “In virtually all competitive situations, some degree of hostility develop between competitor”. Caplow fails to substantiate this claim but perhaps a touch of truth can be found in this statement. Sports are defining as competitive and competition is potentially quite frustrating, that frustration occurs when a goal response suffers goal response. Both cannot be victorious and defeat frequently results in loss of self esteem. Thus competition is a frequent source of frustration and frustration increases the likelihood of aggression.

Ogilivie and Tulko (1984) have studied Olympic swimmers, track athletes, volleyball players, motor racing drivers and many other
top level competitors. In terms of the Cattell’s 16 P.F. results, successful sportsmen were high on factor E (dominance), F (surgery), I (tough mindedness) indicating general aggressiveness. In England, Kane, (1970) has corroborated many of these findings and concludes that they allow for a working description of the sportsmen as a stable and aggressive extrovert.

In a similar investigation, Mugno & Feltz (1985), supported Smith’s claims concerning the impact of sport environments (as depicted in media) on athletes’ willingness to aggress. In their study of youth football, Mugno and Feltz (1985) found that there was a positive correlation between the amount and type of aggressive and/or illegal acts learned from mediated coverage of football and the players’ use of aggressive and/or illegal acts. It is also important to note that this correlation did not differ across high school and youth league age groups. According to their research, youth football players tended to consume more mediated football than non-playing peers. As such, the players learned more aggressive and/or illegal acts and also tended to justify those aggressive behaviors more than non-players (Mugno & Feltz, 1985). In short, from the social learning perspective, media portrayal of aggressive and violent behaviors reinforces those behaviors as legitimate behavioral responses within the context of sport.

This portrayal allows aggressive behaviors to be learned and internalized for later use by the observer when faced with negotiating similar sporting situations. This suggests that gender differences in sport aggression may be more a product of form than magnitude (Lenzi et al., 1997).
Caparara et al (1986) found that in a laboratory context, both highly irritable and less irritable subjects expressed more aggression when pedaling a bicycle ergometer. They concluded that exercises associated with high levels of emotional susceptibility and with the institution of a provocation were highly likely to instigate and support aggression. Physical arousal through exercise, provocation and innate susceptibility to irritation frequently converge in many sports situations.

Zilman et al (1991) compared aggressive behaviors of male athletes with those of non-athletes. The athletic population was divided into those from contact sports (football and wrestling) and those from non-contact sports (swimming, tennis, track and gymnastics) when provoked, the non-athletes evidenced the highest level of retaliatory aggression as compared to the two athletic groups whereas the contact sports athletes proved to be more punitive in their aggression than were the non-contact sports athletes. It was concluded that the contact sports athletes were counteracted by the "strong aggressive habits" possibly needed in their sports, or because of the expectations others have regarding aggression in contact sports.

Sport psychology literature privileges physical aggression as the most important form of aggression. In so doing, the sport psychology literature ignores multiple means of defining, experiencing, and using unacceptable behavior in sport. This omission may also contribute to some gender differences reported in the sport psychology literature. Researchers have suggested that females are more likely to use verbal, emotional, self or relational aggression than physical aggression (Gladue, 1991; Lenzi et al., 1997; Storch et al., 2003).
This suggests that gender differences in sport aggression may be more a product of form than magnitude (Lenzi et al., 1997).

Freud (1992) supports that the use of sports as both a spectator and participant, is believed by some non-Freudians to lesson the harmful effects of aggressive instincts identified by Freud. This notion of catharsis, suggested by Freud is perhaps the most useful outcome of the kind of model of aggressive, according to contemporary reviews, Zillman (1991).

Razeena (1993) conducted a study of 110 university level female hockey players. The purpose of the study was to investigate the comparative relationship of state anxiety and aggression of defensive and offensive women hockey players. State Anxiety Questionnaire was administered to all the subjects before the competition and the aggression questionnaire was administered to all subjects after the competition. On the basis of key given by Rajner and Mastine for State anxiety and A. Kumar and P.S. Shukla for aggression. To correlate and compare the anxiety and aggression in defensive and attacking players separately. A standard error of a coefficient of correlation was computed and a t-ratio was obtained, it also shows that there is no significant difference between the two groups.

Shields and colleagues (1995) also used this notion of winning-at-all-costs as the explanation for why they found teams with high task cohesion (i.e., a group’s tendency to stick together and remain united around the task that defines the group) to have higher levels of aggression than teams with high social cohesion (i.e., a group’s tendency to stick together and remain united as a social group). They suggest that task cohesion might be related to aggression because
obtaining victory, rather than developing relationships and/or friendships, is seen as more important in a task cohesive group. Moreover, Rascle and Coulomb (2003), in an investigation of teenaged male handball players, found that team motivational climates have more influence over one’s likelihood to aggress than one’s own goal orientation. That is, participation on a team with a win-at-all-cost attitude is a powerful predictor of an individual’s belief about the importance of winning.

Young and White (1995) and Theberge (2000), females competing in traditionally male dominated sports, such as those sports typically classified as contact or collision, can utilize aggression to claim authenticity in a social sphere that privileges male bodies. Some female athletes go so far as to distance themselves from their female identity because they feel that being perceived as a woman in sport detracts from their athletic identity. This research indicates that aggression may play a role in the development and negotiation of particular sport identities and should therefore be explored in order to gain further knowledge about how aggression is experienced.

