CHAPTER II

REVIEW OF RELATED LITERATURE

"Practically all human knowledge can be found in books and libraries. Unlike other animals that must start anew with each generation, man builds upon the accumulated and recorded knowledge of the past".

- John W. Best

In the field of education, as in other fields, the research worker needs to acquire a comprehensive information about what has been done in the particular area from which he proposes to take up a problem for research. The survey of related literature helps the investigator to find out whether the evidence already available solves the problem adequately without further investigation. It provides ideas, theories, explanations and hypotheses which help an investigator in identifying and formulating his problem. It also suggests methods, techniques, and tools to the investigator for collecting and analysing the data. The investigator can locate comparable data which are useful in the interpretation of the results of his investigation. Last, but not least, the related literature contributes to the general scholarship of the investigator.

The related studies have been presented in the succeeding pages under different headings concerning the related variables, like: intelligence, scholastic achievement, sports performance, personality factors, and socio-economic status.
Intelligence and Sports Participation at School Level (Men)

Terman (1925) 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.

Hindmans (1929) studied the intelligence and achievement of 400 athletes scholarship holders in relation to the next of their class at Ohio State University. There was practically no difference in the intelligence and school grades of the two groups, but a significantly longer proportion of athlete graduates.

Ragsdale and Breckenfeld (1934) examined 155 junior high school boys in team sports skills and general intelligence. Intelligence was observed to be unimportant in the abilities tested.

Jones (1935) compared the intelligence of high school athletes with non-athletes of Washington high schools. He found athletes as a group were more intelligent.
Kulcinski (1945) found a positive relationship between intelligence and the learning of fundamental motor skills. With elementary school age children, many studies have not verified this conclusion.

Biddulph (1954) 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.

Thurstone (1959) administered gross motor skill tests to her retarded subjects, aged 7 to 15. The tests included a Tennis or Softball throw for distance, a volleyball or soccerball punt for distance, a standing broad jump, a 40 yard run, a side stepping test, a tennis ball throw for accuracy, and a grip strength test. When compared to normal children, the retardates performed consistently lower.

Sumpton and Leucking (1960) stated that gifted children are as much interested in play activities as normal children. However, they prefer games of skill rather than chance. They are also inclined to participate in games that challenge the imagination. Because highly intelligent children usually have greater difficulty in being part of the group, the activities they are primarily interested in are individual and dual in nature.

Gupta (1966) conducted a study entitled "Intelligence quotient of athletes and non-athletes". She concluded that non-athletes were definitely more intelligent than athletes.
Disney (1963) has shown that mentally gifted high school students compare more favourably with the boys of average intelligence. The gifted received more athletic letters in a variety of sports. Disney found the gifted perform significantly better on skill tests, including the standing broad jump, 50-yard dash, softball throw for distance, basketball, shooting for 30 seconds. Disney's data support the role of intelligence in athletic success.

Buffer (1963) 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.

Buffer compared highly active with physically inactive boys and noted a statistically significant difference in intelligence and academic average in favour of the active groups.

Hart (1971) carried out 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.

Intelligence and Sports Participation at College Level (MEN)

The researches reported by the developmental psychologists, like Hebb (1964), Piaget (1965) and Maier (1969), add increasing
weight to the evidence that motor as well as sensory experiences of children are extremely important in the development of intelligence.

Keogh (1964) warns of the limitations of motor measurement tools and methodologies in investigations that have attempted to compare motor and intellectual functioning. Considering experimental 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.

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

Cooper (1969) and Layman (1972) observed that the superior physical condition of athletes improves their mental performance.

Cratty (1972) 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 triple 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 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.

Cratty (1972) found that most superior athletes in Olympic competitions in Eastern Europe possessed 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 practising 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.
Intelligence and Sports Participation at University Level (MEN)

Rube (1928), in his study, dealt with the relationship between intelligence and success in athletics. "Numeral men" who have earned "Numerals" in two or more sports rated well above the median percentile for all freshmen and new students at the Indiana University, as well as the median for 6,500 students from 34 liberal arts colleges. It was concluded that there was a very close relationship between intelligence and success in athletics.

Hockensmith and Miller (1938) conducted a study on a comparison of the academic grades and intelligence scores of participants and non-participants in intra-mural 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 intelligence sigma ranking than those who do not participate.

(3) The sophomore participants 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.

Brookover et al. (1964) observed that by becoming a member of the peer elite, through the prestige of sports, the athlete
develops a positive self-evaluation that is translated into academic achievement. These researchers have noted a positive relationship between one's self image and school achievement.

Smith (1965) 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.C.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 during the off season by increased academic achievement.

Pilapil et al. (1970) 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.

Meggyesy (1970) and Shaw (1972) 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 Grade" courses, getting copies of examinations and hiring graduate students to take examinations or write term papers for them are other techniques.

Schafer and Armer (1968) and Buhrmann (1972) 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.

Durso (1975) reports that while athletic department is very interested in keeping athletes eligible, they may not be as concern
about whether they graduate after their eligibility is completed. There is a considerable variation among universities in the academic treatment of athletes.

Nixon (1976,a) found that participation in athletics in large universities limits the time and energy that might otherwise be devoted to academics. Thus, the relationship between athletic participation and academic performance in the collegiate context may be different from their relationship at the high school level.

Intelligence and Sports Participation at School and College Level (Women):

Thorpe (1967) studied the relationship of intelligence to skill as demonstrated by college women in badminton and tennis. Her subjects were classified according to high and low intelligence.

No differences between the groups were observed in their success in the two sports. The relationship between skill and intelligence was not found to be significant.

Research in Physical Education generally indicates a low relationship between intelligence and athletic ability. It has been reported in one study that intramural players had a higher mean intelligence ranking than non-participants.

