CHAPTER II
REVIEW OF LITERATURE

The research scholar made every effort to locate the literature to the study from the different library sources. A few references were made in different sources from some relevant studies from the various library which are presented in abstract form in this chapter to provide the variable background material for this study.

D.G. Potterson and I.E. Potterson (1928) made a study of Athletic and scholarship and found men who devoted most time to practice actually did better scholastic work than those who practice least. Slight tendency for intelligence related and there was no evidence that achievement varies with the sports in which pupils indulged.

Bureau of school Hygiene development of Physical Education, Japanese Government (1925) did a study of Athletes in normal school in the period of 1911-1915. About 14,004 graduates men of normal school thorough out the country were classified into two groups, namely athletes

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and non-athletes. Mortality and scholarship of the two groups were compared. They have found that the scholarship of the athletes was slightly more compared with that of the non-athletes.

Hindmons\(^3\) (1929) studied the intelligence and achievement of four hundred athletes' Scholarship holders in relation to the rest of their class at the Ohio State University. There was practically no difference in the intelligence and school grades of the two groups, but a significantly larger proportion of athletes graduated.

A similar research was done by Hutchinson\(^4\) (1930) for his study he had taken the male students entering Cornell University in 1922 and decided them into 2 groups, one composed of athletes and the other, rest of the undergraduate men. The groups were compared with respect to the percentage of the member who attained degrees, put on probation, number registered for the hard courses, or registered for easy courses, the average number of hours of work carried. The average grade made in the course taken average intelligence test score. In practice, all comparisons the athletes made the better showing, although the group differences were, in general, small.

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\(^3\) D.A. Hindmons, "Athletes and Scholarship at the Ohio State University", School and Society, 30 (1929), Article No. 4280, quoted in Psychological Abstracts. III (1929).

\(^4\) M.E. Hutchinsos, "College Athletes and Scholarship", School and Social Journal, 21 (1929), 151-152, Quoted in Psychological Abstracts. 4(1930), Article No. 422.
Jacobsson\(^2\)(1931) conducted that athletes are higher than non-athletes in terms of academic achievement as measured by the school’s marks. Along this line similar result were obtained by McIntosh 4 on British boys and girls. Furthermore, their academic achievement did not suffer during participation. It was pointed out by Jenny that Meclay’s motor quotient was closely correlated with intelligence.

It was concluded that (1) boys who engaged in more than one sport or who played on teams engaging in school athletes contest received marks approximately equal to those received by boys of equal mental ability who were not members of such teams or who took no part in sports. (2) there was a slight tendency for intelligence related and (3) There was no evidence that achievement varied with the sport in which pupils indulged. Jones\(^6\)(1935) Compared the intelligence of high school; school athletes with non athletes. 80 boys on one or another of athlete’s team of the Washington High School in Indianapolis were compared in intelligence tests, with 493 boys from the same school without the athletic distinction. He found athletes as groups were more intelligent.

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Finch\(^7\) (1953) did a study on athletes and achievement in high school. For this study 174 boys graduated in 1924-31 from the University of Minnesota, measurers of Intelligence, extent of participation in athletics and scholarship were taken.

Seegers and Postipichal\(^8\) (1936) conducted a study on 656 boys and founds positive but low correlation between the I. Q. and the score on the athletic tests.

Hacken Smith and Miller\(^9\) compared the academic grade with intelligence scores. He found that high intelligence group had better academic achievement than low intelligence group.

\(^7\)P.H. Finch. "Athletics And Achievement in High School Athletes with non athletes." Schooland Society, 42 (1953) 415-416. Quoted in Psychological Abstracts 10 (1936), Article No. 676.


\(^9\)C.W. Hacken Smith and L. Miller. "A Comparison of the Academic Grades and Intelligence Scores of Participants and Non-Participants in Intramural at University of Kentucky". Research Quarterly 9 (September 1938) : 94.
Tuttle and Beebe\textsuperscript{10} (1941) did a study on the scholastics attainment of letter winners of the state university of Iowa. The investigators found that the scholastic attainments of university athletes were approximately equal to the over age of the male group to which they belonged. Scholastic average tended to become lower as the season of competition progressed for the most past; the academic records of members of championship teams were higher than those of the member of non-championship teams in the same sports.

Hinrichs\textsuperscript{11} (1941) attempted to find correlation between health, intelligent quotient, extracurricular activities and Scholastic records. The investigator reported that no generalization should be made regarding the effect of these factors on scholastic success. The academic standing of the student would depend upon his desire and ability to compensate for any of the possible detesting factor in his school carrier.

Smith and Eaton\textsuperscript{12} (1942) at the Indiana University studied achievements of athletes. The authors reported on an investigation of 217 athletes enrolled at the Indiana University frl”Im 1934-1940. The

\begin{footnotesize}
\textsuperscript{10}V.W. Tuttle and F.S. Beebe, “A Study of the Scholastic attainment of Letter winners at the state University of Iowa, Research Quarterly, 12 (1941) 22-225.

