CHAPTER II

REVIEW OF RELATED LITERATURE

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The Research Scholar has gone through related literature available in the Central Library, University of Kalyani, Library Department of Education, University of Kalyani and Library of N. S. N. I. S., Eastern Centre, Kolkata.

While reviewing the related literature, as per as the investigator has the access, the research scholar find to fail any problem, similar to the present study. The relevant studies found in various sources which the research scholar has come across, are enumerated below.

Studies Related to Skill Related Physical Fitness:

Through a study of soccer and basketball player Metaxas Thomas I, Koutl Ianos Nikos, Sendelides Thomas and Mandroukas Thanasis (2009) examined and compared cardio respiratory performance and isokinetic muscle strength among Greek soccer and basketball players. All participants performed anthropometric measured and an exercise test on a treadmill to determine $O_2$ uptake. They found that basketball players presented higher $VO_2$ max than to soccer players and regarding peak torque, basketball players showed significantly higher in 60 degree/ see $^{-1}$ in hamstring. They concluded that professional basketball players and soccer players had higher $VO_2$ max than that of semiprofessional and amateur players.

In an examination, Koley and Jadav (2009) studied to compare the hand grip strength and 12 anthropometric variables of cricketers with their control counterpart. They found that the cricketers have higher mean values in 6 variables and lesser mean values in 7 variables than control counterparts. They concluded that hand grip strength might be an acceptable indicator for the excellent performance in cricket as well a useful selection criterion for the sports.

Studying on soccer players Dey, Kar and Debray (2010) compared anthropometric, motor ability and physiological parameters of six different club footballers with international counter parts with subdivided of specific field position.
The physical, physiological (flexibility, agility, explosive power, %BF and VO$_2$max) were measured. They observed that Indians were found to be inferior to those of European, American and Australian footballers in height, weight, vertical jump, VO$_2$max, endurance capacity and %BF compared to their field position. In present study they concluded that the difference among the footballers with their international counterparts and specific playing position in probably the cause of heredity and differences in activity in the game.

Examining thoroughly on soccer players Rout and Nayak (2010) searched out the difference of soccer skill performance among tribal and non tribal soccer players of Odisha on anthropometric dimension and motor fitness (They administered Cooper’s JCR motor fitness on anthropometry measurement of eight items). They found that non tribals, are more heighted than tribals and tribals are superior to non tribals in ankle circumferences. They concluded that the skill of soccer players with good motor fitness and more ankle circumference would be better than skill players with poor motor fitness and less ankle circumferences. They also commented that a little difference in skill among tribal and nontribal soccer players.

Through a research work Sing (2011) investigated about the physical fitness among handball and football players of Osmania University. Administering AAPHER Youth Fitness Test of 6 items, he observed that football players are good in 50 yard bash, 600 yard dash, sit ups and standing broad jumps than that of handball players. But handball players were good in pull ups and shuttle run. He recommended that football and handball players must be given good physical conditioning program of training enable them to improve the performance in games and sports.

Searching a work on tennis and badminton players Rathod (2011) examined to compare the physical fitness among table tennis players and shuttle badminton players of Osmania University by the administration of AAPHER youth fitness test consisting of 6 items (pull-ups, sit ups, shuttle run, standing broad jump, 50 yard dash, 600 yard run). Verifying the physical fitness performance among badminton and table tennis players, he concluded that badminton players had the better performance in 50 yard dash (speed), 600 yard run (endurance), standing broad jump (explosive power), pull ups, and sit ups than that of table tennis players. But the table tennis players were
found better in shuttle run (agility) than that of shuttle badminton players.

Studying on athletes and hockey players, Rao (2011) investigated to find out the 50 m run (speed) among athletes and hockey players of Osmania University who took part at inter college games and sports. He found that athletes have good speed compare to hockey players. He commented that as the athletes are doing regular practice of speed abilities in their training programme and as the hockey players are involved in short sprints during match and practice. He recommended that the similar studies can be conducted in different games and sports to know speed abilities, strength and endurance.

Gourav, Singh and Singh (2011) investigated the difference of fitness variables between individual games athletes and group game athletes of Guru Nanak Dev University Punjab. They revealed that individual games athletes had significantly higher muscular strength, agility, power, speed and cardiovascular endurance (P < 0.01) than that of team games. They concluded that there were significant difference in physical fitness variables among individual games and team games athletes. And suggested that further investigations are needed on studied variables along with physiological variables to assess relationship with performance.