Sharma (1997) has conducted a research on the relationship of self-concept and aggressive behavior of college hockey players by using Saraswat's Self-Concept and Yagoi's Aggressive Scales. He found that the relationship of aggression with social, educational, moral and intellectual dimensions of self-concept was negative but significant statistically. The relationship of aggression with physical and temperamental dimension of self-concept was positive but insignificant statistically it is suggested that these two different explanations are not necessarily mutually exclusive.
Singh Rajinder, (1998) studied to examine the relationship of goal orientations with aggression in male adolescent handball across three institutional sport context, Physical Education, Interscholastic, and League (clubs). 30 handball games were videotaped (10 per context) and observed on monitor by means of a grid allowing the distinction between Instrumental (non-emotional and task-oriented) and Hostile (an emotional response which is an end, in itself (aggression. 240 players also completed the Questionnaire de Perception du Success in Sport.' A main effect of context emerged from 2 separate one-way multivariate analyses of variance for goal orientations and aggression. Univariate F-tests and Newman-Keuls post-hoc analyses indicated that Ego-goal orientation and Instrumental aggression were significantly higher in the League context than in the other two. Statistically significant positive correlations between measures of Ego-goal orientation and aggression were observed. Discriminate function analysis indicated that strongly Ego-goal classified players displayed more Instrumental aggression than lower Ego-goal classified players.

Green and Anthony et al. (1998) investigated differences between 19 varsity 20 intramural male football players in trait anger, anger expression and sports orientation, while varsity athletes reported comparable levels of trait anger they described significantly less internalized (anger in) and externalized anger (anger out) that intramural athletes. Also the varsity athletes reported significantly less anger control. Significant differences were also found for competitiveness and goal orientation, but not win orientation. Varsity athletes were more competitive and goal oriented than the intramural athletes.
Kerr (1999) studied the role of aggression and violence in sports. His paper is intended as a response to the International Society of Sport Psychology (ISSP) Position Stand to aggression and violence in sport. It challenges several arguments presented in the ISSP Position Stand and offers counter arguments designed to clarify the real nature of aggression and violence in sport. Specific criticisms of the Position Stand include the failure to understand the nature of aggression and violence in sport, the lack of distinction between athletes and spectators, conclusions about the influence of the media, and blaming officials for making errors that provoke aggressive acts. In his conclusions, Kerr suggests that the ISSP recommendations for dramatically reducing the incidence of aggression and violence in sport be radically revised and redrafted.

Dunn and Dunn (1999) investigated 143 elite Canadian male youth hockey players’ perceptions of aggression, goal orientation, and sportsmanship. According to the researchers, ego environments tended to have increased endorsement of aggression. It was suggested that ego environments endorsed aggression because such environments emphasize winning or dominating one’s opponent. Ego orientation was also tied to the use of injurious acts by Duda and colleagues (1991) in their investigation of goal orientation and the welfare of others. In their study of high school male and female basketball players they found that athletes with high ego and low task orientation were more likely to endorse aggressive conduct (Duda et al., 1991). Similarly, in their analysis of male rugby players, Todd and Hodge (2001) found that higher levels of ego orientation coupled with lower levels of task predisposed individuals to justify aggressive behaviors.
Kirker, Tenenbaum and Mattson (2000) conducted an investigation of the dynamics of aggression by direct observations in ice hockey and basketball; there have been significant problems in the study of sports aggression, and they are linked to how aggression has been defined, measured, and analyzed. Following a review of the whole domain, the study aimed to construct a theoretically coherent and ecologically valid framework for research, on process underlying sports aggression and to contribute to the advancement of knowledge in the area. An exploratory method using computer observational analysis as the primary research method along with complementary questionnaires and personal reflections, considered aggression in two sports: ice hockey and basketball. Data were compiled and classified by involved and independent experts relative to factors and behaviors associated with sports aggression derived from a comprehensive review of the relevant literature. Among the study's main findings were: (a) aggression was instrumental in nature two-third of the times; (b) aggressive acts typically occurred in cluster and varied in frequently according to game circumstances; and (c) multiple variables and aggression theories were related to severely aggressive acts.

Mishra (2001) conducted a study assessment of aggression and anxiety among players of selected sports. 45 district level sportspersons from different games, who reached at least the quarterfinal stage in district level tournaments in the year 1997-98, were selected as subjects for this study the players were from three different games Hockey, athletics, and tai-Kwando. 15 players were selected from each game. The players belonged to the age group 16-18 years. All the players had their responses to Competitive State Anxiety
Inventory developed by Martens, Burton, Vealey, Smith, and Bump, and Sports Aggression Inventory prepared by Kumar and Shukla. Competitive state questionnaire consisted of 27 statements that had an evaluation range from 1 to 4 for each statement. The scores obtained by them were added up. The range of scores in the sports aggression inventory was from 0 to 25. The comparison of aggression did not show any significant difference among the district level players of athletics, hockey, and tai-known-do. A particular game does not create much psychological impact on players up to district level. The study showed that the difference in games does not necessarily mean a different level of aggression in the players. This can be observed from the fact that many players participate in more than one game at district level tournaments. Hence, whatever little psychological impact, particularly on the dimension of aggression, if at all any, is created by any particular sport might be neutralized by other sports. The comparison of competitive state anxiety of district level athletic, hockey and tai-known-do players also did not show any significant variation in different games.