\textsuperscript{11}M. A. Hinrichs. “Some Correlation between health, intelligent quotient, extracurricular activities and Scholastic record.” Research Quarterly-xii(1941) 226.

\textsuperscript{12}H. L. Smith and M.T. Eaton, “The Scholastic Indiana University”, Hultetine of School Education,Indian Quoted in Psychological Abstracts, 16(1942), Article No. 36.
\end{footnotesize}
subjects included all the men who received official letter in basketball, baseball, football, golf, swimming, track and wrestling. They found, in general, the scholastic achievement of athletes was commensurate with their ability. In their conclusion they said" probably one of the most significant fact that these results show that the athletes in this study were very much like other average students as far as success was concerned.

Kulcinki\textsuperscript{13} (1951) pointed out that the relationship between intelligence and the learning of fundamental muscular skill was varying quick and significant.

Somers\textsuperscript{14} (1951) made a comparative study of participation in extra curricular sports and academic grades. The class of 1948 at the Smith College was elected for the study. The academic grades of participations in intramural class team competition were compared with that of non-participants. Somers found that "Participation in class team Competition does not appreciably affect, either adversely or favorably, the academic grade of student participants," either in any single year or ever the entire four year period of collegiate education. She concluded that it is possible for a student to enjoy the benefits of intramural particular and at the same time maintain academic grades to those of non-participants.


\textsuperscript{14}R. Somers, "A Comparative Study of Participation in Extracurricular Sports and Academic Grades." Research Quarterly. 22 (1951),84-91
Waber\textsuperscript{15} (1953) in his study of 264 fresh women at university of IOWA reported on grade point average. Hence, it seems reasonable to conclude that a certain level of matter and organic functions favour academic achievement and success in intellectual pursuits.

Arnett\textsuperscript{16} (1958) investigated the relation between selected physical fitness items and academic achievement of college woman. The findings of the study showed a very close relationship between academic successes in athletes, also revealed that more intelligence required completing individual sports than in team sports.

Booth\textsuperscript{17} (1958) compared the personality ratings of: Freshmen and varsity athletes who participated in only team, individual, or team and individual sports; and athletes who were rated as poor or good competition and found that the non-athletes scored significantly higher than the varsity athletes on the anxiety (A) variable. Variable athletes and the upper class non-athletes scored significantly higher than the freshmen athletes scored and non-athletes on the dominance (Do) variable on the social responsibility (Re) variable, the upper class non-athletes scored significantly higher than the freshman athletes and non-athletes and the

\textsuperscript{15}Robert Waber, "Relationship of Physical to Success in College and to Personality",26 Research Quarterly (1953): 71-74.

\textsuperscript{16}Chapell Arnett, "Inter-relationship between Selected Physical Variables and Academic Achievement of College Woman" Research Quarterly 39. (May 1958) 227-30

\textsuperscript{17}E. G. Booth, "Personality Traits of Athletes as Measurement by the MMPT" The Research Quarterly 29 (May 1958): 127-138.
varsity athletes. Varsity athletes who participated in only individual sports scored significantly higher on the depression (D) variable then those who only participated in team sports scored significantly higher than the athletes who participated in both team and individual varsity sports.

Pangle\textsuperscript{18} (1958) made a study on scholastic achievement of high school athletes. He found there was no significant difference in scholastic attainment between those who participate in the athletic programme and those who did not participate.

Fahmer\textsuperscript{19} (1960) found little or no relationship between physical fitness, academic achievement and intelligence in his study in high school students.

James Coleman\textsuperscript{20} (1960) in his study on the Adolescent subculture and academic achievement found that higher evaluation of muscular over mind is a factor contributing to poor academic achievement among students with greater than average intellectual ability as well as the mediocre.


\textsuperscript{19}Carl J. Fahrner, “A Comparison of Physical Fitness with the out of School Physical Activity, Academic Achievement and Intelligence Quotient of the High School Students”, Complete Research in Health, Physical Education and Recreation 2 (1960): 50

Mc Clanney\textsuperscript{21} (1960) got the group of college men, namely high fitness group and low fitness group. On a comparison of their personality characteristics as measured by cattle's 16 personality factor questionnaire, self concept and Academic Aptitude, he concluded that high fitness group appeared to be more group dependent while the low fitness group was more self sufficient. Also the subjects in high fitness group appeared to be more trusting and free of Jealousy where as those in the low fitness group seemed to be more suspicious and self-opinionated.

Didsmoe\textsuperscript{22} (1961) made a survey of academic standing of the 12 member of each of the basketball teams Iowa Boy's sub-state tournaments, 1960-61, he compared grade point average at the end of the first September of the 196061 academic year of the every player for each course in which he was enrolled, with the average grade point average of the entire class for the respective course. He found that basketball players who were highly proficient in there chosen sports were also above the average of their fellow students in academic performance.