Through an experimentation on male football player, Kumar and Tejwant (2011) studied and found the relationship between auditory and visual reaction time and speed in male football players. After measuring subject’s reaction time and speed they applied Pearson’s correlation and ‘t’ test. They found no meaningful correlations between reaction time and speed in that very subject where as auditory reaction times were significantly better than visual reaction times in football players. They also observed a negative correlation between body wt. and speed (P<0.01).

Gaurav and Singh (2011) examined to compare the selected physical fitness variables of 14–16 yrs. aged 60 football and handball players from various schools of Gurudaspur district of Punjab. Physical fitness tests were utilized to measure the selected physical fitness variables of players and mean of different physical fitness variables and sample ‘t’ test was applied. They concluded that there were significant different (P<0.01) in speed, coordinative ability and endurance (except flexibility) among football and handball players of school level.
In a research study, Ankem and Dileep (2012) experimented to find out the training programme on skill related variables among college students by selecting two groups. All the groups tested criterion variable such as fielding ability and batting ability. The result of their study showed that there was significant different between physical training group and control group on the selected related variables. They concluded that there was significant difference in batting skill and fielding skill among control and training group. Training group was better than that of control.

Examining thoroughly on track event players, Deepika (2012) studied on 30 men athletes of 120 who participated in hand reaction time and speed of movement. Performance of the subjects selected in track and field events (100 m run, long jump and shot put). She concluded that auditory reaction time did not contributed significantly to performance in 100m. run. Performance in 100m.run, long jump and shot put are not significantly influenced by speed of movement and performance in 100 m run, long jump and shoot put are not significantly related.

With a thorough searching on tennis players, Rao (2012) found that speed of lawn tennis players are better than table tennis players. Rao told that lawn tennis players were playing on court and table tennis were in the table. He concluded that lawn tennis players are having good speed compare to table tennis players. He suggested that speed training must be given to all lawn and table tennis players.

Searching on a work of female subjects Kumar (2012) investigated to compare the agility among 20 female handball players and 20 female basketball players of Osmania University with the test of shuttle run of AAPHER Youth Fitness Test. It is concluded that female basket ball players are having good agility in comparison to female hand ball players.

Comparison among kabaddi and kho-kho players was done by Kumar (2012). The purpose of his study was to search out the level of speed among 20 male kabaddi and 20 male kho kho players from various college of Osmania University with the testing of 50 m. run speed. His study showed that kho-kho are having good speed compare to kabaddi players. He concluded that kho kho players were having better in speed than that of kabaddi players.

In a study Ghosh and Majumder (2012) examined to compare motor fitness
components on 14 – 18 yrs aged 75 (25 each) footballers, volleyballers and hockey players of West Bengal by using Modified Bass test for dynamic balance and SEMO agility test for agility. The result of their study showed that there was no significant difference in selected motor fitness components of three different games. They concluded that the agility of football players, volleyball players and hockey players did not differ significantly and dynamic balance also did not differ in between three categories.

Chowdhury and Gayen (2013) experimented to analyse the selected motor fitness of 40 university male track & field, basketball, football and cricket players. They found F-ratio of vertical jump among four groups was 6.21, in chin-up was .98, in shuttle run was 1.28 and F-ratio of total motor fitness in four groups was 0.015. The t-value of track & field and basketball players; track & field and football players; track & field and cricket players; basketball and football players; basketball and cricket players; football and cricket players were 2.41,3.64,1.22,1.26 and 0.04 respectively. They concluded that there were significant difference in motor fitness component among athletes.

Searching on team game and individual game Azeem and Ameer (2013) found out the differences of selected physical fitness variables among 30 team games and 30 individual games male players. Considering flexibility (sit and reach test), muscular endurance (30 sec push up test), speed (50 m. sprint) power (standing long jump), cardiovascular endurance (12 min run and walk test) they observed that both groups differ significantly. They concluded that individual game players had significantly higher in flexibility and muscular endurance. The team game players had greater performance in power, sprinting and endurance (cardiovascular) than individual game players.

Karar and Goud (2013) investigated the effect of difference of explosive power and agility among 20 male sepak takraw players and 20 male football players of Hyderabad. They conducted standing broad jump for explosive power and shuttle run for agility for both the groups. Their result showed that sepak takraw players are having good explosive power and agility in comparison to football players. They concluded that sepak takraw players have better explosive power and agility than that
of football players because in sepak takraw combines ball skills (kicking and juggling) which is acrobatic moves of gymnasts and instinctive reflexes of badminton.

