Reviews of the literature provide insight into research work to researcher. Review suggests a method and a technique of dealing with a problematic situation, which may also suggest avenues of approach to the situation of similar difficulties, scholar may be facing. It can provide the investigator new ideas and approaches; it also assists the researcher in evaluating his own research efforts by comparing them with related efforts done by other.

Before completing a plan for a research undertaking, person needs to conduct a literature search in the area of the proposed investigation. In fact the student should become a scholar in that area.

Keeping the previous references as guidelines, efforts were made to find out the researches to completed retake the present study by visiting to the libraries of the following.
1. Jaykar Library University of Pune, Pune Maharastra.
2. Library of Himachal Pradesh University Shimla (H.P)
3. Library of Panjab University Chandhigarh.
4. Library of Education & Extension Pune University Pune
5. Chandrasekhar Agashe college of Physical Education Gultekdi Pune.
6. Library of Bharti Vidypeeth College of Physical Education Pune
7. B.P.C.A Collegea of Physical Education Badala Mumbai.

It was found that some studies in the area of development of norms were undertaken in some of the universities, but they were related the development of norms of other test. The purpose of this study was to measure the sport talent of Inner Himalayan and lower Hilly Area boys of Himachal Pradesh and also to develop norms for these regions so that a standard norms battery formed to select the sports talent from the state.
To identify the suitable procedures for talent identification, the investigator reviewed a large number of the recent as well as past literatures to justify the present research problem in the above said libraries. Ample of literature have been reviewed in this chapter. The detailed reviews have been classified as follows:

2.1 Studies on High Altitude and Motor Fitness and Health Related Fitness etc

2.2 Studies on Sports Talent Identification

2.3 Studies on Development of Test/ Selection criteria and Construction of Norms

2.1 Studies on High Altitude and Motor Fitness and Health Related Fitness

Bedu M, Fellmann N et.al(1991)\(^1\) the effects of high altitude (HA, 3,700 m) on performance during a force-velocity teste (maximal anaerobic power, MAnP) and a 30-s Wingate test (mean power, P) were studied in boys 7-15 yr of age. Forty-seven children acclimatized to HA were compared with 101 living at low altitude (LA, 330 m). They had the same good nutritional status and the same level of physical activities [average 5.4 +/- 1.1 (SD) and 5.2 +/- 1.9 h/wk at HA and LA, respectively]. They performed the two
tests using the same calibrated cycle ergometer. For the Wingate test, O2 uptake (VO2) during the 30 s and the peak of blood lactate concentration ([L]p) during the recovery were also measured. No difference in MAnP was observed between HA and LA. P, [L]p, and VO2 were lower at HA. This suggests that the altitude of 3,700 m did not affect the performance of the force-velocity test but reduced that of the Wingate test. This decrease in P was linked to a lower participation of glycolysis and aerobic metabolism. The latter is related to a reduced aerobic performance at HA. In addition, the slopes of the relationships between age and MAnP, P, and [L]p were the same at HA and LA, indicating that chronic hypoxia did not alter the development of the anaerobic metabolism during puberty.

Chen QH et.al (1997)² the difference was studied between O2 transport in lifelong Tibetan adolescents and in newcomer Han adolescents acclimatized to high altitude. We measured minute ventilation, maximal O2 uptake, maximal cardiac output, and arterial O2 saturation during maximal exercise, using the incremental exercise technique, at altitudes of 3,417 and 4,300 m. The groups were well matched for age, height, and nutritional status. The Tibetans had been living at the altitudes for a longer period than the Hans (14.5 +/- 0.2 vs. 7.8 +/- 0.8 yr at 3,417 m, P <
0.01; and 14.7 +/- 0.3 vs. 5.3 +/- 0.7 yr at 4,300 m, P < 0.01, respectively). At rest, Tibetans had significantly greater vital capacity and maximal voluntary ventilation than the Hans at both altitudes. At maximal exercise, Tibetans compared with Hans had higher maximal O2 uptake (42.2 +/- 1.7 vs. 36.7 +/- 1.2 ml . min^-1 . kg^-1 at 3,417 m, P < 0.01; and 36.8 +/- 1.9 vs. 30.0 +/- 1.4 ml . min^-1 . kg^-1 at 4,300 m, P < 0.01, respectively) and greater maximal cardiac output (12.8 +/- 0.3 vs. 11.4 +/- 0.2 l/min at 3,417 m, P < 0.01; 11.5 +/- 0.5 vs. 10.0 +/- 0.5 l/min at 4,300 m, P < 0.05, respectively). Although the differences in arterial O2 saturation between Tibetans and Hans were not significant at rest and during mild exercise, the differences became greater with increases in exercise workload at both altitudes. We concluded that exposure to high altitude from birth to adolescence resulted in an efficient O2 transport and a greater aerobic exercise performance that may reflect a successful adaptation to life at high altitude.

Curran LS et al (1998) 3 few environments challenge human population more than high altitude, since the accompanying low oxygen pressures (hypoxia) are pervasive and impervious to cultural modification. Work capacity is an important factor in a population's ability to thrive in such an environment. The performance of work or exercise is a measure of the integrated
functioning of the O2 transport system, with maximal O2 uptake (.VO2max) a convenient index of that function. Hypoxia limits the ability to transport oxygen: maximal O2 uptake decreases with ascent to high altitude, and years of high altitude residence do not restore sea level .VO2max values. Since Tibetans live and work at some of the highest altitudes in the world, their ability to exercise at very high altitude (>4,000 m) may define the limits of human adaptation to hypoxia. We transported 20 Tibetan lifelong residents of > or =4,400 m down to 3,658 m in order to compare them with 16 previously studied Tibetan residents of Lhasa (3,658 m). The two groups of Tibetans were matched for age, weight, and height. All studies were performed in Lhasa within 3 days of the 4,400 m Tibetans’ arrival. Standard test protocol and criteria were used for attaining .VO2max on a Monark bicycle ergometer, while measuring oxygen uptake (.VO2, ml/kg - min STPD), heart rate (bpm), minute ventilation (VE, 1/min BTPS), and arterial oxygen saturation (SaO2, %). The 4,400 m compared with 3,658 m residents had, at maximal effort, similar .VO2 (48.5 +/- 1.2 vs. 51.2 +/- 1.4 ml/kg - min, P = NS), higher workload attained (211 +/- 6 vs. 177 +/- 7 watts, P < 0.01), lower heart rate(176 +/- 2 vs. 191 +/- 2 bpm, P < 0.01), lower ventilation (127 +/- 5 vs. 149 +/- 5 l/min BTPS, P < 0.01), and similar SaO2(81.9 +/- 1.0 vs. 83.7 +/- 1.2%, P = NS). Furthermore, over the range of submaximal workloads,
4,400 m compared with 3,658 m Tibetans had lower .VO2 (P < 0.01), lower heart rates (P < 0.01), and lower ventilation (P < 0.01) and SaO2 (P < 0.05). We conclude that Tibetans living at 4,400 m compared with those residing at 3,658 m achieve greater work performance for a given .VO2 at submaximal and maximal workloads with less cardiorespiratory effort.

