Since Palmer (1933) and Duggan (1937) carried out their investigations into the personality of physical Education students there has been a growing interest in this area of study within the profession. This interest became established in the work of Kane (1962) and Hardman (1962) since when there have been many reported studies. Out of such evidence has developed the idea of a stereotype personality in both physical education teachers and high level sport participants. Kane for example, showed that athletic ability was positively related to stability and extroversion and this view are quite widely held.\(^1\)

Thus, literature by sports experts reveals numerous researches conducted on the comparison of the personality traits of champion athletes, different levels of athletes and various athletic groups. Most of them were done in foreign countries and the studies of our country also concentrated on comparing the personality traits of collegiate level population and to some extent school students. No attempt was done to study the personality traits of sportsmen of Kho-kho, Athletics and Badminton.

For the attainment of high position in the research process, the investigator of this study went on tracing out many research studies, dissertations, journals and varieties of relevant text books on educational psychology, physical education, sports psychology, personality traits and
performances. The perusal of these articles, books gave a good amount of knowledge for the better guidance of the current study.

Hardman in his studies "A dual approach to the study of personality and performance in sport" points out the major limitations in empirical studies which attempt to relate personality to performance in sport in drawing of conclusions from purely descriptive data. Such an approach represents four developmental stages in scientific investigation.  

Such an approach represents four developmental stages in scientific investigation.

1. A descriptive approach: In the field of Personality and games playing ability, this would be exemplified by, for example, an investigation into the personality characteristic of riflemen and a comparison of this group with groups of players in other sports.

2. The Progressive stage: To continue the analogy phenomena observed at the descriptive stage, it might be suggested that the greater cortical excitation of the introvert facilitates the accurate execution of the precise and confined task of rifle-shooting, whereas the extrovert, with a lesser degree of cortical excitation, would lack the required control of motor output necessary for such a task.

3. Empirically supporting stage: To continue the earlier example, a laboratory experiment would be conducted in which matched groups of introverts and extroverts would be required to learn a skill which is tough to involve the same degree of precision as the rifle-shooting situation.
4. A predictive stage: In rifle shooting for example a decision might be made to select only introverts for international teams in order to enhance the chances of success in competition. As explained by Hardman in the above example, the Personality traits when compared with the performances of the players of different games and different groups can describe their present situations, by comparison, they can be studied of their present performances, the training yet they have to get for better performance and we can draw useful conclusions through analysing the personality traits of the groups.

2.1 DIFFERENT TYPES OF PERSONALITY TESTS

Review of studies revealed that there are number of tests available through which we can determine the personality traits of the subjects. Some of which are:

1. Cattell's Sixteen Personality Factor.
2. Minnesota Multiphasic Personality Inventory.
3. California Psychological Inventory.
4. Eysenck Personality Inventory
5. Guilford Personality Inventory, etcetera.

At the outset some reviews relating to different personality tests are presented.
Fletcher and Dowell administered Edwards Personal Performance Schedule (EPPS) to 950 male freshmen. These subjects were divided into two groups who had participated in high school athletics and those who have not. The two groups were found to differ in the dominance, aggression and order scales of EPPS.

A study of Schendal compared athletes to non-athlete in ninth and twelfth grades and in college on California Psychological Inventory. He found that 9th and 12th grade athletes generally possessed more desirable personal social, psychological characteristics than non-athletes. However, at the college level the non-athletes generally possessed more desirable characteristics than the athletes.

First problem is connected with personality development of high class sports persons. The personality of the sports persons, as that of any other human, is a product of the development of a society. At the same time it differs by certain specific features related to the specific nature of their activity.

Adequate assessment and well directed development of psychological capacities of sports persons are also significant. The problem is connected with the task of psycho diagnostics of capabilities, organisation of psychologically based selection in sports and development of special capacities.

Control over the psychological work capacity of the sports persons, during the preparation for important competitions and during the participation in them are also important. Here we can mention the wide spectrum of means for auto and latero regulations, intervening at the motivation sphere and high feelings of sports persons. Preparation of sports persons for important
competitions takes place at the phase of psychological loads connected with their presence, for a certain period, in camps away from their families, work, study and with continuous assessment of their chances of winning in the community competitions.

Considerable loads that the sports persons execute make it essential to conduct intensive search of means for psychological recovery to stimulate forms of rest, to determine the possibilities of training at different stages of the recovery process.