Examining on net ball players and korf ball players Rathod, Deepla and Hari (2013) compared the speed and endurance among 20 male net ball players and 20 male korf ball players of Osmania University. They used 30 meter run for speed and 12 min run Cooper test for endurance to assess the result. Their result showed that korfball players are having good speed and net ball players are having the good aerobic endurance. They discussed that net ball is expressed maximal exertion in short distance, speed, agility, explosive power, and endurance. Similarly korf ball requires high speed, super agility and enormous endurance.

Bachewar (2013) examined to find out aerobic endurance among 30 male kabaddi and 30 male kho kho players of Nanded in Maharashtra state. He applied Cooper 12 min run test on both the players. His result showed that kho kho players had having good aerobic endurance than that of kabaddi players. He concluded that kho kho players were involved more in running than kadaddi players. Thirty (n = 30) kho kho players had good aerobic endurance in comparison to kabaddi players.

**Studies related to Physiological Profile**

In a physiological study of university players De, Dasgupta, Panda, and Bhattacharya (1982) examined to assess on kabaddi players in an Inter University competition held at Banaras Hindu University. They observed values of respiratory efficiency test like FEV, MEFR (Mean Expiratory Flow Rate) PEFR (Peak expiratory Flow Rate) more in kabaddi players. The value of grip strength were high in comparison of Indian football goalkeepers and hockey players.

Yorck, Andreas, Dominik, Dirk and Aloys (2002) investigated the characteristics of the red blood cell system and the iron metabolism athletes (851) of different sporting disciplines and at different level of performance. They analyzed Hb, Hct, RBC, iron, transferrin, ferritin and haptoglobin considering level of performance. They found no difference between athletes and controls in Hb, Hct and RBC levels were observed. They concluded that physical training itself has no significant effect on selected hematological variables in athletes compared with untrained controls.
The specific type and duration of exercise is of major importance in the adaptation of blood cell system and the iron metabolism.

Comparison among different team game players on physiological aspects is still a research endeavor. M. C. McIntyre (2005) investigated to evaluate and to compare the mid-season physiological profile of Inter country Gaelic footballers, hurlers and Ireland league soccer players. He found that there was no difference in height, weight and speed level. Soccer players had lower body fat level, greater aerobic capacity, strength endurance, and flexibility. He compared to both Gaelic footballers and assumed that was due to specific training programme and nature of sports. He concluded that the various physiological attributes for Gaelic football, Soccer and Hurling reflect the physical requirements for success and participation in each of three field.

Another study on soccer players was conducted by Joksimovic. Aleksander, Stankovic. Daniel, Dragan Illic, Ivana. Joksimovic, Milorad Jerkan (2010) to determine and compare hematological profile of three Serbian youth national teams, as well as between 80 soccer players and 30 non athletes. Measuring and testing multivariate analysis of variance they concluded that there was no significant difference in all variables (W. B. C. Ly, Mo. Gr PLT., HB, HCT, etc) except RBC probably due to age, androgen affection on erythropoiesis, field positioning and diet. They suggested that the clinician has to take into not only age but also training status of individual where evaluating their blood test.

On basis of physiological study Choudhury, Rajnee and Binawara (2011) investigated to assess the impact of exercise in male trained and untrained on serum Iron, Hb, Cardiac efficiency, though Harvard step test. They observed that serum Iron fell from per exercise level and was better marked (P < 0.01) in untrained. After exercise significantly rise (P < 0.001) of haemoglobin and pulse rate in untrained (P < 0.001) and athletes (P < 0.001) and significantly increase systolic blood pressure in untrained (P < 0.01) and athletes (P < 0.001) were observed. They observed that the decrease in diastolic blood pressure in both groups and more decrease in athletes (P < 0.001). They concluded that exercise induces improvements in hemodynamic status.

