Chapter-II

REVIEW OF RELATED LITERATURE

A study of the relevant literature is an essential step to have a full picture of what has been done and said to the regard with problem under study.

Such a review brings about a deep insight and a clear perspective of the overall field. The reviews provide us with an opportunity of gaining right in to the methods, measures, subjects, and approaches employed by other research workers the study of related literature implies the locating regarding evaluating reports of research as well as reports of casual observation and opinion that related to the individual planned research project (Agarwal, 1975).

Sincere efforts have been made by the research scholar to locate literature related to this study. The relevant studies found from various sources which the investigator has come across are enumerated below :

Vaez-Mousavi et.al conducted a study on Arousual and activation in sports shooting task. “Arousal” and “Activation” have been differently defined in terms of their origin and their function. The former has been defined as the energetic state at a particular time, reflected in skin conductance level; the latter, as the change in arousal from a resting baseline to the task situation. The present study, aimed
to further explore whether the separation of “arousal” and “activation” was useful in describing state effects on a skilled performance in terms of a sport shooting task. A standard air rifle shooting task was used with elite shooters it was found at all five performance measures which were used in the study decreased with increasing activation but not with arousal. The total subject consists of 14 Females and 9 Males aged from 22 to 39 years.

Finkenberg et al. (1992) conducted a study on 77 cheerleaders participating in a national collegiate championship competition were administered the competitive state anxiety inventor-2 immediately prior to performance, significant correlation were found between cognitive and somatic state anxiety a finding consistent with previous research. Negative correlations were found between both cognitive and somatic state anxiety and self confidence also as previously reported. Canonical discriminate analysis indicated that significant discrimination between the terms could be accomplished by combination of the state anxiety variables. Both groups, 36 men, 41 women, differed significantly from normative scores on the somatic sub scale.

Jones and Cale (1972) conducted a study on sports achievement motivation. Self concept and anxiety differentials among Indian men and women basketball and Volleyball team prior to SAY Games. The purpose was to compare the level of sports achievement motivation, self concept and trait anxiety among Indian men and women Basketball
and Volleyball teams prior to the SAF games is held at Colombo, 1991. To achieve these purpose eight Indian men and eight women basketball players and twelve men and twelve women volleyball players were chosen as the subject.

Metheson and Mathes (1991) found changes in cognitive anxiety, somatic anxiety and self confidence are measured by the competition state anxiety inventory-2 in a sample of 50 female high school gymnasts prior to their performance at a practice session, dual meet, and district championship meet. The purpose of the study was to examine (1) the relationship between state anxiety and performance getting (2) experience and (3) difficulty of movement task. Analysis showed that at the dual meet athletes experienced significantly greater cognitive and somatic anxiety and lower self confidence that at the practice or district championship. State anxiety did not vary significantly with the athletes overall experience or the difficulty of the routines they performed. The unexpected finding that the dual meet was the most anxiety provoking was attributed to the greater uncertainly of outcome in a competition and the fact that the dual meet occurred early in season.

Hasrani (1991) conducted a study on pre-competitive Anxiety of basket ballers and track and field athletes. A sample of twenty five basket ballers and twenty two athletes were administered SCAT (Marathon 1977) questionnaire a day prior to their departure for the
competition. Results showed significant (in) differences in anxiety level of basket ballers and track and field athletes. It was also revealed that basket ballers had better experience in coping with pre competition anxiety than track and field athletes. A study analyzed the scientific analysis of pre competition anxiety among the athletes or both sexes and was delimited to track and field athletics. Fifty college level athletes who participated in inter-collegiate athlete meet were administered sports competitive anxiety test (SCAT). The level of achievement and participation was noted. The result indicated that female athletes showed lower anxiety level than male athletes. It was found that experience and achievement level play an important role in the management of A State Prior to the competition.

Jones and Cale (1987) conducted Pre competition difference between male and female in anxiety and confidence patterns. Twenty male soccer, rugby and squash players and female from same university who were preparing to compete in a major championship were evaluated. Female were significantly more anxious than males immediately prior to the competition; males exhibited to increase in anxiety. Female exhibited a gradual increase in anxiety towards the competitions days, while males showed no increase across the time.