Mc Millen\textsuperscript{23} (1962) observed a partial correlation of .26 between physical fitness and academic achievement holding I.Q constant in his study of high school girls. The above abstract of review reveals that there seems to be low positive correlation between academic achievement and physical fitness and this hold true even when the I.Q of the subject is kept constant. There is also low positive correlation between Academic Achievement and Intelligence. However no such study seems to have been undertaken in India to develop insight into the role and importance of physical fitness and physical education.

Hays\textsuperscript{24} (1962) made high school student into four groups on the basis of Mc Clay classification Index. He found positive but non-significant correlation between them.

\textsuperscript{23}Betty I. Mc Millen, “A study to determine the Relationship of Physical Fitness as Measured by New York State Physical Fitness Test to the Academic Index of High school Girls, "Completed Research in Health, Physical Education and Recreation 4 (1962):68.

Anderson and Donald\textsuperscript{25} (1963) studied the cardio-respiratory change occurring in university freshmen males as measured by treadmill performance after ten weeks of participation in intermediate swimming classes.

In this study all subjects participated voluntarily and were free of cardiac impairments. The initial and final treadmill tests were at 3.4 mph and fourteen percentage grade, and 6.0 mph.

Hart and shoy\textsuperscript{26} (1964) said” Although Physical Fitness in not a general predicator of academic success, it is high enough to be considered as a necessary factor for the improvement of academic index in the general education of the collage students.”

Dondal\textsuperscript{27} (1987) conducted a study to find out the socio-economic status of the Inter University Volleyball participant. The data were collected by the administration of questionnaire from Volleyball players of West Zone Inter University Competition championship held in Nagpur during the 1985-86 session. It was concluded that all most all

\textsuperscript{25}Anderson and Donald Thomas, “Cardio-respiratory changes occurring in university freshmen males as measured by Treadmill performance after ten weeks of participation in intermediate swimming classes”. Completed Research Vot5, T.Ab. 301, 1963, p.88.


\textsuperscript{27}Ashok G. Dondal, “Socio-economic Status of the Participants of West Zone Inter University Volleyball Competition”, (Unpublished Masters Dissertation. Amravati University, 1987)
the volleyball players of west Zone Inter University competition were from the middle socio-economic strata.

Mc Collum\(^{28}\) (1964) compared between the physically fit and the physically unfit in intelligence, academic achievement and attendance in school. The AAHPER Youth Fitness Test was administered to 172 male students in Greene country Technical High School, Paragould, Arkansas. The 28 students with the highest scores were considered the "fit" group and the 28 with the lowest scores were considered the "unfit" students, with approximately equal numbers in the 4 grades. Comparisons of intelligence based on the California Test of Mental Maturity grade point average, and attendance were made difference at .05 level of confidence. The mean difference of intelligence between the fit and the unfit group was not significant. However, the mean grade point average of the fit group (2.68) was 40 percent higher than that of the unfit group (1.91) and the difference was significant although intelligence and

attendance were essentially equal. Panthienx and Barker\textsuperscript{29} (1965) found significant relationship but they did not favour one status group in all the component of the fitness as measured by AAHPER youth fitness test. There were indication that lower status girls were faster, were better in co-ordination, and had more endurance but that upper status girls were stronger in arm and solder girdle strength abdominal and hip flexor muscles, and in muscular explosiveness.

Result indicates that lower status boys were faster and better in coordination but the higher status boys scored better in combine agility and speed and in strength of abdominal and hip flexor muscle.

Stockdill\textsuperscript{30} (1965) studied with all boys in 12 physical education classes for grades 7, 8 and 9 (N = 490) were given the AAHPER youth Fitness Test. Socioeconomic status of parent was determined from the rank of their occupation in the detailed classification of the Bureau of the Census, 1950, and family size was determined from school census cards. The correlation between physical fitness and socioeconomic status of parents was too low to predicative purpose. The correlation between fitness and family size was not significant. Mean difference in fitness for boys whose parents and professional, management, sales, and craft workers were not significant.

\textsuperscript{29}N.A. Panthienx and Barker, "Relationship Between Socio-Economic Status and Physical Fitness Measures" The Research Quarterly 36 (December 1965): 464.

Ward\(^{31}\) (1965) studied the relationship between physical fitness and certain psychological, sociological and physiological factors in junior high school boys. The AAHPER Youth Fitness Test was given to 784 junior high school boys. Boys scoring at or above the 85th percentile were designated as “fit” and those scoring at or below the 35th percentile were designated as “unfit”. The two groups were compared as to intelligence as measured by the Otis Quick-Scoring Test of Mental Ability, academic achievement, social efficiency as measured by the Blanchard Behavior Rating Scale, acceptance by peers as measures by the Cowell Personal Distance Ballot, school attendance, overweight or underweight. The “fit” averaged higher in mental ability, were more accepted by their peers, tended to possess a higher degree of social efficiency, missed fewer days of school, drove automobiles more frequently, participate more in sports, tends to have more dates, joined more out of school organizations, held more leadership positions and tended to be slightly underweight.