Examining on athlete’s physiological profile Al-Beyancy (2011) conducted a
study on the complete blood count among adult athletes and nonathletes. The variables were Red blood cell (RBC), Leukocytes, (WBCS), Granulocytes (GR#), Lymphocytes (LY #), Monocytes (MO#), Granulocytes Percentage (GR), Lymphocytes percentage (LY), Monocytes percentage (Mo), Hemoglobin (Hb), Hematocrit (Hct), Mean cell volume (MCV), Mean cell hemoglobin, Mean cell haemoglobin concentration (MCHc), Red cell distribution width (RDW), Platelet count (PLT), and Mean platelet volume (MPV). By using CBC parameters and Beckman Coulter method on 40 male footballers and 40 male non athletes, he noticed and concluded that RBC increased significantly (P<0.0074) in athletic footballers in comparison with non athletes and significantly decreased in WBC (P < 0.0075), Granulocytes (.0354), MCV (P < 0.005) MCHC (P<0.0004), in comparison with non athletes.

Salehzadeh, Qaziev, Gaeini (2012) conducted a quasi experimental study to investigate blood factors on male and female university students by recording pre and post test. They viewed that all four groups (male, female, control, and treatment) failed to show a significant difference. They concluded that one year selected volleyball exercise programme does not effect the amount of RBC, WBC, Hb significantly.

On basis of physiological work Orysiak J., Witek K., Zmijewski P. and Gajewski J. (2012) studied to examine the diversity of WBC counts and subsets (Neutrophil, Lymphocytes and Monocytes) among 608 athletes (181 female, 427 male) of different discipline (Judo, canoeing, rowing, swimming and volleyball). Hematological analyses were conducted using a hematology analyzer. They found that difference in WBC and their subset counts were related to sports discipline; In volleyball players WBC counts were significantly higher than female athletes in cannoning and rowing, Neutrophil counts were lowest in swimming athletes. Lymphocyte counts were lower in athletes of canoeing than female volleyball player and sprinter. Monocytes counts were lower in athletes of canoeing than female swimmers and male Judo players. In women counts of Neutrophils were greater and counts of Monocytes were smaller than in men.
Related Studies on Achievement Motivation:

Achievement motivation is a popular area of sports psychology. In a research work on achievement motivation Steinmer, Spinath (2008) examined the sex differences in school achievement and some personality and motivational constructs in a sample of 204 females and 138 adolescent males. The grades in Math & German as well as Grade Point Average (GPA), Intelligence, Big Five of personality and motivational variables and served as predictors. After controlling for intelligence, they found that girls were better and there was no gender specific association between predictors and gender. They concluded that personality and motivation play important roles in explaining sex difference in school attainment and they discussed against the back ground of practical and methodological implications.

Studying on achievement motivation Acharya and Acharya (2010) drove to find out the motives of male university basketball players, university track & field players, university footballers and university gymnasts and they applied the questionnaire set (Blood, Suinn 1982) which contains 19 categories for this status study. They found that significant difference in physical fitness and health scores among football players and handball players, and significant difference in friendship and personal association scores greater than required value among footballers and gymnasts. No significant difference was found in 17 categories of motives for competition among the selected groups players.

Bhagirathi, Mehta and Chandel (2010) investigated to search out the comparative result of psychological profile of Railways and Madhya Pradesh cricketers (18-25) using Rainer and Marit’s Sports Competition Anxiety Test and Maudsley Personality Inventory. They revealed that Railways cricketers were better than Madhya Pradesh players in their personality and no significant difference was observed in sports competition anxiety on those groups. They concluded that sports psychology can help to assess the personality and sports anxiety in individual player’s performance in cricket and that the performance demands systematic training to enhance physical and physiological variables, considerations of psychological characteristics.
Searching in motivation and confidence of athletes Kuppi, Tiwari and Karve (2011) experimented to find out the level of self confidence and achievement motivation on sports women using Self Confidence Questionnaire Inventory and Achievement Motive test. After scoring the questionnaire they divided into high, low group and they administered the physical fitness tests for both groups. They concluded that there was significant difference in physical test performance in high and low self confidence. Significant difference was also observed in high achievement motivation and low motivations groups. They concluded that there was a positive and significant correlation between the self confidence, achievement motivation and physical fitness test performances.

By using the Dr. B. N. Mukherjee Achievement Motivation Scale, Reddy and Satyanarayana (2011) investigated to compare the level of achievement motivation among athletes and cricketers of Osmania University of Hyderabad. They found that the athletes were having more achievements motivation than that of cricketers. They concluded that athletes set goals and aimed best to win competition but cricketers depended upon their group to maintain high level of performance. They suggested that achievement motivation is compulsory for all sports to achieve high level of sports and must be prepare high level of motivation to excel in sports.