Kenneth Mc. Gown (1969) studied the performance of low and high anxiety level group by conducting shooting at a basket ball goal for accuracy and speed. The IPAT self analysis was used to measure
anxiety the high and low anxious subject – were chosen from a population of 330 boys aged 9 to 11 years. Two groups were eventually chosen to represent the high and low anxious group categories after rotating the group through competition and individual testing procedures and measuring the performance. The data were subjected to analysis of covariance and t-ratio analysis the high anxious group performed better under the competition situation and there were no other difference.

Selvin (1991) used Spielberger’s test of State and Trait Anxiety (STAI) to assess the effect of anxiety on the performance of an unfamiliar gross motor skill, showed that individual with low levels of trait anxiety performed better in the motor than who had been classified as having high level of trait anxiety.

Weinberg (1980) investigated to determine the relationship between Competitive Trait Anxiety (CTA), state anxiety and golf performance in a field setting. Ten low, moderate and high CTA collegiate golfers (10 percent) performed in a practice round on Day 1 and Day 2 of a competitive tournament. State Anxiety results indicated a significant CTA main effect with low CTA subjects displaying lower state anxiety than moderate or high CTA subjects. The competition main effect was also significant, with post hoc tests indicating higher levels of state anxiety during Day 1 and Day 2 than during the practice round. Performance results produced a significant CTA main effect with
low CTA subjects displaying higher levels of performance, (i.e. low score) than moderate or high (CTA subjects. The competition main effect was also significant and post hoc tests indicated that subjects performed at a higher level during practice and Day 1 of competition than during Day 2 of competition. Correlations between SCAT and State Anxiety indicated that SCAT was a good predictor of pre-competitive state anxiety.

Mann, et al. (1998) conducted a study to analyze the competitive anxiety in term sports. 44 male Punjab University players (Football 16, Basket ball, 14, Volley ball 14) were selected for the study. Himm’s Scale of Competitive Anxiety was used to collect the data. ANOVA was used to find out the inter-group and inter-mode differences. They found that there was no significant differences exists in the level of competitive anxiety in group X situation and none of the teams varied significantly in its response and foot bal team varied significantly from other two teams showing higher level of competitive anxiety on anger mode of response.

Raviv and Rotstein (1982) studied trait anxiety, state anxiety and self-control in marathon runners. The findings of this study revealed significant differences between the marathon runners group, the team sports athletes and individual sport groups. Smith (1983) found that team sport athletes of higher status were less threatened by competitive situations than athletes and hockey players, whether males or females
or combined. The athletes having more competitive anxiety than the hockey players. On the other hand, Verma (1987) found that as compared to athletes and non-sportsmen, sports women from team games such as basketball, hockey and volleyball had higher level of anxiety.

Ajmeer Singh and Bara, (1998) Conducted a study to compare anxiety difference between male and female handball players. 73 north zone interuniversity handball players (36 male and 37 female) were selected as subject. Marten's sports competitive Anxiety Test (SCAT) was administered to subjects for the collection of data. ANOVA test was used for statistical analysis of the data and to find out intersexes differences, t-ratio was applied. They found that elite interuniversity handball players both men and women had moderate level of competitive anxiety and also male and female players differs significantly in competitive anxiety through overall level was moderate in both cases.

Singh (1998) compared the anxiety level between champion and non-champion male and female judo players of national level. 64 male and 60 female Judo players were selected as subjects. Judo players who secured first, second and third position in their respective weight category were considered as champions and those who lost in each weight category were considered non-champions. A random method was used for selecting the non-champions accordingly 24
champions and 24 non-champions in male section and 18 champions and 18 non-champions were selected as subjects out of 60 players.

Sports competition anxiety test was administered for collection of data. He found that there was significant difference in sports competition anxiety level between champion and non-champion male Judo players and no significant differences were found in sports competition anxiety level between champion and non-champion female Judo players of national level.

Singh (1998) carried out a study on competitive trait anxiety of the top level Indian Athletes and Hockey players. 118 top level Indian Track and field athletes (72 male and 42 female) and 71 Hockey players (45 male and 26 females) who were attending various training camps before the International competitions were selected as subjects. For measuring competitive trait anxiety, SCAT Questionnaire was used. He found that the male athletes and players had less competitive anxiety as compared to females. And also athletes both male female differ significantly in competition anxiety with hockey players. He also concluded that participation in various athletic event were not related to sports competitive anxiety and sports competitive anxiety was not related to positional play in hockey.

