CHAPTER - II

REVIEW OF RELATED LITERATURE

The research scholar made an attempt to present a summary review of the related literature, which may be helpful in understanding the basic trends available and to bring-out the meaningful outcomes of the present study. The scholar tried his level best to gather the best available literature. For this purpose, he has visited number of libraries like: Indira Gandhi Institute of Physical Education and Sports Sciences (University of Delhi), Central Institute of Education (University of Delhi), Central Library (University of Delhi), Lakshmibai National University of Physical Education (Deemed University, Gwalior, M. P.). In addition to the above sources, the investigator searched various related websites on internet and available personal and supervisor’s literature etc.

This chapter includes reviews of related literature for the present study which has been taken by the researcher. The scholar has undertaken the extensive search for the reviews and has collected the following reviews of the critical literature:

Siddhu and Kumari (1993) suggested about the relationship between activity and blood pressure level among 500 adult individual of Punjab positive association between physical activity and Systolic and Diastolic blood pressure were observed in the study further in majority of age groups person with light physical activity show marked higher incidence of hypertension than their medium and heavy physical activity counterpart.
Bhomik (1997) conducted a comparative study on selected physiological parameter between Soccer and Kabaddi players. The purpose of the study was to compare and contrast the selected physiological parameters between soccer and Kabaddi players. Total 30 players from the Kabaddi and soccer (15 from each) were selected randomly land only from the Intercollegiate terms of Amravati University. The physiological parameters selected as criterion were blood pressure, vital capacity and resting pulse rate. The “t” test was computed to find out the significance differences between the mean. It was concluded that Kabaddi players were significantly superior in vital capacity whereas soccer players were significantly superior in resting pulse rate in comparison to their counterpart but in case of blood pressure non- significance difference were found between the two groups.

Jones and et al. (2001) conducted a study with a purpose to extend existing sport psychological research by developing a more comprehensive athlete attitudinal survey the sport performance inventory (SPI). A multiple item survey consisting of sport related attitudinal items was distributed to 274 students athletes enrolled in a large division Midwestern university. A Principal components analysis with varimax rotation performance on the original survey items resulted in an 83 item survey items resulted in an 83 items survey with 6 interpretable factors: competitiveness, team orientation, mental toughness emotional control, positive attitude, and safety consciousness, all subscales demonstrated adequate items discriminate ability internal consistency important statistically significant differences between college invoice and male / female athletes were found : (1) college athletes were found to have a higher SPI composite than novice athletes : (2) college athletes were found to have a more positive attitude than novice athletes; (3) college athletes were more competitive than novice athletes; (4) female were more
them oriented than males; & (5) novice males were more competitive than novice female, while female were more competitive than college males.

Loehrs (1996) constructed Psychological Performance Inventory (PPI), the most influential mental toughness instrument measured through the seven most important psychological factors that reflect mental toughness: self-confidence, negative energy, attention control, visual and imagery control, motivation, positive energy and attitude control. The PPI is a 42 item self-report instrument designed to measure factors that reflect mental toughness. All questions in the PPI were answered using a 6-point Likhert type scale, ranging from ‘1’ (False) to ‘6’ (True).

Davis et al. (1998) investigated mental toughness and assessed casual explanations for positive and negative reactions to imagined events using an attributional style questionnaire pessimistic explanatory style on this scale were a risk factor for negative affect and behavior following negative events. 38 elite athletes (minimum age 17.8 years) in Ice-hockey were rated for mental toughness shows. Composite explanations of negative events that was more internal, stable and global for players above the median. The results suggest that a pessimistic explanatory style may benefit hockey performance.

Middleton et al. (2004) constructed the Mental Toughness Inventory (MTI). The MTI is a 67-item instrument designed to measure twelve components of mental toughness along with global mental toughness (i.e., 13 factors in total). The factors measured include self-efficacy, Future Potential, Mental Self-Concept, Task Familiarity, Value, Personal Best Motivation, Goal commitment, Task specific attention, and perseverance, Positivity, Positive Comparisons, Stress minimization and Global Mental Toughness.
Gharote (1992) studied the effect of Yogic exercises on the strength and endurance of the abdominal muscles of the females after giving three weeks yogic exercises. The result was that he found significant increase in the strength and endurance of the abdominal muscle of the females.

Dhanaraj, Aubert (1994) studied the effect of yoga and the 5 BX fitness plan on selected physiological parameters. The results indicated increases in basal metabolic rate, tidal volume in basal state, T-4 Thyroxin, hemoglobin, hematocrit, and RBC count PWC 130, Vital capacity, and chest expansion, breath holding time and flexibility after yogic training.

Barrett and Fisher (1997) determined the relationship between selected variable of physical fitness and academic achievement for elementary and secondary students specially each variable of physical fitness, which included a mile run, skinfold fat measurement of the triceps and subscapular site, sit ups and a sit and reach activity was corrected with standardized method and reading scores. The instrument which was used is AAHPERD. Health related physical fitness test. The result was that there was significant for any grade levels, based upon the findings.

Birkel and Edgren (2000) conducted a study with a purpose to find-out the vital capacity of the lungs which is a critical component of good health. Vital capacity is an important concern for those with asthma, heart conditions, and lung ailments; those who smoke; and those who have no known lung problems. Objective: To determine the effects of Yoga postures and breathing exercise on vital capacity. Design of the study, using the Spiro-meter, researchers measured vital capacity. Vital capacity determinants were taken near the beginning and end of two
17 week semesters. No control group was used. Setting: Midwestern University
Yoga classes taken for college credit participants.

A total of 287 college students, 89 men and 198 women, Intervention: subjects were taught Yoga poses, breathing techniques, and relaxation in two 50
minutes class meetings for 15 weeks. Main Out-come Measures were: Vital
capacity over time for smoker's asthmatics, and those with no known lung disease.
Results: The study showed a statistically significant (P< .001) improvement in vital
capacity across all categories over time. Conclusions: It is not known whether these
findings were the result or Yoga poses, breathing techniques, relation, or other
aspects of exercise in the subject’s life. The subject’s adherence to attending class
was 99.96%. The large number of 287 subjects is considered to be a valid number
for a study of this type. These findings are consistent with other research studies
reporting the positive effect of Yoga on the vital capacity of the lungs.

Stancak et al. (1991) studied on cardio-vascular and respiratory changes
during yogic breathing exercise kapalabhati (KB) in 7 advanced yoga
practitioners. The exercise consisted in fast shallow abdominal respiration
movements at about 2 Hz frequencies. Blood pressure, ECG and respiration were
recorded continuously during three 5 min periods of KB and during Pre and post –
KB resting periods. The beat-to-beat series of systolic blood pressure (SBP) and
diastolic blood pressure (DBP). R-R intervals and respiration were analyzed by
spectral analysis of time series.