Baker\(^{32}\) (1965) investigated with the subjects were 74 boys from 12 to 18 years old in opportunity classes in the public school at

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Edmonton, Alberta. The AAHPER Youth Fitness Test, Non-Language MutiMental Test, and Stanford Achievement Test were administration and emotion adjustment was obtained from teachers' ratings on a student Evolution Scale. From I-B, development at the University of Washington. The correlation between physical fitness and intelligence was positive but not significance and the correlation of physical fitness with academic achievement and emotional adjustment were positive and significant but low.

Jarman\textsuperscript{33} (1965) found that" the multiple correlation between twenty-one physical variables and intellectual performance were too law to justify the prediction of scholastic success from physical tests. Thus, these investigation conduced that measures of height, weight, grip strength, physique type, dental age and carpal age contribute little to the prediction of academic performance.

Rewatkar\textsuperscript{34} (1967) studied with 555 boys and 427 girls who "participants in various games during the seventh mini national games, 1986. It was concluded that the majority of the boys and girls of Kho-


\textsuperscript{34}S. B. Rewatkar, "Study of Socio-economic Status of the participants of the seventh mini National School Games". (Unpublished Master's Dissertation, Amravati University, 1967)
Kho, Kabaddi, Basketball, Table tennis and Volleyball players of the seventh mini nation games belonged to middle socio-economic class.

Jasper\textsuperscript{35} (1967) studied with sixteen grade 6 girls, each families having incomes below $5000, from $5,000 to $9,999 and above $10,000 were tested in flexed arms hang, sit-ups, squat-thrust, standing broad jump, and 200-yard run. Analysis of variance showed no significance among the three socioeconomic groups.

Jackson\textsuperscript{36} (1968) studied the effect of various training frequencies on cardio respiratory endurance.

Under this twenty men were presented for maximal oxygen intake, given the Balke treadmill test, and their aerobic capacity predicted within the Astrand Ryhming education. The predicate aerobic capacity correlated significantly with the other two test results but the Balke maximum oxygen intake results were not significantly related. The subjects were assigned randomly to group training 0,1,2,3, or 5 days/week on the treadmill at progressive grade for five week before resting. Maximum oxygen intake was not significantly increased but the results of the other two tests showed improvement.

\textsuperscript{35}Juditith A. Jasper, “The Relationship of Socio-Economic Status and Physical Fitness of Selected Sixth Grade Girls in Sioux Fall, South Dakota” Completed Research in Health, Physical Education and Recreation 9 (1967): 104

Williams et al. (1986) studied the change in selected cardio-respiratory responses to exercise.

In the study cardio-respiratory and body composition change were evaluated in twenty-five sedentary females, aged eighteen to thirty-five years, following twenty weeks of aerobic dance training programme produced effect were indicated by significant improvements in 02 pulse, V heart rate perceive exertion during sub maximal exercise.

At last it was concluded that these twelve week aerobic dance program was successful in promoting beneficial change in cardio-respiratory fitness and body-composition. No significantly improvement in any of these variable were found for the control group.

Jorndt (1968) investigated the relationship between physical fitness and academic achievement. For the study Freshman and senior high school boy: (N = 358) who ranked in the upper and lower 25 percent of their respective classes were used as subjects. The Maine West Physical Education Department constructed the physical fitness test Class a rank was determined by grade point average. No significant differences

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38 George S. Jorndt, "The Relationship Between Physical Fitness and Academic achievement" Completed Research in Health, Physical Education and Recreation 10 (1968): 36
(.05 level) were found between physical fitness and academic achievement for either freshmen or senior boys.

Boespflug\textsuperscript{39} (1968) studied the relationship between physical fitness, social acceptability, social adjustments, intelligence, and academic achievement of junior high school boys. Physical fitness of 50 track experienced sublets was measured by the AAHPER youth fitness test. Socio acceptability was assumed by the Cowell personal distance ballot, social adjustment was based on result of the Cowell social behavior trend index, intelligent was assumed by the Hermon-Nelson test of mental ability, and academic achievement was represented by grade points average. Those subjected that obtained high physical fitness scores appeared more socially accepted, more socially adjusted and also had better academic achievement than those subjected with low physical fitness scores.

Bagga\textsuperscript{40} (1969) conducted a study to find out the socio-economic status of the students studying in the difference courses of physical education in the colleges of Amravati University.

\textsuperscript{39}Lerry R. Boespflug, “The Relationship Between Physical Fitness, Social Acceptability, Social Adjustment, Intelligence and Academic Achievement of Junior High School Boys” Completed Research in Health, Physical Education and Recreation 10 (1968):97.