Rathore, Bhadana and Singh (2001) carried out an investigation of sports special ability in relation to anxiety, aggression and adjustment of Rajasthan state junior boxers. There are major loci of control in the career of sports competitors i.e. the internal and external control. Internal factors include ability, superiority in skill, practices, suitable body build, etc. while the external factors include chance, luck, influence of high-ups, financial backing, official's role and judgment etc. Success or failure in sports to a great degree is dependent on these factors. It, therefore, seems worthwhile to locate
the factors that influence sports careers and their relation to anxiety, aggression and self-efficacy. The objectives of the study were to explore the extent of special sports related ability of the Junior Boxers, to understand the personality factors of boxers, and to measure the level of anxiety, aggression and adjustment of the Junior State boxers. The sample consisted of a group of 60 Rajasthan State Junior boxers from the age group 17-19 years, who had to participate at the State level.

Brown (2003) found that both males and females who participated frequently in contact sports were more willing to use aggression than were those who reported that they rarely participated in such sports. It is difficult to determine whether the folklore and sanctions surrounding the sport produced aggressive acting people or whether aggressive people choose to participate in such sports. There are some individuals that certain sports do encourage aggression, as stated by Bredermeir (1986) in her study. She analyzed interviews of forty females and male basketball players and assessed their feelings about the legitimacy of aggression behavior along a scale of “injurious act”.

Mushier and Rusch (2003) however found adult female athletes to be more reserved (Factor A) and tough minded (Factor I) than the non athletes. In addition to these factors, athletes of Mushaier’s study were characterised to be more intelligent (Factor B+), Aggressive (Factor E+) and happy-go-lucky (Factor F+) than the non-athletes.

Digedis N, et al, (2006) conducted a study to examine the verbal aggressiveness of coaches as perceived by their athletes, 108 senior athletes (57 boys and 51 girls) ages 15-19 years. Participants were
basketball players (56 athletes) and volleyball players (52 athletes) who completed questionnaires the scale of verbal aggressiveness showed high internal consistency. A two-way analysis of variance, conducted using sex and sport as independent variables to examine interactions, yielded significant differences between adolescent volleyball and basketball athletes. Volleyball athletes had lower scores on the Verbal Aggressiveness Scale than basketball players. Research with larger samples and other sports is recommended.

Patsiauras, A., et. al. (2006) presented a study to examine the relation of verbal aggressiveness and state anxiety (somatic, cognitive, and self-confidence) in sports settings based on the ratings by volleyball coaches and their athletes. The sample consisted of volleyball athletes (n=208; 98 men and 110 women) and their coaches (n=20; 16 men and 4 women). Analysis showed that male volleyball players rated somatic anxiety higher and were more affected by the verbal aggressiveness of their coaches than female volleyball players. No mean differences were significant for male and female coaches on somatic or cognitive anxiety, self-confidence, or verbal aggressiveness. Also, correlation between sub-scale scores for male and female volleyball players and coaches was found. The correlations of verbal aggressiveness with self-confidence and anxiety were positive for these athletes, leading them to better behavior.

Coulomb-Cabagno and Rascle (2006) found that gender and experience level also interacted with level of contact around aggressive behavior. Their findings also suggest that gender difference in aggression changes depending on sport form. Because of this, Coulomb-Cabagno and Rascle (2006) propose a double conflict for
female athletes competing in traditionally male dominated sports at an elite level. They suggest that these athletes are caught between gender stereotypes and sport norms.

Shaikh, S. and Khan, A. (2011), conducted a study to examine the aggression among smashers and lifters Volley ball players. Sixty players were selected as sample from Dr. Babasaheb Ambedkar marathwara university, Aurangabad and found significant differences among smasher and lifter volleyball players. Smashers have high aggression level than lifter volleyball players.

STUDIES RELATED TO PHYSIOLOGICAL VARIABLES

The term Physiology was originally derived from a Greek root with Latin equivalent physiologia, which denoted natural knowledge. It now denotes a study of the functions of the living organization as a whole or its constituent parts.

Physiology is, therefore the discipline that deals with the bodily functions and their control. It is however, only concerned with the normal.

The Physiological variables which are taken in this study are Resting Blood Pressure and Resting Pulse rate. These Variables are playing an important role during exercises and in enhancing the performance of a player.

Yoest (1973) conducted a study on the relationship between the cardiovascular fitness and selected body measurement of eight grade boys and colleges students. Fifty and eight grade boys and forty three collegiate male subjects were selected from physical education classes. The study suggested that the, subjects, adolescent or adult who
possessed larger percentage of lean body tissue registered higher scores on the step test.

Bosco (1975) compared champion gymnasts with poor performers. The former showed low heart rate and blood pressure. This seems to be one of the outcomes of cardio-vascular fitness inducted by the interval training. Outstanding gymnasts do such training as they do a series of routine in their workout.

Parchman (1978) compared the leg strength and cardio-respiratory endurance of college women during a semester's class participation in basketball and swimming. Leg strength was tested with a dynamometer, endurance was determined from the time. A bicycle ergo meter ride could be continued at a set number of revolutions per minute and constant load. The basketball participants show a significant increase in leg strength but not on endurance test. The swimmers did not improve significantly on either test.

Standecher (1980) studied on school boys physically fit and unfit and with respect to certain cardio-respiratory components in which blood pressure was one of the components. Twenty four subjects were selected randomly of grade twelve and were divided into two groups according to their physical ability. The subjects were made to run on a motor driven treadmill with the grade and speed increased every three minutes. Blood pressure heart-rate, oxygen consumption was measured before, during and after the run. It was found that there was statistically significant difference. Difference was indicated only in case of oxygen consumption during the run and total oxygen efficiency.