Sports Participation and Scholastic Achievement at High School and Higher Secondary Level (Men):

Kybe (1941), in his Master's degree thesis, reviewed 70 studies completed between 1907 and 1940. These studies were
confined to athletes in high schools located in 27 states. The usual practice of the academic achievement of athletes and non-athletes was employed. The overall results showed in 43% of the studies that athletes had higher grades than non-athletes. In 21% of the studies, the non-athletes were superior while in 36%, no significant difference between the groups was observed.

Pongle (1956) made a study on scholastic achievement of high school athletes. He found that there was no significant difference in scholastic attainment between those who participated in the athletics programme and those who did not.

Coleman (1961), MacHill and Coleman (1965), Haller and Portes (1968), and Rehberg and Schafer (1968) observed that because of the prestige associated with sports, the athlete is a member of the peer elite ('Leading Crowd') that is influential in shaping educational plans and expectations beyond high school.

Jones (1967) compared the academic achievement of athletes and non-athletes of male high school students. The Iowa Test of Educational Development was administered to all students. The academic achievement was measured on the basis of academic success in required academic subjects over two years. The level of significant difference in mean academic achievement (5% level of confidence, 3.9392) were found for the following sports:

- Football (F-value of 6.895)
- Track (F-value of 10.347)
- Baseball (F-value of 12.145)
- Tennis (F-value of 15.671)
- Cross country (F-value of 16.768)

The F-value for wrestling was not significant (1.045).
For comparison of participants to non-participants, the F-value was highly significant at 68.776 (5% level of confidence, 3.8545). From the findings, it may be stated that there is no significant difference in the academic achievement of wrestling participants and non-athletes. Participants in football, basketball, baseball, track, cross-country, tennis and golf, when compared separately with non-athletes, did achieve to a significantly higher degree academically than the non-athletes. The total group of sports students achieved significantly higher than the non-sportsmen.

Schafer and Armer (1968) conducted a study on 585 boys from two high schools in the Mid West. They found that the athletes tended to have a higher grade average than the non-athletes even when factors such as intelligence, type of curriculum, and the social class background of the parents had been fully controlled. Schafer and Armer found that the athletes did have higher educational expectations (82%) of athletes planned to complete at least two years of college as compared to 75% of non-athletes. The athletes were also more likely to complete four years of college (62% vs. 45%) than the non-athletes.

Rehberg and Schafer (1968) reported that the association between athletic participation and higher educational expectations was evident among boys from less advantaged backgrounds. It appears that athletics did not have a similar impact on boys from more privileged background since these youths were already predisposed by their family background toward higher education.
Spady (1970) noted that athletic participation by itself can have the dysfunctional consequence of stimulating inflated educational expectations without developing the requisite scholastic skill. Consequently, high school athletes were less likely to complete college if their educational goals were solely athletic participation and the college was perceived simply as a means of extending one's athletic career.

Sighultz (1971) mentioned in his study that participation in athletics did not adversely affect academic achievement. Athletes achieved greater academic success than non-athletes. The better athletes were higher academic achievers than the average athletes. The additional time required for the better athletes to participate in practice games and sports had no apparent ill-effect on their academic achievement.

Spreitzer and Pugh (1973) bring out the relationship between athletic participation and educational aspirations. They found that the unrealistic and inflated educational expectations of athletes described by Spady may be limited to high school where athletics, rather than scholarship, is the primary source of peer status and heightened educational aspirations.

They supported the hypothesis that the positive relationship between sports participation and expectations is highest in those high schools where the athletic specialist is accorded a great deal of prestige. The relationship is diminished in schools where the primary means of status is based on scholarship.
In this study, they noted two important points. First, the relationship between involvement in sports and academic pursuits is not uniform for all participants. The relationship is most evident among low-endowment boys and at schools that emphasize athletics. Secondly, the correlations are not necessarily indicative of a casual relationship between sports participation and academic pursuit.

Iueptow and Kayser (1973-74) conducted study on comparative analysis of athletes and non-athletes. Athletes in their sample did not show an improvement in grades during their high school years. They concluded that a casual interpretation should not be made of the association between athletic involvement and academic achievement. These studies dealing with academic achievement and sports participation do not support the thesis that involvement in sports (and extra-curricular activities) has any negative consequences for scholarly pursuit.

Picou and Curry (1974) provide further elaboration of the relationship between sports participation and educational aspiration among high school boys. They reported that athletes from lower socio-economic backgrounds who received little parental encouragement to attend college had higher scholastic aspirations than similarly situated boys who were not participating in interscholastic athletics.
Sports Participation and Scholastic Achievement at
College Level (Men):

In the early 1930's, several reviews of studies comparing the scholastic achievement of athletes and non-athletes appeared in professional Journals. David and Cooper (1934) reviewed 41 such studies conducted between 1903 and 1932 involving athletes in over 200 high schools and colleges. In some studies, the subject surveyed extended back over many years. For example, the first one listed was reported in 1903 at Amherst College. Scholarship records were examined for 18 earlier years to 1885. In most of the reviewed studies, the non-athletes performed slightly better scholastically than did the athletes, but the difference was not statistically significant. The advantage favoured the athletes graduating with his class, and the chances were that he would not drop out of school. The athletes generally improved their grades after the sports season ended.

Cooper (1934) had done a study on athletes and their scholarship in the college of the Pennsylvania State. Scores in the Carnegie Foundation Advanced Achievement Test for 4500 seniors in college were taken. He reported that the non-athletic group showed a slight superiority in achievement over the athletic group.

