CHAPTER - II

REVIEW OF LITERATURE

The study of related literature is a crucial aspect of the planning and the time spent in such a survey invariably is considered a investment. The review of literature is an enacting task calling for the deep insight and clear perspective of the overall field. It is crucial step which invariably minimizes the risk of dead ends, rejected topics, wasted efforts, trial and error actively oriented toward approaches already discarded by previous investigator and even more important erroneous findings based on faulty research design. The review of literature promotes a greater understanding of the problem and its crucial aspects and ensures the avoidance of unnecessary duplications. It also provides comparative data on the basis of which one can evaluate and interpret the significance of one's findings. Review of literature in the concerned field helps one to locate the research problem as well as to guide and support the research work in hand.

Study of related literature implies locating, reading and evaluating reports of research and opinion that are related to the individual's planned research project.

In the present study though it was not possible on the part of the investigator to get accesses to the entire published and unpublished researches in the field, yet an attempt has been made to report a few studies related to the problem in hand.
Aggression and Sports

Deutsch (1949)\(^1\) investigated co-operation and competition within the context of group productivity and found that competitive groups generated more hostility and verbal aggression than co-operative groups.

Flanagan (1951)\(^2\) found fencer to be more dominating than basket ball players, Volley ball players and boxers and more feminine than the basket ball players. The badminton players were judged to be the most extrovert group, the volley ball players were the most emotionally unstable and boxers were found the most aggressive.

Muzafar and Carolyn Sherif (1953)\(^3\) provide 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 campwide activities through informal groups (2) two teams were formed in which all camp activities were done separately. (3) the Sherifs wanted to study intergroup relationship, so they presented the teams with a series of competitives 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 losers of the contest were prone to initiate aggression after the activity, both the losers and winners were quick to resort to aggression and counter-aggression during the activity when frustrated. Second, although competition appears to have provoked

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\(^1\) M. Deutsch, "The effect of co-operation and competition upon group process" Human Relations, 2: pp 129-152, (1949).


aggression among the boys in the camp, other factors were operative in the
competitive situation.

Husman (1955)\(^4\) applying projective technique compare the effect of
competition on boxers, wrestlers, cross-country runners and non-athletes. Cross-
country runners were found to be more extrapunitive while the boxers possessed
less overall intensity of aggression and superego than other groups including
non-athletes.

Johnson and Hustton (1955)\(^5\) administered the House Free Person test to
eight collegiate wrestlers three weeks before a contest, four or five hours just
prior to the contest, and the morning after the contest. Just before the contest,
aggressive tendencies were much more in evidence and aggressiveness tended
to be inwardly directed. After the match aggressive feeling were below preseason
level. No statistical data were presented, so it is impossible to determine the
reliability of the findings.

McCord and Howard (1961)\(^6\) Gorden and Smith (1965)\(^7\) and Bandura and
Watterg (1959)\(^8\) have produced data that seem to point to the following summarizing
statements:

(1) Aggressive boys seem to come from parents who are rejecting, fighting
among themselves and undermine each other's values.

(2) Parents who are inconsistent in their guidance produce frustrated,

\(^4\) B.F. Husman, "Aggression in Boxers and Wrestlers as measured by Projective Techniques". 

\(^5\) W.R. Johnson and D.H. Hutton, "Effects of combative sport upon personality dynamics as measured

\(^6\) W. McCord, J. McCord and A. Howard, "Families correlates of aggression in non-delinquent male

\(^7\) J.E. Gordon and E. Smith, "Children's aggression Parental attitudes and the effects of an affettation

\(^8\) A. Bandura and R.H. Walters, "Social learning and Personality Development" New York; Holt, 
aggressive children.

(3) Less aggressive children seem to stem from family environments that emphasise warmth, consistency and respect.

(4) Moderately aggressive youngsters are from families who are warm and non-threatening but who also evidence some non-conformity and whose controls are not always consistently administered.

By using 16 P.F. Kane (1965)\textsuperscript{9} compared mature and outstanding athletes with the other boys of the same age. The outstanding athletes, traits such as aggression, dominance, persistence, drive, confidence and general extroversion were found to go most with success in athletic skills. Successful athletes were also found to be easy going and sociable individuals without amnieties or inner urgencies.

Studies by Hammond and Goldman (1961)\textsuperscript{10} and Sherif (1966)\textsuperscript{11} seem to indicate that competition most frequently leads to an increase in aggressive behaviour. These studies reveal that participating in or viewing aggressive behaviour is far more likely to increase rather than reduce the probability of aggressive behaviour. Eysenck et. al. (1962)\textsuperscript{12} found participation in sports causing aggressive and high psychoticism.

Ogilvie and Tuiko (1964)\textsuperscript{13} 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 R

\textsuperscript{9} J.E. Kane, “Personality profiles of Physical Education Students compared with others” Proceedings of the first international congress of sports psychology, Rome, (1965).


\textsuperscript{13} B.C. Ogilvie and T.A. Tutko, “Problem athletes and how to handle them” London : Pelham, (1966).
(dominance), F (surgery), I (tough mindedness) indicating general aggressiveness. In England, Kane (1970)\textsuperscript{14} has corroborated many of these findings and concludes that they allow for a working description of the sportsmen as a stable and aggressive extrovert.

Peterson, Weber and Trousdale (1967)\textsuperscript{15} administered 16 PF to 88 female athletics participating in individual sport in swimming, diving, riding, fencing, canoeing, gymnastic and Track and field were compared with 59 team sport athletes. The two differed on 7-16 factors. The athletes from individual sport were more dominant and aggressive, adventurous, sensitive, imaginative, radical, self sufficient, resourceful and less sophisticated, than the team sport group. The athletes from individual group were more introverted and both groups were characterized by emotional stability. These female athletes were found to be more intelligent, conscientious preserving and aggressive than female non-athletes with same educational background.

Stone (1968)\textsuperscript{16} obtained TAT records of football players before and after a practice scrimmage and again after the football season. No differences were found between footballers and a control group during the season, but after the season the footballers displayed significantly less aggression in their TAT protocols than did the controls. Moreover, the violent tendencies they did exhibit, as indicated by TAT, were impersonally rather than personally oriented. Stone hypothesised that the lessened, impersonal aggression was due to anxiety because of the necessity of inhabiting overt aggression after the season.


\textsuperscript{15} S.L. Peterson and J.C. Weber and W.W. Trousdale, "Personality triat of women in team
Christy, Golshan and Hartman (1969)\textsuperscript{17} conducted a study on 5 and 6 years old children who observed either aggressive or non-aggressive model before participating in a competition. They concluded that competition increases aggression only for those children who exhibited an aggressive model.

Nelson, Garfand and Hartman (1969)\textsuperscript{18} conducted a laboratory experiment to investigate sport involvement and athletic aggression with 5 or 6 year old children who observed either an aggressive or non-aggressive model and than participated in a competitive game, with experimentally controlled outcomes. The results revealed that competition increased aggression even above levels expected from modelling alone.

Singer (1969)\textsuperscript{19} found that the more successful athletes are relatively more aggressive than dominant, adventorous, conservation, tense and enthusiastic than the less successful athlete and non-athlete.

Hartmann (1969)\textsuperscript{20} bad high school age boys witness movies of a basketball game under one of three conditions. In one version two boys simply played basketball against each other, while in both the other two versions the two basketball players became engaged in a fight. Viewing the fight led to heightened attacks (in the form of electric shocks) upon a person. The subjects were required to punish for errors in a learning situation.

Similar results were obtained by Walters and Thomas (1963)\textsuperscript{21} after subjects watched a movie of a knife fight. Further, studies by Deutsch (1949)\textsuperscript{22}, Dunn and

\textsuperscript{22} Ibid, p. 38.
Goldman (1966)\textsuperscript{23}. Hammond and Goldman (1961)\textsuperscript{24} and Sherif(1966)\textsuperscript{25} seem to indicate that competition most frequently leads to an increase in aggressive behaviour.

A number of factors which could temporarily change behaviour of sport participants has been studied but much of the research has not been developed for practitioners. This is due to lack of conscious on the part of researchers regarding their findings, but there are some results and theories which have gained wide acceptability and, therefore, can be applied to the field. Winning and losing have been found to play a large part in the level of aggression exhibited by participants following athletic contest, users tend to have higher levels of aggression after competition than do winners. Laird (1970)\textsuperscript{26}, Ryan (1974)\textsuperscript{27} "Coaches may be able to reduce levels of aggression in losing competitors by praising their efforts and maintaining a positive not throughout post game comments to athletes. Negative and inflammatory comments can have the effect of increasing already heightened aggressive feelings".

Although there are few studies in which athletes have been used as subjects to study aggression, an exception is one by Zillman, Johnson and Day (1970)\textsuperscript{28}. It was found when non-athletes, non-contact sport athletes and contact sport athletes were provoked by a confederates, the non-athletes displayed more aggressiveness than did both athletic groups. Zillman and his colleagues attribute this finding to the possibility that the athletes had acquired superior ability in coping with

\textsuperscript{24} Ibid, p. 39.
\textsuperscript{25} Ibid, p. 39.
provocation under competitive circumstances. The effect, however may be partially
counter acted by inherent. Aggressive tendencies in athletes who participate in
contact sports, proved more aggressive after provocation than did non-contact
sport athletes. Thus the following equations may be liable and on competitions of
additional research their precision may be improved.

(1) Non athletes + Provocation - relatively high level of aggression exhibited.

(2) Contact sport athletes + Provocation + experience that has enabled them
to practice inhibiting aggression + high aggression level due to psychologic
needs or traits = intermediate amounts of aggression when provoked.

(3) Non-contact sports athletes + Provocation + experience in handling
provocation + personal traits resulting in aggression inhibition = Little
aggression in'bitec inhibited.