Tuttle (1980) conducted a study to find out the efficiency of high school boys was shown by the pulse ratio test. The subjects were
basketball and track and field athletes who were given stepping exercise on 13 inch bench for a period of one minute. The high physical efficiency group had a faster recovery. He also found that normal pulse rate of the trained individuals was materially the same as that an untrained. He was of the opinion that trained individuals had lower initial heart rate.

Giese (1981) tested 19 male all round gymnasts from the Big-Eight Conference and a control group of 21 male Kansas university students on 12 physiological parameters the State Trait Anxiety Inventory and Lakes Test of Competition attitudes. From the 40 subjects, four groups were assigned according to their level of gymnastic placement or experience. The top nine gymnasts as reflected by their placement in the 1978 Big-Eight Conference Meet, served as group one. Ten other Big-Eight Gymnasts and the a control group of 21 male Kansas University students on 12 physiological parameters (flexibility, strength, per cent fat) showed significant between four groups. Two methods of prediction were used in an attempt to classify the gymnasts into elite or good group. Stepwise multiple regression analysis using six selected parameter, revealed that mean arterial blood pressure could best predict the gymnastics actual all round score. A discriminate analysis indicated that the psychological questionnaire classifies better than physical or existing questionnaire.

Puhli and Others (1982) conducted a study to examine the absolute and relative physical and physiological characteristics of elite men and women volleyball players. They tested eight members of U.S. men national team and 14 members of women university world game
volleyball team. The parameter measured indicated per cent body fat, VO2 max, post exercise blood lactic acid measures of vertical jumping ability and peak Iso-kinetic torque for knee flexion 80, 180, 240 and 300 degree per second. And they established following findings (1) As expected, the men were taller, heavier had a higher body density and lean body weight and lower body fat, (2) for gross measures of jumping ability the men achieved greater absolute higher for the jump and reach and a greater jump distance above the standing reach.

Regression equations using physical traits and class commitment as predictors were developed by Atinkson for determining potential skill in beginning tennis, badminton and handball. The physical traits used were agility, power, hand eye coordination and visual acuity skill lever was determined by a round robin tournament in each sport. Subjects were 140 college men enrolled in beginning classes and taught by the whole part method control. Subject included 135 students enrolled in other beginning classes and taught by part method. Another purpose of the study was to determine, if practice in the sports would significantly improve score on physical traits. A paired 't' was used to compared experimental and control group conclusion were; class commitments are probably an integrated part of skill attainment in sports, tennis and badminton by the whole part method experience greater gains in ability and hand eye coordination. Students taught tennis by the part method experience greater gains in shoulder girdle power.

Huckle (1983) compared the reaction of male junior high school athletes and non -athletes with respect to certain cardio-respiratory factors in which oxygen pulse was one of the factors but significant
difference was noted expect the duration of time where the athletes exhibited more endurance.

Bhomic (1987) conducted a study, which was intended to compare and contrast the selected physiological parameters between soccer and kabaddi players. Total 30 players from soccer and kabaddi (15 each) were selected randomly from the intercollegiate teams of Amravati University. The physiological parameters selected as criterion were blood pressure, vital capacity and resting pulse rate. The t-test was computed to find significance differences between the mean. It was concluded that Kabaddi players were significantly superior in vital capacity, whereas soccer players were significantly superior in resting pulse rate in comparison to their counterparts. But in the case of blood pressure non significance differences were found between the two groups.

Debnath (1989) purposefully studied generalized, compared and was able to contrast some selected physiological variable and body composition among football, kho-kho and Table-tennis players. Total 45 intercollegiate players of Amravati University were selected randomly selected physiological and composition were measured and analyzed by F-ratio test. It was concluded that football players had significantly higher hemoglobin content, resting pulse rate and vital capacity and balance body comparison to kho-kho and Table tennis players.

Grimmelt (1989) measured 21 physiological and 18 psychological components of 12 members from each basketball and volleyball teams of California State University along with 12 non-athletes from physical education service class. ANOVA of data,
recorded significant difference in following psychological traits between volleyball and basketball players capacity status, sociability and tolerance. The only physiological difference noted between volleyball and basketball players was weight.

Ellena (1990) studied the relation of physiological factor to football performance. Minute played during the 1958 Football season was used as the criterion. Players were measured in the 50 yard dash, right grip, left grip, arm push and pull strength. Speed correlation .60 and total strength.40 with the criterion. Both co-relations were significant but the predictive value for minutes played WGS slight.

Michale (1998) explored the possibility of developing a regression equation whereby football ability could be a predicted from an analysis of selected anthropometric measures strength test, power measures, balance, standing height and body weight. Subjects were 56 football players at University of Arkansas, six assistant football coaches, three offensives and three defensive rated each offensive and defensive player respectively. This rating on football ability was used as criterion measure. Stepwise multiple regression and polynomial regression were utilized to form predictive equations. The equation by polynomial regression was football ability - 786.65 + 7.33 bowleg - 143.22 (standing height) - 2.60 (tibial torision - 33.40 (horse power) - 0.408 body weight $R^2 = .573$ and percentage standard error of the estimate was 15.7 percent.