The mean absolute power was calculated three frequency bands of
spontaneous respiration, band of 0.1 Hz rhythm and the low-frequency band greater
than 15 S in all spectra. The mean modulus calculated between SBP and R-R
intervals was used as a parameter of baro receptor-cardiac reflex sensitivity (BRS). Heart rate increased by a beat per minute during KB, SBP, and DBP increased during KB by 15 and 6 mm Hg respectively.

All frequency bands of R-R interval variability were reduced in KB. Also the BRS parameter was reduced in KB. The amplitude of the high frequency oscillations in SBP and DBP increased during KB. The low frequency blood pressure oscillations were increased after KB. The results point to decreased cardiac vagal tone during KB which was due to change in respiratory pattern and due to decreased sensitivity of arterial spirometer. Decreased respiratory rate and increased SBP and low frequency blood pressure. Oscillations after KB suggest a differentiated pattern of vegetative activation and inhabitation associated with KB exercise.

Reilly et. al. (1984) conducted a study on ten subjects to investigate the circadian rhythm in heart rate at rest, immediately pre-exercise, during sub-maximal and maximal exercise on a cycle ergometer and during recovery post exercise under control conditions at 03:00, 15:00 and 21:00 hours. The study showed a significant circadian rhythm for resting heart rate lying supine and sitting pre-exercise (p<0.05) peak values being measured at 15:00 hours. The acro-phase in the oral temperature, rhythm at 17:39 hours was not significantly out of phase with that of resting during sub-maximal exercise (150 w) and at the maximal rate (p<0.05) the amplitude of rhythm was attended at maximum.

Rating of perceived exertion at sub-maximal and maximal exercise intensities and time to exhaustion or ergometer test doesn’t vary significantly with time of the day (P<0.05). The result revealed a significant rhythm for recovery heart rate in
minutes 2, 3, 4, and 5 post-exercise (p<0.05) Thus the study suggests that the circadian rhythm in heart rates responses to exercise to be considered when a heart rate variable is to be used as an index of physiological strain.

Atkinson et.al. (1993) compared circadian rhythm in physiological, subjective; and performance measures between groups exhibiting different levels of habitual activity: fourteen male subjects; aged 19-29 years were assigned to a physically active (group-I, n=7) or a physical inactive (group-II; n=7) group on the basis of leisure time physical inactive: Rectal temperature, oral temperature; resting pulse rate, subjective arousal and sleepiness were measured a 2:00, 6:00, 10:00, 14:00 18:00 and 20:00 hours in a counter balanced sequence for each subject whole body flexibility; back and leg strength grip strength, flight time in a vertical jump, physical working capacity test (pwc150) and self- chosen work rate were recorded at each time point.

The data were subjected to the group casino method. The results confirm with physical performance measures that rhythm amplitudes are higher for physically fit subjects. This could be attributed to greater early-morning through in the measures for active individuals. Since the subjects were sedentary immediately prior to testing, it is possible that these finding are training effect of physical activity.

Roy (1994) has conducted a study on the body size, strength, muscular endurance and power of top flight team in England Rugby and Soccer players. Mean superiority’s by team were amateur Rugby players in muscular endurance and the professional Rugby Players in weight and vertical jump, amateur soccer players in push-ups and pull ups and muscular endurance, professional soccer players in back strength and sit ups. The offensive amateur and professional Rugby
players were superior to the defensive soccer players were superior to the forwards in body weight and height and the amateur defensive players were superior in strength index.

Debnath (1990) concluded his study with the purpose to generalize, compare and contrast some selected physiological variables and body composition among Football, Kho-Kho and Table-tennis players. Total 45 inter-collegiate players (15 from each game) of Amravati University were selected randomly. Selected physiological and body composition were measured and analysed by f-ratio test. It was concluded that Football players had significantly higher hemoglobin content, resting pulse rate and vital capacity and balance body composition in comparison to Kho-Kho and Table-tennis players.

Ramaden (1995) investigates to examine the maximal oxygen consumption (Vo2 max), maximal anaerobic power, body composition and the state trait anxiety, characteristics of Kuwaiti world cup soccer players. The Kuwaiti teams exhibited moderately high aerobic (51.9 ml/kg min) and anaerobic (119.6 kg/m/sec.) power both value being significantly higher than college norms. The world cup soccer players revealed a significantly higher value in anger factors.

Ray (1990) conducted a study on the status of physical fitness and physiological parameter of offensive and defensive players of soccer and hockey. Who is purpose of the study is to find-out the status of selected physical fitness and physiological parameters of offensive and defensive players of Football and Hockey. Sixty inter-collegiate male offensive and defensive players of Football and Hockey were selected randomly from the Degree College of Physical Education, Amravati. Six selected physical and physiological parameters were measured and
recorded. The ‘F’ ratio was computed to find-out the significance differences. It was concluded that there were significance differences in vertical jump 50 Yard Dash and pulse rate whereas, non-significant differences were observed in vital capacity, 12 min. run/walk, and blood pressure of Football and Hockey players.

Mohammad et al. (1991) conducted a study on selective physiological, psychological and Anthropometric characteristics of Kuwaiti world cup soccer team. The purpose of this study was to examine the maximal oxygen consumption Vol. 2 max) body composition some type characteristic of Kuwaiti world cup soccer team. The Vol. 2 max) was determined using a progressive cycle-ergo meter; the skin fold was estimated by skim folds and somatotype was by the health care method.

The team exhibited moderately high aerobic (51.9 ml/kg/min.) and anaerobic (119.6 kg. meter / sec.) power, both values being significantly higher than college norms relative body fatness (89%) and a balanced mesomorphic somatotype (2.1-4.5-2.1) wherecomparable to those of athletes in other high level team sports. The structural and functional measures taken for this study appeared to indicate that the Kuwaiti team head appropriate potential for world cup. Excessively high state and trait anxiety and anger indicate that more psychological preparation was needed.

Bharshankar et. al. (2003) conducted the study to examine the effect of Yoga on cardiovascular function in subjects above 40 years of age, pulse rate, systolic and diastolic blood pressure and vise-versa ratio were studied in 50 control subjects (not doing any type of physical exercise) and 50 study subjects who had been prenticing yoga for 5 years. From the study it was observed that significant reduction in the pulse rate occurs in subjects practicing yoga (P<0.001). The
difference in the mean values study group and control group was also statistically significant (P<0.01 and P<0.001) respectively.