\textsuperscript{40}Taranjeet Singh Bagga, “Study of Socio-economic Students of Physical Education Colleges of Amravati University,” (Unpublished Master’s Dissertation, Amravati University, 1989).
Total 388 students studying on difference levels were selected randomly from the five physical education colleges of Amravati University, and the data were collected through the questionnaire. It was concluded that the majority of the graduate level students of physical education belonged to middle socio-economic group, whereas post-graduate level students studying in physical education were found mostly from higher socio-economic strata.

Singh\textsuperscript{41}(1990) conducted a study to explore the socio-economic status and their influence on game selection of National Level sportsman of Manipur. Total 140 players from football, handball, badminton and table tennis were selected randomly, from those who had participation in National Level tournament from 1985-1989 in Manipur. It was concluded that national level badminton and table tennis players of Manipur mostly belonged to higher and middle socio-economic class, whereas football and handball players were mostly belonged to middle and lower socio-economic strata. The findings atmosphere affected phenomena for the selection of the game.

Aslet\textsuperscript{42} (1989) conducted a study to examine the socio-economic status of the intercollegiate volleyball players. The data were collected from 342 volleyball players, who took part in the intercollegiate


volleyball tournament of Amravati University, Amravati 1988, through the questionnaire and personal interview, it was conducted that the majority of the intercollegiate volleyball players were from the urban areas and belonged to middle socioeconomic status.

Koening\(^3\) (1969) compared of selected personal and social background characteristics of high school girls at three levels participation in Basketball. He found that personality different 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; and with respect to sportsmanship, degree of femininity and family influence.

Thomas\(^4\) (1969) conducted a study to investigate the relationship of physical fitness to selected aspects of intellectual and academic performance, co-curriculum participation and socio-economic status. To established the relationship between the selected variables r- (Pearson’s product movement correlation of coefficient) statistic technique was employed. It was found that there was relationship between physical fitness and socio-economic status.

\(^{3}\)Frances Becker Koening, “Comparative Analysis of Selected Personal and Social Background Characteristics of High School Girls at three levels participation in Basketball” oDissertation Abstracts International 30 (December 1969):2361-A

\(^{4}\)Paggy stone Thomas, “The Relationship of physical fitness to selected Aspect of Intellectual and Academic Performance; Co-Curricular participation, and socio-economic status”, Dissertation Abstracts International 29,(April 1969): 3449-A
Young\textsuperscript{45} (1970) compared the motor performance by pre-school children from middle and lower economic group and found no significant differences between classes or sexes in body weight, shuttle run, balance beam, or broad jump. However, middle classes were significantly latter than the lower class and boy were indicating for both throwing accuracy and distance. Also, middle class boys score~ better on the distance throw them girls of either class. Lastly, middle class girls and lower class boys were faster than middle class boys in running 30 yards dash.

Dinucci\textsuperscript{46} (1970) longitudinal analyses of the academic achievement studied and intelligent of the boys nine to seventeen year of age as related to selected to physical variable and found a significant position relationship between academic achievement and intelligence in his study on boys, nine to seventeen years of age.


\textsuperscript{46}James M. Dinucci, "Longitudinal Analysis of the Academic Achievement and Intelligent of the Boys Nine to Seventeen Year of Age as Related to selected Physical Variables; Completed Research in Health, Physical Education and Recreation 12 (1970): 17 J.
Davis\(^7\) (1967) investigated the existing relationship between socio-economic status of parent and the physical fitness scores of their fifth grade pupils. He collected data from unified school of Sacramento city found that physical fitness was not infused by socio-economic status.

In his study of high school male student Hart\(^8\) (1970) significant correlation between physical fitness and academic achievement in the entire group, as well as, in the students of the second and fourth year classes of high school of few years, but negative correlation-.43, in the students of the third year.

Yollng\(^9\) (1970) conducted the study on personal social adjustment, physical fitness, attitude towards physical education of high school girls by social economic level for that he used AAHPER physical fitness test to measure physical fitness and found no significant difference between socio-economic group with reference to physical fitness.


\(^8\)Edward Hart, “Relationship Between Physical Fitness Test Scores, Intelligence Quotient and Grade Point Average of Selected High School Students”, Completed Research in Health, Physical Education and Recreation 12(1970):87.

\(^9\)Mary L. Young, “Personal Social Adjustment, Physical Fitness, Attitude Toward Physical Education of High School girls by Socio-Economic Level” The Research Quarterly 41 (December 1970):593-599.
Lashle\textsuperscript{50} (1972) compared Negro and Canasian Junior High School Boys on selected factor of personality, as measured by California Psychology Inventory, socio-economic status as measured by American Home scale and Physical Fitness, as measured by AAHPER youth fitness test and found S011e significant relationship between the personality characteristic and the level of physical fitness of Negro junior high school' boys. There are some significant relationship between the personality and level of physical fitness of cansasian junior High school boys; there are some significant relationship between the socio-economic status and the level of physical fitness of both Negro and Canasian Junior high school boys.