Fletcher and Dowell (1971)29 administered the EPPS to 950 males in the
first year of the college. These subjects were classified into groups who had
participated in high school athletics and those who had not. The former athletes
and non-athletes were found to differ on dominance and aggression.

Gaebelin and Taylor (1971)30 suggested that while competition increases
the readiness participants to response aggressively behaviour depends upon
specific situational stimuli.

Volkamer (1971)31, examined soccer matches in Germany, found that team
that lost committed more fouls than did team that won. In one of few studies
examining aggression performance relationships among women, Sachs (1978)32

\[ \text{Provocation} \times \text{Athlete Type} + \text{Experience} = \text{Aggression Level} \]

29 R. Fletcher and L. Dowell, "Selected personality Characteristics of high school athletes and non
30 J. Gaebelin and S.P. Taylor, "The effects of competition and attack on physical aggression".
31 M. Volkamer, "Zuraggresivität in Kon Kurrenzorientierten Sozialen Systemen (Anvestigations into
the aggressiveness in competitive social system)". Sportwessenchaft, 1: pp 33-64, (1971).
32 M.L. Sachs., An analysis of aggression in female softball player. Review of sport and Leisure, 3:
found that success of softball team was not related to either that reactive aggression or instrumental aggression scores of team members.

Freud (1972)\textsuperscript{33} supports that the use of sport 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 aggression, according to contemporary reviews, Zillman (1979)\textsuperscript{34}.

Volkamer (1971)\textsuperscript{35} and Schilling (1972)\textsuperscript{36} reported on their first results in the differentiated diagnosis of aggressiveness in sport in their papers. In his statistical investigation, Volkamer devoted his major interest to the conditions of aggressive behaviour (foul-play) — theoretical basis was FAH, but could not explain aggressive modes of behaviour on the basis of game report sheets alone and therefore Kaufmann (1965)\textsuperscript{37} presumed an extensive construction of external environmental stimuli as conditional analysis. Schilling, the learning theoretical conception, and pointed out the necessity of an analysis of competition conditions with regards to their aggression provoking elements.

Smith (1974)\textsuperscript{38} found that children's aggression tendencies may also be related to their observation of high contact sports. In a study of 604 male hockey players he found that more hockey players he found that more than one third of the boys learned and used illegal hits by watching professional hockey. Similarly,

\textsuperscript{33} S. Freud, "Comments on Aggression". International Journal of Psycho-analysis, 53 pp 163-17 (1972)
\textsuperscript{35} Ibid, p. 43.
Mugno and Jetz (1978) found that the youth league and high school male football players learned aggressive acts by observing college and professional football.

Pompa (1980) advocated aggression for women also and considered them to be as independent, assertive the competitive.

Cullen and Cullen (1975) found that the mean numbers of penalties assessed to college hockey teams that were winnings in a game was significantly higher the mean number assessed to teams that were losing. A closer examination revealed that the winning teams were more aggressive either when the score was close as when it was extremely desperate. However, when the score differential was three or four goals the losing teams were more aggressive.

Baron (1977), frodi, Macauley and Crat (1981) suggest that gender differences in aggression are more complex and found to be decreasing with changes in society. The changing role of women in sports and the increasing presence of females in highly competitive aggressive sports may be changing gender differences in aggressive sport behaviour quite dramatically.

Williams (1978) reported low personality variation. Wnghalter and Gonodola (1991) have studied administered the profile of mood states to 16-professional female tennis players from five countries to measure tension, depression, anger, vigour, fatigue and confusion. When age was controlled older

41 Ibid., p. 11.
female athletes exhibited the "ice-berg-profiles", that is they scored higher on the
vigour mood state and lower on all other mood stages than college age women.
Younger athletes scored like college age women.

Russel and Drewery (1979)\(^{46}\) found that among 205 male amateur ice hockey
competitors in 1975 Canada Olympics games, those displaying higher levels or
physical and/or non physical aggression were not any more like to select as heroes
NHL players an teams having high penalty totals than were less aggressive game
competitors.

Silva (1979)\(^{47}\) found that basketball players who exhibit physical or verbal
aggression against opponents felt significantly less guilty than did subjects who
displayed aggressive acts in a non-subjects setting.

Widmeyer and Birch (1981)\(^{48}\) found that across four seasons in NHL, there
was no significant relationship between team aggression and team performance
output. However subsequent analysis revealed that there was a significant
relationship \((r = .48)\) between aggression and performance outcome in first period
of hockey game and a negative relationship \((r = .28)\) between aggression and
performance outcome in the third period.

Matsui and Suginoto (1984)\(^{49}\) in there study measured the differences in
Gymnastics, swimming and judo and Basketball groups. In the traits of inferiority
and nervousness, the control group differed significantly from Gymnastics,
swimming, judo and Basketball groups. On depression, the control group differed
from swimming and judo group. In aggressiveness and general activity. The
swimming group differed significantly from Judo and Basketball groups.

\(^{46}\) Ibid., p 11.
\(^{47}\) J.M. Silva, "Changes in the Affective state of Guilt as a function of exhibiting proactive assertion or
hostile Aggression". In G.C. Roberts and K. M. New Delhi (eds.), Psychology of Motor Behaviour
\(^{48}\) W.N. Widmeyer and J.S. Birch, "Aggression in professional ice hockey: A strategy for success or
\(^{49}\) M. Matsui and K. Suginoto, "Personality traits of athletes as measured by Yatabi-Cuiford Personality
Bredemeier et al. (1986) investigated the relationship between sports involvement variable and reasonings maturity and aggression tendencies among 106 girls and boys in grade and through 7, by administering a sports involvement questionnaire, participated in a moral interview, and completed two self-report instrument designed to assess aggression tendencies in sports specific and daily life contents. Analysis revealed that boys participation in medium contact sports were positively correlated with less mature reasoning and greater tendencies to aggress. Regression analysis demonstrated that sports interested predicated reasoning maturity and with their tendencies to aggress.

Gildiane (1986) purports that some of the psychological review suggests that gender differences exist in the aggressive behaviour but gender differences in sports aggression have not been examined. Enterprising investigator could countless issues to examine in relation to gender and individual differences and how they interact with situational factors to influence aggressive behaviour.

Boran (1987) suggests that if provocation is low man are more likely to behave aggressively then women. But under conditions of higher provocation both are likely to react in similar manner.

Sharma (1987) in order to findout relationship between aggression and various dimensions of self-concept of hockey players of various colleges of Punjab University Chandigarh conducted a study by administering Saraswat (SCQ) and Nagris. Aggression Scale Questionnaires and found that relationship of aggression with social, educational moral and intellectual dimensions of self-concept is negative.

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but significant statistically. Hockey players possess high level aggression and average level of self-concept on all the dimensions.

Robert and Simpson (1991)\textsuperscript{54} examined mood states of 120 non-scholarship college football players using the profile of mood states. Results suggest that Ss there did not confirm to the "iceberg profile" of tension and anger Ss indicated more mood disturbances that a sample of scholarship. Football players studied by D.R. Nation and A.D. Leunes. Defensive players showed more negative affective moods than did offensive players.

In some studies Clarizie, Harvey F. (1992)\textsuperscript{55} several controversies continue to surround the differentiation between the socially maladjusted (SM) and seriously emotionally disturbed (SED) central to the controversy is the interpretation of social maladjustment. At one extreme, some restrict the definition of SM to include the socialized aggressive and adjudicated delinquents. At the other extreme, SM is constructed broadly and includes:

1. conduct disorder (group type solitary aggressive and undifferent Sated).
2. oppositional defiant disorder, and
3. anti social personality.

An intermediate position presented herein argues for the inclusion of the socialized aggressive and unsocialized aggressive under the rubric of S.M. Given that those in the anxious withdrawn dysphoric group are viewed as both SM and SED. They should be eligible for special education services assuming adverse educational impact is evident.

Buss and Perry (1992)\textsuperscript{56} found that possible aggression involves physical


harm.

Baumgartner (1993)\textsuperscript{57} conducted a study on 100 girls and 100 boys (ages 16 years) from Slovak high schools to read description of a classroom injury that was accidental or intentional and were asked to describe the episode and imagine the further possible development of the situation. Girls rated the victimizers behaviour as more inconsiderable and unintelligible than did the boys while boys evaluated the victimizer's behaviour in both situations in approximately the same way, girls evaluated the intentional incident as more unintelligible girls also perceived the intentional incident as causing more tension than did boys. As follow up actions, boys considered aggression more appropriate, while girls favoured mediation.

Berkowitz (1993)\textsuperscript{58} reviews research on the aggressive effects of pain. Consistent with the cognitive neoassociative conception of anger and emotional aggression, a wide variety of studies with animals and humans demonstrate that pain often gives rise to an inclination to hurt an available target and also at the human level, that people in pain are apt to be angry. However, these primitive "angry/aggressive reactions can be suppressed, intensified or modified by cognitive process.

Gabel (1993)\textsuperscript{59} discusses the value of considering the experiences of the self in understanding aggression in rage in youth. It is argued that a self- psychological approach would enhance traditional psychoanalytic understanding of aggressive behaviour by examining self object relationships. Severe aggression


and rage in youth may be conceptualized as an individuals attempt to recover and be recognised as an existent and valued entity when confronted, by what may be potential psychological an nihilation or repudiation. Aggression may be used to replenish and restore a cohenent self and self-value through protesting loss, punishing the psychological attacker and attempting to compel others to change their behaviour allow a restoration of previous self-object ties, two clinical examples with young children (aged 4.5 and 11 yrs.) and a non-clinical example of range in adolescence explore aspects of this arguments.

Greene et al. (1993) investigated differences between 19 variety and 20 intramural male football players interact anger, anger expression and sports orientation. While varsity athletes reported comparable levels of trait anger, they described significantly less internalized and externalized anger than intramural athletes. Also the varsity athletes reported significant less anger control. Significant differences were also found for competitiveness and goal orientation, but not win orientation varsity athletes were more competitive and goat oriented than the intramural athletes.