The systolic and diastolic blood pressure showed significant positive correlation with age in the study group (r1 systolic= 0.631 and r1 diastolic = 0.610) as well as in the control group (r2 systolic = 0.981 and r2 = 0.864). The significance of difference between correlation coefficient of both the group was also tested with the use of Z transformation and the difference was significant (Z systolic = 4.041 and Z diastolic = 2.901) vise-versa ratio was also found to be significantly higher in Yoga practitioners than in controls (P<0.001).Our results indicate that yoga reduces the age related deterioration in cardio vascular functions.

The Psychological Skills Inventory for Sports (PSIS) to 149 male and 66 female collegiate rodeo athletes and performed multivariate analysis of variance (MANOVA) by event, gender, nature of competition (contact, noncontact), and athletic skills level. Psychological constructs identified by the PSIS included anxiety management, concentration, confidence, mental preparation, motivation, and team emphasis. Wilkes’s criterion indicated to significant differences in psychological skills across events. Male's scores significantly higher in anxiety management, concentration, and confidence than did females. The highly skilled Ss’ scores indicated significantly higher in anxiety management, concentration, confidence, and motivation than did lower skilled Ss. Collegiate rodeo athletes exhibit psychological skills patterns inconsistent psychological skills may enhance predictions of athletic potential in this sports.

Church (2007) examined the effect of 50 percent, 100 percent, and 150 percent of the NIH Consensus Panel physical activity recommendations on cardio respiratory fitness in sedentary, overweight or obese postmenopausal women with
elevated blood pressure. The Panel recommends at least 30 minutes of moderate-intensity physical activity on most, preferably all, days of the week. The study included 464 sedentary, postmenopausal overweight or obese women body mass index ranged from 25.0 to 43.0 and whose systolic blood pressure ranged from 120.0 to 159.9 mm Hg. The enrollment took place from April 2001 to June 2005.

Participants were randomly assigned to 1 of 4 energy-expenditure groups for the 6-month intervention period:

- 102 to the non-exercise control group,
- 155 to the 4-kcal/kg (400 calories) per week
- 104 to the 8-kcal/kg (800 calories) per week, and
- 103 to the 12-kcal/kg (1,200 calories) per week

The average minutes of exercising per week 72.2 for the 4-kcal/kg, 135.8 for the 8-kcal/kg, and 191.7 for the 12-kcal/kg per week exercise groups. Compared with the control group, the VO2abs (absolute) increased by 4.2 percent in the 4-kcal/kg, 6.0 percent in the 8-kcal/kg, and 8.2 percent in the 12-kcal/kg per week groups. There were no significant changes in systolic or diastolic blood pressure values from baseline to 6 months in any of the exercise groups vs. the control group. There were no substantial changes in many of the CVD risk factors or weight.

Furthermore, it was observed no changes in weight or body fat percentage, which was expected because this study was not a weight loss trial and participants were frequently informed that the objective was not weight loss and were encouraged to keep other lifestyle habits consistent from baseline throughout the study.
However, it was observed a decrease in waist circumference. It is well
documented that exercise without dietary intervention has limited effectiveness in
producing substantial weight loss. This may be succinctly summarized for patients
and clinicians as even a little is good; more may be better.

Denis(1995) reported his findings in an indexed journal for Medicine.
Theresearch paper provides a critical review of research on mental practice, with
special emphasis on works investigating the role of visual imagery in this type of
learning technique. Relevant properties of images and conditions required for
their effectiveness in mental practice of motor skills are analyzed in the light of
empirical evidence. The paper examines the specific question of individual imagery
differences in mental practice research. Finally, implications for future research are
discussed as regards the impact of certain kinds of physical training on mental
imagery

Bull and Shambrook(1991) projected a concept that employing the
knowledge we have of imagery use and the recommendations advanced regarding
the delivery of a psychological skills training program, it is now more possible than
ever to design imagery training programmes tailored to meet the individual needs of
developing athletes. Various approaches can be employed to teach athletes how to
use psychological skills. One common approach when dealing with a number of
athletes (e.g., a team) is to deliver a workshop (Bull, 1991; Brewer & Shillinglaw,
1992; Gould et al., 1990). But, how effective is a workshop for teaching athletes the
values and benefits of using mental imagery, as well as showing them how to
use imagery more effectively?
It was attempted to examine this question in the present study while adopting the recommendations made for providing athletes with a program individualized in terms of content and adherence-related strategies. Therefore, the purpose of this study was to investigate the influence of an imagery workshop on athletes’ subsequent use of imagery. It was hypothesized that the workshop would lead to an overall increase in imagery use, and more structured and regular imagery practice.

Rushall and Lippman (1997) explored that mental practice is a recognized and often effective method for influencing the proficiency of physical performance. It is suggested, however, that "mental practice" and "imagery" are general labels applied to a variety of procedures that have different goals and uses for influencing human physical performance. This commentary argues that imagery usually is implemented for two different intentions in physical performance endeavors--skill development/learning and competition performance preparation--and those different procedures and elements are associated with each purpose. It is suggested that separation of these two functions will aid interpretation of the research and identification of issues that need empirical clarification.

Trogdon (1996) conducted a study on mental imagery and the development of pitching accuracy. The purpose of the study was determining the effect of mental imagery practice upon the improvement of pitching skills. The sample used in this study consisted of 46 male volunteers students who were registered at south-west Baptist University. The subjects were divided in to three groups by using a table of random numbers. The three methods of practice were as follows; group A, Physical Practice, group B, Mental Imagery Practice and group C, Physical Practice, and Mental Imagery Practice. A pre-test was given to the subjects prior to the experiment.
For the next four weeks subjects participated in their prescribed practice routine. The subjects threw sixty throws in each practice session and totaled 480 throws. The necessary devices were a four by six foot canvas with an area simulating a strike zone on a better. A Post-test followed the four week training period. The main gain scores for each set and each group were calculated and subjected to the dependent t-test to see if significant changes has occurred at 0.05 level. Also, an analysis of variance was computed to determine if any changes had occurred from post-test between the groups at the 0.05 level.

The result of the study indicated that all three practice groups made significant improvement between the Pre-test and Post-test scores at the 0.05 level. However, the analysis of variance yield data that found on group-B, significantly superior to the other groups.

In conclusions, the result of this study support earlier research which indicates the use of mental imagery will improve the performance of a physical skill, Subjects who followed their accuracy scores as well as those combined Physical and Mental Practice. While some of the practice modes proved to be superior to the others, a positive statement could be made for the use of mental imagery in that the physical practice group showed no superiority.