Williams\textsuperscript{51} (1973) studied the relationship of race and social economic status to motor ability and athletics skill in elementary school children found that blacks were superior to whites on motor-activity scores at each socioeconomic level. High socio-economic status level produce higher motor activity scores for blacks. Blacks exceeded whites on three of the items on the ASS. Whites excelled on the shuttle run. Differences between socioeconomic classes were found in the vertical jump and the 400-yard run walk. The Georgia Adaptation Children's

\textsuperscript{50}Kant Adrian Lashley. "A Comparative Study of Negro and Cancasion Junior Iligh SchoolBoys on selected factor of personality, Socio-Economic Status, and Physical Fitness." Dissertation Abstraction International 32 (March 1972): 5022-4

Physical Development Scale and an Athletic Skill Survey determined motor activity and Athletic skill.

Klingbell\textsuperscript{13} (1968) studied with 222 athletes were paired with a comparable number of nonetheless on ACT composite testing, high school rank, and school or college of initial registration. The conclusion of the study were: student athletes upon entrance to the university are comparable to the general population with respect to academic potential as measured by ATC, HSR and SAT scores, but there were significant differences between academic qualification of the various sports group; sports groups very significant with respect to academic success; the academic success of athletes was a function of academic ability and other related factors, and there was no difference between the academic performance of grant in aid athletes and non athletes of comparable ability.

The research scholar made every effort to locate and collect the literature relevant to the study from the different library sources. A few references were made in different sources for some relevant studies from the library of Amravati University, Amravati and Dr. Babasaheb Nandurkar Collage of Physical Education, Yavatmal, are presented in abstract from in this chapter to provide the variable back ground material for this study.

\textsuperscript{13}Jerrold L. Klingbell, "Athletic Participation and Academic Success & College Freshmen", Completed Research in Health, Physical education, and Recreation\textsuperscript{1} 0 (1968): 138
Yadav\(^{54}\) (1980) administered socio-economic status scale questionnaire to assess socio-economic status of Jiwaji University Athletes and Non Athletes and concluded that they're no different between athlete and nonathletes in socio-economic status. He further concluded that game and sports like tennis and swimming attracted player high socio-economic status, games and sports like best physique, boxing, gymnastics, basketball, football, volleyball, kabaddi and track and field are more popular with participants from middle socio-economic status group and wrestling, hockey and kho-kho are more popular with lower-middle socio-economic status group.

Fletzy and Weiss\(^{55}\) (1984) designed the study to assess the influence of athletes and other curricular activities on the academic orientation of female high school student. The result of the study reflected the nation that involvement only in athletics is detrimental to education achievement for female and lead to certain recommendations for longitudinal multimeasure investigation of academic orientation.

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Phadnis\textsuperscript{56} (1987) investigated a study to find out the socio-economic status of the 7\textsuperscript{th} mini national school games participants. The data were collected through the questionnaire from the 340 participants of various games who belonged to 16 difference states. The results of the study showed that the participants of Kho-Kho, Kabaddi, Basketball, Volleyball and Table tennis players mostly belong to middle socio-economic strata.

Premlata\textsuperscript{57} (1987) conducted a study to explore the socio-economic status of body and girls participating in nation games, and its relationship with their achievement in sports.

The data were collected from the 92 Table-Tennis, Badminton, Swimming, Kho-Kho and Kabaddi Players who had Participated in National School games during the year 1985-86. Information's were collected through questionnaire and interview. It was conducted that majority of the swimming, Table tennis and Badminton players belonged to upper socioeconomic strata, whereas the majority of Kho-Kho and Kabaddi players were from the lower socio-economic strata.

\textsuperscript{56}Deepak V Phadnis, “Socio-economic Status of the Participants in Mini National School Games”. (Unpublished Master’s Dissertation, Amravati University, 1987)

Sharma\textsuperscript{58} (1987) conducted a study to find out the socio-economic status of cricket and hockey players. 120 players (60 from each game) were selected from the four university and the data were collected through the questionnaire and personal interview, and interpreted by chi-square. It was concluded that Inter University Cricket players mostly belong to upper and upper middle socio-economic strata. It was also revealed that there was no significant difference between the means of socio-economic status of cricket and hockey players.

Varma\textsuperscript{59} (1987) conducted a study with 28 sports officers from the affiliated colleges of Ravishanker University to find out socio-economic status as well as sports and physical education achievement status. The data were collected through the questionnaire as rating scale. It was concluded that all most all the sports officers of the colleges were from the middle socio-economic strata and found to be of middle status in their sports and physical education achievement.

\textsuperscript{58}Deepika Sharma, “Comparative Study of the Socio-economic Status of the Hockey and Cricket Players of Inter University Level”, (Unpublished Master’s Dissertation, Amravati University, 1987)

Montoye and Reiff⁶⁰ (1970) studied the relationship physical activities to total serum cholesterol and skinfold fat in adult’s males.