Studying the motivational factor, Rathee and Singh (2011) examined the level of achievement motivation, emotional and social adjustment among national, and international basketball, hockey and handball players by using Achievement Motivation test and Adjustment Inventory. They found that the international players had higher level of achievement motive and better adjusted in emotionally and socially than that of national players. They also found male players were emotionally and socially better adjusted than females. Male basketballers and hockey players were better emotionally and socially adjusted. Female handball players were better then basket ball players in achievement motivation. Basket ball players and handball players were better than hockey players in emotional adjustment. Basketball group were better than hockey group. They concluded that high achievement motivation is a vital factor and emotionally, socially adjustment is critical factor for high and low performance.
Accepting the motivational factor on sports Gwari and Ibrahim (2011) studied the relationship of sports achievement motivation of 50 male subjects from rural games mela held at Mendhartehsil of Jammu & Kashmir. The Achievement Motivation scale by Dr. M. L. Kamlesh (1990) was to assess the difference among the low and high performers. Analysing the data by ‘t’ test their result indicated that significant relation found better high and low performance at the P <0.05 level.

Kumar and Deeplla (2011) investigated to compare the level of achievement motivation among individual game sports persons and team game sportsmen of Osmania University, Hyderabad by using Dr. B. N. Mukherjee Achievement Motivation Scale. They found that individual game players were having more achievement motive than team players because the individual game players required compulsory motive to achieve excel in sports where as team players had a group effort. They suggested that this type of study is useful to the physical educators and coaches to enhance the performances through achievement motivation.

Conducting a research work Khan, Haider and Ahmed (2011) carried out the test to examine the effects of gender difference of university badminton player’s achievement motivation who participated in north zone inter-university badminton tournament held at Aligarh Muslim University. They measured the sports achievements motivation by the Sports Achievement Motivation Test (SAMT) developed by M. L. Kamlesh was used to collect the data. They showed in their study, that there was no difference among female and male badminton players on achievement motivation.

Sports Achievement Motivation is one of the popular area on competition sports. Examining on volleyballers and basketballers, Shrivastava and Singh (2012) studied to compare the level of achievement motivation among 100 volleyball and basket ball players (18-25 yrs) from Uttar Pradesh. They assessed achievement motivation with the help of Sports Achievement Motivation Test (SAMT) developed by M. L. Kamlesh. Their study showed that the basketball players were significantly more positive in achievement motivation than volleyball players. They concluded that the basketball group showed better motivation than that of volleyball group.

Khan, Khan, Haider and Ahmed (2012) investigated to determine the
difference and level of achievement motivation in 84 national basketball players, hockey players, Asian badminton and table tennis players (21 each). The result of their study revealed that national basketball players had higher and Asian table tennis players had lower level of achievement motivation. National basketball, hockey and international badminton players had better level of achievement motivation.

In a thorough work on college student, Bari (2013) studied to find out the level of achievement motivation among cricketers (100) and athletes (100) who participated in the inter-college tournament. Applying Dr. B. N. Mukherjee Achievement Motivation scale he found that the athletes had more achievement motivation than that of cricketers. He discussed that the athletes had better in final for his performance. Where as cricketers had group effort among all players and achievement motivation differed from each sports persons to sports persons.

Studying of sports achievement motivation on major game Jiteshwar, Sunderlal and Singh (2013) searched out to compare the sports achievement motivation among male and female school basketball players of Pune city and they applied the Sports Achievement Motivation Scale (SAMT) of M. L. Kamlesh to assess the motivation of participant. The result of their study indicated that there was no difference on achievement motivation among male and female participants. They concluded that achievement motivation among female and male inter school basketball players were found same.

Achievement of track and field athletes was assessed by Kumar (2013) to compare the level of achievement motivation among sprinters (100) and long distance runners (100) who participated in inter district tournament of Andhra Pradesh. By using the B. N. Mukherjee Achievement Motivation scale, he observed that long distance runners had more achievement motivation than sprinters. He concluded that the long distance runners are having more achievement motivation than sprinters, because they set goals and aim to maintain best performance to success in competition. Where as sprinters concentrate on technique at the start and finish and to maintain high level of performance, they require muscle power. He recommended that achievement motivation is compulsory for all sports man to achieve high excellence in sports.
From the above studies it is opined that a few studies have been conducted on skill related physical fitness among various sporting group and there are dearth of information regarding skill related physical fitness, physiological condition and achievement motivation among university level sportsman. Accordingly the scholar was motivated to undertake the study.