Williams et al. (1993) examined consistency in natural organisation of aggressive and prosocial behaviour assessed repeatedly in vivo over a summer in residential camp for children, was predicted from situational and personal characteristics. Similarly in the situation in the types of competencies they demand in part predicted cross-situational consistency in individual differences in aggressive behaviour's. Study 2. examined the effect of cognitive competence on the discriminating pattering of behaviour variation across situations. Most pattering of behaviour variation across situations. Most cognitively competent Ss showed such discriminative patterning which was reflected in greater person x situation

interaction variance in their prosocial behaviour.

Fry and Gabriel (1994)\(^{62}\) argues that research on aggression is an outcome not so much of what is out there in nature of the things but a reflection of how western scholarship constructs its categories. It has constructed aggression as a stable category has paid little attention to the female aggregation and has paid theories on aggression from male centred research. In reality the category aggression displays a variety of acts in which women and girls are involved.

Goldstein (1994)\(^{63}\) examined the relationship between hardiness (defined in terms of commitment, control and challenge) and mood disturbances in swimmers who are trained between hardiness mood disturbances and coping behaviour Ss were 253 swimmers allowing, junior high schools, high schools or college and participating in a competitive swimming performance. Ss completed the cognitive Hardiness Inventory, the scale, and the Marlowe-cracuve social desirability scale at the beginning of these competition season and at 2-7 week intervals following the non-hard swimmers, hardy swimmers were older and experienced fewer mood disturbances during the season. Specifically hardy swimmers had lower feelings of tension, depression, anger, fatigue and confusion and higher feelings of vigour, hardy swimmers also possessed more adoptive coping behaviours.

Huang et al. (1999)\(^{64}\) conducted a study on high school athelets and found more aggression after provocation in high contact than in low contact athelets.

Arnold (2001)\(^{65}\) found that contact sports such as football and rugby har’ proveke aggression all the field.

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\(^{64}\) D.B. Huang, D.R. Cherek and S.D. Lane, "Laboratory measurement of aggression in high school age athelets : Provocation in a non sporting context". Psychological Reports, 85: pp 1251-1262, (1999).

Cox (2002)\textsuperscript{66} studied that possible aggression is more frequent in contact than in no contact sports contact sports may attract people who are already aggressive or engaging in contact sports may promote aggression.

Cox had also suggested that football players, who are contact sport athletes, are more aggressive than no contact athletes such as golfers or tennis players. Elman and McKelvie (2000)\textsuperscript{67} also found that university football players had a higher narcissism that other athletes, which involves anger and aggressive behaviour.

2.1 Aggression and Sex

Nearly all the research dealing with sport aggression have been conducted using male subjects. It was as if aggression was not something that women and girls engage in it. It's just that females seldom participate in the kind of sports that tend to trigger aggression such as ice hockey, American football and boxing.

Sport-related research suggests that men and women legitimacy of aggressive acts differently. Men tend to believe that aggression during athlete competition is legitimate while women don't.

Silva (1981)\textsuperscript{68} In the result of his research it was clearly demonstrated that male to consider aggressive, acts and rule violating behaviour to be much more acceptable than females, for males legitimacy of rule violation increase as the degree of body contact, years of participation and level of participation increases. However for females, potential body contact, year of participation and level of participation are poor predictors of whether or not rule violating behaviour is perceived as being legitimate. Gilligan (1977)\textsuperscript{69} theorized that differences in the

socialization of males and females contributes to the way in which aggressive act are perceived in sport.

We could distinguish aggression as a product of interaction of two sets of factors - personal and environmental. Each set consists of a number of individual elements that both prevent and produced aggressive outcomes. Some of these factors like height, weight, overcrowding are variables, with same other as gender incidence of extra chromosomes in discrete. Again, while male athletes are more often resort to aggression, females too are known to display aggression both on and off the field.

But still there is a great deal of variability in level of aggressiveness shown by men and women. The male hormone seems to lower the threshold of stimulation to aggression. On the other hand, the average women athlete does not stretch herself to her physiological limits as frequently as the average male athletes does. It may be concluded that women feel it hard to stimulate aggression than man. But once they are stimulated, they may have greater difficulties in managing their aggressions as they have fewer cultural outlets.

Here it must be understood that while sports is a means of self-actualization, a means also for self enhancement and positive self feeling, its attributes being mainly musculature produce role conflict in women. As observed by Duguir (1978)\textsuperscript{70}, Hart (1976)\textsuperscript{71}, Feshir (1974)\textsuperscript{72} women find it difficult to recencute the two opposing selves - the one as a feminine woman and the other as a masculaine athlete. They are expected to be submissive, passive, tender, emotional live as woman and also to exert themselves as athlete.

The diverse aspects of aggression in sports then makes it as interesting

\textsuperscript{70} M. Duguir, "The androgynous advantage; Ogres by Women and sport: From myth to reality" (Sea and Febiger, Philadelphia), (1978).

\textsuperscript{71} M. Hart, "On being Female in sport: in Hart, sport in the socio-cultural process" (Brown, Dubuque), (1976).

field of study. Aggression is to be seen not only as a simply on field behaviour but a result of frustration pain and learned behaviour. Sports is to be seen as activity to understand the capacity of athletes for both controlling and diciting aggression.

It is generally reported that a relation exists between aggressiveness and sex. Jersild and Markey (1935)\textsuperscript{73} conducted a study to this effect These researchers recorded some fifteen hundred conflicts among 54 necessary school children in free play. The conflicts were relatively short-lived, lasting on the average only about thirty seconds. Boys made more overtly aggressive responses than did the girls. The hostility the girls did display was largely indirect, i.e., somewhat inhibited, for they were more likely to use language instead of making more direct physical attacks. These differences in mode of aggression were particularly greater among the older pre-scholars in the sample.

Sherif and Sherif (1953)\textsuperscript{74} found that competitive activities between boys and girls at summer camp resulted in physical aggression.

Livon and Muson (1957)\textsuperscript{75} made an experimental study to see the relationship between overt aggression and ego-control in both male and female subjects. They found a significant negative relationship between the amount of expressed aggression and ego-control. This study further suggested that girls developed greater ego-control and less overt aggression.

Sears (1961)\textsuperscript{76} found that the twelve year old boys scored higher than the like-aged girls on a self report measure of antisocial aggression and were lower than the girls on the questionnaire measures of aggression anxiety and-pro-social aggression.

\textsuperscript{73} A.T. Jersild and F.V. Markey, "Conflicts between preschool children". Child Development Mongr. 21, (1935).


\textsuperscript{76} R.R. Sears, "Relation to early socialization experiences to aggression in middle childhood". Journal of Abnormal and Social Psychology, 63, (1961).
In many cross cultural studies, play aggression was found to be higher among males. Taylor and Epstein (1967)\textsuperscript{77} also found that males reacted aggressively to female opponents females, on the other hand was unaggressive to female opponents but reacted to provocation by male opponents in a highly aggressive manner. Berkowitz (1963)\textsuperscript{78} concluded that more aggression was levelled against men than against women.

A similar trend was also observed by Devi (1967)\textsuperscript{79} in her study — "A study of sex difference in reaction to frustrating situations". She found significantly different aggressive responses for males and females towards ten different situations incorporated in the test. Male subjects were found more overtly aggressive than females. As regards suppressed aggression She found no significant difference between the responses of male and female subjects.

Martin et al. (1972)\textsuperscript{80} results that the sports person of basketball, football and ice hockey would be for more prone to aggression/violence than cricket football and baseball sports person.

Zillmann et al. (1972)\textsuperscript{81} results that the sports persons of basketball, football (American) and ice hockey would be for more prone to aggression/violence than, cricket, football and baseball sports persons.

Figler (1978)\textsuperscript{82} had studied that the existence of heavy contact sports goest hand-in-hand with aggressive behaviour.


\textsuperscript{79} G. Devi “A study of sex difference in reaction to frustrating situations”. Psychological Studies, XII (1). (1967).


Kane (1970)\textsuperscript{63} has given the personality description of the male athlete or physical gifted individual in terms of extrovert tendencies (such as dominance, social aggression, leadership, tough-mindedness) and general emotional control reflected in such trait measurements as low anxiety and high confidence. Women athletes are most often described as being like the men athletes on the extroversion dimension but being unlike them in showing a lower level of emotional control. Kane mentioned some important additional point in the summary. The personality of top level performers in a particular sport may be different from that of lower level performers. The demands of participation and the reinforcements available for participation change as the level of skill and competition change. Aggressive behaviour is an important component in some sports in the higher levels of competition. Aggressive behaviour will, therefore, receive reinforcement Those who produce aggressive behaviour may receive greater reinforcement than those who do not. Aggression is essential for supremacy only, those who produce this behaviour may reach the upper levels of that sport.

Zaichkowsky et al. mentioned in his book "The child and physical activity" that early sex role training discourages aggression in girls but encourages it in boys.

Tulko and Neal (1975)\textsuperscript{64} concluded that early sex role training discourages aggression in girls but encourages in boys. According to then women learnt not to be aggressive, to not to win, to not to get into situations where there is risk of pain and not to be taught or they will lose their feminity.

Martin (1976)\textsuperscript{65} administered the Rosenzweig picture frustration study to 32 male basketball and wrestling players and found that following competition, the

\begin{itemize}
\item \textsuperscript{63} Ibid., p 40.
\item \textsuperscript{64} Thomas A. Tulko and Neal Patsy, "Coaching girls and Women": Psychological Perspectives (Boston: Allyn and Bacon), (1975).
\item \textsuperscript{65} L. Martin, "Effects of competition upon the aggressive responses of college basketball players and wrestlers". Research Quarterly, 47: pp 388-393, (1976).
\end{itemize}
Extrapolative aggression of the athletes was significantly lower.