Fellmann N et al (1992)^4^ In 7-15-yr-old children living in La Paz (Bolivia, altitude 3,700 m) (HA): 1) Maximal oxygen consumption (VO2max) varies from 35 to 45 ml.min-1.kg-1 and maximal heart rate from 188 to 194 beats.min-1. These values are lower than those of their counterparts at low altitude (LA) by 10-20% and 10-15 b.min-1, respectively. 2) The anaerobic metabolism is not affected by chronic hypoxia if the nutritional conditions and pubertal development of HA and LA boys are the same. When related to percent of VO2max, submaximal O2 debts are similar at HA and LA. After supramaximal exercise, maximal O2 debts (45.7 +/- 2.7 vs 45.9 +/- 3.8 ml.kg-1) and blood lactate concentrations (7.6 +/- 0.6 vs 6.5 +/- 0.6 mmol.l-1) are also the same at HA and LA. No differences are observed between the 2 altitudes in ventilatory (60 vs 56% VO2max) and lactate (60 vs 65% VO2max) thresholds. The altitude of La Paz does not alter the anaerobic performance of a force-velocity test (from 6 to 10 W.kg-1) between the ages of 7 to
15 years but reduces by 14-17% the mean anaerobic power developed during a 30-s Wingate test. This decrease could be linked to a lower participation of glycolysis and aerobic metabolism at HA during this test. 3) Poor socio-economic and nutritional conditions do not modify the aerobic performance of boys living in La Paz but lead to lower maximal anaerobic power (from -17% to -25%) when compared with HA boys from a high socio-economic background.

Greksa LP et al (1984) the sample for this study consisted of 28 Aymara males between the ages of 15 and 43 years. The subjects were rural high-altitude natives who were temporarily working as porters in La Paz, Bolivia (3700 m). Mean VO2max was 46 X 5 ml/kg/min. There was a significant negative relationship between VO2max and age in adult porters. However, there was also a significant positive relationship between maximal work output and age and a significant negative relationship between VO2 during submaximal exercise and age. Relative work intensity (VO2/VO2max) during submaximal exercise did not change significantly with age. Thus, even though VO2max decreased significantly with age, these data suggest that there may not be a substantial decrease with age in the adaptive status of these men. Minimal support was found for the hypothesis that chest size in
Andean highlanders influences the effectiveness of the oxygen transport system.

Greksa LP et al (1993)\textsuperscript{6} Maximal aerobic power (VO2max) was assessed in seven male and one female middle- and long-distance recreational runners residing in La Paz, Bolivia (3600 m). All runners were born and raised at high altitudes (\textgreater 2500). Mean VO2max in the male runners was 60.8 ml/kg/min while VO2max in the female runner was 55.5 ml/kg/min. These values are higher than in any previously reported sample of either trained or untrained high-altitude natives. In addition, mean VO2max in the La Paz male runners and VO2max in the La Paz female runner were very similar to those found in comparable low-altitude samples of recreational athletes, suggesting that the cardio respiratory systems of both normally active and highly active native Andean highlanders are capable of successfully responding to the stress of hypobaric hypoxia. This ability may have both developmental and genetic components.

Levine BD et al., (1997)\textsuperscript{7}. The principal objective of this study was to test the hypothesis that acclimatization to moderate altitude (2,500
m) plus training at low altitude (1,250 m), "living high-training low," improves sea-level performance in well-trained runners more than an equivalent sea-level or altitude control. Thirty-nine competitive runners (27 men, 12 women) completed 1) a 2-wk lead-in phase, followed by 2) 4 wk of supervised training at sea level; and 3) 4 wk of field training camp randomized to three groups: "high-low" (n = 13), living at moderate altitude (2,500 m) and training at low altitude (1,250 m); "high-high" (n = 13), living and training at moderate altitude (2,500 m); or "low-low" (n = 13), living and training in a mountain environment at sea level (150 m). A 5,000-m time trial was the primary measure of performance; laboratory outcomes included maximal O2 uptake (VO2 max), anaerobic capacity (accumulated O2 deficit), maximal steady state (MSS; ventilatory threshold), running economy, velocity at VO2 max, and blood compartment volumes. Both altitude groups significantly increased VO2 max (5%) in direct proportion to an increase in red cell mass volume (9%; r = 0.37, P < 0.05), neither of which changed in the control. Five-kilometer time was improved by the field training camp only in the high-low group (13.4 +/- 10 s), in direct proportion to the increase in VO2 max (r = 0.65, P < 0.01). Velocity at VO2 max and MSS also improved only in the high-low group. Four weeks of living high-training low improves sea-level running performance in trained runners due to altitude acclimatization (increase in red cell mass
volume and VO2 max) and maintenance of sea-level training velocities, most likely accounting for the increase in velocity at VO2 max and MSS.

Stouten J and Kemper HC(1991) had studied habitual physical activity (HPA) of Bolivian boys living at different altitudes and from different socioeconomic status. The boys were living at high altitude (HA) in La Paz (4000 m) and at low altitude (LA) in Santa Cruz (400 m). At both altitudes samples of 10- to 12-year-old boys were chosen from a relatively low socioeconomic status (LSES) and a relatively high socioeconomic status (HSES). At HA 19 boys from LSES and 10 boys from HSES were measured and at LA 14 boys from LSES and 13 boys from HSES. HPA was measured by 24-h heart rate (HR) monitoring. Also an interview was completed to recall the HPA. By comparing the registered HR data with the time they were asleep the mean HR during sleep was calculated (HRSleep). The maximal HR (HRmax) was measured from a maximal exercise test on a bicycle ergometer. Heart rate reserve (HRR = HRmax-HRSleep) was used to measure the mean level of physical activity of the subjects. The results show that HRSleep (= HRrest) in HA boys with 70 (+/- 6) beats/min was significantly lower (p < 0.05) than in LA boys with 77 (+/- 10) beats/min. HRmax was also significantly lower (p < 0.05) in HA boys (187 +/- 12 beats/min).
compared to LA boys (195 +/- 8 beats/min). Because HA influences HRsleep and HRmax in the same way, HRR is not significantly different between boys of HA and LA. The mean heart rate over 24 h (HRmean) in HA boys (87 +/- 7 beats/min) was significantly lower than in LA boys (93 +/- 8 beats/min).

Saltin B et al., (1995) the aim of this study was to characterize Kenyan runners in regard to their oxygen uptake and blood and ammonia responses when running. Untrained Kenyan boys (14.2 +/- 0.2 years) and Scandinavian runners were included for comparison. The studies were performed at altitude (approximately 2,000 m.a.s.l.) and, for several Kenyan and Scandinavian runners, at sea level as well. At altitude sedentary adolescent Kenyan boys had a mean maximal oxygen uptake (VO2max) of 47 (44-51) ml.kg-1.min-1, whereas similarly aged boys regularly walking or running but not training for competition reached above 62 (58-71) ml.kg-1.min-1 in VO2max. Kenyan runners in active training had 68 +/- 1.4 ml.kg-1.min-1 at altitude and 79.9 +/- 1.4 ml.kg-1.min-1 at sea level, with individuals reaching 85 ml.kg-1.min-1. The best Scandinavian runners were not significantly different from the Kenyan runners in VO2max both at altitude and at sea level, but none of the Scandinavians reached as high individual values as observed for some Kenyan runners. The running efficiency,
determined as the oxygen cost at a given running speed, was less in the Kenyan runners, and the difference became more pronounced when body weight was expressed in ml.kg-0.75 min-1. Blood lactate concentration was in general lower in the Kenyan than in the Scandinavian runners, and the Kenyans also had extremely low ammonia accumulation in the blood even at very high exercise intensities. It is concluded that it is the physical activity during childhood, combined with intense training as teenagers that brings about the high VO2max observed in some Kenyan runners. Their high aerobic capacity, as well as their good running economy, makes them such superior runners. In addition, their low blood lactate and ammonia accumulation in blood when running may also be contributing factors.