Fisher (1998) studied the effects of aerobic exercise on the recovery of ambulatory blood pressure in normotensive men and women. The purpose of the ambulatory portion for the study was threefold: (a) to assess the duration of post-exercise hypertension in
normotensive individuals: (b) to compare post-exercise ambulatory BP against data collected on a control day in which exercise was excluded; and (c) to compare post-exercise patterns of BP between men and women. The participants in this investigation were 10 normotensive men (5) and women (5) between the ages of 18 and 35 years. Men and women generally exhibited similar patterns in post-exercise BP over an extended recovery period. The exception to this was during seated recovery in which men had higher diastolic blood pressure (DBP) than women. Furthermore, aerobic exercise at 60% of VO2 peak did not produce a hypertensive response during recovery in normotensive men and women. Further research on carryover effects of post exercise hypertension during ambulation should involve a hypertensive population in which BP is more responsive during recovery from exercise duration of 30 minutes to 4 hours. A model for endurance performance is presented that revolves around identification of the lactate threshold velocity, which is presented as a function of numerous morphological components as well as gross mechanical efficiency. An alteration in the availability of oxygen and blood glucose during exercise can also influence endurance performance. The change in the quantity of blood glucose forms the basis for ingesting carbohydrate at 30-60 grams per hour during exercise. In laboratory simulations of performance, athletes fatigue due to hypothermia in association with near maximal heart rate and perceived exertion. The central nervous system also plays an important role in the development of fatigue from hypothermia. Dehydration during exercise promotes hypothermia by reducing skin blood flow, sweating rate and thus heat dissipation. The combination of dehydration and hypothermia during exercise causes large-scale reductions in cardiac output and blood flow to the
exercising musculature and thus has a large potential to impair endurance performance. The study conducted by Coyle, therefore, significantly concluded that the challenge at the transition to a new millennium is to synergistically integrate these physiological factors in training and competition.

Dongre (1999) conducted a study to find out the differences and similarities between the selected physical and physiological variables of wrestling and malkhamb players of Intercollegiate Level. Total 30 subjects (15 from each) were selected randomly from the intercollegiate tournaments of wrestling and malkhamb of Amravati university. The data on certain physical and physiological variables were measured before training and after 21 days of training.

It was observed from the statistical analysis that there were non-significant differences in all physical and physiological variables except flexibility in relation to the training of malkhamb and wrestling.

Goon (2000) compared a study on comparison of cardiovascular endurance of football players and endurance runners. He selected 20 men students of L.N.P.E., Gawalior of age 17 to 29 years. He administered 12-minute run/walk test to the football players and endurance runners. ‘t’ ratio was calculated and it was concluded that there was no significant difference found in cardiovascular endurance of football players and endurance runners.

Tahamont (2001) examined the relationships that exist between somatotype, age, activity level and anaerobic power in men. Norms anaerobic power in women were established. 100 women 18 to 35 years, were somatotyped according to the Health-carter anthropoments. The performed Margaria’s step for anaerobic power, reported cal/min
and filled out an activity level questionnaire. The somatotype components and their interactions showed significance correlation but the degree of relationship were too small to be of practical value. So, useful somatotype and activity level accounted for a significant amount of variance in anaerobic power increases. The $X$ anaerobic power value was 40.78 cal/min.

Caru et al. (2003) conducted a study of 95 fully trained football players from 14 to 16 years of age to measure the aerobic muscular power and the anaerobic muscular power. These had on the average a maximal anaerobic muscular power significantly higher than non-athletic subjects of the same age. On the contrary the maximal aerobic power between the two groups does not differ significantly. Differences found between the players any are related to the different type of performance.

Kenney (2005) concluded in study as: (1) Cardiovascular Endurance. A significant difference existed between the VRT and CWT groups for max VO2 on the treadmill run, but not on the Arm Ergometer. No significant differences existed between the sexes on the treadmill for males and females on the arm ergometer, (2) Muscular Strength. There was not a consistent pattern for the 1. RM scores significant differences existed between the sexes for Hip and Back (.001), Leg Extension (.03), Leg Curl (.001), Arm Cross (.004) and Decline Press (.026) 1-RM lifts. No significant differences existed between the CWT and VRT groups. On the Cybex-II males were significantly better than the females for significant differences existed between the CWT and VRT groups on the Cybex-II, (3) Muscular Endurance. The changes in muscular endurance were significantly
(0.001) weaker than the males on right arm press. (4) Flexibility. NO significant differences existed between VRT and CWT or for males and females for shoulder extension or trunk flexion. (5) Body Fat. A significant difference existed between males and females on body fat.

Burbara (2005) studied the effect of calisthenics on heart rate of college women and found that sprinting and squat thrust exercises were considered anaerobic and could not be performed beyond sixty seconds. The jumping jacks was considered the most useful calisthenic exercise for cardiovascular benefit more subjects could continue performing it longer while maintaining the heart rate level in the 150’s suggesting a steady state.

Testerman (2005) conducted a study to examine training and detraining effects on selected physiological measures of fitness in adult black women. Pre- post and detraining of post measurements were made on body weight, heart rate, blood pressure, some of skin folds (inspects, supra and thigh) and predicted max Vo2. The study was conducted in four stages and two detraining. Training was either by walking/jogging or aerobic dancing three times per week over 11 to 12 weeks at 70.75% of age adjusted max HR. On detraining period was for ten weeks a second period for fifteen weeks. Data were analyzed by factorial ANOVA. Predicted max Vo2 was significant, increased after training was either maintained or reduced back to pertaining levels through detraining. Skin fold thicknesses were significantly reduced following training and after detraining either stabilized or return to pertaining levels. Body weight, heart rate and systolic and diastolic blood pressure underwent almost no changes from training through the detraining period.
Intosh (2006) investigated that significant reductions for the experimental group were found for total body weight, resting systolic blood pressure and RPE max. Significant increase for HTL-c and HDL/TRC ratio were demonstrated by the experimental groups as a result of endurance training. A 6.7% improvement in maximal oxygen uptake (Vo2 ml/kg.min.) was found for the experimental group in response to the sixteen months data collection period. Sub maximal walking measures (heart rate, systolic blood pressure and oxygen uptake) were all found to decrease significantly, indicating an improved efficiency for these cardio respiratory measures.