Dickinson (1976)\(^{86}\) suggests that there are cultural differences in the reinforcement provided for aggressive behaviour. This is reflected in sports in a distinct differences between the reinforcement provided for males and females in their aggression. Western society, as a whole, tends to reinforce aggression in males to a very much greater extent than in females. In parallel fashion, western society also tends to punish females for aggressive behaviour to a much greater extent. The aggression is more common in male sports because of greater reinforcements available to them.

Maccoby and Jacklin in (1976)\(^{87}\) and Dollard (1969)\(^{88}\) concluded that males exhibit more aggressive behaviour than females exhibit.

Zander (1976)\(^{89}\) found in her study that women have been viewed as non-aggressive, men are seen as aggressive. This difference was discussed by Zoble in review of literature on women in sports. She found that girls are more punished for aggressive behaviour in childhood than they are boys.

Baron and Bell (1976)\(^{90}\) had reported altitudinal data which indicated that members of male contact sport teams scored higher on an altitude toward violence scale than did male member of non-contact sport or male non-athletes.

Brown (1982)\(^{91}\) researched on the legitimacy of aggressive sport behaviour.


\(^{88}\) Ibid, p. 8.


with male and female college students (N = 1300). He found that males scored significantly higher, indicating more willingness to use aggression than did females on the questionnaire. However, both females and males who participated often in contact sports were more willing to use aggression in sports than were subjects who rarely participated in contact sports.

Archer and Llyod (1987)\textsuperscript{92} even utilizing the assumption that females being physically weaker than males, substitutive verbal for physical violence, and it this is taken into account, then females are just as aggressive as males, showed that, males are more aggressive.

Archer and Parker (1994)\textsuperscript{93} studied, a modified version of a "questionnaire (QN) designed by A. Campbell et al. for adults was administered to 104 boys and 102 girls to determine whether they viewed their own aggressive acts in terms of instrumental or expressive representations, as has been found in adults. This was the case but there was no age differences and no interaction of sex and age. However the questionnaire was based towards physical aggression and hence towards an activity compatible with the masculine role. In study I, involving 193 of the Ss from study I, as well as 18 new Ss, the QN was rewarded to refer to direct aggression more characteristics of girls. Again, girls showed higher expressive scores than boys although the six differences was aminished. This supported the view that there is a general sex differences in reactions to AG or hostile acts, independent of their form.

Bjorkqvist (1994)\textsuperscript{94} reviews recent research on sex differences in aggressive styles. The concept of indirect aggression is presented and discussed. It was

argued that it is incorrect or rather non sensical to claim that males are more aggressive than females. A theory regarding the development of styles of aggressive behaviour was presented.

Bjorkqvist et al. (1994)\textsuperscript{95} investigated whether males as adults, start to use indirect aggression to some extent as females. 338 university employed (46% males and 54% females) filled in the work Harrasment scale by K. Bjorkquist at et. Special attention was drawn to subscales; rational-appearing aggression and social manipulation. It was found that males used the formal type of aggressor significantly more often than females, while females used the later more than males. Both the variants of covert aggressive intentions avoid retaliation and or social condemnation.

Frag and Hoppe Graft (1994)\textsuperscript{96} reports on an observational study on sex-difference in serious and playful aggression in early childhood. 14 girls and 14 boys (aged 2-4 years) in PortoAlerge, Brazil, participated. Half of the in attendant a nursery school for children from a favela (slum district); the others attended a nursery school that was run by a local university and represented the life conditions of the middle class of the Brazilian society. Significant six differences were found for the frequency of playful aggression for both actors and victim’s part of the aggressive act but for the actor’s role, the effect held only for the middle class setting. There were also tremendous differences between the frequencies of serious agression in girls and some of boys, although the effect was not significant.

Lightdale and Prentice (1994)\textsuperscript{97} investigated in 2 studies the influence of social roles on sex differences in aggression. In study, which involved 16 females


and 46 males undergraduates, implicit theories about sex difference over examined by asking people to predict aggression by males and females in individuated and deindividuated conditions. People expected men to be more aggressive than women but did not show any appreciation of the disinhibiting effects of deindividuation. In study 2, which involved 35 female and 39 male undergraduates, deindividuation was manipulated in laboratory to assess it effects in an aggression-eliciting situation. As predicted, men aggressed more than women in individuating condition but their difference was eliminated in the deindividuated conditions. Ss perceptions of their behaviour were more consistent with the implicit theories documented in study 1 to with how they actually behaved.

Ravneet (1995) conducted study on 120 sportsmen/women of post-graduation Kurukshetra University. Among sportsmen/women she took males and females belonging to judo, gymnastics, cricket, badminton and basketball games. She found significant difference in sportswomen and non-sports women where sportswomen are more aggressive. There was no difference in sportsmen and non-sportsmen whereas sportsmen were more aggressive than sportswomen and nonsportsmen were found more aggressive than non-sportswomen. The participants of Judo, Gymnastics were more aggressive than individuals played Cricket, Basketball and Badminton.

2.2 Aggression and Performance

People interested in sports and those who investigate sport may sent out to determine the influence of aggression on performance or the influence of performance on aggression. However the design of their research, which is typically conducted in non-controlled field setting, prohibits the establishment of any directional casualty. Thus, even though opinions and theories exist for each

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potential influence, research must be viewed as dealings generally with aggression performance relationships. This research can be divided into aggression performance relationship as both the individual player level in team level.

**Relationship at player level:**

At the individual level, aggression can be viewed as either a trait or a state phenomenon. The investigations conducted by Johnson (1972)\textsuperscript{39}, Hutton and Johnson (1954)\textsuperscript{100}, Ogilvie and Tutko (1965)\textsuperscript{101}, Kane (1966)\textsuperscript{102} and Singer (1969)\textsuperscript{103} all suggest that the trait of aggressiveness is more prevalent in successful athletes than it is less successful athletes. In five separate surveys Pilz (1979)\textsuperscript{104} found that highly successful athletes in soccer and European to handball held more positive attitudes toward committing aggressiveness acts in these sports than did less successful athletes.

Later in other study, Widmeyer and Birch (1979)\textsuperscript{105} discovered a curvilinear relationship between individual aggression and individual success. Specifically they found that highly successful (i.e. all star) university ice hockey players were either extremely aggressive or extremely non-aggressive, whereas non all stars were moderately aggressive. The fact that most of the highly non-aggressive all star group were forwards, implies that successful defence men are more aggressive than less successful defence men and successful forwards are less aggressive than less successful forwards.

\textsuperscript{3} Ibid., p 6.
\textsuperscript{102} J. Kane, "Personality description of soccer ability". Research in Physical Education, 1: pp 54-64, (1966).
\textsuperscript{103} Ibid., p 40.
Aggression with relation to team level:

Findings from examination of aggression performance relationship at the team are as equivocal as those found in the studies conducted at the individual level.

Underwood and Whitwood (1980)\textsuperscript{106} studied on difference between the number of foul committed by winning team and by loosing team. They found that loosing team committed more foul than winning team, they also found that defending players committed more foul than did attacking players.

Intelligence and Sports

Binet and Simon (1905)\textsuperscript{107} have studied the academic differences between athletes and non-athletes. They find that athletes are physically and mentally superior to non-athletes. There are genetic variations in physical and mental ability, but they prefer to take a social behavioural approach in tracing the linkages between sports participation and academic achievement.

Terman (1921)\textsuperscript{108} has studied geniuses intensively from childhood to adulthood during a good portion of this century. His gifted subjects, as reported in Volume I of the Genetic Studies of Genius, were children with I.Q.'s of 140 or more. These children, when compared to normal children, displayed a greater interest in games that required intellectual ability (thinking) and less for competitive activities. There was little difference between the groups in the amount of experience in the play and games studied. The gifted group did prefer activities popular with older children and played alone more than was the case with normal children.

Hackensmith and Miller (1935)\textsuperscript{109} showed more positive conclusions as


\textsuperscript{108} Ibid, p. 31.

related to the athletic beings more intelligent than non-participants.

Digiovanna (1937)\textsuperscript{110} conducted a study of the intelligence and athletic ability of college men. Two hundred and ninety five men between the age of eighteen and twenty. One of the required physical education classes of the southern Illinois State Teachers College acted as subjects for the study. Intelligence quotients were determined through the medium of Otis self administering tests of mental ability, higher examination (Form B). The subjects were divided into classes for fairness in athletic competition by means of Me Cloy method of classification athletic achievement scores were secured by obtaining individual records in eight events namely: standing broad jump, running broad jump, 100 yard dash, 400 yard dash, 12 pound shot-put, javelin throw, baseball throw for distance push ups: and by transporting them to single percentage score. He concluded that:

(i) There was no definite correlation between intelligence and athletic ability in college men.

(ii) There was small but definite correlation (.31) between motor ability and athletic achievement which substantiated the findings of other.

Lorenz (1958)\textsuperscript{111} conducted a study on a comparison of the academic grades and intelligence scores of participants and non-participants in infra-moral athletics at the University of Kentucky. The average academic standing and intelligence test scores of 322 students were used in their study. The results of the study suggest:

(1) The freshman participation in intramural athletics does not have a marked effect upon the students' academic grade.

(2) That participants in intramural athletics, as a whole, have a higher mean

\textsuperscript{110} Vincent G Digiovanna, "A Comparison of Intelligence and Athletic Ability of College Men", Research Quarterly 8 (October 1937). 96.

intelligence sigma ranking than those who do not participate.

(3) The sophomore participant show a slightly higher mean academic grade and that junior and senior intramural participants demonstrate a definitely higher mean academic grade than do non-participants of the same class.

Thompson (1939)\textsuperscript{112} compared the intelligence of aioh school athletes with non-athletes of Washington high schools. He found athletes as a group were more intelligent.