In the above study, the occupation and closure physical activity records were collected by interviewing a 10% sample of adults males (N = 136) as part of the Tecumseh community Health Study. Energy expenditure table were developed for the activities and were used to determine total energy expenditure for the last three months gave a good estimate of total annual activity. Physical activity had a little productive value for serum cholesterol, body weight or body fat.

Bowes⁶¹ (1968) carried out an investigation of “the effect of specific exercise on selected skinfold and girth measure of college woman”.

For the study college woman were divided into experimental group of twenty and control the group of twenty-four.

The experimental subjects participation in three, one-hour classes per week for ten weeks. There classes considered of thirty minutes of body mechanism and thirty minutes of modern dance techniques,

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composition and lectures with thirty minutes of specific exercise for the second five weeks. The control group attended the physical education classes. Girth and Skin fold measurement were taken, and height and weight were recorded. There was no significant difference between groups in the measure analyzed. There were several significant differences within group changes, more in the experimental than in the control group and more evidence during the fifth to tenth week comparison.

Marine\textsuperscript{62} (1965) conducted the study on age tried in heart rate values during and after sub maximal work in woman 30-50 years olds. In this works height, weight and public skinfold measurement were taken on 10 woman volunteers in each five years and groups from thirty to fifty. Heart rate were recorded before, during 8 minutes, after 3 min. step test at 24/min on 8 inch bench. Level of activity was estimated in four categories from light to vary active on the basis of questionnaire. Four fifth of the subject were under standard weight. Weigh percent fat and fat free body weight were greatest in the 35-40 years groups and progressively less in the two order groups.

The youngest groups had the faster hearts response to exercise and the most rapid recovery, but maximum heart rate during exercise showed no distinct age trend and no clear relationship to activity.

The correlation between maximum heart rate and weight was 214. Body weight and subjects with the lowest fat free body weight had the faster heart recovery rate.

Scott⁶³ (1968) conducted the study on the effect of isometric and elastic cord exercise” on strength and speed of swimming.

In the study male college students in two-advanced swimmer and one life saving class (N = 51) were randomly assigned to three groups. The two experimental groups undertook the regimen of functional isometric and elastic cord exercises, coupled with regular instructions. Pretest analysis showed no difference in strength and swimming speed among groups weekly testing in the first six weeks, using analysis of variance and Tukey’s contrast for multiple comparison, yielded evidence that all groups gained significantly in strength; the exercise group by the end of the second week, gained in swimming seed over the control, with no significant difference between strength gained by functional isometric and by elastic cord exercise. Strength gained was maintained as well by elastic cord exercise performed by every 2 weeks as ones a week.

Zauner and Benson⁶⁴ (1981) conducted the study on physiological alteration in young swimmers during three years of intensive training.


For this study seven females and eight males age group ranging from 9-19 years were selected. Each subject, even the youngest, had at least 50% of life invested in competitive swim training, thus creating prejudice against finding physiological improvement attributable to subsequent training. These athletes trained in swimming by means of twice daily practice sessions each totaling from 6000 to 10,000 meters. The winter training programme brought swimmers to the practice pool at least six times weekly with long yardage and weight training as features. In an effort to examine the effect of prolonged intensive training upon children, seven females and eight males successful young competitive swimming active in a twelve month training programme were measured for maximum oxygen uptake (VO$_2$ max). Physical working capacity forced vital capacity and for body surface area.

Yadav$^{65}$ (1986) conducted a study to explore the socio-economic status of the Inter University Swimmers. The data were collected from the 193 swimming of 36 University who participation in All India Inter University swimming competition during the year 1985-86. The information was collected through the questionnaire and interview. It was conclude that the majority of the Inter university swimming was found to be from the middle socio-economic strata and twenty-two percentage grade for three minutes or until exhaustion. Heart rate, blood

pressure, pulse pressure, ventilation, Goswami, Shashikant.\textsuperscript{66} (1993) found that the collected data were treated using the mean, SD, Sem, ANOVA, 't' test the Newman Keul's Test. (1) The sportsmen of different categories had considerably different physical and nutritional status. (2) Generally speaking sportsmen belonging to short duration activities like sprints and throwing events of track and field have shown heavier bodies ranging from 61 Kg. to 99 Kg. with larger overall size as compared to those of long duration activities like marathon and long distance runners. (3) It was found that the introspective results 9f. weight category players revealed that the light weight category players were younger and the heavy weight category players were older. Similarly, linear measurement was lowest in gymnasts and higher in volley bailers. The circumferential measurements revealed that the gymnasts had narrowest circumference of chest and calf but have larger upper arm circumference than many of the sports events. (4) The body composition results revealed that the throwers as well as the weight category players had higher percentage of body fat, which was also evident from the skinfold values, than the distance runners and ball game players. Likewise, the heavy weight category players had higher percentage of body fat than the lightweight category players. (5) The multiple ranged test post-hoc results revealed that the sportsmen were significantly different in shape and size than the controls. (6) The comparison between Montreal Olympians and Indian

International Sportsmen revealed that the latter were significantly lower in almost all the variables studied and had higher percentage of body fat indicating that the shape and size of the former was different than the latter including body composition too. (7) The energy balance of the sports persons have been found to be in positive side suggesting that every sports category has its own basic energy requirements; It has been further observed that the sportsmen consumed 50% more protein than their actual requirements.