Smith(1997) conducted a study on evaluation of an imagery training programme with intercollegiate basketball players. The purpose of this study was to develop an imagery training programme using the best procedures currently known and b) to evaluate this imagery training in a real life or field setting. It was conducted over an entire competitive season using the University of Illinois men’s basketball team as the treatment group and two other conference teams as the treatment group and two other conference teams as control groups. Changes in
physical and psychology skill were measured primarily through case studies utilizing inventories and observation.

Evaluation of the imagery training programme was accomplished by answering 4 target questions: 1) Does imagery training provide the athletes with increased ability for reducing competitive anxiety? 2) Does imagery training improve self-confidence over time in specific area like shooting and ball handling? 3) Does imagery training improve the execution of specific strategies like offensive and defensive execution? 4) Does imagery training improve overall basketball performance? Various inventories and recording logs were used to answer each of these questions.

Both inferential and descriptive statistics were used for data analysis. For the Sport Competitive Anxiety Test (SCAT), imagery in sport, and coaches’ questionnaire administered pre and post session to the treatment and control groups; an analysis of covariance design was used with the pre-season measure as the covariate. For the few questions with only 2 or 3 possible answers a chi-square analysis was used to determine differences between the treatment and control groups. For the pre competitive CSAI-2 inventory, the baseline measure was covariate.

Answer to each of the target questions were as follows:

1) It cannot be concluded that the imagery training programme decreased competitive state anxiety because the Illinois and control groups showed no differences of their competitive state anxiety measures and no consistent trend among the case studies was evident in this area. 2) A variety of evidence suggests that imagery training may have improved self-confidence in specific areas shooting
and ball handling in individual cases, but weight of the evidence remains inconclusive. 3) The imagery training improves the specific strategies like offensive and defensive execution. 4) The case studies indicated that the athletes who developed commitment to the imagery training tended to believe that the programme improved their basketball performance.

Fahleson (1986) investigated the effect of teaching acts on the thoughts and performance of fourth, sixth and eighth grade students. When learning a novel Jai AlaiLike (Scoop ball). Three intact elementary physical education classes at the University of Wyoming preparatory school were used as subject in the study. Prior to administration of the instructional treatments, students completed questionnaires and tests assessing their imagery ability (Kinesthetic or Visual), Anxiety, and the skill ability on the scoop ball task.

Structured lessons in the scoop ball task were scripted and presented using cues (minding) and information that prompted students to think about their performance in either visual or kinesthetic ways. All students received both of the instructional treatments. Performance in the scoop ball skill was measured on an objective, low-inference skill test. Students were being briefed following instruction using a stimulated recall procedure.

This investigation assessed the main effect of aptitudes and treatments; assessed aptitude treatment interactions and examined students’ cognitive processes there was no performance difference between the two imagery performance groups. There was a significant (P< .05) perceived treatment X initial ability interaction perceived treatment X initial ability interaction. Perceived kinesthetic instruction was associated with higher posttest scored for persons scoring low on the pretest and pretest and visual instruction was associated with
higher post test scores for highly skilled subjects. Those student who reported remembering using, and finding the minding helpful were the poorer performance, but they rated their performance higher than those who reported not remembering, using of finding the minding helpful.

The result of this study show that the students regularly think about instruction in way different from those the teacher intended. It was found that effective minding are vivid and image evoking and students have preferred ways of imaging movement that are the result of meta cognitive decisions rather than designed instruction.

Burstein(1986) conducted a study on the effect of using video imagery fusion in learning swimming skills. In this study, thirty volunteer college students were rated by six expert judges on their performance in an out of water swimming technique. The subjects were divided equally in to a traditional mental practice group, a control group and a video-imagery fusion (VIF) group. Each subject was videotaped on his/her out of water technique at the beginning, middle and conclusion of the 3/1/2 week experiments period. Kendall’s Coefficient of Concordance showed a high degree of inter – rate reliability and yield the scores for each subject used in the statistical analysis. A MANCOVA procedure with a repeated measures design showed a significant (P<.05) improvement for all groups from the mid test to the post test using the pre test scores as the covariant measures.

The VIF group improved mostly during the first half of the training period. The traditional mental practice group showed its greatest improvement during the first half of the experiments period and the control group improve throughout the training period. The use of VIF as a mental practice improves throughout the
training period. The use of VIF as a mental practice technique or recovery faces of the crawl stroke, but not necessary more effective other than methods of learning.

Hough (1995) investigated the effect of varying imagery perspective and imagery time on performance of the putting stroke in golf. A series of audio tapes developed for the research, served as the psychological skills training programme (PSTP). Subjects in the experimental groups (n=28) were from 3 introductory golf classes. The control group (n=7) was from the general student population. Subjects were randomly assigned to 1 to 4 treatments groups of 7 subjects per group. The 4 group were the internal perspective 3 minute imagery group, the external perspective 3 minute imagery group the internal perspective 7 minute imagery group. The three dependent variables were 20 scores (10 pre and posttest) on putting trials control of visual imagery measured by the Gorden test or visual imagery control (TVIC), and vividness of mental imagery measured by the Betts questionnaire upon mental imagery vividness (QUMIV).

All groups were pre and post tested following an interval of 6 week treatment period. All groups performed a putting activity once each week during the 6 week treatment period. The treatment subjects listened to audio tapes three times each week during the treatment period. The control group did not listen to the audio tapes.

The following are conclusions based upon the hypothesis, statistical findings, limitations and delimitations of the study:

(1) The rejection of the null hypothesis of the treatment effects on groups 2, 3 and 5 suggests that, for 3 and 7 minute internal groups and the 7 minute external group, improvement in their putting ability is due to the treatment conditions, group
4 (the 3 minute external group) did show improvement but not at a statistically significant level.

(2) The rejection of the null hypotheses on the repeated measures pre and post tests for putting, TVIC and QUMIV scores, for all groups including controls, suggests that improvement may have been a result of putting practice and the desire to improve due to involvement in the study as well as the treatment. Participation in the study and putting practice were associated with increase in putting and imagery ability by the control group as well as the treatment group.

Szabo Attila et. al. (1994) examined the association between maximal aerobic power (VO-sub(Zmax)) and blood pressure (BP) and heart rate (HR) reactivity to mental challenge. 20 adolescent male judo athletes (aged 14-17 Years) performed a 2-min mental arithmetic task. BP in the immediate stress-recovery period was not related to VO-sub(2max), but Ss’ having a higher VO-sub(2max) showed faster HR recovery from mental stress than did those having a lower VO-sub(2max). Ss’ who showed earlier peak HR responses during the stress episode demonstrated lower average HR reactivity than did Ss’ who attained the maximal HR responses later in the stress period.