2.2 Studies on Sports Talent Identification

Anita E. Pienaar et.al, (1998)\textsuperscript{10} carried out the study to identify the physical, motor and anthropometric variables that will enable coaches to identify 10-year-old boys, based on their abilities, who could become successful rugby players. Altogether, 173 ten-year-old boys with no rugby experience from a cross-section of the population were selected at random and subjected to 14 physical and motor tests and 14 anthropometric measurements. From 22
schools which participated in the Western Transvaal primary schools under-11 rugby league, the three top teams (n = 45 individuals) were selected and also tested. The results from these three teams were used as the criteria for rugby talent among 10-year-old boys. To establish the best predictors of talent, a stepwise discriminant analysis was conducted: this indicated eight variables (four motor and four anthropometric) that discriminated maximally between the talented and the rest of the players of this age. With classification functions based on these eight variables, 93.8% of all the subjects were classified correctly, indicating good validity. A canonical analysis, based on the selected variables, was then conducted on all the under-11 teams that played in the league in the region (n = 330), and they were ranked according to the scores of the first canonical variable from the most to the least talented. By comparing these results with the players who were chosen for the region’s primary schools team, a success rate of 88% in prediction of talent was established. We conclude that this is a successful and practical method to aid the teacher and the coach in selecting and developing talent among 10-year-old rugby players in South Africa.

Ansie Viljoen et al. (2004) carried out a study to determine how 12 to 15 year old boys from the Northwest province (NW) compare to Australian (AUS) and South African (SA) boys of similar age with
regard to the Talent Search-program developed in Australia. A total of 402 boys between the ages of 12 and 15 years were tested. The Australian Talent Search model and norms were used for testing purposes and comparisons of children from AUS, SA (Du Randt, 2000) and from the NW. The Statistica computer processing package was used to process all data. Descriptive statistics was used to determine the means (M) and standard deviations (SD) for each age group in the NW province. Analyses of variance (ANOVA) was used to determine differences between groups (NW-SA, NW-AUS, SA-AUS) and the Bonferroni technique (Thomas & Nelson, 1996) was used to determine statistical significance (p < 0.05) of differences between groups. The Australian boys generally achieved statistically significant better values than the NW and SA boys with regard to their anthropometrical characteristics, physical and motor abilities. The motor and physical performance of boys from the NW, when compared to SA boys of the same age was generally significantly poorer although the differences were smaller. The vast majority of boys in the NW province are not exposed to physical activity or sport and come from low socio-economic (SES) conditions which might have contributed to the below average performance of the group. Due to the differences in compared results, it is recommended that the NW province should develop their own set of norms for talent identification purposes. It is further
suggested that norms be compiled for each racial group as well as for the entire group when the general sport talent (TID) of boys in the NW province are analysed and that both sets of norms should be applied.

Anthony F and Plotz (2006)\textsuperscript{12} The aim of this study is a comparison of talented South African and English youth rugby players (18-year old) with reference to game-specific-, anthropometric- and physical and motor variables. Three groups of elite rugby players were selected from the two countries and were tested on 13 anthropometric-, six physical and motor- and eight game-specific tests. The results showed that there are no big differences as far as anthropometric variables are concerned, the English players, however, significantly demonstrated the worst results in all the physical and motor abilities while the South African players performed the best in game-specific skills due to possible better coaching.

Can, F., et.al. (2004)\textsuperscript{13}. The purpose of this study was to describe certain morphological characteristics of women soccer players and to examine aspects of training and performance. Twenty-two anthropometric sites were used in measurements of somatotype
and body composition; flexibility, agility, anaerobic power, leg muscle power, and dynamic pulmonary functions were used as performance variables. Measurements were made on 17 professional athletes and 17 age-matched sedentary women who acted as controls. The women soccer players showed less fat content and less lean body mass than did the sedentary women. The mean somatotype for the soccer players was 3.07–3.55–2.43 and for the nonathletes was 3.57–3.35–2.90. Anaerobic power, leg muscle power, and agility in the athletes were higher than in the nonathletes, whereas no differences were found in flexibility and pulmonary functions ($p > 0.05$). The women soccer players showed more significantly mesomorphic, less endomorphic, least ectomorphic components and higher performance level than did the sedentary women.

Dey and Debray (1998) studied for talent identification in sports of eastern and northeast region of India. The present study was conducted on Eastern (ER) and Northeast (NER) region children to see the variations of these norms with the Indian norms, which are being used for talent identification throughout the country. In the present investigation percentile norms of various anthropometric and motor quality variables were made from the sample of children of ER and NER of India. These norms were compared with the
existing national norms for Indian children sports performance of the children of ER and NER in the national context.

The percentile norms thus formed for ER and NER children are of great importance particular in talent spotting in these regions. It was observed that ER children’s are relatively more talented than their NER counter parts. The children of NER may reveal better scores in the specific skill test exploiting their mesomorphic qualities. Present finding indicated that the national norms are relatively higher after 8 years and onwards for the children of both the regions.

D. G. Hoare and C. R. Warr (2000)\textsuperscript{15} used a quasi-applied research model to identify and develop potentially talented female soccer players. Athletes aged 15-19 years with a background in team ball sports or athletics were targeted for recruitment using advertisements and promotions through various media. Interested athletes attended a 2-day programme of testing, which included assessment of anthropometric, physiological and skill attributes. A combination of factors was used in the final selection of 17 athletes to take part in a 12-month talent development programme. A pre-season programme of five training sessions per week was conducted for 2 months. This programme focused on enabling the players to acquire the necessary ball and game skills to perform
competitively in a short time. The squad competed as a team in the reserve grade competition of an Australian state league. At the conclusion of the 25-game season, 10 players were selected for zone teams with two players progressing to state team selection within 6 months. The project demonstrates that it is possible to select potential female soccer players based on anthropometric, physiological and skill attributes. Selection procedures could be enhanced through the development of objective assessment tools that measure tactical and technical competence. Programmes such as this can offer an additional avenue of player recruitment in support of existing procedures.