It is necessary to conduct the study of sports collective, personal connections, structure of small groups that enable not only to control the specialities of psychological atmosphere in the term but also to select means for the formation of collective and for the coptimisation of the activities.6

Kennedy critically analysed the effects of sports participation on the modification of various personality traits possessed by an individual before starting his/her career in sports. Here too he emphasised on the most commonly found personality traits in the champion athletes as stated by Ogitiive. These traits are 1. Emotional 2. Tough wider 3. Self assurance 4. Basic trust in people 5. Psychological endurance 6. Concentration. The author summarised that personality traits possessed by an individual and modified, that is, brought from potentiality to reducibility by the sports participation (Coach programme and competition), to a level that is measurable in either positive or negative terms, especially in the gifted and successful athletes.7

Gruben and Perkins conducted a study on the personality traits of sports women, result indicated that women physical education majors were more
happy go lucky, sober, serious, tough minded and had more favourable alert poise scores.\textsuperscript{8}

Whiting and Stennbridge divided won swimmers into two categories. Analysis of the scores Mandelay Personality inventories given to university male won swimmers indicated that students in category I had a lower extroversion mean than those in category II, but results were only significant at the 10 percent level.\textsuperscript{9}

Flanagen, conducted a study using personality inventory used for the purpose of possessing personality traits of fencers and other physical activity groups. The inventory consisted of 4 different types of items measuring ascending submission, masculinity extroversion, introversion and emotional stability - emotional instability. The inventory was administered to six groups of male college who were taking activity course on a voluntary basis ex-fencing, badminton, basket ball, volleyball, boxing, and swimming at the University of California. A total of 221 students participated in the study. Results of the personality inventory showed group differences, some of statistical differences with respect to four personality traits. Fencers were more ascendant than Basketball players, volleyball players and boxers. Fencers also possessed to be more feminine than Basket ball players. Badminton players demonstrated in terms of their inventory responses that they were more extroverted than volley ball players. Volleyball players are more emotionally stable than basketball players. Here it is concluded that groups who spontaneously select one physical activity course demonstrate the personality in a factor in making that selection.\textsuperscript{10}

Montgomery administered the athletic motivation inventory and Cattel's 16 PF questionnaire to the top 13 inter-collegiate basketball players at BO IX
State University during the spring of 1976 to determine if there are personality traits differences between men and women. Basketball players at the college level to result that for the traits of drive aggression determination and self confidence on the AMI significant differences were found between men and women basketball players at the .05 level. No significant differences were found for the traits of quiet proneness leadership emotional control mental toughness coach ability, conscientiousness or trust on the AMI. The result on the 16 PF revealed significantly higher scores for men and factor E (Humble Vs Assertive) and H (Shy Vs Venturesome).11

Johnson studied the effect of a season of football on personality, investigated in 340 high school boys; boys were compared with the non-football players. No change was noted in junior and senior players. But so far more players showed a change in acceptance and objectivity.12

Donald used 16 PF questionnaire to study the personality characteristics of different categories of high school female tennis players. Though statistically significant differences did not occur amongst the different levels of players with respect to any psychological dimensions yet certain trends were observed. Successful varsity players did not differ from less successful varsity players on any personality trait. The varsity players were more reserved, intelligent, self sufficient and controlled than freshman players. The participants in general were more intelligent, assertive, enthusiastic and tense than the non-participants. Amongst freshman, the participants were more warm hearted, assertive, enthusiastic, conscientious, adventurous resting and socially group dependent than non-participants.13
Newman studied the personality traits of faster and slower competitive swimmers. The purpose of this study was to add to knowledge of characteristics of swimmers by determining the factors, which make a better swimmer correlate significantly with the measured personality traits. Twenty one swimmers were trained throughout the swimming season on each of the swimming events and the rank of each swimmer was evaluated. Each swimmer was given the personality test. Statistical analysis of the ranking of those seven personality tests was made in comparison to the swimming rank of the swimmers in the various strokes. Three rank differences were correlated and were found significant at .05 level indicating a tendency for rank of swimming to correspond with rank of personality variable.14

Anderson15 designed a study to determine whether significant differences exist between sex and type of acting and see if significant interaction in four sub clubs of California Psychological inventory existed. 315 Volunteers under graduate students were tested at the University of New Mexico University. It was concluded that the effects of the type of University were not for two sexes, non were they same for three types of activities.