Johnson (1942)\textsuperscript{113} studied the relationship that existed between physical skill as measured and the general intelligence of college students. The test results of the study indicated that:

(i) There was no significant relation between physical skill as measured and mental power or general intelligence as measured.

(ii) There was no significant relationship between physical skill and academic grades.

(iii) There was a hint of relationship between skill and grades in physical education activity.

(iv) There was just a meager relationship between intelligence as measured and academic grades.

Biddulph (1954)\textsuperscript{114} tested the athletic skills of 461 high school boys. It was concluded that the high athletic group did significantly better in grade point average, although there was no significant difference in Intelligence Quotient.

Krant and Tabin (1954)\textsuperscript{115} warns of the limitations of motor measurement


\textsuperscript{114} Ibid, p. 27.

tools and methodologies in investigations that have attempted to compare motor and intellectual functioning. Considering experjumental drawbacks, it appears from the research that intelligence is only slightly, if at all, related to proficiency in physical activities, at least within the scope of the 'normal' range of elementary, junior high school, high school, and college students.

Burley and Anderson (1955)\textsuperscript{116} conducted a study to find the relation of jump and reach measures of power to intelligence and athletic performance.

The study aimed to find the relation of jump and reach test scores and intelligence test scores of one thousand and thirteen school boys. the relation between the jump and reach test scores of athletics and non-athletics, and the relation between jump and reach test scores of seven sport groups.

The correlation between jump and reach test scores intelligence test scores was 0.37 which was too low to be predictive. Athletes were found to be more superior to non-athletes in jump and reach test performance. The jump and reach test scores of seven athlete groups indicated that power was more closely related to performance in some sports than in others.

Weschler (1958)\textsuperscript{117} has explained the role for physical activity in the lines of individual and groups within the normal intelligence range, within gifted children, and within feeble-minded children. It has been found that more intelligent students seem to have greater activity interests than individuals with lower intelligence.

Bond (1959)\textsuperscript{118} analysed the inter-relationships among rhythmic perception, intelligence, and various measures of motor performance and obtained correlations ranging from .24 to .36 between intelligence and rhythmic perception and essentially zero correlations between intelligence and various measures of motor

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\item \textsuperscript{117} Ibid, p. 31.
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performance.

Start (1960)\textsuperscript{119} studied relationship between intelligence and effect of mental practice on the performance of motor skill. He selected thirty five subjects as his sample. He concluded that in motor test there was a significant improvement in the mean average of final score than on the mean average of initial score of the group after mental practice ('t' = 2.61 significant at .05 per cent level), the improvement was not significantly related to initial score in the test or to the intelligence of the individual performing the test. It was felt that the level of difficulty for the sample of the skill used in the test was too high to give a wide spread of performance and thereby discrimination.

Start (1962)\textsuperscript{120} conducted a study in stratified sample of one hundred and eighty boys in a large English Grammar School. He found no statistically significant relation between games performance and either intelligence or streaming. Each boy was in one of the five 'streams' based on his academic achievement within the school. There were a number of boys from each stream on the school athletic intelligence scores between the team players and other students.

Reddy (1964)\textsuperscript{121} carried ont studies on relationship between physical fitness test scores, intelligence quotients and grade point average for selected 192 high school students. He found no significant correlation between physical fitness and intelligence quotients.

Ruffer (1965)\textsuperscript{122} compared highly active with physically inactive boys and noted a statistically significant difference in intelligence and academic average in favour of the active groups.

\textsuperscript{119} K.B. Start, "Relationship between intelligence and the effect of mental practice on the performance of a Motor Skill", Research Quarterly 31 (December 1960) : 644.
\textsuperscript{120} K.B. Start. "The Relationship Between The Games Performance of a Grammas School Boy and His Intelligence and Straining", Research Quarterly 33 (March 1962) : 155.
\textsuperscript{121} N. V. Reddy, "Journal of Psychological Research" Vol. 8(1), (1964).
Smith (1965)\textsuperscript{123} conducted a study on academic achievement and athletic participation. The subjects for the study were Kent University freshmen and Varsity Football Team and matched non-athletes. Football players and non-athletes were matched individually on the basis of A.G.T. composite score, major fields and matriculation rates. Grade point averages and scores on the Brown Haltgman survey of study habits and attitudes were tested for significance at the .05 level through the application of a two tailed 't' test. Significant differences were not found. Similarly, the chi-square test demonstrated no relationship between 'athletes' and 'non-athletes'. The following conclusions were drawn from his study:

(1) Participation in inter-collegiate football has no adverse affect upon academic progress over a long period of time.

(2) Participation in inter-collegiate football appears to have a slightly adverse affect upon academic achievement at the immediate level. In other words, adverse affects may be apparent when isolated quarters are considered, though such differences are compensated for Ainging the off season by increased academic achievement.

Malumphy (1966)\textsuperscript{124} noted that reports from athletes at major universities suggest that "winning football players are winning students". This is often not the case.

Anecdotal evidence indicates that "brain coaches" and tutors are not primarily interested in the education of the players (though they might hope for this); rather, their primary concern is to keep them eligible. This may include scheduling courses that are not particularly beneficial to the "scholar athlete" but provide an easy grade. "Free Crade" courses, get-bins copies of examinations

\textsuperscript{124} T.M. Malumphy, "Personality and General Characteristics of Athletes in inter collegiate Competition". Doctoral Dissertation, Ohio State University, (1968).
and hiring graduate students to take examinations or write term papers for them are other techniques.

O'Connors (1966)\textsuperscript{125} studied speed and skill in relation to success achieved by college women in badminton singles competition. Various badminton skills, specific movement time and success in singles competition were tested. Analysis by multiple correlation and regression showed that both speed and skill are essential to success, but success depended to a greater degree on skill than speed of movement. The Miller Wall Volley Test was the best single prediction of success in singles competition and total body movement time was the movement prediction.

Sanford (1965)\textsuperscript{126} investigated the effect of mental practice on skill performance after exposing subjects to real performance of a novel motor skill. Thirty five school boys practiced a wand juggling task for one week prior to being divided into control, mental practice, and physical groups; subjects then practiced in treatment groups for three weeks. Results indicated mental practice to be effective in facilitating juggling performance in subjects having experienced controlled actual practice.

Thorpe (1967)\textsuperscript{127} investigated to study the intelligence and skill of three hundred and seventy five college women in relation to their success in round-robin singles competition in Badminton or Tennis. Intelligence was measured by the otis quick-scoring mental ability test; skill was determined by the subject's combined t-score on two standardized tests of badminton or tennis skill; and success in tournament play was expressed by the percentage of points won out of the number possible during tournament play.

\textsuperscript{125} Patricia O'Connor, "A Study of Speed and Skill in Relation to Success Achieved by College Women Engaged in Badminton Singles Competition", Completed Research in Health, Physical Education and Recreation 8 (1966): 108.


\textsuperscript{127} Jo Anne Thorpe, "Intelligence and Skill in Relation to Success in Singles Competition in Badminton and Tennis", Research Quarterly 38 (March 1967): 119.
An analysis of variance employing success as the dependent variable and involving two levels of skill and intelligence (high and low) and two levels of sport (badminton and tennis) resulted in a highly significant F-ratio for all intelligence and sports correlation coefficients between skill and success in badminton and tennis were .65 and .60 respectively and coefficient between intelligence and success were essentially zero.

Stebbins (1968)\textsuperscript{128} conducted a study the purpose of which was to determine the relative effectiveness of mental and physical practice upon the learning of a selected motor skill and the possible differential effects of mental practice during different stages of the learning period. Ninety three male volunteers were used as subjects. They were randomly assigned the following five treatment conditions: control, mental practice, physical practice, mental physical practice, and physical mental practice. Practice consisted of throwing rubber balls at a target from a distance of fifteen feet. The practice period lasted for eighteen days initial and final tests were administered to determine the increase in skill. Data which consisted of a gain scores, were analysed using analysis of variance. The results indicated that the only significant improvement occurred in combination type treatment conditions. Trend analysis was used to evaluate the changes in the daily practice scores. The results showed that either mental or physical practice was equally effective during the first half of skill development period.

Hart (1970)\textsuperscript{129} carried out studies on relation between physical fitness test scores, intelligence quotients and grade point average for selected one hundred and ninety two high school students, he found no significant correlation between physical fitness and intelligence quotient.


\textsuperscript{129} Edward D. Hart, "Relationship Between Physical Fitness Test Scores, Intelligence Quotients and Grade Points Average for Selected High School Students". Completed Research in Health, Physical Education and Recreation 12 (1970) 87.
Piaget et al. (1972)\textsuperscript{130} in their exploratory research conducted at the University of Minnesota for graduating classes of 1966 and 1967 found that the academic grade period average for athletes was 2.42 as compared to 2.40 for non-athletes.

Additional comparisons between the athletes and non-athletes indicated that 50\% of the athletes as compared with 41\% of the non-athletes earned a four-year degree within five years after entering college. In summary, the University of Minnesota study does not show that athletic participation is negatively correlated with academic pursuits.

Dorden (1972)\textsuperscript{131} reports that while athletic department is very interested in keeping athletes eligible, they may not be as concerned about whether they graduate after their eligibility is completed. There is a considerable variation among universities in the academic treatment of athletes.

Cratly (1972)\textsuperscript{132} carried out an investigative research using a world class high jumper as a subject, in which it was the intent to clock duration of the time the athlete engaged in some kind of pre-jump thought. Collected prior to numerous jumps, these times were then compared with the actual efforts achieved. It was found that there seemed to be an optimum amount of time spent in this kind of reflective activity which, if not reached or exceeded, resulted in less than optimum effort.

In another study, a number of tripple jumpers were encouraged for several months to spend numerous periods a week thinking through the mechanics of the relatively complicated event in which they participated. They were asked to think through and verbalize about the actual leg and arm movement in the correct order.