Somers (1951) made a comparative study of participation in sports and academics. The graduating class of 1948 at the Smith college was selected for the study. The academic grades of participants in intramural class team competitions were compared with that of non-participants. Somers found that "participation
in class team competition does not appreciably effect, either adversely or favourably, the academic grade of student participants" either in any single year or over the entire four year period of collegiate education.

She concluded that "it is possible for a student to enjoy the benefits of intramural participation and academic grades equal to those of non-participants".

Hart and Shay (1964) said, "Although physical fitness is not a general predictor of academic success, it is high enough to be considered as a necessary factor for the improvement of academic index in general education for the college students".

Yark (1968) in his study obtained data from 109 women Physical Education majors and 118 women majoring in other branches of teacher education who graduated from the University of Washington during the school year 1957 through 1966. It was found that women education major students have aptitude for and achievement in scholastic work comparable to other women students in teacher education, women physical education major students have aptitude for and achievement in scholastic work comparable to women students who major in Art, English, History, Home Science, Economics and Sociology. And a substantial relationship exists between high school point average, ACE scores and accumulated grade point averages.

Jorndt (1968) observed the relationship of physical fitness to academic success, academic aptitude and athletic participation with 101 randomly selected college freshmen. He found no
significant correlation with physical fitness and other variables, except low correlation between grade point average and scholastic aptitude.

Breg (1969) made a comparison statistically in regard to academic achievement and participation in intramural activities. Significant differences were found at .05 level in favour of participants over non-participants, with academic achievement held constant. No significant differences were found among high, average or low frequency participants.

Buhrmann (1972) studied a group of adolescent boys over the period 1959 to 1965. His research showed that athletic participation was more strongly linked with educational success among the boys.

Snyder and Spreitzer (1978) conducted a study of inter-collegiate athletics for the American Council on Education. The study provides an excellent summary of the academic performance of college athletes. Research of the secondary level has demonstrated that individuals playing in inter-scholastic teams get higher grades than would be expected from their standardized test scores and that they do better regardless of the subgroup of students chosen - poor, wealthy, bright, slow, black, white. It is generally admitted that scholar athletes on the average have lower school records, test scores and academic predictions than other students at the time of admission - in effect, that they do indeed get preferential treatment because of their athletic ability.
Sports Participation and Scholastic Achievement at College Level (Women):

Kipling (1975) investigated the relationship between academic achievement and athletic participation among college women. Athletes were divided into four sub-groups for investigation - spots type, athletic ability, major course of study and degree of sports participation. On the basis of his findings, it was concluded that athletes and non-athletes achieve comparable numerical grades and do not differ in the attainment of their predicted academic potential, but the academic achievement of athletes is not predicted to the same positive degree as it is for non-athletes. Also, there appears to be no difference among the academic achievement of athletes classified within groups.

Hanks and Eckland (1976) in their study concerning athletic participation and educational attainment by males and females at both the high school and college levels found that athletic participation by itself was correlated only slightly with educational attainment.

Snyder and Spreitzer (1977) conducted a study on Ohio school girls to find out the relationship between athletic participation and academic orientation. Their findings show that female athletes tended to have higher grade averages and educational goals than their non-athletic counterparts. The findings show that girls who were involved in both sports and music had higher grade averages and educational goals than the girls who were involved only in athletics or music. When comparing those girls who were
involved solely in athletics, the athletes tended to report slightly higher educational goals, but had slightly lower grade averages. Thus, as with male athletes, female participation in athletics need to have a deleterious effect on academic performance.

Personality Profiles of Sportsmen (High School and Higher Secondary School Level: Boys):

Slasher (1964) did a study on selected high school athletic groups and compared the total group with non-athletes from the same population for differences in selected personality scales as indicated by the NMPI intelligence scores as measured by Group Mental Ability Test. Athletes were selected from the activities - basketball, football, swimming and wrestling. In case of personality characteristics in terms of MMPI categories of HS, D, HY, Pd, Mf, Pa and Pl, he distinguished between athletic and non-athletic groups. He also found personality trait differences even within groups of subjects participating in various events.

Tillman (1965) administered three personality tests to two groups of public school boys, extremely fit and altogether unfit. The extremely fit group was further divided into two subgroups (experimental and control group). The experimental group improved much more in physical fitness than the control one. It shows that personality changes occur as quickly as the physical development occurs.

Gupta (1966) did study on 60 selected higher secondary school sportsmen of different games and 60 non-sportsmen from the
same population. He used Moodsley Personality Inventory (MPI) and Group Mental Ability Test (GMAT) to measure personality and intelligence. He found that group of sportsmen was more extroverted and less introverted than their counterpart group of non-sportsmen.

Marlines (1974) found no pronounced differences between the athletes and non-athletes in attitudes, personality and academic achievement.

Personality Profiles of Sportsmen (College and University Level: Boys):

Flanagan (1952) assembled a personality inventory for the purpose of studying the personality traits of fencers and other physical activity groups. The inventory consisted of four different types of items, measuring ascendance-submission, masculinity-feminity, extroversion-introversion and stability-instability. The Inventory was administered to six groups of college students who were taking activity courses on a voluntary basis in fencing, badminton, basketball, volleyball, boxing and swimming at the University of California. Analysis of the data showed group differences. Some of these were statistically significant with respect to four personality traits. Fencers were more ascendant than basketball, volleyball players and boxers. He also found differences in many other groups of players.

Husman (1955) studied aggression in college boxers and wrestlers, and compared them to each other to a control group and
a group of cross country runners. The results indicated that boxers possess less overall intensity of aggression than the other three groups and have less tendency to express their aggression outwardly than either the cross country group of controlled group.