Heinrichs16 found difference significantly in personality traits. The significant trait was E (Humble Vs Assertive). The elite group described as Humblew was compared with their more assertive teammates. The 8 traits in order to statistical importance were E, B, A, O, L, F, G and N. These groups described the elite group as more humble, reserved, controlled, trusting, sober, expedient, forthright and less intelligent. The teammates were described as more assertive, intelligent, outgoing, indisciplined, suspicious, happy, lucky, conscientious and shrewd than the elite group.
Stone administered projective tests to college varsity football players before and after a practice session and after the football season. Stone was interested in getting evidence of reduction of aggression and he found that after the practice content there was no evidence of reduction of aggression, although there was such a reduction after the season.\textsuperscript{17}

Venek and Cratty have summarised their findings by defining certain types of sports activity and the traits that are characteristic of each activity. The authors relate that activities such as swimming or distance running require a high level of determination, persistence, durability and usually introversion, emotional stability and self control, average or above average intelligence, self-discipline, and strategical thinking, and gymnasts or dancers are characterised by artistic creativity and self center.\textsuperscript{18}

Flanagan found that Badminton players judged to be the most extrovert group and the volleyball players the most emotional and unstable, fencers to be more dominating than Basketball players, volley ball players and boxers are more feminine than Basketball players.\textsuperscript{19}

Stish concluded that participation in physical activities develops desirable character and personality traits and that the personality traits of athletes differ from personality traits of non athletes.\textsuperscript{20}

Studies by Carter and Shannon show that personality traits of athletes differ from the personality traits of non-athletes. He concluded that participation in physical activities develops desirable character and personality traits.\textsuperscript{21}
Thakur and Thakur used the Thematic Apperception Test (TAT) and determined that athletic characteristics included anxiety as well as achievement, dominance, happiness and superior organisational capacity.

Cattell, Eber and Tatsuoka compared athletes and non athletes using the Cattell and Eber sixteen Personality factor Questionnaire and found athletes to be more dominant and self-assured.22

Gupta and Sharma used the PPQ scales and found athletes to be emotionally expressive, cooperative, adaptable, generous, bold and undisciplined.23

Mohammed in his study Personality Profiles of Sportsmen and Non Sportsmen found athletes to be more self assured, confident and relaxed than non athletes.24

Bird conducted a study on certain personality characteristics of college women participating in Basketball and Modern Dance. California Psychological Inventory was administered to both groups. The Basketball group scored significantly higher at the 0.05 level on the communality scales and the Dance group scored significantly higher on the flexibility and feminity scales.25

Bidulph has reported significant differences in some of the personality traits between superior athletic group and less skilled group. In this study superior athletes showed higher levels of personal and social adjustments.26
Cowell and Ismail reported greater social adaptability, integration and acceptable among the substitutes than among the regular members of the football team. 27

Rushall found that competitive swimmers possessed the traits of emotional stability, aggression and confidence. 28

The purpose of these studies were generally to first identify some kind of 'ideal' personality type characteristic of athlete in general and then to compare some group or individual against these hypothesized ideals. Often inter-group comparisons were also made, contrasting the personality traits of athletes with non-athletes of those of women with men, contrasting athlete's personalities at varying levels of expertise, or comparing data obtained form performers in various sports.

Personality testing is based on the assumptions that there are identifiable general tendencies in the manner in which people behave and that the general traits will be revealed, in direct ways, by answers obtained to obvious questions. Tests of personality were formulated by first obtained unstructured statements from individuals, factor-analyzing them to determine the manner in which groups of statements seemed indicative of various specific traits, and then performing further item analysis, validity and reliability studies, prior to presenting them to one's professional colleagues in a respectable research journal.
STUDIES THROUGH CATTELL'S 16 PF

In a recent and exhaustive review of the potential methodological problems, it is learnt, the Cattell 16 Personality Factor Questionnaire, known as Cattell 16 PF has been the most employed by sport psychologists. A few reviews are presented hereunder:

Kroll administered the 16 PF inventory to ninety four amateur and collegiate wrestlers consisting of twenty eight superior athletes who had been on the United States Olympic team. Thirty three college wrestlers who were rated as excellent by their coaches and had won atleast sixty percent of the matches that year and a group of thirty three wrestlers from the same teams who were rated as average or below average. Discriminate function analysis failed to demonstrate differences for the criterion groups. Also the wrestlers differed significantly from established norms only on tough mindedness factor. 29