Overby (1996) investigated this study to ascertain whether or not a relationship exists between dance experience, imagery ability and body awareness. Twenty experienced female dancers 18-30 years of age (with five or more years of dance training), and twenty novice female dancers 18-30 years of age (with one year of less of dance training), were utilized. Each subject performed two body awareness tasks and computed four imagery questionnaires. The Directionally (D) body awareness task required that the subject move in a specific floor pattern, direction, and spatial orientation.
The Reflective Body Perception (R) body awareness task required the subjects to accurately reproduce body position. In both tasks the subjects viewed the criterion movement on a large screen video monitor and were then videotaped as they reproduced the movement satisfaction (SAMS) (Nelson and Allen, 1970). This body image test measured the image the subject has to herself as moving entity. The second questionnaire, the Movement Imagery Questionnaire (MIQ) (Hall and Pongrace, 1983), measured individual differences in visual and kinesthetic imagery of movements. The third imagery questionnaire, the Individual Differences Questionnaire (IDQ), (Paivio, 1970 measured the degree to which a subject habitually used imaginal or verbal modes of thinking.

The fourth questionnaire, Stumps Cube Test (SCT) (Stumpt, 1980), measured visuo-spatial ability. A MANOVA 2x2x2 (experience x task x sight) with repeated measured on the last two factors, revealed that the body awareness (D and R) was significantly better in experienced dancers than in novice dancers. Hotteling’s revealed that experienced dancers differed significantly from novice dancers. On three if the imagery ability measured (SAMS, IDO, and SCT) and revealed no significant correlation between novice and experienced dancer’s body awareness and imagery ability. All subjects reported using imaginable strategies to enhance their ability to reproduce the criterion movements. This study supported the contention that a relationship exists between dance experience imagery ability, and body awareness.

Stall, Beckett, Mclean and Lusquellac(1990) conducted a study on mental training in the pool they institute a comprehensive mental training program for a team college swimmers (N=50) and divers (N=6). This program was to address several areas including performance anxiety, cognitive processes, and performance consequences of mental skills training. In conjunction with the coaches and
athletes, a sport psychologist assisted in the formulation of goals and objectives. The training techniques consisted of relaxation, concentration imagery, positive mental attitude, cognitive relaxation, and creative problem solving.

Relaxation and concentration exercise were emphasized as precursors to the incorporation of the other techniques. Groups were joined to participated in join 45 minute guided relaxation of imagery sessions ever 2 day, with emphasis placed on the athlete’s ability to self-induce the same states. The athletes and coaches then implemented regular used of the techniques. The results showed the program was successful with enhancement of both cognitive state (such as confidence and motivation) and physical best during the swimmers and drivers session as compared to the previous seasons.

Veddli(1992) conducted a study on the “Effect of Mental Practice and Interaction of Perceptual Style of Elementary Grade Level on Performance of Coincidence Anticipation Motor Task”. The purpose of his study was to determine the effectiveness of mental practice as a teaching methodology and the interaction of perceptual style with this methodology at three elementary grade level (two, four, and six). The dependent variable was the accuracy of the performance of each S N=144) on the final tail of a coincidence-anticipation motor task (C/A- Skill).

Barton et al. (1996) used sports and sports type as a vehicle for examining attributions for success / failure pride and anxiety of 111 college aged 17-25 years athletes. It was shown that both individual team sport athletes and team sport athletes differ little in their emotional reactions and attributions to outcome. Internal and external attributions were shown to be two separate factors. Experienced college-aged athletes exhibited both high internality and high externality for success and both internality and low externality for failure. As expected, level of pride was
found to be greater for success than failure. Greater anxiety occurred after failure than success, but post competition anxiety reactions were shown to be attribution independent emotions.

Previous research on self-serving, self-enhancing and self-protecting biases was found to be inadequate in explaining the intricacies and diversity of attributional responses present in this field study. It is suggested that differences in findings across studies regarding attributional biasness may be based on the methodologies and instruments used, limitations on the number of attributions available to subjects, differences between subject populations tested, the way in which researchers conceive of attributional findings and finally the way in which attributions are defined. The findings lend support to the cognition or ‘information processing’ theoretical viewpoint.

Filaire et. al. (2001) the study aimed to investigate the salivary testosterone (T) and cortisol (C) and the mental state responses to a real football championship among 18 male competitors (mean age 22.2 years). Data about individual’s anxiety levels, strategies of coping, and patterns of behavior were thus collected. The relationship between hormonal changes and psychological variables were also analyzed. Results showed C responses to competition, which was especially characterized by an anticipatory rise. Depending on outcome, results did not show significantly different C responses. The T values noted after the last fight were significantly greater in the losers than those obtained in the winners. Hormonal response did not show a relationship with psychological variables depending on the outcome. Losers showed just before the first fight an elevated cognitive anxiety, accompanied by low self-confidence.
Ahern and Lochr (1996) in the study, it was found that psychosocial factors increasingly are becoming recognized as significant factors in sports performance, injury prevention, rehabilitation, and management, which clearly indicates about the successful performance in any sport—for example, basketball—requires the athlete to possess the necessary physical abilities, talent, and fundamental skills, such as: speed, ball handling, passing, and shooting. Whether considering an individual or team sport, however, the contribution of focused attention, concentration, stress management, and cognitive strategies is important.

In most sports, athletes and coaches alike commonly refer to the “mental game” as equally important as physical abilities and talent to overall performance. Indeed, for the elite and professional athlete, the mental game often provides the competitive edge necessary for winning.

This article presents an overview of the psychosocial and behavioral risk factors known to contribute to sports injury risk and rehabilitation. Space limitations obviously preclude a detailed examination of all aspects of psychosocial assessment and intervention for sports injury. Nevertheless, the major approaches are presented and described with sufficient detail to assist the sports medicine practitioner in evaluating and considering the potential value of this approach in his or her practice. For the interested reader, more detail about a particular technique or procedure can be found through the reference material.

Ursuliak et. al. (2003) conducted a research with the goals of this work were to assess the effects of participation in mindfulness meditation-based stress reduction program on mood disturbance and symptoms of stress in cancer outpatients immediately after and 6 months after program completion. A convenience sample of eligible cancer patients were enrolled after they had given informed consent. All patients completed the Profile of Mood States (POMS) and Symptoms of Stress Inventory (SOSI) both before and after the intervention and 6
months later. The intervention consisted of a mindfulness meditation group lasting 1.5 h each week for 7 weeks, plus daily home meditation practice.