Booth (1958) administered MMPI test on the college students and found that university athletes who participated in individual sports, but not in team sports, scored significantly higher on depression variables than the athletes who participated only in team games.

Booth (1958) also compared the personality rating ofFreshmen and upper class athletes and non-athletes; Freshmen and Varsity athletes who participated in only games, individual or team and individual sports; and Athletes who were rated as poor and good competitors and found that the non-athletes scored significantly higher than the athletes on the interest (Hf) variable. Freshmen athletes and upper class non-athletes scored significantly higher than the Varsity athletes on the anxiety (A) variable. Varsity athletes and the upper class non-athletes scored significantly higher than freshmen athletes and non-athletes on the dominance (Do) variable. On the social responsibility (Re) variable, the upper class non-athletes scored significantly higher than the freshmen athletes and non-athletes and the varsity athletes. Varsity athletes who participated in only individual sports scored significantly higher on the depression (D) variable than those who only participated in team games. On the psychothenia (Pt) variable, the participants in
Varsity individual sports scored significantly higher than the athletes who participated in both team and individual varsity sports.

Cowell and Ismail (1960) in their study indicated that 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.

Cowell and Ismail (1961) reported greater social adaptability, integration and acceptance among the substitutes than among the regular team members of football players at Purdue University.

Flower (1961) compared ten outstanding athletes with ten junior varsity athletes of such sports as football, basketball and wrestling. It was found that certain personality traits differentiated the two groups.

Lakie (1962) reported superiority of the private college athletes over the state college and the state university athletes in social maturity. He measured 230 athletes, from a state university, a private university and two state colleges.

Kroll and Peterson (1965) reported superiority in desirable social traits of the members of the losing football teams over the team members of those teams which were highly ranking winners. Athletes from private colleges, state colleges, and universities were compared, and the results showed the highest ranking in the social traits for the private college athletes, with
state college athletes ranking second, and university athletes lowest. The rankings were in social and intellectual interests.

Whiting and Stembridge (1965) reported that persistent non-swimmers from a college sample were more introverted than other beginning swimmers, but were not more neurotic; however, persistent non-swimmers at the 11 and 12 year age were both more introverted and more neurotic than swimmers of the same age. Behrman (1967) reported much the same findings.

Werner and Gettheil (1966) reported from a study of Varsity players at Westpoint Military Academy that they could find no evidence to support the view that college athletics significantly influenced personality structure.

Kroll (1967) gave the 16 P.F. test to 94 wrestlers including 28 Olympic wrestlers, 33 excellent collegiate wrestlers, and 33 average or below average collegiate wrestlers. He reported no significant personality differences among the various levels of wrestlers. The wrestlers did differ from the normal population in tough-mindedness, self-reliance, and masculinity.

He comments on Slusher's study of high school athletes in which Slusher (1964) reported a tendency of his subjects towards neuroticism and hypochondria and he noted that Slusher's findings were contrary to most other studies, at least of wrestlers. He also stated that the scores of the wrestlers as reported by Slusher were actually well within normal limits.

Kroll and Carlson (1967) studied various levels of Karate skill of competitors from Karate Club and from college Karate
athletes. They reported no personality differences between those of different levels of skill, and no difference between Karate performers and the norms of the population in general.

Behrman (1967) did the investigation to determine whether there are personality differences between male college freshman swimmers and non-swimmers and to determine the relationship between personality traits and swimming progress among non-swimmers experiencing a common course of instructions in swimming. Comparison revealed significant differences between swimmers and non-swimmers and between learners and non-learners.

Kane (1969) by using 16 P.E. test compared mature outstanding athletes with the other boys of the same age. In case of outstanding athletes, traits such as aggression, dominance, persistence, drive, confidence and generally extroversion were found to go most with success in athletic skills. Successful athletes were also easy going, sociable individuals, without anxieties or inner urgencies.

Singer (1969) found that college students select bowling as their first choice as opposed to the team sports, because students at this age want to demonstrate their personal skills. But recreational and co-curricular activities were found popular among college students as they grew into adulthood. Young children, however, were not interested in co-curricular activities. They would be more apt to choose team sports and body contact activities.
Kroll and Granshaw (1968) conducted a study on football players and wrestlers with gymnasts and Karate athletes. To measure personality characteristics, '16 P.F.' x T-test was used. They found significant difference among the groups.

Kane (1970) found in a study that both men and women students of three years degree course in physical education who were involved in physical education and games differed in personality structure from the general population of students who were non-athletes. He used '16 P.F.' test to know the personality structure.

John (1970) studied the effects of physical education courses in Judo I, Judo II, handball, badminton, basketball and volleyball on certain personality traits of male freshmen at the University of North Carolina. Subjects used were randomly selected from a student population meeting prespecified constraints and assigned to the experimental and controlled groups. Cattell's '16 P.F.' test was used to measure personality traits. Analysis of the results indicated that Judo experimental group became more warm hearted, easy going, and participating than either of the control groups.

Straub (1971) administered '16 P.F.' test to four football teams representing different levels of competition. They found significant differences in tough-mindedness, fore-sightedness and concentration in favour of the highest level teams in comparison to the lowest level one.
Petric (1971) showed that college-aged men were more attracted to competition and exploitation of individual skills within physical activities, while their female counterparts expressed values associated with social experience, fun and fairness.

Clarke (1973) compared athletes versus non-participants, fresh athletes versus senior athletes and fresh 50 ph, athletes versus junior - senior athletes by using Cattell's 16 P.F. questionnaire and revealed differences (P .05) practical versus imaginative, less superge strength versus more superge strength (P .05) self-assured versus apprehensive respectively.