The study of individual differences in anxiety responses to competitive situations has been an important area of sport psychology research. There are a few studies, which have compared the anxiety
level of the superior athletes and non-athletes. Perhaps the most persuasive evidence for the existence of a relationship between sports competence and A-trait was provided by Ogilvie (1968) who reviewed the sports personality literature. On the basis of this review he concluded that athletes, particularly superior athletes, have unique and identifiable personality profiles. Superior athletes are emotionally more stable, have lower levels of A-trait, and greater resistance to emotional stress. He did not qualify this for any specific sport or the sex of the participant. More recently, Cooper (1969), Husman (1969), Johnson and Cofer (1974) failed to concur with Ogilvie (1968). Each of these reviewers has concluded that there are no consistent differences in A-trait among participants when compared with non-participants or between participants of different skill.

According to Martens (1977) that if difference exists, in general A-trait between athletes and non-athletes, they are minimal. General A-trait is a measure of the tendency to become aroused in a wide class of situations. It is difficult to explain why athletes should be higher or lower in A-trait than non-athletes for all types of situations.

This, however, may not be true when considering a person's tendency to become anxious in competitive Sports. Hardman (1973) compared A-trait among 42 different samples of athletes. He found that most male athletes were within the normal range of A-trait on the Cattell 16 PF using the derived anxiety factor. Hence, most suggested
that superior athletes are less anxious than average-ability players, while displaying higher levels of A-trait than the population mean. Singh and Singh (1986) found the level of anxiety to be significantly higher in the non-sports group of students.

The commonly accepted contention that women athletics are more anxious seems to be borne out research evidence. A number of studies have indicated that female athletes are significantly more anxious other women. In comparing women track and swim' athletes to a norm group, Kane (1966) found athletes be more anxious. Similar findings resulted from comparison of women physical education majors to b a norm group and to men compared to the norm worn the physical education students scored low on emotion stability and were more anxious, and compared to m they were significantly more tense and less composed. Malumphy (1968) found female team athletes to significantly more anxious than individual players and non-participants. Kane (1972) has reported that in general, anxiety is higher for women than for men although there are many exceptions. He further report that British women athletes are significantly less anxious than their female counterparts in the USA, in part because the British are more generally accepting females in athletics than are Americans.

Ikponmwosa (1981) examined the relationship between sex-role standards and anxiety in competitive sports situations. It was hypothesized that biological sex differences and liking or disliking of
competitive sports were insufficient to adequately explain observed patterns of sex differences in competitive sport. These differences were explained as being reflections of social perception of the sex type/appropriate for competitive sport. The results obtained in this study are consistent with those of Cosentino and Heilbrum (1964) and Gall (1969).

Saderson and Ashton (1981) investigated pre-match and post-match anxiety states of males and females as well as match winners and losers during a badminton tournament. Results revealed a significant decrease in the female players' anxiety after winning matches as compared to the male players.

Singh (1985) found significant sex differences in the competitive anxiety of the Indian athletes, the females having more anxiety than the males. In another study, he found significant differences in the anxiety scores of the athletes and the hockey players on the basis of sex, the males having less competitive anxiety than females.

Several investigators have attempted to identify anxiety level as a correlate of good performance of the athletes of different types of games. Tutko (1971) stated that anxiety is greater in individual sportsmen than in team sportsmen. In an individual sport, success or failure lies solely with the individual participant. The individual stands alone when he fails and must single accept the repercussions of losing. In the team games, errors usually go unnoticed because of the general activity of
the contest, and moreover, success and failure are commonly shared. But, according to Spielberger, Gorsuch and Luschene (1970), there is no apparent trend showing individual or team sport athletes differ in A-trait.

Bush (1970) did not find any significant change in A-states from a baseline level to the A-states measured prior to competition in women inter-collegiate gymnasts. Easier, Fisher and Mumford (1976) also did not find a relationship between A-states and gymnastic performance in college women. Griffin (1972) found that female gymnasts had much higher A-states scores prior to competition, when compared with other female individual and team sport participants, including basketball players. Hardman (1973) also did not find any difference between athletes participating in individual and team sports or between athletes participating in contact and non-contact sports. In an early study, Gold, (1955) had observed that college tennis players were lower in A-trait than professional players. This appears to be contrary to what Hardman had suggested.