A total of 89 patients, average age 51, provided pre-intervention data. Eighty patients provided post intervention data and 54 completed the 6-month follow-up. The participants were heterogeneous with respect to type and stage of cancer. Patients’ scores decreased significantly from before to after the intervention on the POMS and SOSI total scores and most subscales, indicating less mood disturbance and fewer symptoms of stress, and these improvements were maintained at the 6-month follow-up.

More advanced stages of cancer were associated with less initial mood disturbance, while more home practice and higher initial POMS scores predicted improvements on the POMS between the pre- and post-intervention scores. Female gender and more education were associated with higher initial

The SOSI scores and improvements on the SOSI were predicted by more education and greater initial mood disturbance. This program was effective in decreasing mood disturbance and stress symptoms for up to 6 months in both male and female patients with a wide variety of cancer diagnoses, stages of illness, and educational background, and with disparate ages.

In a study conducted by Boon (1977) the relationship of arousal and anxiety with gymnastic performance was investigated. Pulse rate and palmer sweating were utilized as indicants of arousal. Anxiety was assessed by means of the State-Trait Anxiety Inventory. The Ithaca college women’s varsity gymnastic team (N=18) was tested during the 1973-74 Season. The inter-correlation matrix of all variables, pulse rate, palmer sweating, state anxiety, trait anxiety and gymnastic performance
revealed limited relationships between gymnastic performance and arousal/anxiety measures.

Klavora (1975) studied optimal pre-competitive state anxiety of football players. Oxidine’s proposition regarding the optimal arousal level for the typical participant in football was examined on 4 level of football competition: Junior High School, Senior High School, Alberta Junior and University. The pre-competitive state anxiety was measured by Spielberger’s STAI anxiety scale. No Significant differences in optimal pre-competitive state anxiety at the competitive levels were found.

Greenblatt, S. Shavasana (1999) mindfulness-based Stress Reduction (MBSR) is an 8-week clinical intervention developed by Kabat-Zinn and colleagues in the 1970s and 1980s. Mindfulness meditation is the key component of MBSR, and patients are typically asked to meditate 45 minutes daily. The present study aimed to assess the directionality of the relationship between meditation and stress. This was done with path analysis. The study also examined stress reactivity’s role in meditation’s healthful effects. Finally, the study assessed the relative importance of different aspects of meditation practice, including length and frequency of meditation.

The sample included 180 persons practicing meditation similar to mindfulness meditation, recruited from meditation centers around the U.S. Subjects completed self-report measures on meditation habits, the Weekly Stress Inventory (WSI), and the Short Form-36V health survey. To assess causality between meditation and stress reactivity, the WSI and the meditation questionnaire were re-administered two weeks after initial data collection. Data were collected primarily via the internet. The first path analysis compared two models differing only on the causal direction of the path between stress reactivity and recent meditation. The
model positing recent meditation influencing stress reactivity provided a better fit to the data than the model positing stress reactivity influencing meditation practice. The second analysis examined the path coefficients of a similar but fully identified model. This also showed meditation’s influence on stress reactivity to provide a better fit to the data than the alternative model.

A strong negative association was found between stress reactivity and health. Also, frequency of meditation was as important to stress reactivity as hours meditated. Additionally, when examining the differential importance of recent meditation vs. lifetime meditation experience, recent meditation was associated with emotional health, vitality, and stress reactivity, whereas lifetime meditation experience was relatively unimportant. This study has some implications for MBSR, including the importance of continued meditation practice after patients complete MBSR. Another such implication concerns the equal importance of frequency of meditation vs. length of meditation sessions. This study is an initial effort at addressing the role of stress reactivity in meditation’s effects. Further efforts studying these phenomena with clinical populations are needed.

Telama and Silvennoinen (1999) conducted a study with a purpose to assess the reasons young adults participate in physical exercise and leisure-time physical activity. The MPAQ contains 33 items focusing on the conscious reflection of physical activity interests, the advance planning of physical activities, and the influence of weather and friends on one’s own physical activities. Individuals respond using a 3-point ordinal scale. Previous empirical research on motivation for physical activity was drawn upon in constructing the items and measurement methods. Physical component factor analysis (n=3106) followed by varimax rotation supported an eight-factor solution accounting for 21.3% of the variance.
The factors were labeled as Fitness Related to the Self Image, Relaxation, Sociability, Preference for Outdoor Activities, Normative Health, Competition and Achievement, Improving One’s Physique and Functional Health. Psychometric data were reported for 3,106 students residing in Finland. These students were selected through stratified-random bluster sampling and represented grades 2-3, 5-6 and 8-9.

Otsuki T. et al. (2007) studied to investigate whether post exercise HR recovery accelerates in strength-trained athletes. Subjects were young strength trained athletes (ST. N =12) endurance trained athletes (ET: N=12), and age matched sedentary control men (C; N=12) HR and oxygen uptake were measured during submaximal exercise (cycling exercise, 40% maximal oxygen uptake for 8 min) and 30sec. after the exercise (the post exercise period) The results suggest that the HR recovery immediately after exercise is accelerated in both strength and endurance trained athletes.

Pfeiffer, K.A., et al. (2007) studied to determine how factors are related to change in cardiorespiratory fitness across time in middle school girls followed through high school Adolescent girls (N=274, 59% African American, Baseline age = 13.6+0.6 years) performed a submaximal fitness test in 8th, 9th, and 12th grades. Height, weight, sports participation, and physical activity were also measured. Moderate-to-vigorous physical activity and vigorous physical activity were determined by the number of blocks reported on the 3 day physical Activity Recall. Individual differences and developmental change in CRF were assessed simultaneously by calculating individual growth curves for each participant using growth curve modeling.
Although there were fluctuations in PWC170 Scores across time, average scores decreased during 4 yr. Physical activity was related to change in CRF over time; BMI race and sport participation were also important factors related to change over time in CRF (depending on expression of CRF-weight relative V/s absolute) Subsequent research should focus on explaining the complex interaction between CRF.

Rowlands, et al. (2007) studied to determine the relationship of tri-axial accelerometry, uniaxial accelerometry and pedometry with speed and step frequency across a range of walking and running speeds. Nine male runners wore two ActiGraph uniaxial accelerometer and pedometry with speed and step frequency across a range of walking and running speeds. Nine male runners wore two ActiGraph Uniaxial accelerometers. Two RT3 tri-axial accelerometer (all set at a 1-s epoch) and two pedometers. Each participant walked 60 S. at 4 and 6 Kmh. ran for 60 s at 10, 12, 14, 16, and 18 Kmh-1, and ran for 30 s at 20 22, 24, and 26 Kmh-1 Step frequency was recorded by a visual count.