Henson et.al, 16 Talent identification in most sports occurs through mass participation and the process of natural selection; track and field does not enjoy such widespread participation. This paper reports on a project undertaken for the following purposes: improve the means by which youth with the potential for high level performance can be identified; develop normative tables for scores on various tests known to be indicators of track and field performance; develop statistically based equations for predicting future performance from test scores; establish norms for males and females at various competitive levels and different events; begin
developing a scientifically rigorous method of predicting potential performance as well as the event that would be most appropriate for a particular athlete; and create a database that could be used for comparisons in the future. Approximately 1,200 male and female athletes throughout the country representing a wide range of abilities were evaluated using a series of tests of muscular power and speed, and anthropometric measures. Based on results, norms and predictive equations were constructed for several categories including sex, event, and level of competition (i.e., high school, college). Recommendations regarding a methodology for future talent identification and 26 statistical tables are included.

Lidor, R. et.al, (2005) the purpose of this study was to identify motor, physical, and skill variables that could provide coaches with relevant information in the selection process of young team handball players. In total, 405 players (12–13 years of age at the beginning of the testing period) were recommended by their coaches to undergo a battery of tests prior to selection to the Junior National Team. This number is the sum of all players participating in the different phases of the program. However, not all of them took part in each testing phase. The battery included physical measurements (height and weight), a 4 × 10-m running test,
explosive power tests (medicine ball throw and standing long jump), speed tests (a 20-m sprint from a standing position and a 20-m sprint with a flying start), and a slalom dribbling test. Comparisons between those players eventually selected to the Junior National Team 2–3 years later with those not selected demonstrated that only the skill test served as a good indicator. In all other measurements, a wide overlap could be seen between the results of the selected and non selected players. It is suggested that future studies investigate the usefulness of tests reflecting more specific physical ability and cognitive characteristics.

RUDI M, et.al, (2001)\textsuperscript{18} A total of 146 professional rugby league football players, contracted to 2 teams competing in England ($n = 45$) and Australia ($n = 101$), participated in this study. All players completed the following series of physical fitness performance tests: 1 repetition maximum squat and bench press, 15- and 40-m sprint, agility run, 5-minute run for distance, 60-second sit-up, 30-second plyometric push-up, and measurement of body weight and subcutaneous skinfold (4 sites). Analysis of variance with a criterion $\alpha$ level of $p < 0.05$ was used to determine if any significant difference could be found when grouping players into 3 different positional categories typically identified in the sport. There were a
number of significant differences with respect to test results between categories, and this was apparent for all 3 systems of categorization. On the basis of these findings, we recommend that to more efficiently structure the physical fitness training of players, the players should be grouped either according to the 2 broad positional categories of forwards or backs or according to the 4 categories of forwards, distributors, adjustable, and outside backs. Grouping players according to the 9 specific positions played on the team is not warranted.

Tim Gabbett et.al, (2007) \textsuperscript{19} the aim of this study was to determine whether physiological, anthropometric, and skill test results could discriminate between junior volleyball players of varying ability. Twenty-eight junior volleyball players competed for selection in a talent-identification volleyball programme. Participants underwent measurements of stature, standing reach stature, body mass, skinfold thickness, overhead medicine ball throw, vertical jump, spike jump, 5-m and 10-m speed, "T" test agility, maximal aerobic power, and passing, setting, serving, and spiking technique and accuracy. A discriminated analysis was conducted on the selected and non-selected groups to obtain a regression equation that could be used to predict selection in junior volleyball squads based on the dependent variables. Passing and serving technique were the only
significant variables included in the discriminated analysis. Cross-validation results showed that 17 of 19 selected players (89.5%) and 5 of 9 non-selected players (55.6%) were correctly classified into selected and non-selected groups, respectively, providing an overall predictive accuracy of 78.6%. The results of this study demonstrate that selected skill test results (i.e. subjective coach evaluations of passing technique and serving technique), but not physiological and anthropometric data, discriminate between successful and unsuccessful talent-identified junior volleyball players. These results demonstrate the importance of developing passing and serving technique in talent-identified junior volleyball players.

2.3 Studies on Development of Test/ Selection criteria and Construction of Norms

The AAHPER (1962)20 Youth Fitness Test represented the test battery. The first attempt by the physical education profession to establish national norms. A special committee of the AAHPER Recreational Council developed the test battery in 1957, which is original. The Youth Fitness Test consists of 6 items for boys and girls of age groups 10 to 17 and College men and women. The norms were revised and make more scientific after comparing the
achievements of the Youth of Great Britain, Japan, etc., with the American norms to up-to-date it.

Anayanwa et al. (1997)\textsuperscript{21} attempted to establish physical fitness norms for Nigerian boys and girls in the age group 11 years to 18 years. The study included the following test items: Shuttle run: push-ups for boys; chair push-ups for girls; Flexed knee sit-ups: 45 meter dash; standing long jump; pull-ups for boys; flexed arms hang for girls; a minute run for subjects 13 to 18 years: The results of the study show.

(1) The high correlations were obtained on the test re-test method. The test items were considered objectives.

(2) The activities can be accepted as true test items for the component of physical fitness, which they support to measure.

(3) In most of the test items the performance of the boys improved from the lower to upper age level.

(4) The boys performed better than girls in all the test activities.

(5) The mean score revalued that the girls of lower age level tend to possess better physical fitness status than the girls of the upper levels.

The purpose of the Arnett1962\textsuperscript{22} study was to develop short (minimum items) motor fitness test batteries for high school girls
who could be economically administered in terms of equipment and class time. The components, which might contribute to motor fitness, were listed and appropriate items pertaining to the components were selected for their content validity and suitability utilizing appropriate statistical techniques. The modified pull-ups, 600-yard run and standing jump were selected as the items for the batteries. The purdue motor fitness test batteries recommended over the three batteries since this battery had a validity coefficient of at test 0.755 and an estimated reliability coefficient of 0.848.

Athchia Pillai (1991)\textsuperscript{23}, conducted a study on computation of norms for 12-minute run and walk among schoolboys. In his study be described cardio-vascular endurance is one of the basic and important components of physical fitness, a state level norm will be useful for boys to understand their present status compared with other boys of the same age, for the teacher and coach either to understand or to prescribe a programme to improve the student ability and to compare it with other states. Since 15,000 subjects are involved in the study, 12-minutes walk test has been considered as the more appropriate test for assessing cardiovascular endurance. For this study, data were collected from 20 districts except the Nilgris district. Data collected from 250 subjects in each age category of 13, 14 and 15 years school boys. Tests were conducted on 12-minutes run/walk and the distance covered the nearest 50\textsuperscript{th} meter were recorded as their
performance. Two-way analysis of variance was applied to find out whether there was any significant difference between the district and age group in 12-minutes run/walk performance. It was found that significant difference was noticed only among different age groups. Hence, norms were constructed throughout the state for different age groups by using Hull scale.

Height, weight and twenty-eight tests commonly used to measure strength were administered by Avent19640\textsuperscript{24} to 101 nine and ten years old and 100 eleven and twelve year old Caucasian girls. Regression equations were set up for estimating the following: general static strength based on McCloy's unweighted strength score and dynamertrical measures: general dynamic strength based on the average of T-scores of five dynamic strength measures and ten dynamic strength variables; and total static and dynamic strength based on the overage of T-scores derived from dynamometrical measures and the five-item dynamic strength measures. Norms were established.