Tatism (1973) utilising Cattell's '16 P.F.' questionnaire, compared the athletes in six inter-collegiate sports, physical education majors, and non-athletes. The six sports were baseball, basketball, gymnastics, swimming, tennis and wrestling. The only trait showing significant results was Factor M. Autia. The baseball players were the most practical of all groups, significantly exceeding the gymnasts and wrestlers. The basketball athletes were next highest on this trait.

Bhullar (1974) compared the personality adjustment of sportsmen and non-sportsmen as measured by Bell's adjustment inventory. It was concluded that sportsmen and non-sportsmen show marked differences in adjustments.

Verma (1975), in his study by using 16-P.F., found significant differences in five personality profiles. It was concluded that
sportsmen participating in individual sports are more intelligent, bright, abstract thinkers, sober, prudent, serious, sensitive, self-sufficient, resourceful and prefer their own decisions, whereas the sportsmen of team sports are concrete thinkers, happy-go-lucky, enthusiastic, self-reliant, trusting, adaptable and group dependent.

Gupta and Sharma (1976) conducted a study to determine whether differences in personality characteristics as measured by '16 P.F.' inventory existed among 25 athletes of track and field, 25 football players and 25 non-athletes. The analysis of the data disclosed that there were significant differences among all the three groups on the six scales i.e., A, B, C, H, Q3 and Q4 of the '16 P.F.' test.

Ibrahim and Morrison (1976) conducted a study on athletes (N-100) representing men and women from both high school and college and compared them to 100 non-athletes in their self-concept and self-actualizing traits. In general, athletes were found to be average on their self-concept. While male high school athletes differ to some extent from the non-athletes in both self-concept and self-actualization, female college athletes differ from the non-athletes in self-actualization only. Female high school athletes and male college athletes did not differ significantly from their counterparts.

Sandhu (1976), in a study of personality characteristics of 100 players participating in different selected team games (Hockey, Football, Basketball and Volleyball), the '16 P.F.' test
was administered. These 100 players consisted of 25 players of each game. He found no significant difference in personality traits among the players of basketball, volleyball, football and hockey. Finally, the conclusion arrived at was that the participation in different group games develop similar type of personality characteristics among the participants, except a few non-significant differences.

Rana (1981) administered '16 P.F.' questionnaire to sportsmen and non-sportsmen of Jiwaji University, Gwalior and concluded that sportsmen differ from non-sportsmen in personality characteristics of emotional stability and realism about life, cheerfulness and frankness, tender-mindedness and greater control over emotions and greater regard for self-respect and social reputation. On the contrary, Warner and Gottheil (1966) found no evidence to support the view that college athletics significantly influence personality structure.

**Personality Profiles of Sportsmen (Adults):**

Henry (1971) conducted a study in which a personality schedule including items from the Thurstone Neurotic Inventory and ascendance-submission items was administered to student pilots, track squad athletes, physical education majors, and students enrolled in weight lifting. In the extreme groups, the physical education majors were found to be significantly lower than the weight lifters in total scores and also in the ascendance-submission and Thurstone parts separately.
Thune (1949) demonstrates in his study that training with weights probably appeals to a group that differs with respect to interests, attitude and personality from the rest of the Y.M.C.A. members and that the differentiating items indicated that the members of the weight lifting group felt more strongly than the non-weight-lifters, that their health had improved whereas the latter were found to be basically shy and lacking in self-confidence.

Thune (1949) also did study an 100 Y.M.C.A. male weight-lifters, and 100 other Y.M.C.A. male athletes (non-weight lifters) in an effort to determine group differences in attitudes and disposition of personality. For this, he administered a personality inventory to the groups. An analysis of the data disclosed that training with weight probables appealed to a group that differed with respect to interests, attitudes and some personality characteristics from the rest of the active Y.M.C.A. membership. His differentiating items indicated that the members of weight lifting group felt stronger than the controls and basically they were shy and lacked self-confidence.

Mowrer (1952) says individual physical attributes can influence one's personality traits.

Geddal (1962) and his associates conducted a study on Olympians and their families. It was concluded that both groups practise similar activities and the specific physical and psychological qualities of the Olympians could be attributed to heredity. They also found evidence to support the findings that the Olympians' outstanding achievements were due to an ideal
combination of personality traits. Similar traits were found to occur within the whole family and thus heredity has been considered to play a vital role determining success in sports.

In some of his studies, Hendry (1967) reports greater aggressiveness, high level of aspirations, and psychological necessity to succeed as being characteristic of high level athletes. At very high skill levels, in individual sports, some introversion and dependence, even some neurotic tendency, may occur.

Kroll (1967) after classifying three groups of wrestlers and three groups of Karate participants administered personality inventory to all the groups. He found no distinguishing personality profile patterns.

Leithwood (1967) was considered the only investigator who studied the profiles of weight-lifters and body builders. He found that weight lifters and body builders differed from the general population on the following characteristics: intelligence (more), shrewdness (less), and self-sufficiency (more).

Ogilivie (1968) compared the medalist and non-medalist Olympic swimmers. Medalists were found less anxious, less neurotic, more self-assertive, independent and aggressive than the non-medalist swimmers.

Ogilivie (1968) in his study found that those athletes who achieved a high degree of success in sports were mainly extroverts. They were found to have a desire to achieve success, gave vent to aggression, had the desire to dominate others, were confident and extremely independent.
Ogilivie (1968) has accepted that participation in sports even at highest competition level did not contribute to character formation. He found that superior athletes from various sports groups, race car drivers to footballers and swimmers, had greater abstract reasoning ability and tough-mindedness as compared to ordinary ones.

Ogilivie (1968) also reports that, as a group, top athletes have a greater achievement need and are more dominant, aggressive and tough-minded. They can handle emotions under high stress conditions, are more mature and less neurotic than the normal ones and tend towards leadership and independence. He says that the more successful athletes become more self-centered and more unwilling to become involved in the lives of others.