It was concluded that increasing underestimation of activity by the ActiGraph as speed increases is related to frequency dependent filtering and assessment of acceleration in the vertical place only. RT3 vector magnitude was strongly related to speed, reflecting the predominance of horizontal acceleration at higher speeds. These results indicate that high intensity activity is underestimated by the ActiGraph even after correction for frequency dependent filtering, but not by the RT3 Pedometer output is highly correlated with step frequency.

Huang et al. (2007) studied to evaluate the cross sectional relationship between BMI and physical fitness index (PFI) based on four indicators of fitness in a national sample of Taiwanese youth. Height weight, and four measures of physical
fitness (sit-ups completed in 60 s, standing long jump, sit and reach, and 800 or 1600m run walk) were measured in a national sample of 102.75 Taiwanese youth 9-18 years of age 50.940 girls and 51.825 boys.

It was concluded that declines in a curvilinear manner with increasing BMI among youth 9-18 yr. of age, but the slope of the relationship varies with age. Takeshima also studied to compare the effects of aerobic, resistance, flexibility, balance, and Taj-chi programs of FF in Japanese older adults. FF was evaluated using a chair stand arm curl, up and go, sit and reach back scratch, functional reach, and 12 minutes’ walk one hundred thirteen older adults (73+6 years, 64 men, 49 women) concluded that results suggest that a single mode with crossover effects could address multiple components of fitness. Therefore, a well-rounded exercise program may only need to consist of two types of exercise to improve the components of functional fitness one type should be aerobic exercise, and the second type could be chosen from RES, BAL and T-CHI.

Shah, Singh and Pathak (1990) administered personality questionnaire and competitive state inventory-2 on twenty one international marathon runners to investigate extraversion, neuroticism, psychotism and state anxiety, cognitive anxiety, self-confidence. The result obtained indicated that successful marathon runners found to have high mean value in age (chronological) extraversion, neuroticism and self-confidence scale, where as low mean value in psychotism, cognitive anxiety, somatic anxiety and total competitive state anxiety.

Castelli et al. (2007) studied physical fitness and academic achievement in third and fifth grade students. The relationship between physical fitness and academic achievement has received much attention owing to the increasing prevalence of children who are overweight and unfit, as well as the inescapable pressure on schools to produce students who meet academic standards. This study
examined 259 public school students in third and fifth grades and found that filed tests of physical fitness were positively related to academic achievement.

Specifically aerobic capacity was positively associated with achievement, whereas BMI was inversely related. Associations were demonstrated in total academic achievement, mathematics achievement and reading achievement thus suggesting that aspect of physical fitness may be globally related to academic performance in preadolescents. His findings are discussed with regards to maximizing school performance and the implications for educational policies.

Physical fitness and Anthropometrical profile of the Brazilian Male Judo Team. The present study had as objectives (1) to compare the morphological and functional characteristics of the male judo players of the Brazilian Team (A (n=7) with the judo players of Teams B and C (reserves: n=15), and (20 to verify the association between the variables measured. Thus, 22 athletes from the seven Olympic weight categories were submitted to: a body composition evaluation (Body mass, height, ten skinfolds, eight circumferences, three bone diameters and percent body fat estimation); the special Judo Fitness Test (SJFT); maximal strength tests (one repetition- maximum, 1 RM, in bench press, row, and squat) and the Cooper test. One-way analysis of covariance was used to compare the groups.

The relationships between variables were determined by the Pearson coefficient correlation. The significance level was fixed at 5% No. significant difference was found in any variable between them. The main significant correlations observed were between the following variables VO2 max and number of throws in the SJFT (r= 0.79) percent body fat and estimated VO2 max (r= -0.83) and number of throws in the SJFT (r=-0.70); chest circumference and bench press
1 RM (r=0.90) and in the row (r=0; 86). However, there was no significant correlation between circumferences and 1 RM/kg of body mass.

According to these results the main conclusion are: (1) the physical variables measured do not discriminate performance when analysis is directed to the best athletes: (2) a higher percent body fat is negatively correlated with performance in activities with body mass locomotion (Cooper test and the SJFT); (3) Judo players with higher aerobic power performed better in high-intensity intermittent exercise; (4) Judo players with bigger circumferences present bigger absolute maximal strength.

Physical fitness was measured by a maximal treadmill exercise test. Average follow-up was slightly more than 8 years, for a total of 110 482 person-years of observation. There were 240 deaths in men and 43 deaths in women. Age-adjusted all-cause mortality rates declined across physical fitness quintiles from 64.0 per 10 000 person-years in the least-fit men to 18.6 per 10 000 person-years in the most-fit men (slope, -4.5). Corresponding values for women were 39.5 per 10 000 person-years to 8.5 per 10 000 person-years (slope, -5.5).

These trends remained after statistical adjustment for age, smoking habit, cholesterol level, systolic blood pressure, fasting blood glucose level, parental history of coronary heart disease, and follow-up interval. Lower mortality rates in higher fitness categories also were seen for cardiovascular disease and cancer of combined sites. Attributable risk estimates for all-cause mortality indicated that low physical fitness was an important risk factor in both men and women. Higher levels of physical fitness appear to delay all-cause mortality primarily due to lowered rates of cardiovascular disease and cancer.
The purpose of the study was to compare the performances of entering Filipino freshman students at the University of the Philippines and American and Japanese boys in the AAHPER Youth Fitness Test. Four age classifications (15, 16, 17 and 18 years and above) were included in the study.

Significant differences in performances were determined through the application of the chi-square test of significance. The statistical method was used to analyze the distribution of Filipino boys and the quartile limits of the American and Japanese norms for the Youth Fitness test.

The findings showed that American and Japanese boys performed better in more items of the Youth Fitness Test than the Filipino students. This was true for all age groups, with the exception of the 15 year-old Filipino boys who performed better than their American counterparts. The Filipinos performed poorly in the sit-up and softball throw, but, they excelled in the shuttle run.

Physical fitness, participation in physical activity, fundamental motor skills and body composition are important contributors to the health and the development of a healthy lifestyle among children and youth. The New South Wales Schools Fitness and Physical Activity Survey, 1997, was conducted to fill some of the gaps in our knowledge of these aspects of the lives of young people in New South Wales. The survey was conducted in February and March, 1997 and collected data on a randomly-selected sample of students (n = 5518) in Years 2, 4, 6, 8 and 10.

Measures were taken on body composition (height and weight, waist and hip girths, skinfolds), health-related fitness (aerobic capacity, muscular strength, muscular endurance, flexibility), fundamental motor skills (run, vertical jump, catch, overhand throw, forehand strike and kick), self-reported physical activity, time spent
in sedentary recreation, and physical education (PE) classes. The methods are described to assist in the development of surveys of other populations and to provoke debate relevant to the development and dissemination of standard approaches to monitoring the fitness, physical activity habits and body composition of Australian children and youth. Finally, we offer comments on some of the strengths and limitations of the methods employed.