Gill S. et. al. (2007) had done a study having an aim to describe the anthropometric and physiological characteristics of young-soccer players (14-17 years old) which were associated with their being successful or not as soccer players. Somatotype and body composition was calculated by measuring skin folds, limb circumferences and joint diameters. VO (2max) was estimated by state studies related to physiological variables.

Kelly R Laurson et al. (2008) examined how activity type influenced heart rates and time spent in target heart rate zones of high school students participating in physical education classes. Significantly higher average heart rates existed for fitness (142 24 beats per minute bpm) compared to team (118/24 bpm) or individual (114/18) activities. Similar results occurred for the percentage of activity time spent within a target heart rate zone (fitness 81.7 15.9%, individual 68.4 30.5%, and team 60.6 30.5%). Boys attained higher heart rates during team activities, while female students had higher rates during individual activities indicating male and female
adolescents respond differently to activity types. The highest mean heart rates were observed during fitness activities.

Adams B Jessica (2009) conducted a study that used heart beat to examine high school physical education activities intensity relative to gender and grade level differences in the U.S. With the 796 students in Central Illinois, the study showed a significant difference in all three types which include fitness 81%, individual 68.4% and team 60.6%. Moreover, the findings' indicate that fitness activities are the most efficient activities to improve cardiovascular endurance in high school physical education.

Arazi and Hoseini (2011) had done a study having an aim to compare the body fat and blood pressure in physical education and non-physical education female students of University of Guilan in Iran. The target population consisted entirely of female students of University of Guilan. Among them 140 female’s athlete and 160 females non-athlete with mean age of 22.2 ± 1.9 and 23.3 ± 2.1 years, height 168.6 ± 7.3 and 163.4 ± 4.2 cm, weight 60.3 ± 2.4 and 68.3 ± 6.36 kg and body mass index 20.54 ± 9.8 and 25.16 ± 7.7 kg/m2 respectively. Statistical tests of t-test and Pearson correlation coefficient were used to analyze the data. Non-physical education female students had a higher blood pressure (BP) than physical education ones. A low physical fitness level and high BMI were independently associated with a high BP and risk of having hypertension in non-education female. The results show that waist-hip ratio (WHR), BP (SBP and DBP) and relative fat had the significant differences among physical education females and non-physical education female students (p < 0.05), with non-physical education female students higher than the physical education female
students. In the study, a low physical activity was too important deterrent for prevalence of obesity, overweight, hypertension in non athlete females. Therefore, promotion in physical activity level, improving nutrition education program could be an effective way to decrease obesity, overweight and hypertension in non-physical education female students.

ANTHROPOMETRY:

A review of literature reveals that anthropometry was the first technique of measurement used in physical education. Anthropometry was first introduced in physical education by a physician Edward Hitchcock who occupied the first chair of physical education created in U.S.A. in 1861 at Amherst College. Thus, the history of measurement in physical education is less than 135 years old. Dr. Edward Hitchcock measured height, weight, girths, breadths, vital capacity and some strength variables of physical education students to evaluate progress and gain in health. To the work of Hitchcock was added that of D.A. Sargent who started a measurement programme at Harvard University (USA) in 1878 and published a manual on measurement and testing.

All early leaders in physical education belonged to the field of medicine and human biology who believed that proper exercise is a form of preventive medicine (Barrow and McGee, 1971; Clarke and Clarke, 1987). In a famous meeting of pioneer physical educators held in 1885 at New York, measurement was one of the major topics for discussion, when Association for the Advancement of Physical Education was founded. This Association and Young Men Christian Association (YMCA) adopted the Sargent's system of measurement for use in schools and colleges.
In recent years, the selection and development of talent in sport have been gaining greater emphasis; of course, it involves integral approach of different sport science specialists. However, the role of anthropometry as a sports science is perhaps one of the most crucial aspects in this regard. It is essential because the physique, body composition, physical growth and one's motor development are of fundamental importance in developing the criteria of talent selection and development in sports (Sodhi, 1991).

Kohlrauch (1929) reported measurements made on approximately the male athletes taking part in 1928 Amsterdam Olympic Games. The statistical treatment was limited but data indicate that there were differences in body dimensions among different sports events. Krakower reported data on 16 high Jumpers and found that the type of individual who succeeded in high Jump and long jump and long legs, a short body and broad feet.

Metheny (1939) studied the differences between the Negro and White athletes in respect to their body measurements. The results indicated that superiority in certain sports events might be attributed to those differences.

Cureton (1941) stated that, 'in general, people with long legs and, longs arms and relatively short trunks were physically weak types in long sustained heavy work, but they might show greater speed and endurance at high level of athletic activity.

'Harold's, (1953) study investigated the following aspects:

(i) Size and shape seem to have an influence on physical performance.

(ii) The very obese are poorest performance
(iii) Maximum size, body shape does not provide maximum physical fitness.

(iv) The large and fatty body varies in physical performance than the normal and thin boys.

Numerous studies have demonstrated that excess fat limits performance playback and meanwhile using 63 college male subjects, investigated the relationship between skin fold and flexibility body fat as determined from six skin fold measurements fielded moderately significant negative correlation with the flexibility measurements.