Sylvia, Subapriya, M. and Premankumari. S.67 (1993). (1) The socio-economic status and consequently nutrition have a subtle effect on the height of subjects. (2) The weight also showed maximum difference between the same environmental groups belonging to two different economic status. However rural girls were shorter and lighter than their urban counterparts. (3) The mean Body Mass Index (BMI) indicated that socioeconomic status influenced the BMI of the subjects. (4) It was found that the chest girths of the adolescent girls were also influenced by socio economic status. (5) The mean skin fold measurement of tissue triceps was found to vary with the environmental factors. Urban subjects showed lower values than rural subjects though their mean heights and weights were higher than their rural peers. (6) The results of hemoglobin level showed that none of the affluent subjects had hemoglobin levels

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67Sylvia Subapriya M. and Premankumari, “Growth profile and Hemoglobin level of adolescent girls from affluent and low income families of urban and rural areas of Coimbatore”. Indian Journal of Nutrition and Dietetics, Vol 30 (5) 113-119. 1993
lesser than 11.0 g/dl. Anaemia was a common finding among the low income strata physical fitness did not differ. (7) Physical fitness and intelligence, irrespective of sex was positively correlated. (8) Physical fitness and composite creativity and its dimensions were positively related in respect of boys and girls.

Kenchapanavar, R.N.⁶⁸ (1998) found that the (1) sample on the whole was very low on health modernity. (2) Educated women had higher health modernity than uneducated women. (3) Women belonging to high socio-economic status were significantly higher on health modernity than women belonging to low SES. (4) There was no significant influence of marital status on the health modernity of educated women. (5) However in case of uneducated women marital status had a significant influence on the health modernity. (6) There were many areas of ignorance and misconceptions in all the 10 dimensions of health modernity, however they were more in the dimensions of physical health, mental health, mental retardation, child care and AIDS. (7) HMEIP had a significant impact on the health modernity of the women exposed to it. (8) The health modernity of women exposed to HMEIP had significantly increased on the total health modernity as well as on all the dimensions of health modernity.

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PHYSICAL AND HEALTH EDUCATION

Kaur, Satpal. ⁶⁹ (1999), found that the (1) Participation of women in sports and family sports environment are significantly related with each other. (2) A positive and highly significant relationship exists between parental attitude and participation of women in sports. (3) Birth-order and participation of women in sports are not correlated. (4) Participation of women in sports and socio-economic status are not related with each other.

Punjal P. Pandurang. ⁷⁰ (2000) Found that the : (1) Overall organization and administrative set up at different levels. i.e. State district college and school excepting universities was same in both the states. Each university in Punjab has a special Director of Sports but in Maharashtra only few universities have Director of Sports. (2) In Punjab the participation of the colleges at intercollegiate sports meets is according to the strength of students but in Maharashtra State. the participation of college is not according to the strength of the ‘students. (3) In Punjab the affiliated colleges were allowed to participate in University Athletics Meet but this system is not prevailing in Maharashtra. (4) There were two different committees for the selection of male and female athletes in Punjab whereas in Maharashtra there is only one selection committee for


both. (5) In Punjab, Sport Council meets three to four times a year but it was not so in the case of Maharashtra. (6) Special sports fees was collected from the students of Classes V to X in Punjab but not in Maharashtra. (7) In Punjab sport fees was collected on the basis of students strength in colleges and Universities, whereas in Maharashtra different Universities are collecting sports fees from the affiliated colleges differently. (8) Infrastructure facilities were excellent in all the Universities of Punjab but in universities of Maharashtra. The facilities are inadequate and not up to the standard. (9) Sports budget of almost all the universities in Punjab was very high as compared to the sports budget of universities in Maharashtra. (10) Percentage of participation of the students in sports was more than 50 per cent in Punjab, whereas it was only 10 percent in the case of Maharashtra. The study cites 180 references.

Lal. Chhannu79, (2002), found that the : (1) Female players of Varanasi of different levels differed with each other in achievement motivation level, but not in their socio-economic conditions. (2) Achievement motivation of National level, State level, District level and college level female players of Varanasi were associated with their game performance, but the performance of Inter-zonal level, Inter-university level and not participated at any level players were not related with their achievement motivation. (3) It was also found that the socio-economic status of female players of Varanasi was not associated or related with their game performance. The study cites 152 references.