Singer (1969) distinguished team sports athletes from individual sports athletes in certain traits by using EPPS (Edward Personality Preference Scale). It was reported that tennis group scored significantly higher than both the basketball and the normative groups on the achievement variable. The normative groups were significantly higher than the baseball group on the interaction variable, and the tennis group demonstrated a higher dominance factor than the baseball group. The baseball team scored significantly higher on the basement factor than the other two groups. On aggression, the normative group achieved lower score than the tennis group.

Darden (1972) studied personality differences of competitive body builders and weight lifters on '16 P.F.' test.
Fig 19  Sports participation and S.E.S. differences in intelligence (Girls).
revealed more similarities than differences among the four senior high school groups as well as among the various black and white sub-groups.

Foster (1977) did a study to determine which of the 16 personality variables as measured by Cattell's '16 P.F.' test went with successful, less successful or outstanding athletes participating in football, basketball, baseball and track. The coaches of each game classified their respective players (N=483) into outstanding, successful or unsuccessful categories based on performance in the 1972 session.

Discriminant analysis of all the groups revealed that scores on the 16 personality variables proved to be effective in differentiating successful and non-successful groups of subjects on certain personality traits.

Young and Ismail (1977) compared regular and non-regular adult exercisers on personality measures using Cattell's 16 P.F. questionnaire and found that regularly active group was significantly more confident than the non-regular adult exercisers, indicating that the relationship between physical fitness and self-confidence is stable.

Personality Profiles of Sportswomen (High School Girls):

Koenig (1969), in his study on high school basketball players, found that personality differences existed between athletes and non-athletes with respect to sociability, group orientation and emotional control. Both varsity team members
and intramural players had higher self-concept than non-participants. With respect to sportsmanship, degree of feminity and family influence, there were no differences amongst the three groups.

McDonald (1971) studied personality characteristics of different categories of high school female tennis players using Cattel's 16 P.F. test. Though statistically significant differences did not emerge amongst the different levels of players with respect to any psychological dimension, certain trends were observed. Successful varsity players did not differ from less successful varsity players on any personality traits. The varsity players were reserved, intelligent, self-sufficient and controlled than freshman players. The participants in general were more intelligent assertive, enthusiastic and tense than the non-participants. Amongst freshmen, the participants were more warm-hearted, assertive, enthusiastic, conscientious, adventurous, zestful, and socially group-dependent than non-participants.

**Personality Profiles of Sportswomen (College and University Girls):**

Molumphy (1938) did a study on women athlete participating in inter-collegiate competitions. He found some evidence that the higher the level of competition, the more favourable the score on various personality traits as measured by 16 P.F. test. He also investigated the personality traits of women competing in various inter-collegiate athletic activities and found the individual sports group to be more anxious, venturesome, extroverted and
tough-minded than other groups. The team sports group was found to be less venturesome, less extroverted and exhibited less leadership than the other groups.

Blanchard (1946) devised a rating scale to appraise the character and personality traits of students of physical education classes and concluded that desirable character and personality traits are affected by participation in physical education activities.

Harris (1963) made comparison of physical performance and psychological traits of college women with high and low fitness. It was found that fitter women are more stable and less anxious than the less fit ones.

Kane (1969) studied the physical abilities of men and women athletes and their personality traits with H.S.P.Q. and concluded that both men and women athletes are highly surgent and extroverted. The men also tend to be tough-minded. Men and women have similar personality profiles but the men tend to be more dominant, confident and composed.

Ibrahim (1967) compared the temperament traits of female athletes, dancers and physical education majors. From the analysis of the data, he concluded that athletes were the most relaxed, scored the highest on ascendancy and exhibited lower feelings of inferiority. Dancers ranked the highest on the trait of femininity.

Bird (1970) found that when level of women participation is examined, the inter-collegiate women participants were more serious, sober, tough-minded, self-reliant, decisive, enterprising
and possessed more alertness and poise when compared with the intramural participants and non-participants.

Marks (1971) compared a sample of 40 women participating in ten varsity sports at Ithaca College with the norms for Cattell's 16 P.F. test. The athletes were significantly higher on the following: Factor E - Assertive, aggressive, stubborn and competitive; Factor L - suspicious, self-opinionated, and hard to fool; Factor Q - experimental, liberal, analytical, free thinking; Factor Q3 - controlled, socially precise, conforming to self-image.

Burde (1971) in a study on women subjects applied 16 P.F. test to compare the personality profiles of two groups of non-swimmers - one with no previous instructions and the other with previous instructions in a process to identify psychological factors that could be inhibitors in the process of learning of swimming. She found no significant differences in their 16 P.F. profiles.

Acampore (1971) compared the personality traits among three levels of female field Hockey competitors and found some evidence that the higher the level of competition the more favourable the score on various personality trait scales of 16 P.F. test.

Chadwick (1972) administered the Cattell's 16 P.F. test to college female athletes and non-athletes. Upon comparing the two groups, the athletes were significantly more tough-minded, practical, group dependent, extroverted and subdued; they also possessed more poise and were lower in general intelligence.
Fig 20  Sports participation and S.E.S. differences in scholastic achievement (Girls).
the women ranking low in physical performance had neurotic
tendencies, were shy, and had little social competence.

Peterson, et al. (1967) studied outstanding women athletes
from the AAU and from the competitors in the 1964 Olympics. They
reported individual sports athletic women to be more introverted,
self-absorbed, independent-minded, and self-assured than the team
sportswomen. The team sportswomen were not as self-absorbed nor
as introverted. They tended to be more realistic, more emotionally
disciplined, steady and practical. Socially, both groups tended
to be more cool and aloof than the norm.