Barrow (1954)\textsuperscript{25} concluded a study to develop an easily administered test of motor ability for college men. Expert opinion was used in the validation process and eight factors of motor ability and 29 items measuring those factors were chosen. The selected
tests were administered to 222 college men and statistical analysis covered by item reliability, objectivity, and correlation with the criteria and inter-correlation. Two test batteries including one short indoor test were recommended. Test scores should indicate performance in relation to norms, which have been established for the particular groups to be classified. Such norms were provided for both battery number one and battery number two for the following two groups. (a) For college men on an unclassified basis and (b) for physical education major students. The test’s raw Scores were recorded on a scorecard. By referring to the scoring table, the raw scores were converted into ‘T’ – scores and weighted standard scores. The weighted standard scores were summed and a general motor ability obtained. These scores were summed/referred to the appropriate table of norms and the student’s motor ability rating was found.

Beckford (1976)\(^{26}\) prepared a study to evaluate the physical fitness level of Navajo girls 14, 15 and 16 years old. For AAHPER Youth Fitness Test was administered on the subjects where selected from seven schools of the region to measure the physical fitness level. Also norms were established on basis of sources obtained from test results from these schools. These norms were
compared to National Norms were used to this norms found in the manual accompanying the AAHPER Youth Fitness Test. The result of the study gave an indication of the overall fitness level of 14-, 15-, and 16-year-old Navajo Girls of the seven test items. The Navajo norms were below the National norms on 5 test items and above on softball throw and 600 yards run and walk.

Bitcon (1965)\textsuperscript{27} constructed norm tables for grades 9-12 by taking pull-ups, 2 minute sit-ups, standing broad jump and a 300 yard shuttle run and showed its validity against the AAHPER Youth Fitness Test. Validity and reliability coefficients were .934 and .961 respectively.

Blair, Falls and Pate (1983)\textsuperscript{28}, conducted a study on health-related physical fitness test. Testing 12,000 children from age five to seventeen in Seventeen States developed percentile norms. Volunteer physical education teachers administered tests excepting the skinfolds in standardized manner. Percentile norms for the skinfold tests were obtained from the national health examination survey. In an effort to assess the need for criterion referenced standard, recommendation for interpretation of test result had been included in the test manual.
Blesh and Scholz (1957)\textsuperscript{29} devised a test at Yale University to appraise the motor fitness of freshmen students. The six-item test was selected on a two-fold basis-capable of being administered accurately with little equipment, and significant in indicating the overall strength of different body parts. The test items and the minimum standards for the physical education programme were pull-ups (8) push-ups (25) sit-ups (50) fence vault (4 feet 6 inches) standing broad jump (86 inches) and vertical jump (18 inches). The Harvard step test was initially included in battery as an endurance measure but was discontinued because of the testing time involved with large numbers. Statistical analysis of scientific authenticity and norms were not available.

BookWalter (1973)\textsuperscript{30} constructed the motor fitness test using twelve items standard; two measures each of strength, velocity motor ability and endurance. Researcher developed following four indices and validated for high school and college age men:

1. Motor Fitness Index I – (Chin + push-ups) – vertical jump
2. Motor Fitness Index II – (Chin + push-ups) – standing broad jump
3. Motor Fitness Index III – (Straddle chins + push-ups) – vertical jump
4. Motor Fitness Index IV – (Straddle chins + push-ups) – standing broad jump

The validities of twelve items criterion are as follows.

Index I .859; Index II .818; Index III .841 and Index IV .812. As these coefficients of validity are of approximate size; the instructor may select the Index most applicable to his programme and facilities. Indices I and III are preferable because of their higher validity coefficients.

Box (1973)\textsuperscript{31} conducted percentile norm tables for selected measures of strength, power, agility, flexibility, body composition, cardiovascular and muscular endurance from data which is collected in five schools of the Unity Christian School System of Hudsonville.

Brouha and Ball (1952)\textsuperscript{32}, made further modifications of the Harvard step test for use with elementary school boys and girls. The bench was lowered in height of 14 inches. The stepping times were changed by ages, two minutes for seven years, three minutes
for eight to twelve years. Scoring and classification were the same as for college men in the original test of Harvard step test.

Brown (1963)\textsuperscript{33} gave four-item motor fitness test. This test to Washington State University Freshman men for two years and was validated against Rogers Physical Fitness Index, the strength Index and the subjective rating of the development (sub-fit) class students by their instructions. It is found that there is no significant difference between means and standard deviations were found for the two sets of data and the norms based on them were statistically sound.

Busch (1970)\textsuperscript{34} prepared a normative study of the AAHPER Youth Fitness Test for girls in grade 7 through 10 in the State of South Dakota In which he was selected one school to represent each region or section of the South Dakota High School Activities Association. The selected number from each school was in proportion to schools enrolment. The AAHPER Youth Fitness Test was administered to 1,000 South Dakota girls in grades 7 through 10. Norms were established by computing every fifth percentile. The South Dakota girls were compared with those of National girls, using age only. The medians of South Dakota girls were then
compared with the medians of the National girls on each test item. It is found that the medians of South Dakota girls were higher than those for National girls on all items, except the flexed arm hang. The scores of South Dakota girls tended to show improvement as age increased whereas the scores for National girls tended to level off or drop.

A new revision of the California Physical performance test for boys and girls from ten to eighteen years of age was announced in 1961. A single battery of six test items was adopted consisting of standing long jump, knee bent sit-ups in one minute, side step, pull-ups, chair push-ups, and six-minute jog-walk, subsequently the flexed arm hang was allowed as an alternate test for girls who could not perform a single pull-up. The norms consist of separate percentile tables for boys and girls at each age for each of the six tests (1971)\textsuperscript{35}.

Campbell (1977)\textsuperscript{36} designed the Scarborough fitness kit to allow grade nine and ten students to evaluate their level of fitness in seven major areas (agility, flexibility, vital capacity, strength, percentage of body fat, and cardiovascular efficiency) and to provide information that will allow physical education teacher to prescribe a personal fitness programme. Date had been collected
from the first year and Scarborough norms for each test have been established.

Coutts (1971)\textsuperscript{37} conducted a study to establish norms for the Cooper's 12-minute run/walk test applicable to young males; eighty boys, eleven to fourteen years of age, served as the subjects. The difference between the two groups was statistically significant (P .01). The correlation coefficient between aerobic capacity and run/walk performance was 0.65, while the correlation was statistically significant (P .01); caution was advised in attempting to predict aerobic capacity from run/walk performance with young urban subjects.

Das (1980)\textsuperscript{38} conducted a study of Norms in Physical fitness tests for boys of class 9-11 of Government school of Delhi with the purpose of computing a norm for evaluating performance in physical fitness as required in the curriculum for the required programme of physical education. AAHPERD youth fitness test and N. P. F. D. battery 'A' were administered and norms were worked out. A comparison of obtained data with American student's shows that Indian students seem to be poor in abdominal strength and shoulder girdles strength.
Desouza (1993) conducted a research on standardization of norms for physical fitness tests for girls in the age group of 13 to 16 years in the state of Goa. The purpose of this study was to standardize norms for physical fitness tests for girls in the age group of 13 to 16 years in the state of Goa. And also to compare the physical fitness status of the girls in the different age groups. The physical fitness components considered for this study are strength (vertical and standing broad jump), muscular endurance (flexed arm hang), C.V. endurance (50m dash), agility (4x10m shuttle run), and flexibility (bend, touch and twist).