\textsuperscript{130} Ibid., p. 18.
when carrying out the jump. A control group with similar abilities was not exposed to this mental practice. It was noted that the jumping efforts of the mental practice group was superior to that of the controls.

Cratyly found that most superior athletes in Olympic competitions in Eastern Europe posspeseed at least average intelligence and often their I.Q. scores were well above average. But a clear division existed between the intelligence quotient of sportsmen practising activities to which they had been exposed in college and the intelligence test scores of men practicing sports usually not associated with a college.

It has been found that athletes in the team sports, such as basketball, ice hockey and the like, will score higher on standardized measures of I.Q. than others participating in activities requiring more force and power than team strategy (i.e., shot putting, boxing).

Case studies of athletes in various European countries indicate that those with more academic backgrounds and with higher scores on I.Q. tests, are better equipped to engage in self-assessment of the psychological and physiological data collected about themselves than are their less well educated team mates.

After competitions, understanding the reasons for success or failure seems more difficult for those athletes who have lower I.Q. scores.

Charles (1978)\textsuperscript{133} conducted a study on the relationship of intelligence bio-rhythm and high school students mental ability scores.

The purpose of this study was to investigate the possible relationship of three day intelligence (bio-rhythm) cycle in humans as postulated by Alfred Tlælscher and high school students mental ability test. Specifically the test was designed to test for a relationship between high school students scores on the otis-lennon

mentally, ability test and the students intelligence bio-system phases their sex. the parallel test forms and resulting two and three way interactions of bio-rhythm, sex of the subject and the test form.

Each of the seven hypothesis was tested at 05 level of significance. In each case there was a failure to reject the null hypothesis. No effect was found for bio-rhythm phase and sex of subjects, parallel test forms, the interaction of sex of the subject and parallel test form the interaction of b'o-rhythm phase, sex of the subject and parallel test form.

Vemon (1982)\textsuperscript{134} conducted a study on the relationship between intelligence and speed of mental processing.

Morgan et al. (1986)\textsuperscript{135} and Miller compared the academic grades and intelligence scores of participants and non-participants in intramural athletics at the University of Kentucky.

The data for this investigation were obtained from the academic records at the office of the Registrar, this intelligence test records of the Department of Psychology and the Intramural Participation report of the 1935-36 second year of the intramural division of the Department of Physical Education, University of Kentucky.

The results of the study suggested that:

(i) The freshman participation in intramural athletics did not have a marked effect upon the students academic grade.

(ii) The participants in intramural athletics as a whole had a higher mean intelligence sigma ranking then those who did not participate.

\textsuperscript{134} Philip Anthony Vemon, "Speed of Information Processing and General Intelligence". Dissertation Abstracts International 42 (June 1982) 4922-A.

\textsuperscript{135} Ibid., p 31.
Singh and Saini (1993) conducted a study in which he measured psychological characteristics i.e. intelligence, extroversion, neuroticism and adjustment patterns of hockey players playing at different levels of participation viz school, district and state levels. The study was designed to know as to how the intelligence levels, extroversion neuroticism and adjustment differed among male and female school hockey players playing at three levels. With this aim in view, two hundred and forty male and female school hockey players were selected out of which eighty were of school level, eighty interzonal and eighty irriterdistrict level players. They were administered Raven's Progressive Matrices Test for intelligence, EPI for extroversion and neuroticism and Sinha and Singh's Adjustment Inventory (for school students) for adjustment. The result of study revealed that there were significant difference on intelligence between interdistrict and interzonal level players. Similarly there were significant differences on extroversion trait of personality among hockey players at inter district level as compared to interzonal or school females. But inter district level male and female players were significantly better adjusted as compared to the interzonal and school level players.

Adjustment and Sports

The modern physical educators and coaches realised that the development of personality and the achievement of desirable adjustments have been major objectives of physical education and games programmes. Some of the studies show that athletes participating in various activities of Physical Education and games or sports in general depict unique type of adjustment. Available research evidence to this effect is briefly examined in the following pages.

Kushlen and Lees (1939) designed a study to determine the relationship

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of the social acceptability with participation in games among boys. They found
that to be active in games was important for social acceptability (recognition).

Carter and Shanon (1940)\textsuperscript{138} found high school athletes were socially
adjusted than non-athletes.

Sperting (1942)\textsuperscript{139} conducted a study on "The relationship between
personality adjustment and achievement in physical education activities". This
study was undertaken in order to famish experimental data which might clarify the
issue and enable one to say with greater assurance that exists at present that
athletic achievement is or is not associated with more favourable personality
development.

Sperting (1942)\textsuperscript{140} compared nonathletes to varsity and intramural athletes
and found me athletes scored higher in personality adjustments, ascendance,
and extroversion and lower in aesthetic appreciation and theoretical orientation.
He also found significant differences in social adjustments in favour of athletes.

Alexandra (1946)\textsuperscript{141} obtained data on leadership in adolescence and
compared them to personality adjustment. She found that leaders were significantly
better adjusted then non-leaders.

Powell (1947)\textsuperscript{142} found high and significant relationship among adjustment
in various field of life and health practices to performance of physical education
activities.

Brownell et. al. (1951)\textsuperscript{143} maintain that physical education makes a

\textsuperscript{138} C.C. Carter and J.R. Shanon, "Adjustment and personality traits of athletes and non-athletes". School

\textsuperscript{139} A.P. Sperting. "Relationship between personality adjustment and achievement in Physical education

\textsuperscript{140} Ibid, p. 28.

\textsuperscript{141} Sister M. Alexandra, "Personality adjustment and leadership" Education 66(4) May; pp 584, (1946).

\textsuperscript{142} F.M. Powell and J.P. Vemer, "Anxiety and Performance Relationships in 'First Time Parachutists" Journal

\textsuperscript{143} Brownell et al., (cf. "A comparative study of adjustment of various categories of sportsmen in relation to
their somatotyping and participation in sports" Unpublished doctoral thesis by J.P. Sharma, Deptt. of
contribution to general adjustment and well being that can be obtained from no other source.

One of the earlier investigations to demonstrate that athletes differ from non-athletes on selected psychological traits was Heunser (1952)\textsuperscript{144}. By using the 16 P.F. Questionnaire, he found athletes to be more emotionally stable (Factor C+), dominant (Factor E+), Venturesome (Factor H+) and self confident (Factor 0-) than the non-athletes.

Signorella (1953)\textsuperscript{145} in a study of social adjustment and athletic participation, found that participants are well socially adjusted as compared to non-participants. Ondrus (1953)\textsuperscript{146} used sociometric techniques and analysed that effect of football activities on interpersonal relationship. He reported that participation inter-personal (social) relationship/social adjustment. He added that participants had higher social status than boys who were not able to participate. William (1953)\textsuperscript{147} found that the process of social integration in college football squad was positive (favourable) and continued throughout all the three periods of the football season.

Biddulph (1954)\textsuperscript{148} conducted a study on "Athletic achievement and the personal and social adjustment of ranking high school boys" and concluded that students ranking high in athletic achievement demonstrated a significantly greater degree of personal and social adjustment than the students ranking low in the athletic achievement; Because of this significant relationship it was concluded that it is important for develop more ability.

\textsuperscript{145} Signorella, "Social Adjustment and Athletic Participation" Minor Research Project. Lafayette, Purdue University, (1953).
\textsuperscript{146} Joseph Ondrus, "A Socio-metric Analysis of group structure Inter-personal Relationships" Doctoral Dissertation, University of New York, (1953).
\textsuperscript{148} J.G. Biddulph, "Locus of control and moods as affected by aerobic exercise". Unpublished Dr. Dissertation, California School of Professional Psychology San Diego, (1954).
It seemed desirable to consider athletic achievement as represented in the typical high school boys rather then in trained, experienced athletes because of the varied and complex factors which seems to greatly influence the personal and social adjustment to the trained athlete, experienced as he is in competitive play. Unnatural popularity, which may athlete enjoy, is often a distinguishing influence rather than a stabilizing influence upon their personalities.

Laplace (1954)\textsuperscript{149} using MMPI reported significant differences between major and minor league baseball players on personality traits like anxiety, self analysis, self criticism and social adjustment. He found that major league baseball players were socially well adjusted than minor league players. Sehmann (1956)\textsuperscript{150} studied the emotional health adjustment of basket ball players and reported that boys participating in little league competitions maintained their emotional health adjustment better than the non-participants.

Seymour (1956)\textsuperscript{151} designed a comparative study of certain behavior characteristics of participants and non-participants boys little league baseball. He found that participants in baseball tended to be more frequently well adjusted and school and personal relationship as compared to non-participants.

Skubic (1956)\textsuperscript{152} conducted studies of little league and middle league baseball on school population and found no conclusive evidence that participation in the games was harmful, rather than useful for all purposes and development of certain desirable adjustment like social acceptance.

Elvera (1956)\textsuperscript{153} used various types of peer status evaluations and teacher

\textsuperscript{149} J.P. La Place, Research Quarterly 25: p 313, (1954).


judgements were utilized as criteria of social adjustment. In general, the results showed a relationship between these criterion and physique type, body size, muscular strength, motor performance and athletic ability.

Kane (1966)\textsuperscript{154} in his study used discriminant function analysis and reported that although men physical education students differed significantly in personality than general men student group. The women physical education students from general student, men and women physical education students had a very similar personality profiles.

Cowell (1960)\textsuperscript{155} studied the relationship of social students to physical ability. He used self-constructed rating scale to measure adjustment ratings either by teacher of by classmates were positively and significantly related to physical education ability. Cowell and Ismail (1960)\textsuperscript{156} have observed that the boys who do well in physical ability tests are likely to have leadership potentialities to be accepted for close personal contacts by their associates and to be well-adjusted socially.