Straub and Davis administered the 16 PF to 246 Football players from four colleges. It is interesting to note that the purpose of the investigation was to determine if there were significant differences in team personality profiles. Subsequent analysis revealed that the Big ten team differed significantly from the other three teams. 30

William et.al. administered the 16 PF and the EPPS to thirty female fencers who participated in 1965 National Championship. Comparisons were made between high and low level achievers and they were found to differ only on the measure of dominance since they did not differ on any of the other thirty eight variables, this one variation was probably due to chance. However, this group of female athletes was found to differ from national norms on a number of 16 PF
factors and EPPS measures. The authors concluded that a definite fencers personality emerged from their analysis, and this profile was different from that of participants in other sports. In this respect it was reported that the sport type to which their profile was the most related was the male and female competitive race car drivers. In general, these athletes tended to be reserved, self sufficient, autonomous, assertive, and aggressive and they scored below average on affiliation and nurturance.31

Rushall administered 16 PF to 336 swimmers from two Olympic development swim clinics; swim clubs from California, Indiana, New Jersey, five colleges and University teams. The swimmers were pooled from the respective teams in order to form performance and maturational categories. The data were evaluated by means of stepwise multiple discriminate function analysis. He concluded that personality appeared to have no relation to success in swimming.32

Meiers administered the Cattell's 16 PF questionnaire to 110 varsity athletes participating in seven different sports. Results of this study indicted that reserve athletes were more outgoing and warm hearted than first string athletes. Specific differences were reported for athletes in swimming, volleyball, waterpolo, wrestling and track.33

Buccela and Stone administered an exercise programme for fourteen weeks on jogging and cycling to two groups of men aged sixty to seventy nine years. They were given a battery of physiological tests and Cattell sixteen PF questionnaire. Results indicated significant improvement in various physiological aspects and in personality, the cycleers showed no changes; the
joggers became significantly less surgent (Factor F) and more self sufficient (Factor Q2) as a result of exercise programme.34

O’ Conner and Webb studied the personality traits of female and male college athletes. Of the fifty five subjects, forty one were inter-collegiate athletic team members selected from such sports as basketball, gymnastics, swimming and tennis. The Cattell’s 16 PF test was administered to the athletes and group of non-athletes serving as a control group. Results revealed that the subjects differed in four of the personality factors. The athletes were found to be more intelligent (Factor B), more inclined the experiment (Factor I), more self sufficient (Factor Q2) and more disciplined (Factor Q3) than their non-athlete counterparts.35

Young and Ismail examined male adults who exercised regularly over a four year period. They assessed their physiological status and administered Cattell’s Personality Factor test to the subjects including the groups who were less active. The two groups who were regularly active increased their physical fitness significantly, and the most active subjects were significantly more self assertive (Factor O) than the less active group.36

Bhusan et.al. conducted a study to evaluate personality characteristics of high and low achievement of Indian Sportsmen. They administered the Cattell’s PF questionnaire to ten high achievement players who had represented India at international level and ten players who had never achieved any distinction in their respective games. The results of the subject indicated that the high achievers scored significantly higher than low achievers on dominance and surgency.37
Peterson, Weber and Treusdale administered 16 PF to thirty eight female athletes who participated on the 1964 United States Olympic teams. This sample consisted of individual sports participants in swimming, diving, riding, fencing, canoeing, gymnastics and track and field. These subjects were compared to fifty nine team sport athletes who participated on either the 1964 Olympic Volleyball team or one of the top ten AAU Basketball teams for 1964. The two groups were found to differ on seven of the sixteen factors. The athletes from the individual sports were significantly more dominant and aggressive, adventurous, sensitive, imaginative, radical, self sufficient, resourceful and less sophisticated than the team sport group. The athletes from the individual sports were more introverted than the team athletes and both groups were characterised by emotional stability. Those female athletes were found to be more intelligent, conscientious, persevering and aggressive than female non-athletes of similar age and educational background.38

Carron in a recent and exhaustive review of the potential methodological problems surrounding the use of personality tests in sport psychology, cites data from 42 sports teams in 12 sports, ranged from track and field (athletics) through mountain climbing, in karate, rugby, American football and Basketball, in which Cattell 16 PF had been used. These data revealed the marked inconsistency of the group personality trait profile from sport to sport and from subgroup to subgroup (that is, superior Vs average performance).39

Hardman's review of data from the Cattell also illustrates this inconsistency.40
Werner and Getthell investigated the relationship between personality and athletic ability. It was carried out at an American military academy and compared.41

PERSONALITY TRAIT STUDIES IN INDIA

A few relevant studies undertaken in India are also presented hereunder to understand the background of the study in Indian situation.