The researcher propose to administer the test to about 4000 girls in the age groups of 13, 14, 15 and 16 years taking about 1000 girls in each age group from about 75 schools of all the 11 Talukas in Goa. Seven test items in the test battery were split up into two sets and were conducted on two consecutive days. The data collected on the subjects in respect of different physical fitness items was utilized for constructing the Percentile scale, Sigma scale and Hull scale-test employed for comparing subjects representing different age groups in various test items considered in the study. The level of significant was set at 0.05 level of confidence. There is no
significant difference in the physical fitness of the girls (13 to 16 yr.) from the state of Goa. The subjects belonging to the 15 years age group were found to be significantly superior to that of 13 years age group in vertical jumping ability.

Dorothy (1961) evolved norms of physical fitness for college women from 57 college and the data of 3300 subjects were collected for seven test items. In order to be consistent with the percentile norms were calculated from 0 to 100 at an interval of 5.

Elder (1958) developed a motor fitness test designed to evaluate the following eight basic components: strength, endurance, power, agility, flexibility, speed, and balance body size and age. The composite score on fourteen motor fitness items served as the criterion for the selection of tests to compose the final battery. The tests item selected were: floor push-ups, standing broad jump, trunk flexion forward, cozens dodge run, and 20-second squat-thrust. Six-sigma scale norms were developed for six divisions of the California classification system. This was based on the boy’s age, height and weight.
Elizabeth (1960)\textsuperscript{42} established the percentile norms for girls in the age group of 12, 13, 14 and 15 on the North Carolina AAHPER Tests. The norms were prepared for each of the Five Test items; the five test items were sit-ups, side stepping, standing broad jump, modified pull-ups and squat thrusts. The sit-up item provided effective differentiation on the percentile scale for each age group. The concentration of scores in the middle of the distribution for the side stepping test and the squat thrust test resulted in effective discrimination in the center of the ranges for all age groups. The standing broad jump test shows the greatest ranges and the best differentiation of scores on the percentile scale for the age groups. The modified pull-ups test failed to differentiate the lower end of the distribution for all age groups but did discriminate above the 20\textsuperscript{th} percentile.

Falls (1979)\textsuperscript{43}, established norms on the AAHPERD youth physical fitness. The norms were computed for more than 10,000 young subjects. Those who fall below the 50\textsuperscript{th} percentile in any area were advised to participate in a fitness-developed programme. Physical performance test was selected by Fleishman\textsuperscript{27} in 1964 on the basic of the factors isolated from much larger batteries of tests. Fleishman reviewed the previously published literature in the field
of physical fitness and added by his own personal experience in presetting and pilot studies. He selected a battery of 30 test items generally considered to be a measure of strength and another battery of 30 test items hypothesized to be a measure of speed, flexibility, balance and co-ordination. Norms, or standards performance scores, were developed for boys and girls between the age of 15 to 18 years on the basis of the scores for more than 2,000 students for most of the tests.

Fleishman (1963) conducted a study on thirteen tests measuring eight physical fitness factors, which were administered to over 20,000 students between the ages of 12-18 in 45 cities, distributed throughout the United States. The results of this provided (a) normative table by which individual programme can be evaluated by test, age, sex and

b) ‘Growth curves’ which show the development of the different physical proficiency (components during the adolescent and sub-adult period. Finally, the recommendations were made for batteries of tests, which provided more comprehensive and efficient coverage of physical factors.
Fletcher (1968)\textsuperscript{45}, conducted a study of physical fitness using AAHPERD youth fitness test. In his study, 1,400 senior high school boys were selected as subjects from fifty-nine schools throughout Arkansas. It was found that six of the twelve factors investigated had significant relationship to the fitness level of the subjects. Percentile ratio for senior high school boys in Arkansas on each item of the AAHPERD youth fitness test was also developed.

It was the purpose of Florence et. al. (1932)\textsuperscript{46} study to set up a battery of test which may be used to classify Freshmen college women according to their motor ability. For purpose of administration, a short battery of test (40 yards mazo run, Ball change, Trunk bend, Jump and Reach) was set up. This battery consisted of those tests, which had the highest self-correlation, the highest correlation with the criterion. The raw scores on each test were changed to a percentile rank score so that it might be possible later to make comparisons between individuals on a common basis for the entire battery.

Glover (1962)\textsuperscript{47}, developed test items for the first, second and third grades. After examining performance items that could be utilized in a motor fitness test battery, eighteen tests were chosen.
Individuals familiar evaluated these tests on two occasions with physical fitness and with primary school children. On the first occasion, the judges indicated either selection, need for revision, or rejections of each test, as a result, twelve items were retained for further consideration. On the second occasion, the judges made evaluation while the tests were being administered to children. As a consequence seven tests composed the final selection. Percentile norms were developed for all seven items for all grades continued. However, the fourth test was found to be most valid, reliable and discriminatory. The test items are Standing Broad Jump, sit-up, and shuttle race and seal curl.

In Hatter’s (1964) study physical fitness test scores obtained on 128 students at San Diego Military Academy, were compared with national, state and local norms by use of chi-square with significance determined at the five percent level of confidence of thirty six age-test comparisons favored the academy over national norms one did not in five the academy performance was less than state norms and one exceeded state norms. In five of fifteen possible comparisons, the academy performance was less than San Diego City school norms. A physical education programme to complement the military programme of the San Diego Military Academy was recommended.
Holding and Jackson (1980) conducted a study on physical fitness. The norms-reflected standards were developed from scores of over 1500 men and women, who were tested at different Young Men’s Christian Association throughout the United States. The standards included the test scores associated with selected percentiles. A percentile was the percentage of people of a given age group and gender who achieved the score. A maximal oxygen uptake of 54ml/kg. Minimum fell in the ninety fifth percentiles for men in the age group of thirty five years and below. This means that of all men tested who have 35 years and younger ninety five per cent had an average score of 54ml/kg. Minimum or lower and only five per cent had an average score of more than 54ml/kg. Minimum.

Kaur (1989) developed the physical fitness norms for the high school girls of Punjab state belonging to the age group of 12 to 15 years. The subjects were selected from the various urban and rural school of Punjab. Sample consisted of four thousand students by using Fleishman’s test battery. In this study she conducted the lower performance level of rural students in most of the physical fitness variables as compared to their urban counter parts. The
percentile norms for physical fitness test were valid and suitable to assess the physical fitness level of school girls. She observed that the subjects belonging to urban residence were significantly superior to rural subject in terms of dynamic flexibility, arm and shoulder strength and trunk strength variables. But, the results were not found to be significant between the urban and rural girls again extent flexibility, speed of change of direction, endurance level of arms and shoulders, co-ordinate agility, cardiovascular endurance and speed of running. The four age steps were found significantly different from each other against most of the physical fitness variables, while there were no significant differences in a few variables between some age steps.