Peterson et al. (1967), in a comparison of personality in
Olympic level female team sports and individual sports athletes,
observed both categories of females to be more intelligent,
conscientious, perservering and aggressive than non-athlete females
of similar age and educational, social-economic background.

Flanagan and Malumphy (1958) reported that girls tend to
select activities according to their types of personality. Malumphy
found that the girls in her sample who favoured individual sports
were less anxious, more venturesome and more extroverted than the
girls whose speciality was team sports. They were more tough-
minded and possessed more 'tough poise' than the non-participants,
but no more tough-minded than the team sportsgirls.

Kane (1969) studied 358 college students, men and women,
to determine if personality was related to body type (somato-type).
He used the A and B forms of Cattell's 16 P.F. questionnaire to
measure personality and phenotyped each subject according to the
procedure described by Parnell. He reported no demonstrable relationship between body type and personality.

William et al. (1970) found that the female fencers were very much reserved, self-sufficient, autonomous individuals with a below average desire for affiliation and nurturance. They showed strong need to be the very best and very intelligent, creative and imaginative persons. They also tend to be assertive and aggressive. An analysis of variance revealed that only one personality factor would differentiate level of achievement. The top level competitors were significantly more dominating than the low level competitors. Thirty national level female fencers were studied with the Cattel et al. personality factor questionnaire and the Edward personal preference questionnaire to determine if there were distinct personality traits characteristic of champion level female fencers and if there was any correlation between personality traits and level of achievement in the 1968 national championship. A definite fencer's personality emerges when they were compared with norms.

Foster (1971) administered Cattell's 16 P.F. test to outstanding women basketball and softball athletes. The women had participated as follows: Basketball, in the national Illinois state, and mid-west regional basketball tournaments; softball, in the college world series and Illinois State and AAU softball tournaments. Successful athletes were more relaxed, venturesome and imaginative and less intelligent. Compared with women athletes, a non-athletic group was more happy-go-lucky and imaginative.
Johnson (1972) compared the outstanding groups of female athletes of different games on various personality characteristics as measured by 16 P.F. test. Significant differences among each sports group on some personality traits were found.

Neal (1976) examined the personality traits of 46 U.S. female athletes competing in the 1959 American Games and determined, when compared to norms, these subjects exhibited a higher need for achievement, lower need for affiliation and a higher level of aggression.

Pergman (1977) found female athletes to be more field dependent than males in some athletic comparisons. This finding disagrees with the preponderance of data in the literature which describe females in general as demonstrating greater field dependence.

Socio-Economic Status and Sports Achievement of Sportsmen and Sportswomen:

John (1951) has mentioned in his book 'Psychology of Coaching' that sports like football, wrestling, and boxing that require long, gruelling practice hours, seem to have a relatively larger proportion of competitors from families of lower income or lower social status. Sports like golf, tennis and swimming were preferred by people of higher income groups.

Woytinsky (1953) has mentioned in his book "World Population and Production - Trends and Outlook" that a country's
per capita income is indicative of its economic status. The highest allocations for participation and point aggregates were obtained by the countries with well-developed economies. Olympic participations are smallest in those areas of the world in which per capita income is lowest. All societies are economically stratified and that champion athletes invariably represent the more favourably situated strata.

McIntyre (1959) examined the socio-economic background of white male athletes in four sports at an eastern University. Subjects in his study were drawn from two team sports, basketball and football and two individual sports, gymnastics and wrestling. He determined that basketball players, gymnasts and wrestlers shared common social characteristics and were of higher socio-economic status than football players.

His findings showed that 50 per cent of the football players had fathers who made an annual income of less than 4,999 dollars as compared to 18 per cent of the basketball players, 25 per cent of the gymnasts, and 38 per cent of the wrestlers. Similarly, 69 per cent of football players had fathers who had not completed high school as compared to 35 per cent of the basketball players, 31 per cent of the gymnasts and 31 per cent of the wrestlers.

Lepre (1962) studied the socio-economic backgrounds of the members of 21 high school football teams ranked highest in Pennsylvania during one year. He reported that the range of economic background extended over the entire scale from poverty to wealth; the average socio-economic rank was above the 80th percentile of the general population.
Iueschen (1963) found that upper middle class youth preferred to participate in skiing, field hockey, and tennis; while middle class boys most frequently engaged in horse riding, track and field, rowing and swimming. Lower middle class youth preferred gymnastics, badminton, table tennis, and canoeing while lower class boys often participated in handball, soccer, weight lifting and wrestling.

Lawrence (1967) studied socio-economic background of the varsity letterman athletes at the University of Indiana. Over 40 per cent in his sample were football players. Lawrence concluded that low socio-economic status was not a contributing factor to success in athletics as judged by his sample. Some of Lawrence's findings are as following:

1. Only a minority of the fathers of the athletes were common laymen.

2. Athletes in team sports tended to have the same family background as athletes in individual sports. However, the fathers of team sports athletes had considerably greater sports background.

3. More of the athletes came from city than the rural areas.

4. Team sports athletes lettered in more than one sports to a greater extent than did individual sports athletes.

Robert Lawrence further reported that one-third of the fathers of the football letter winners were from the unskilled labour class as were 28 per cent of the fathers of the wrestlers.

Peter (1968) mentioned in his book, "The Kind of Distance" that Deefoot from American civil war made a mark in England by
by establishing himself as a great distance runner of six and ten miles. There seems to be no other way than excelling in sports for a black youngster in U.S.A. to leave the ghetto.