Clarke and Clarke (1961)\textsuperscript{157} designed a study to find out the social status as related to the maturity. Structural and strength characteristics of students. They employed both techniques sociometric questionnaires and inventories to find social status and adjustment. They found positive relationships between peer status adjustment and body sizes, and peer status adjustment and muscular strength.

Cowell and Ismail (1962)\textsuperscript{158} studied interrelationships between persona\\

\textsuperscript{154} Ibid, p 61.
distance (degree of personal acceptance), motor fitness and athletic aptitude using 83 boys in the 10 to 20 years of age range. The relationship of athletic aptitude to leadership was studied in the same group. Another group of 75 boys of Junior high school age was used to study the interrelationships between social adjustment, motor fitness and athletic aptitude. Instead another group of 45 freshmen varsity football squad members, the relation of personal distance sports to football ability as judged on a man to man rating bases on some items, was studied. All the relationships were found to be positive, moderate and significant at the .01 level of confidence.

Coleman et. al. (1963)\(^{159}\) in a study of relationship between motor performance and social adjustment among boys experiencing serious learning difficulties found a strong relationship between motor performance and social adjustment of the subjects. Robert (1964)\(^{160}\) examined the physical fitness and adjustment of students on the college campus. By administrating AAPHER Physical fitness test and Washbume social adjustment inventory. He f-nd appreciable differences in the scores of football and basketball group on Washbume social adjustment inventory. Gottheil and Wermer (1966)\(^{161}\) using 16 P.F. compared 340 athletes cadets and 116 non-athletes after they had entered 4.5 military academy and before they had graduated. Athletes were found more social, group dependent, sophisticated and conservative than non-athletes. But even after the regular practice of four years in athletic participation, the non-athletes did not change in personality structure. It appears that these tracts may lead to better adjustment in various spheres. Rushall (1967)\(^{162}\) administered Cattell's 16 PF Questionnaire to


\(^{162}\) B.S. Rushall, "Personality- Profiles and a theory of behaviour modification for swimmers and swimming techniques" 4, pp 66-71, (1967).
athletes and non-athletes; by employing t-test he found that sportsmen were emotionally more stable, matured and more socially adjusted than the non-sportsmen.

Ogilvie (1967)\textsuperscript{163} confirmed Cooper's conclusions besides pointing out still other aspects of the male athletes personality. Ruth Ralph (1971)\textsuperscript{164} has conducted a study on "the effects of general semantics on the personality adjustment of elementary school children". This study describes experimental projects that have evaluated the effects of general semantics may contribute to personal and social adjustment and the scientific methods of objectives evaluation should be used to investigate this.

Koening (1969)\textsuperscript{165} in his study on high school Basketball players four that personality differences existed between athletes and non-athletes with respect to sociability, group-orientation and emotional control. Both university team members and instrumental players had higher self-concept than non-participant with respect to sportsmanship, degree of feminity and family influence.

Betty Ruth Muntz Rygor (1972)\textsuperscript{166} understood a study on "a fine year follow up study comparing the school achievement and school adjustments of children retained in Kindergarten and children placed in a transition class,"and the results of the study suggest that retention in kindergarten was effective in ameliorating learning deficiencies to the point where the retained children were able to make satisfactory progress in school achievement and school adjustment through the third grade.

\textsuperscript{163} B.C. Ogilvie, "When is Pain Real", Unpublished dittoed paper, Sungose State University, (1967).
\textsuperscript{165} F.B. Koening, "Comparative analysis of selected personal and social background characteristics of High School girls at three levels of participation in Basketball". DAI, 30, p 2732A, (1969).
Mehta and Velayudhan (1972)\textsuperscript{167} of Baroda, Dept. of Child Development have summarized the studies made on the department on personal and emotional adjustments and on self concept, achievement motivation and academic achievement of adolescents. With respect to monarchical and problems of adjustment, the studies show that the monarchical age does not have any impact on the total adjustments problems and anxiety scores.

Antonelli and Mascellani (1973)\textsuperscript{168} conducted a study on adjustment of 351 Italian top athletes. He used the Bell's inventory of adjustment. He found that female athletes were better adjusted than male athletes, and sports were athletes seemed to have a better adjustment were, athletics, volleyball, sailing and fencing. The sports in which adjustment was found poor were cycling, rowing and gymnastics.

Edwards (1973)\textsuperscript{169} concluded that core value of the sports is that individual achievements and satisfaction through competition in sports activities, which help the individual to be adjusted in various fields of life.

Bhullar (1974)\textsuperscript{170} compared the personality adjustment of sportmen and non-sportmen as measured by Bell's adjustment inventory. It was concluded that sportmen and non-sportmen show marked difference on adjustment.

Rani, Usha (1974)\textsuperscript{171} studied the personality adjustment differences of (N = 170) athletes and non-athletes, by administering the Bell's Adjustment inventory


Mean. Standard deviation and t-ratio statistical techniques were used to assess the data. She found that there were differences in personality adjustment between athletes, who participated in group & non-athletes. In the individual events group, badminton players have better home adjustment than track and field athletes, wrestlers and tennis players. As far as the team games group were concerned, hockey players were better adjusted in health than football, basketball and volleyball layers. Non-athletes had better home adjustment and poor health adjustment as compared to the athletes. Athletes were more aggressive than non-athletes and were also emotionally more unstable than non-athletes.

Subhash (1974)\textsuperscript{172} conducted a study on 50 students participating in 800 meters race and found that better performance of participants in 800 mt. races brings health, social and emotional adjustment. To measure adjustment in various fields of life, the Bell's adjustment inventory was used, and the performance in 800 mt. race was recorded while the subjects were participating in college and university's athletic functions. Supreitzer and Snyder (1975)\textsuperscript{173} sought to identify the social definitions of sports in the contact of value orientations by asking people what they felt were the functions are consequences of sports. They found that most people defined sport as having positive functions for both society and the individual participants. It means sports helps in social and personal adjustment of a participant in physical education and games. Singh (1975)\textsuperscript{174} conducted a study on 50 male participants in 5000 metres race and found that better the social adjustment the better the performance in 5000 metres race. He concluded that social adjustment is the significant detriment of the running performance in 5000


\textsuperscript{173} Elmer Superitzer and E.E. Snyder, "The psychological functions of sport as perceived by the general population" International Review of Sports Sociology, 10: pp 87-93, (1975).

\textsuperscript{174} Harvind Singh, "Relationship of social, emotional adjustment to performance in 5,000 mts. Race" Unpublished Master's of Arts Physical Education Thesis, Punjab University, (1975).
mts. race. Jeffery (1981)\textsuperscript{175} conducted a study to investigate possible relationship between prior-scholastic athletic process and current measure of self concept. Investigations revealed little in way of significant differences (.05 level) between former superior, average and non-athletes in terms of currently measurable level of self-concept and life adjustment.

Rana (1981)\textsuperscript{176} administered '16 P.P.' questionnaire to sportsmen and non-sportsmen at Jiwaji University, Gwalior and concluded that sportsmen differed from non-sportsmen in personality, characteristics of emotional stability and realism about life, cheerfulness and frankness, tendermindedness and had greater control over emotions and greater regards for self respect and social reputation than the others. Similar findings have been noticed by Duquette (1981)\textsuperscript{177} who compared the personality characteristics of sportsmen and non-sportsmen. He found that sportsmen and non-sportsmen differed in their personality characteristics on the factors of emotional stability and realism about life, cheerfulness and frankness, tendermindedness and practicability and greater control over emotions and greater regards for self respect and social reputations. On the contrary, Andery (1966)\textsuperscript{178} found no evidence to support the view that college athletes significantly influenced personality structure.

Das (1983)\textsuperscript{179} did a study in which performance in track events was related to school adjustments Bhagia's school adjustment inventory was used on 400 school athletes. He found positive relationship between the falier and high performers.


High performers are well adjusted athletes.

Sharma and Shukla (1986)\textsuperscript{180} conducted a study on athletes and non athletes by using Callell's high school personality questionnaire (H.S.P.Q). He found that athletes in various sports specialities tend to be outgoing, socially confident, emotionally stable, happy-go-lucky, conscientious (rules bound) and venturesome, self-relient, vigorous, confident, self sufficient, controlled and relaxed. On the other hand, the non-athletes are reserved, less intelligent, effected by feelings of weak, super-ego, shy, tenderminded, suspicious, doubling, i ndisciplined and tense. The above findings have been supported by Bidulph (1954)\textsuperscript{181}, Singer (1967)\textsuperscript{182}, Kane (1968)\textsuperscript{183} and Bhushan and Aggarwal (1978)\textsuperscript{184}.

Panda and Biswas (1989)\textsuperscript{185} conducted a study on 50 high achieving and 50 low achieving football players, graduate male of Orissa. They administered Maudsley personality Inventory by Eysenck and Psychoticism Scale by Eysenck and Eysenck in Oriya version. Thye found significance of difference between all factors personality adjustment of High and low achieving football players.

Sharma (1990)\textsuperscript{186} conducted a study on 525 male intervarsity and Intercollege participants of Boxing, football, Gymnastics, Hockey, Volleyball and wrestling by administering Sinha & Singh Adjustment Inventory for College students.


\textsuperscript{181} Ibid, p. 27.


The results show that:

1. Home adjustment: Football and Hockey players have better home adjustment than wrestling and gymnastics players and Inter university positioners are better than the participants of Inter College level.

2. Health adjustment: Athletes, Boxers, football. Hockey and Volleyball players have better health adjustment as compared to wrestlers and gymnastics players.

3. Social adjustment: Inter College participants have highest level of Social adjustment while Inter college participants have least.

4. Emotional adjustment: The position holders of Inventory and participan of Inter College have better emotional adjustment than the losers intervarsity.

5. Educational adjustment: Athletes, Boxers, footballers, gymnasts and hockey players have better educational adjustment than the wrestlers.