Singh et. al. (1986) studied the anxiety difference between male and female handball players of intervarsity level. 73 (male 36, female 37) subjects comprising 6 teams were investigated. The subjects were members of 1st, 2nd and 3rd position holders respectively. Marten’s sports competitive anxiety test (SCAT) for adults was administered to the subjects selected or the study. T test was applied to find out intra group differences. ANOVA was worked out to find out the difference among the different position holder of male and female teams. The difference of competitive anxiety between male and female came out to be statistically significant at .05 level though over all level is moderate in both cases.

Zwart (1987) studied attention and anxiety responses of athletes to mental tainting technique. This study explores the change in competition anxiety, attention direction and focus, and performance in 13-15 year old swimmer (n=30) after exposure to the super learning mental training program. The experimental treatment consisted of engaging the subjects in a six week (two hour session per week) program of (i) relaxation training, (ii) positive affirmation statements synchronized to breathing exercises and music, and (iii) visualization for mental rehearsal.

Allen (1993) conducted the study on the effect of mental practice and physical practice of the improvement of golf swing. The purpose of this study was to determine the effects of mental practice and physical practice on the improvement of golf swing. The modified Benson 5 – Iron test was used to measure distance and accuracy or each subject.
The study utilized 40 numerical male and females classroom volunteers from physical education class at the University of 'Mississippi'. This was a four group designed using analysis of variances and a pre-test consisted of testing subjects using a modified Benson 5- Iron test for distance and accuracy. Measurement for distance and accuracy were obtained in the same manner by testing subject using the modified the Benson 5- Iron test.

Singh (1987) administered SCAT (Marten's) to Indian athletes and hockey players and found significant differences between the two samples on sport competition anxiety. Hockey players, both male and female, were found to have less competition anxiety as compared with the players of individual events. Males exhibited less anxiety in competitive situations as compared with the females.

Radha (1995) studied the selected psychological variable namely anxiety, aggression, motivation and personality traits in relation to basketball performance. If psychological factors, aggression is highly correlated with the playing ability (r = .941) further, it is noted that the coefficient of multiple correlation (r = .981) revealed that psychological factor put together play an important role in the basketball performance.

Weinberg (1980) investigated the relationship between competition trait anxiety and state anxiety and golf performance in a field setting. Test low moderate and high CTA collegiate golfer (10 per cell) performed in a practice round one day and day 2 of competitive tournament. Co-relation between SCAT and state anxiety indicated that SCAT was good predictor of pre-competitive state anxiety. The direction of state anxiety and performance CTA main effects provide support for oxedine's (1970) contentions that requiring fine muscle coordination and precision (i.e. golf) are performed best at low level of anxiety.
Morgan (1970) administered three forms of IPAT 8-parallel form anxiety test to seven varsity wrestlers at the University of Missouri. The first test was given before the season began, a second 45-60 minutes prior to a match judged easy by the coach. Surprisingly the pre-match anxiety scores were lower than the pre-season scores, but there was no difference in anxiety scores between the easy and difficult matches.

Marten (1982) study conducted on four sample of Volleyball team found subjects scoring high on Achievement Motivation (Mehrabian Scale) are low in fear of failure and high in need achievement. Same way subjects scoring low on Achievement Motivation Scale were found high in fear of failure and low in motive to success. The study further concluded that there was no significant relationship between sports competition anxiety and achievement motivation.

Carder (1966) found the relationship between manifest anxiety and performance in college football. The subjects were 40 freshman football players who were rated on 2 scales by 3 members of the coaching staff. One scale consisted of ranking on total performance during the season and the other scale involved skill rating in blocking, tackling, movement agility, and running speed. Subjects were also tested on the M.A.S. and 3 motor ability tests to identify potential. The results indicated no significant relationships between the M.A.S. Scores and total performance, individual skill performance, or actualization of football potential.

Silva (1981) tried to identify variable that are related to optimal performance at elite levels of wrestling. The subjects were 86 candidates competing for 1980 US Greco-Roman and free style Olympic wrestling teams. Psychological testing included trait testing and pre-competitive state testing. The reports showed non-qualifier scored higher than qualifiers on anxiety, depression and regression. Separate anxiety measures generated from the STAI and the IPAT anxiety trait
measures indicated that the qualifiers were lower on all measures of anxiety than were the non-qualifiers.

Harris (1964) compared high and low fitness indices college women in Psychological traits and found that there is a tendency for the ‘fit’ individual to appear more stable in certain Psychological traits and to appear less anxious in others.

Dowthwaity (1984) administered Spielberger’s State and Trait Anxiety Inventory and SCAT to 22 women hockey players. Forwards reported consistently higher A-State than defenders. Consistent differences in A-State Score were found in the 1st XIth for the extreme group of high and low score on SCAT and the high SCAT group showed the greater increase from the coaching to the competitive condition. Over both teams A-State correlated significantly with SCAT.

A study conducted by Goodspeed (1984) investigated the effects of comprehensive self-regulation training including relaxation, mental imagery, self-confidence, concentration and cognitive restructuring on anxiety and performance of female gymnasts.

Griffith, Steel and Vaccaro (1999) examined the relationship between the anxiety level and performance of 62 beginning Scuba diving students and standardization that there was no relationship between anxiety and performance on relatively simple cost, while there was a relationship between anxiety and performance on the more complex diving maneuvers.

Purpose of the study conducted by Sandhu et al. (1986) was to adapt the competitive anxiety level scale for female basketball players. 32 female basketball players were taken as subjects from the basketball teams of colleges officiated to PunjabUniversity. The data were statistically analyzed by using the statistical operation including co-efficient or correlation to determine the validity. Factor analysis was also used for the adaptation of test. The result of the study revealed that the test is valid and can be used on female basketball players at college level in Indian conditions.
Baker (1962) studied the effects of anxiety and stress on gross motor performance. Sixty one male students with scores more than 1S.D. above (high anxiety) and below (low anxiety) the mean on the Pittsburgh revision revision of the Manifest Anxiety Scale were used as subjects and assigned randomly in each category to experimental and control groups. The test consisted of matching a specified foot pattern while walking at 2mph on a treadmill for 1.5 minutes, with total missteps constituting the error score. The experimental groups received shock at predetermined intervals. Subject had two trials with pulse rate recorded before and after each trial. Following each trial, the subjects rated themselves on the anxiety during the test. The findings supported the hypothesis that the stress inhibited efficient function of high anxiety subject facilitated the performance.