Cureton, T. K. (1954) tested 55 middle-aged athletic champion and compared them with 400 middle-aged men and with normal young men. The former were more mesomorphic (3-5-4), more linear in skeletal build, less fat with wider shoulders, smaller hips and smaller gluteus and abdominal girths than the latter.

Pernell (1958) plotted Somatic-Charts of competitors in various track and field events and noted the differences between events, even through those athletes reached moderate standards of performance.

Sinning and Lindberg (1972) reported that college women gymnasts had proportionally greater muscle mass and concentration of muscle mass in the upper trunk and shoulder girdle. They also found women gymnasts to be smaller in skeletal diameter and circumferences of the lower trunk and the limbs. They reported that upper trunk and upper limb circumferences were greater in gymnasts in comparable to the general population.

Novak et. al (1976) measured the skin folds of cyclists and marathon runners. They reported that cyclists were higher than marathon runners on several skin folds. Skin folds were tan on 28 track
runners from 400 m through the marathon by them. They stated that 400 and 800 m runners had significant higher skin folds at triceps and subscapular sites than did marathon runners.

Hirata (1979) reported data on age, height, weight, and ponderal Index of 711 female Montreal Olympic players of basketball (N81), volleyball (N104), handball (N i), and athletics (N445). All the players were in age range of 22 to 35 years reported that the average basketball players and ft: average high jumpers were the tallest (177.0) among all the other categories but the players of the gold medalists team of basketball had an average height of 182.4 cm. The handball players were taller (171.0 cm) Stouter (P.I. 23.80) than Olympic average but shorter and stouter than basketball (177.0 cm and P.I. 23.30) and Volleyball players (175.0 cm and P.I. = 23.30). According to the Author forward players in volleyball were tall and the back players required a small and stout physique, so the volleyball players were not large as basketball players on the whole.

The sprinters and the long distance runners were almost identical in height, but the former being heavier and stouter than the later. 400 m and 100m hurdlers were taller and heavier than the sprinters and long distance runners.

Eiben (1981) studied the Importance of female athlete's size shape and body proportion from the point of view of kin anthropometry. He investigated female track sprinters, hurdlers, middle distance runners, long jumpers, high jumpers, shot putters, discus and Javelin throwers. He reported that sprinters were small in stature (X 165.1 cm) and their weight was considered light. Their small stature was mainly due to their short trunk. Their upper extremities are less
muscular but their lower limbs especially lower legs were proportionally stronger with well developed muscles. The body of the female middle-distance runners (N = 26) was most near, the most slender of all the measured female track and field athletes. They were the smallest in stature (X = 164.8) and the lightest.

Carter and Borms Hebbelinck, Ross, (1981) studied the 51 female rowers of 1976 Montreal Olympic Games, the r wing for female being first time introduced in Montreal Olympic. The measurements taken were compared to the female rower’s athletic sample and to a female Canadian University student’s sample. The rowers, being taller and heavier, (174.3 cm and 64 kg.) tended to be larger in all 29 body measures than the reference samples with the exception of the university students who had large mean skin fold thickness.

Singh (1981) conducted anthropometric study on Indian male gymnasts of National level. He reported that gymnasts with shorter and lighter body size had advantage over the taller and heavier body structured gymnasts, wider shoulders, thicker arms, a smaller waist and narrow hips. Top class gymnasts were found more muscular.

Tanaka and Matsura (1982) studied the anthropometric and physiological variables of 114 Japanese young middle and long distance runners and concluded that the anthropometric attributes would predict the distance running performance to about the same degree as physiological attributes. As a result of factor analysis and the multiple regression analysis three factors i.e., linearity of physique, girth of physique and subcutaneous fat, were extracted and the first two factors were nearly equally related to the 800 meters, 1500 meter and
5000 meters performances,' 10,000 meters, however, was best accounted for the second factor.

Chauhan, M.S. (1986) studied the relationship between selected anthropometric and endurance running performance. He concluded that height, leg length, thigh length, total arm length, shoulder, chest, abdomen, hip and knee girths, thigh and calf skin fold, and lean body mass had significant and negative correlations with 1500 meters running performance, whereas 10,000 meters running performance had statistically insignificant correlations with linear segments, girths and diameter measurements, except with skin fold measurements (triceps, suprailiac, mid-axillary, thigh and calf skinfolds) and body composition variables (i.e. body density, fat percentage, fat weight and lean body mass).

Uppal A.K. and Ray. D. (1986) conducted a study on relationship of selected strength and, body composition variables to performance in shot put and javelin throw" and revealed that the relationship of selected body composition variables namely, body density lean body weight and percentage of fat to performance in shot put is not significant. Grip strength, body density and fat percentage are not significantly related to performance in javelin throw.

Chouhan, M.S., Sharma, V.P. and Sharma, J.C. (1987) conducted a study on the relationship between selected anthropometric variables and performance in standing broad jump of collegiate women and concluded that age and foot breadth had -positive correlation with performance in standing broad jump, whereas hip girth, thigh and calf skin folds, fat weight and lean body mass had significant but negative correlation with the performance in standing broad jump. Further, the
multiple correlation of the combination of selected anthropometric variables i.e. age, weight, foot breadth, hip girth and thigh girth with performance in standing broad jump was found to be significant at 5 per cent level. The multiple correlations found were not sufficient enough to be used in the prediction of Performance.

Mokha and Sidhu (1987) reported data on body fat on 8 control and 458 female players of basketball, hockey, volleyball jumpers, runners and throwers. They found 24.81%, 23.25%, 23.12%, 23.85%, 19.18%, 19.69% and 22.31% fat in controls basketball, volleyball, throwers, jumpers, runners and hockey players respectively. No significant differences were found body fat among throwers, basketball and volleyball players subcutaneous tissue than all the other categories of years.