Yadav (1992) studied selected personality variables, adjustment and socio-economic status of mass and class athletes of college and university levels. The sample consisted of 200 mass and 200 class athletes selected randomly from five universities of North-West India. The events included basketball, football, handball, volleyball (mass sports), cricket, badminton and lawn-tennis (class sports). Cattell’s 16 PF questionnaire, Sinha and Singh’s adjustment inventory for the college students and the socio-economic status scale by Gyanendra P. Srivastava were used. Analysis of variance (AN OVA) was computed on different variables. The results indicated that mass sports athletes performed significantly better than the class sports athletes on adjustment variables i.e., health, social, emotional, and educational. The results with regard to successful and non-successful

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categories of athletes have not been found significantly different on adjustment variables except on health adjustment. The results, with regard to adjustment of different groups of athletes, indicated inter-group differences on various subscales of adjustment. The handball and the basketball groups were found better adjusted than all other sports groups on home and health adjustment respectively.

Sharma (1993)\textsuperscript{188} conducted study on 240 male team players i.e. Basketball, Football, Hockey and Handball. He observed relationship between the performance of dominant groups of football players with health adjustment. Hockey players with emotional and total adjustment whereas no relationship between the performance of submit group of all the four sports with any of the adjustment variables.

**Adjustment and Sex**

Webb and Harry (1969)\textsuperscript{189} reported individual wornei athletes to be more introvert, self-absorbed, independent-minded and self-assured than team sports women. The team sports women were neither self-absorbed nor introvert. They tended to be realistic, emotionally disciplined, steady and practical. Socially both groups tended to be more cool.

Koening (1969)\textsuperscript{190} in his study on high school girls Basket ball players found that personality differences existed between athletes and non-athletes with respect to sociability, group orientation and emotional control. Both university team members and intramural players had higher self-concept than non-participants with respect to sportsmanship, degree of faminty and family influence.

Mary (1970)\textsuperscript{191} measured physical fitness by AAPHER youth fitness test,

\textsuperscript{188} K.R. Sharma, "Relationship of Self-Concept, Adjustment, Creative Thinking and a Tendency to dominate or submit to the performance of Team players" An unpublished doctoral thesis, Dept. of Physical Education, University of Kurukshetra, (1993).


\textsuperscript{190} F.B. Koening, "Comparative analysis of selected personal and social background characteristics of High School girls at three levels of participation in Basketball", DAI, 30, 2732A, (1969).

attitude towards physical education by attitude inventory form A and personal social adjustment through California test of personality second form AA. It was concluded that there was significant relationships among the factors when the tests were conducted on high school girls. It is further added that socio-economic status has relations with adjustment.

Buck (1971)\textsuperscript{192} selected Pollock Health Behaviour inventory test to measure health, behaviour of high school seniors (boys and girls) the main findings were

1. other things being equal, a person who is well adjusted tends to have good health behaviour;

2. other things being equal, a person with good health, behaviour will tend to be well adjusted;

3. the relatively high relationship between low health, behaviour and low total adjustment and relatively high correlation between personal and social adjustment suggested that the two types of adjustments could be measured by a single test. Female students scored higher than male students on every test of health, behaviour and adjustment.

Chadwicks (1972)\textsuperscript{193} did investigation on female athletes and characterized them as tough minded (factor 1-) whereas athletes in Pestonjee's et al.'s study were found to be more outgoing (factor A+), serene (factor 0-) and socially precise (factor Q+) than non-athletes. By using the cattell's 16 personality factor questionnaire. Mushier (1972)\textsuperscript{194} and Rusch (1972)\textsuperscript{195} however, found adult female athletes to be more reserve (factor A-) and tough minded (factor 1-) than the non-

\textsuperscript{193} J.F. Chadwick's, "Comparison of the personally traits and Kinesthetic augmentation and reductior. of college females and non-athletes". DAI, 33, pp 1005-1006A, (1972).
\textsuperscript{195} J.M. Rusch, "Personality traits and sports participation of adult women", Unpublished Master's thesis University of Texas, (1972).
athletes. In addition to these factor, athletes in Mushier's study were characterized as more intelligent (factor B+), aggressive (factor E+) and happy go lucky (factor F+) than the non-athletes.

Dhillon (1981)\textsuperscript{96} conducted a study on 800 sportsmen, sportswomen and non-sponsmen, non-sportswomen to know their school adjustment. To measure school adjustment Bhagia's school adjustment inventory was used. She found that sports men/women were significantly better adjusted as compared to non-sportsmen/women.

Evans and Quarterman (1983)\textsuperscript{97} and Maxceiner (1983)\textsuperscript{98} conducted a study on successful female Basketball players and unsuccessful female Basketball players or successful volleyball and unsuccessful volleyball players respectively. They found that successful female Basketball players were more trusting than the unsuccessful players and successful volleyball players were more emotionally stable than the lower level players.

Kumari (1988)\textsuperscript{99} conducted a study with regards to the adjustment of sports and non-sports school girls of Himachal Pradesh. The sample consisted of 600 students (300 sports and 300 non-sports girls). She used ' Sinha and Singh's adjustment inventory for school students. She found that sports girls belonging to rural and urban areas were better in all variables of adjustment i.e., emotional, social and educational than non-sports girls. There were also significant differences between rural and urban girls in emotional, social and educational. The rural

sports girls were found to have better emotional adjustment than the urban sports girls. In social adjustment, the rural girls were also found better as compared to the urban girls, both in the sports and non-sports groups. However, in educational adjustment, the urban girls in both the groups were found better than the rural sports girls.

Amra (1988)\textsuperscript{200} conducted a study on sports girls and non-sports girls by using Sinha and Singh adjustment Questionnaire (AISS) for school children. She found that sports girls belonging to rural and urban areas were better in all variables of adjustment i.e. emotional, social and educational than non-sports girls.

Ohri and Dalip (1990)\textsuperscript{201} conducted study on 50 tribal and 50 non-tribal women by administrating Bells adjustment inventory (BAI) and Bems sex-role inventory (BSRI). They found that due to the well defined feminine roles the tribal women shows better home and health adjustment than their non-tribal counterparts. The non-tribal women, on the other hand face the problem of role-conflict, role-overload and physical exhaustion which account for their poor health adjustment. The non-tribal women also have to deemphasize some aspects of their role in the family to emphasize other roles and this leads for their poor home adjustment in comparison to their tribal counterparts who have still not rejected their natural identities in the community.

Nirmaljit (1992)\textsuperscript{202} conducted a study with regards to the adjustment as related to performance and gender in team sports. The sample consisted 320 athletes (160 male and 160 female) selected randomly from colleges and universities.


of Haryana and union territory of Chandigarh. She used Sinha and Singh’s to measure all the area of adjustment the findings of the study were: The university athletes were found significantly different from the college athletes on social, emotional and total adjustment. The male athletes from the studied team sports were found better adjusted than the female athlete from the same sports groups on all the adjustment variables except home adjustment in which the difference between the male and female athletes were not significant.

**Adjustment, Aggression and Intelligence**

Peterson, Weber and Trousc’ale (1967)\(^{203}\) conducted a study on (1) 38 women athletes in individual group from 1964 U.S. Olympic teams of swimming, diving, riding, fencing, canoeing, gymnastics and tract and field. (2) 59 women athletes in team sports group from 1964 U.S. Olympic teams and top 10, 1964 women AAU basketball teams. They administered 16 PF questionnaire of Cattell, and Eber. The results indicated that women who are engaged in individual sports were more dominant and aggressive (E) adventurous (H), sensitive (I), imaginative (M), radical (Q1) and self-sufficient and resourceful (Q2) than women who are engaged in team sports. Individual sports athletes also appear less sophisticated (N) and less adjusted (1-2).

Cooper (1969)\(^{204}\) after contrasting athletes and non-athletes describes athletes profile as more outstanding and socially confident, more outgoing and socially aggressive dominant and leading better socially adjusted, higher in prestige, social status, self confidence and competitiveness: less impulsive, less compulsive, tolerance of physical pain, having more masculine interests and less feminine ones.


The general trend in findings on personality differentials i.e. emotional stability, socially adjusted, aggressiveness, self confidence etc. between non-sports men and sportsmen was supported by Cooper (1968)\textsuperscript{205} and Kane (1968)\textsuperscript{206}. On the basis of review of the available literature they concluded that although there was not a definite hierarchy, certain personality traits like emotional stability, aggressiveness, tough mindedness and self confidence went well with superior sport performance. In addition to traits, Kane also stressed lack of anxiety and drive whereas Ogilvie asserted that conscientiousness, self-control, self-discipline, trustworthiness and low tension level should also be emphasised. Cooper’s analysis of literature also revealed that athletes tended to be outgoing, socially adjusted, higher in prestige and social status, stronger competitors, less compulsive, less impulsive, having greater tolerance for pain, lower feminine interest and higher muscular ones.

Mushier (1972)\textsuperscript{207} and Rusch (1972)\textsuperscript{208} found adult female athletes to be more reserve (factor A-) and tough mind (factor 1-) than the non-athletes. In addition to these factors athletes in Mushier’s study were characterized as more intelligent (factor B+), aggressive (factor E+) and happy-go-lucky (factor F+) than the non-athletes. Athletes in Rusch’s study were found to be more adaptive than the non-athletes.

Maccoby and Jacklin (1974)\textsuperscript{208} do however find support for the existence of well documented sex-differences in four areas. They are:

(a) Females have greater verbal abilities than males.
(b) Males have greater spatial abilities than females.
(c) Males have greater mathematical ability the females.
(d) Males are more aggressive than females.

\textsuperscript{206} Ibid., p. 83.
\textsuperscript{207} Ibid., p. 86.
\textsuperscript{208} Ibid., p. 88.
\textsuperscript{209} Ibid., p. 57.