Stone (1969) found differences in the salience of sports according to social class. His findings showed that 32 per cent of respondents in the lower socio-economic status rarely or never talked about sports as compared to only 10 per cent in the upper stratum. Stone interpreted this finding as another indication of the general isolation of the lower class from the larger society.

Davis (1970) found, in his study, that physical fitness is not influenced by socio-economic level.

Francis (1970) stated in his book 'Kip Chonge of Kenya' that Keino was the last born of six children in 1940, who, during his childhood, worked as a herd-boy and became a great son of Africa by winning 1,500 metres in 1968 at the Mexico Olympics.

Young (1970) compared the motor performance by pre-school children from middle and lower economic groups and found no significant difference between classes or sexes in body weight, shuttle run, balance beam, or broad jump. However, middle class SS were significantly better than the lower class. Significant differences favouring lower class boys were indicated for both throwing accuracy and distance. Also, middle class boys scored better on the distance throw than girls of either class. Lastly, middle class girls and lower class boys were faster than middle class boys in running 30-yard dash.
Douglas (1971) has stated that there is a definite relationship between specific sports activities and income bracket. Water skiing, tennis, golf, camping and hiking are activities pursued mostly by those belonging to upper middle class families. Boxing, football, water sports, roller skating, cycling appeal to people of lower income groups. The outstanding boxers of each generation generally come from ethnic and racial groups experiencing the greatest degree of economic insecurity. Horse-riding and sailing are upper class activities.

Buhrmann (1972) studied a group of adolescent boys over the period 1959 to 1965. His research showed that athletic participation was more strongly linked with educational success among boys from poorer socio-economic backgrounds. Buhrmann concluded that "Athletics may be the most important means for the lower socio-economic status students to gain social recognition and acceptance and through it, greater academic aspirations and higher scholarships".

John (1972) stated that the poor and the under-privileged tend to be more successful in field sports than those of higher socio-economic classes. Lower economic classes are more successful in the vigorous contact sports.

John (1972) also stated in his book 'Sports Psychology' that the majority of highly skilled team-sports athletes come from the lower socio-economic classes, particularly from families in which the male parent is engaged in physical labour. These boys from poor homes are better physical specimens and are less spoiled by luxurious living, and will work much harder to success in sports.
Lashleg (1972) compared Negro and Caucasian junior high school boys on selected factors of personality, as measured by California Psychological Inventory, socio-economic status as measured by American Home Scale and physical fitness, as measured by AAHPER Youth Fitness Test and found some significant relationship between personality characteristics and level of physical fitness of Negro junior high school boys. There are some significant relationships between the socio-economic status and the level of physical fitness of both Negro and Caucasian junior high school boys.

Gruneau (1973) has observed marked differences in the occupational status of the fathers of competitors in different sports at the 1971 Canada Winter Games. He found that 72% of the fathers of synchronized swimmers and 61% of the fathers of male badminton players came from families where the father was involved in some sort of professional, managerial or finance activity. In contrast were weight-lifters and boxers who came from much lower socio-economic levels.

Stone (1973) asked a sample of Minneapolis adults about their sports performance and aligned those performances with 'Status' position in approximately the following manner:

(i) Upper stratum: Hockey, Golf, Tennis, Baseball, Football.
(ii) Middle stratum: Basketball (all strata), Bowling, Hunting.
(iii) Lower stratum: Boxing and Wrestling.

Williams (1973) found that blacks were superior to whites on motor ability scores at each socio-economic level. High socio-
economic level produced high motor ability scores for blacks. The blacks exceeded the whites 3 or 4 times on the ASS. The whites excelled on the shuttle run. Differences between socio-economic classes were found in the vertical jump and the 400 yards run.

Noe (1974) stated that generally in the middle and upper classes, a wide variety of leisure activities are pursued as part of the good life and self actualization. By contrast possession of consumer goods tend to be the means of self validation among the lower class.

Gruneau (1975) found in his study that athletes are recruited from even higher socio-economic level. In a sample of 509 male athletes from the 1971 Canada Winter Games, he further found that professional, managerial and higher status occupations were over-represented. The sample was under-represented in blue collar occupations.

Norman (1980) mentions in the Olympic Handbook that Abebe Bikila, a member of the Emperor's household guard in Ethiopia, brought Black Africa its first gold medal in athletics when he ran bare footed through the streets of Rome to win the marathon in 1960 Olympics.

Norman (1980) has mentioned in his Olympic Handbook that Rudalfa, the seventeenth of 19 children, suffered from Polio at the age of four. She had to learn to run fast to be sure of getting to the dinner table before her brothers and sisters had eaten all the food. She won 100 metres, 200 metres and 4x100 metres relay in Rome Olympics in 1960.
Norman (1980) has mentioned in the Olympic Handbook that Jesse Owens was one of the eight children of an Alabam Cotton Picker, who won four gold medals in Olympics in 100 metres, 200 metres, broad jump and 4x100 metres relay.

Yadav (1980) administered Socio-Economic status scale questionnaire to assess socio-economic status of Jiwaji University athletes and non-athletes and concluded that there is no difference between athletes and non-athletes in socio-economic status. He further concluded that games and sports like tennis and swimming attract players from families of higher socio-economic status. Games and sports like best physique, boxing, gymnastics, basketball, football, volleyball, kabaddi and track and field are more popular with people from middle socio-economic group. Wrestling, hockey, kho-kho are more popular with lower middle socio-economic group.

William (1982) has stated in his book, 'Physical Education and Sport in a Changing Society' that too often we see the pictures of a functionally illiterate allstar high school athlete from a poor family who, after barely escaping high school, suddenly acquires a car, an improved wardrobe, perhaps a well paid summer job, and the status of "mature" college athlete.