Keogh JW. The purpose of the present study was to develop an effective testing battery for female field hockey by using anthropometric, physiological, and skill-related tests to distinguish between regional representative (Rep, n = 35) and local club level (Club, n = 39) female field Hockey players. Rep players were significantly leaner and recorded faster times for the 10-m and 40-m sprints as well as the Illinois Agility Run (with and without dribbling a hockey ball). Rep players also had greater aerobic and lower body muscular power and were more accurate in the
shooting accuracy test, p < 0.05. No significant differences between groups were evident for height, body mass, speed decrement in 6 x 40-m repeated sprints, handgrip strength, or pushing speed. These results indicate that %BF, sprinting speed, agility, dribbling control, aerobic and muscular power, and shooting accuracy can distinguish between female field hockey players of varying standards. Therefore talent identification Programs for female field hockey should include assessments of these physical parameters.

KUMAR(1998) the main purpose of this study was to evolve physical fitness norms on various items of Fleishman’s fitness battery for high and higher secondary school boys of Himachal and also Himachal Pradesh evaluate the physical fitness level of the secondary school male students of Himachal Pradesh. To accomplish the study 3,840 students between the age group of 13 to 16 years were randomly selected from both the urban and rural area. The results have shown that there was a significant difference from fifteen years to sixteen years male subjects of Himachal Pradesh in almost all fitness components. The boys of 16 years age were found significantly superior than 15 years to 13 year boys. The fifteen boys were better than 14 and 13 years boys. Similarly 14 years boys were superior then 13 year boys in all the
components of Fleishman’s test battery. The result of the study have also shown that the male subjects of rural areas were significantly superior than urban subjects in six of ten fitness components of Fleishman’s test battery.

Latchaw (1954) proposed seven tests that were devised from a number of established tests to measure performance in selected motor skills in grades four through six, boys and girls. The tests include: Basketball wall pass, volleyball wall pass, vertical jump, standing broad jump, shuttle run, soccer wall volley, and softball repeated throws. Face validity was accepted for each test, and the tests proved reliable. T-scale norms were available for the interpretation of scores.

Mc Kinney(1972) constructed motor fitness test battery for under graduate male physical education Majors. Forty nine test items were selected as valid measures of the eight motor fitness components and were administered to 121 under graduate males. The data were analyzed according to the principle axes method with varimare criterion for rotation. five factors were isolated and named, speed endurance, gross strength, power, flexibility and relative muscular strength , muscular endurance.
Two test batteries having five items each were developed or the basis of the rotated factor loading. Test battery I contained highest loading items (1) time limit shuttle run (2) cable tension (3) 10-yard dash. (4) Thigh flexor flexibility (5) bar push-ups. A physical ability test battery for New Zealand schools was developed by modifying the Fleishman battery of physical ability tests by McCaughan\textsuperscript{55} to produce national norms for a battery of physical ability tests that can be used to assess the relative fitness of New Zealand secondary school boys. Modifying four original test (No. 1, 4, 6 and 9) nine tests recommended by Fleishman were used. Percentile and T-score norms had been produced from over 58,000 test scores with the results covering boys of ages 13 to 17 years, in nine tests of physical ability.

Miller (1954)\textsuperscript{56}, conducted a study on achievement level in basketball skills for women physical education majors. This study provides tables of norms in the form of T-scores and percentile rankings for raw scores made on three basketball skill tests-bounce and shoot, half-minute shoot, and pass for accuracy. Norms in the form of T-scores and percentile ranks have been determined based on the achievements of a very Adequate number of subjects. It is expected that the tables of norms provided by this study will be of
considerable aid to teachers in the professional physical education curriculum, in judging the adequacy of achievements of their students in basket ball skills, and will be of assistance to students in diagnosing their own strengths and weaknesses in this activity.

Mistkawi (1966)\textsuperscript{57} in his study prepared the national norms for the one minute basketball throw for goal, pull-ups, potato race, standing hop-step and jump, push-ups, standing broad jump and softball target throw items of the YMCA national athletic achievement programme. YMCA throughout the United States tested 2000 boys in each group, and the author obtained five percent of the scores at the Salem YMCA Oregon.

Monotype and Lamphiear (1977)\textsuperscript{58} conducted a study on grip and arm strength in males and females. More than 6,000 males and females aged 10 to 69 in a total community in Tecumseh and Michigan, were given grip and arm strength tests. Eighty two percent of the entire community who were in that age range participated in the study. Of this 82 percent, almost all persons without medical contradictions took the strength tests. Percentile scores for both sexes within narrow age ranges were presented. In most populations in which strength had been measured over a wide
range, the participants were volunteers; hence it was not possible to define the population. Because of the high participation rate, the Tecumseh sample includes those who ordinarily would volunteer for strength tests, but also those who generally would not. Therefore the percentile scores presented probably represent arm grip strength in healthy males and females than other data which has been published.

Mood (1971), conducted a study of two forms of the test of physical fitness, knowledge of senior physical education for major students. One hundred and eighty four experimental test items, the contents of which were based on 60 physical fitness facts Secured from recent physical education literature and on the opinions of 73 members of the Research Council of AAHPER, were administered to 1,360 physical education major students enrolled in 35 collegiate institutions in the United States. As a result of item analysis data, two parallel forms of the tests were constructed. For the purpose of obtaining validity and reliability of data and establishing national norms the two final test forms were administered to 4,167 students enrolled in 150 collegiate institutions in the United States. Two forms of the test of physical fitness knowledge were constructed so that growth in comparison of physical fitness can be analyzed.
Morrison administered\(^{(1965)^{60}}\) a twenty-items criterion battery to 120 college women at Madison college during a four-week period. T-score were summed for each category of test items (body impetus giving impetus to an object, and using an implement to give impetus to an object) and for the battery of twenty items. The data were treated by means of the BIMD 34 programme. A three-item and a five-item battery were selected to predict basic sport skill ability. The validity coefficient, reliability and objectivity coefficient was calculated and norms for five groups of ability were developed for both tests.

Fitness test had been constructed by North Carolina State (1961)\(^{61}\). The test items were thirty-second bent-knee sit-ups, thirty-second side stepping, standing broad jump, and thirty-second squat, thrusts for boys and girls, in addition, boys of ages twelve to seventeen performed full push-ups and all girls and boys of ages nine to eleven were designated as follows: inferior, poor, average good and excellent. Performed a modified form of pull-ups. Percentile norms were available separately for boys and girls at each age nine through seventeen years. Levels of achievement
Piscopo (1962)\textsuperscript{62} conducted a study to establish norms and to compare skin fold and other anthropometric measurements of pre-adolescent boys from three ethnic groups. The subjects were 647 Hawaiian, Jewish and Negro pre-adolescent boys. The skin fold was measured at five sites. Other measurements included height, weight, bi-iliac dimensions and selected girths. Co-relations were determined between skin folds and selected body build components. Skin folds ranged from moderate to high values. The largest percentile scores were found in Jewish groups. Analysis of variance was employed to compare body fat, height and weight of each group. Significant differences between ethnic groups were found in certain skin folds and weight at 0.01 levels.