Amalraj administered eight factors of 16 PF inventory from A and found the following results. Athletes tend to be more controlled than non-athletes. Male athletes were more imaginative and happy-go-lucky than male non-athletes. Non-athletes seem to be more dominating than athletes.42

Gupta and Sharam also used personality factor questionnaire scales and found athletes to be motional expressive, cooperative, adaptable, generous, held and undisciplined.43

He concluded that the sportsmen and non-sportsmen differ in their personality characteristics in the following factors. Emotional stability and realism about life, cheerfulness and frankness, tender-mindedness and practicability and greater control over emotions and greater regards for self respect and social reputation. In all other respects there was no differences between the personality characteristics of sportsmen and non-sportsmen.

Singh, Garg and Debnath compared the personality characteristics of twelve national women gymnasts and twelve non-athletes of same age and same educational qualifications from Victoria Higher Secondary School, Patiala by
using 16 PF questionnaire. They found that there was a significant difference in eight of the sixteen factors namely, outgoing, more intelligent, happy go lucky, conscientious, suspicious, imaginative, self sufficient and controlled.  

Nesamony conducted a study on players and non-players using 16 PF inventory selecting hundred students in each group. The investigator found out that the players were found to possess predominantly the following personality traits namely, outgoing, warm hearted and participating, high intelligence, emotional stability, assertiveness, independence, competitiveness, high level of activity, enthusiasm and apprehension.  

Surrender conducted a study of the comparative study of personality traits among the basketball players, volleyball players and football players of Madurai city school boys, using 16 PF questionnaire and came to the following conclusions:

1. Football players and basketball players were emotionally stable whereas volleyball players were emotionally less stable, affected by feelings and get easily upset.

2. Football players were found to be happy-go-lucky impulsive, lively, enthusiastic than the basketball players and volleyball players.

3. Volleyball players were self-sufficient, prefers own decisions whereas football players and basketball players were group dependent.

4. Basketball players were controlled socially precise following self-image than the football players and volleyball players.
5. The differences exited among the three groups gives a picture that there were no differences among players formally. Hence, the differences found out here may be due to their environment and the difference in rules and regulations of the game. Moreover football is a body contact game, basketball, a semi contact game and volleyball a non-contact game.

Gita Mathew conducted a study on Personality traits among students of physical education, yoga and science. She selected 30 Physical Education students, thirty yoga students and thirty science students in the age group of twenty to twenty five and Cattell's 16 PF questionnaire to assess their personality traits.47

1. She found significant differences among the three groups (K=30) at .05 level of confidence in thirteen factors (except factors F, Q1 and Q2)

2. When considering group-wise, she found significant difference between Physical Education group and Yoga Group in Factors C, L, N, Q3 and Q4.

3. Physical Education students were more affected by feelings suspicious, shrewd, undisciplined and tense than the yoga students, whereas yoga students were emotionally stable, trusting, forthright, controlled and relaxed.

4. Significant difference in personality traits existed between physical education and science groups, as science students were more outgoing, assertive and imaginative whereas physical education students were reserved, humble and practical.
5. When comparing the science students with yoga group she found that Science students were more outgoing, affected by feelings, assertive, conscientious, venturesome, tenderminded, suspicious, imaginative, apprehensive and indisciplined, whereas yoga students were reserved, emotionally stable, humble, expedient, shy, tough-minded, trusting, practical, placid and controlled.

From the above studies both in India and abroad it is found that no attempt is so far made to assess the Personality trait differences between Kho kho players, Athletes and Badminton, especially in the age group of 16 to 19, even though studies revealed as presented above there is every possibility of differences among sportsmen in different personality traits. It is also found that Cattell's 16 PF questionnaire is well suited to find such personality trait differences. Hence the investigator made an earnest attempt to study the personality traits of Kho kho, Athletes and Badminton players.
REFERENCES


47. Gita Mathew, "Personality traits among students of Physical Education, Yoga and Science " Unpublished M. Phil Dissertation, Alagappa University, Karaikudi, (1922).