In 1988, Kundu, Brajanath, Khaton Umne, Salema, Mukherjee C.D. and Ghosh, S.R. studied somatotype and body composition of top class junior state level male basketball players and revealed that the top class junior male state level basketball players were taller, mesomorphic-ectomorphic in physique and had suitable body composition. The champions in basketball were endomorph ectomorphic in it physique the greater height may play an important role in winning the basketball competitions and greater body density, lean body mass and less amount of fat of the body may be treated as an important contribution to be a champion.

Debnath and Bawa (1989) studied the physical structure of girls’ gymnasts of sub-junior national gymnastic championship. They found a significant difference between the best and mediocre group gymnasts in weight, biceps, sub-scapular, supra-iliac thigh and calf
skin folds and competitive performance, significant difference between high and low performance group: were reported in age, weight, height, leg-length, upper arm circumference, thing circumference and competitive performance., between mediocre and low level performers in age, height, :eight, arm length, leg length, upper arm and thing circumference They concluded that low performance in case of low per might be because of their lower age and weaker physical stricture.

In 1990, Sodhi, H.S. et al studied kinanthropometric characteristics of Indian Junior volleyball players of North India ranging in the age between 16 to 18 years. They found volleyball players in each age group possess considerably greater length of their trunk, broader shoulders and hips, wider humorous and femur, greater size of hand span, larger chest, upper at a hand thing and calf circumferences than the controls. The deficiencies are found to be statistically significant in most of the case. The skin folds show almost similar status except the biceps, trice’s and Sub-scapular skin folds showing significantly greater value fit In the controls in the 16 years age group. In somatotype the year volleyball players are significantly more endomorphic than the controls of same age. But the Other groups show similar status. In mesomorph the 16 and 18 years volleyball player are considerably better developed than the controls. On the other hand in ectomorph the sporting children have lower than the later. On the average, the volleyball players are found to be meson orphic ectomorph.

Luthra, A. and Shaw, D.(1990) conducted a study on Anthropometry of university female Athletes and reveal a that female runners, jumpers and throwers are significantly duffel's 'in height,
weight, foot length, baronial width, femur width upper arm girth, hip girth, calf girth, biceps skin fold, triceps skin fold.

Pritam Amrita, Talwar Sudesh and Bhatia R.K. (1991) conducted a study on comparison of Anthropometric measurements and body composition of women sprinters are throwers and revealed that the throwers are heavier and taller than sprinters. They have larger height, sitting height, leg length, arm Length, hand and foot length. The circumferences i.e. abdomen, hip, thigh and calf are more in throwers as compared to sprinters. This shows that throwers have more muscular body than sprinters. Throwers have larger diameters than sprinters which indicate the better development of various regions of throwers.

Gurdial (1994) conducted the study to find out the effects of six weeks coaching camp during preparatory period on the development of physical abilities. Sixteen male gymnasts who attended a six week coaching abilities measuring tests, like dips on parallel bars, chin-ups on horizontal bar, rope climbing, sit-ups in jack knife action raising legs on wall bar, sixty meter sprint and trunk flexion were administrated to each subject at the beginning and at the end of the camp. Paired ‘t’ test was applied to compute significance of difference between the mean of pre and post training tests. It was found that six week training camp brought significant improvement in arms and shoulders.

Kumar.S(1995) studied the relationship between selected anthropometric variables and performance in athletics programmed of high school and senior secondary school students. He concluded that performance in all running events 100 mts, 200 mts, 400 mts, 800 mts, 1500 mts, 5000 mts and 10000 mts events have significant relation with
age, body weight, height, leg length, thigh length, shoulder, chest, abdomen, hip, upper arm, thigh, calf girth, femur bycondylar, fat weight and lean body mass. Strength, endurance, leg strength whereas the same training could not bring significant improvement in speed and trunk flexion.

Chaohan et.al (2003) conducted a study on prediction of sprinting ability in a relation to anthropometric variables and concluded that age, body weight, height, leg length, lower leg length, total arm length, shoulder, chest, abdomen, hip, thigh and calf circumferences, byacromial diameter, bicrystal diameter, fat weight and lean body.

Manju (2005) conducted study on selected anthropometric variables and motor fitness in relation to the performance of women badminton players. She found that all selected variables of anthropometric have positive relationship with higher level of performance as compared to lower level i.e. inter-college, state and inter university level. Similarly all the motor fitness factors such as speed, strength, endurance, agility and flexibility along with explosive strength and power to have positive relationship with the playing ability of badminton game. She has conducted this study on 200 female badminton players of Haryana.

Maya (2007) on the basis of her main findings explained that higher level female volleyball players appeared to be older in age taller in height, having better arm and leg length, body weight skin fold and diameters etc. on the basis of her results she state that the general trend of improvement of overall volleyball performance of higher level volley ball players from inter college to intervarsity and state to
national. This gradual increase shows that high level players have better creative their being concepts and adjustments according to the higher level of competition. Further, her results also reveals that high level female volleyball players belonging to national, interuniversity had more conditioned body and physiological parameters like good and controlled blood pressure, better respiratory rate and breath holding, Which are contributing factors in their physiological, physical fitness than the lower groups.

Many studies are being conducted in advance countries but unfortunately the amount of scientific information available with us is certainly very less. Therefore, there is immense need to collect scientific information for systematical development of sports standard. Due to the reason the investigator has inspired to take up this study.