Perm (1988)\textsuperscript{63} taken a normative study of the Physical Fitness of Male Teenagers of the State of Jammu and Kashmir in the ages 13 through 19 years. The variables considered were, pull-ups (arm and shoulder girdle strength) bent knee sit-ups (abdominal strength) standing broad jump (explosive strength) 50 meters dash (speed) shuttle run (agility) and 600 meters run walk (cardio-vascular endurance). From the above research he concluded that
the subjects belonging to age group 16 through 19 years showed better performances in all variables over the other age group of 13 through 15 years.

Robson et.al (1978) had conducted a study on a simple physical fitness test battery for elementary school children. They took 152 boys and 150 girls of Kendriya Vidyalaya, Gwalior. The test battery was practicable and simpler than the existing physical fitness test and measures most of the essential motor qualities of elementary school children. The norms were prepared for the selected items and can be used for classifying the children into ability groups by assessing their physical fitness.

Roche (1971) examined the performance of 12811 boys and girls aged 7 to 17 in 9-minute run/walk test for students aged 7 to 10 and a 12-minute run/walk test for students aged 11 to 17; scores from this test were percentile ranked according to age and sex, and were presented for was as a field test of running endurance.
Rasmussen (1970)\(^6\) found that the median scores of South Dakorta boys at all ages were higher than of the National sample in all tests except pull-ups and shuttle ran.

After extensive experimentation involving 35 different test items, Scott (1959)\(^7\) proposed two tests for use in appraising the motor ability of college women and high school girls. Battery first, comprised the following: basket ball throw, 4-second dash, wall pass and standing broad jump, Battery second, consists of basketball throw, standing broad jump, and obstacle run. The criterion consisted of a composite of judgment rating of experts. T-scale was available for the conversion of scores.

Shore (1972)\(^8\) constructed motor fitness test battery for lower elementary grade boys. Thirty Experimental test items considered as valid and reliable means uses of motor fitness were administered to 238 boys. After analyzing the data two test batteries containing seven items each were developed on the basis of the rotated factor loading of the test items. Test battery I. contained the highest loaded test item for each factor:

1. Clark’s strength composite.
2. Mc cloy’s endurance ratio.
(3) Well’s sit and reach.
(4) Bass balance or stick.
(5) Log flexior can extensor flexibility
(6) Arm flexior or the back flexibility
(7) Modified push-ups test battery

II. Contained more administratively feasible test items strength

(1) Grip strength
(2) 300 yard run
(3) Well’s sit and reach
(4) Bass balance on stick length wise
(5) Leg flexior and extensor flexibility
(6) Arm flexior or the back flexibility
(7) M modified push ups.

Singh (1986) conducted a normative study of physical fitness of Punjab university men students. He applied Fleishman’s test battery or four thousand male students belonging to the various colleges affiliated to Punjab University to collect the data. The students ranged between 17 to 22 years of age. He found linearity of physical fitness status according to age. The students of rural areas were significantly superior in all the test items than urban students. He developed percentile norms and established their reliability, subjective and validity.
Singh (1986) conducted a study to develop physical fitness norms of Punjab state high school boys. He randomly selected five thousand school boys of Punjab state. The sample included rural and urban subjects in equal number for the collection of data. He included following test items (1) standing broad jump (2) sit and reach test (3) agility run (4) sit-up bent knee (5) 50 meter dash (6) push-ups(chair) (7) cricket ball throw (8) 600-meter run walk. He observed significant difference in number of test items between urban and rural school boys. Significant difference relationship between age and performance of the subjects was also observed. The test items were standardized through the development of percentile norms which was found to be suitable to access the physical fitness of Punjab state high school boys ranging between 12 to 15 years of age.

Sittmann (1981) prepared norms for Northeast Missouri State University students of health and physical fitness concept classes. In which 372 male and 648 female subjects were tested. The test conducted was the sum of 6 skin folds, predicted percent fat, predicted \( \text{VO}_2 \text{ max} \), grip strength; leg strength, back strength, vertical jump distance and vertical jump power. Statistic used was mean, standard deviations and range of all variables. Classification
was based on sex. Percentiles in increments of 5 were constructed for each variable in each classification.

Wangwad (2001) developed norms for selection of junior volleyball player in Maharashtra. The purpose of the study was (1). To assess and evaluate the morphological variables (i.e. height and weight), physical fitness (i.e. speed, leg power and agility), and skills of volleyball. (2). To establish a standardized norms for selection of junior volleyball team of state level. The male volleyball players (n=272) below the age of 18 years participated in Maharashtra state volleyball championship in 1998 were the subjects of this doctoral study. This ensures that 100% population was covered in this study. Standard procedure was followed to conduct test items for the collection of data. Standing body height (cm), body weight (kg), fifty-meter dash (speed), 4x10m shuttle run (agility), jump and reach (leg power), and volleyball skills (i.e. under hand pass, upper hand pass, serving, reception and service, set for spike and smash) were measured by using standard tests. The selection criteria as developed and standardized in this investigation is a reliable and valid, tests that can be objectively assess the efficiency of volleyball players to get entry in state level junior volleyball team. The norms of the selection criteria were
easy to grade that can discriminate talented volleyball players with optimum accuracy so as to constitute a standard junior volleyball team.

Watson (1978) established norms for Nebraska boys and girls. The tests selected for Neb Eel physical fitness test were standing long jump or vertical jump, 50 yard dash, sit-ups, stick jump and 300 yards distance run. The tests for secondary test were pull-ups or flexed arm hang, 50 yard dash, standing long jump, sit-ups, side step and mile or 9 minute run or 12 minute run. The sample was selected randomly. One percent sample was selected from Neb schools to establishment of norms. The norms were established for each test for girls, boys and groups according to chronological age. Percentile statistic was used. According to result the following recommendations were suggested.

Yadav (1986) conducted a study on ‘standardization of physical fitness norms of the school children of Haryana (13 to 16 years of age) with the purpose of estimating the fitness level, establishing the norms for physical fitness and comparing the standard of physical fitness of urban and rural boys of Haryana. For the purpose of this study 3600 school boys of the twelve districts of
Haryana were randomly selected and the performance of the boys was recorded on 50 mt dash, shot put, standing broad jump, zigzag run, sit-ups and step test. The norms in terms of percentile rank of said group were developed.

Zuti and Corbin (1977)<sup>75</sup> prepared physical fitness norms for college freshmen. The age group selected for this was from 17.6, 18.5 to 19.5 years from freshmen of Kansas State University. The total subjects were 3000. The test was conducted for strength test, flexibility body composition, and cardiovascular fitness. The result shows that the college freshmen at Kansas State University were above average and standards were appropriate for their use at National level.

2.4 Remarks of the Present Investigator

There are many research related to Development of norms for particular Games, Sports, Physical Fitness and Health Related Fitness however the selection norms for sports talent, area wise is not so for available.

Development of norms as selection criteria, especially for the Indian sports talent, area wise is a demand of the day. Since the
present investigator is devoted to established “suitable selection criteria” for area wise to select the talented boys. Such criteria will, in fact, help to discriminate the talented sports person for coaches, physical educationist, and sports scientist for selection and make the sports policy and coaching schemes according to the capacity and quality of these talented boys.
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