Griffin (1972) found that female gymnasts had much higher A-states scores prior to competition when compared with other female individual and team sports participants, including basketball players. Female gymnasts were highest in A-trait and female basketball players wise lowest in A-trait. Hardman (1973) also did not find any difference
between athletes participating in individual and team sports or between athletes participating in contact and non-contact sports.

Oxendine (1968) suggested that basketball and soccer Aram games require moderate A-states and that archery, bowling and golf (individual games) require low A-states for optimal performance, whereas football blocking and tackling as well as Weight-lifting require extremely high A-states. Some other research findings support the results that basketball, hockey and volleyball players have higher level of anxiety (Alderman, 1974; Martens, 1977; Tutko, 1977; Gerson and Dashaiaes, 1978; Martens et al., 1979). On the other hand, athletes, cricketers and non -sportsmen have low level anxiety which is justified by a few studies conducted by Symond (1946), Byrne (1961) and Tutko (1977).

Finn and Sprauge (1981) made a comparison of competitive trait anxiety levels of 9-12 years old participants in little league and neighbourhood baseball. Results showed significant differences in the mean anxiety scores: a) among test-trial conditions for the little league group as well as the neighbourhood sample, b) among test-trial conditions for the 9, 10 and 12 years old age-group, and c) between the little league and neighbourhood participants during pre-season, mid-season and post-seasion condition. The results were: a) exposure to a competitive experiences influenced the A-trait of the children, b) age as a pertinent factor regarding A-trait scoring, and c) the organizational
type of competitive situation affected the A-trait results of the little league and neighbourhood groups.

By administering Martens' SCAT, Power (1982) made an analysis of anxiety levels in track and field athletes of varying ages and abilities. He found: i) a significant tendency for anxiety to increase with age, ii) the significant differences existed between the competition subgroupings, and iii) CTA seemed to be a significant problem as far as track and field athletes and as such levels of CTA were found to be detrimental to performance.

Singh (1986) found significant differences in the competitive anxiety between the athletes and hockey players, whether males or females or combined, the athletes having more competitive anxiety than the hockey players. He also found players of the team games had less competitive anxiety. Verma (1987) found that as compared to athletics and non-sportswomen, sportswomen from team games such as basketball hockey and volleyball had higher level of anxiety. Sportswomen from individual sports such as athletics, wrestling, cycling etc., which are of an independent nature tended to reduce anxiety level and inculcate the tendency of introversion.

Research dealing with anxiety and sports performance has produced conflicting results. It has to be seen as to how A-trait and A-state influence sports performances. Almost insignificant applied research in sport contexts has been conducted on this topic.
Reed (1960) found that both high and low levels of anxiety tended to disrupt the learning process, whereas, moderate levels of anxiety created an ideal atmosphere for learning and performance. But his suggestion that top class athletes are lower in A-trait was not supported.

A study conducted by Fenz (1975) with parachutists given considerable insight into the role of skill and experience as mediator’s of the anxiety performance relationship. The results obtained by consistently showed that good parachutists exhibit an inverted U shaped curve with arousal levels rising early but subsequently dropping so that arousal is only slightly elevated just before the jump. Poor parachutists, in contrast, showed continual rises in arousal and arousal was at its highest level just before the jump. The findings of several studies confirm that perceived threat and corresponding state anxiety levels decrease with success experiences and increase with failure experiences (Gaudry and Poole, 1972; Hodges and Durham, 1972).

Klavora (1975) used State-Trait Anxiety Inventory developed by Spielberger et al., (1970) with 300 high school basketball and football players. They found out that high A-trait players in both samples were higher in A state for all three A-state measures i.e. one week prior to a game in a practice session, ½ hour before a regular season game and again ½ hour before a tournament play off game. Both the high and
low A-trait the groups showed substantial increased in A-state just prior to both contests when compared to the practice A state at level. No difference was found between the regular season game and playoff game.

Navaczyk (1977) investigated the differences in trait and state anxiety levels among individuals participating in three divisions of junior high school competitive ice hockey. There were significant differences among competitive situations and between pre-test and post-test situations. Cannell (1977) found A-state as being reduced after winning but increased after losing in women's inter-collegiate basketball. Morgan and Hammer (1977) found significant change in A-state of college wrestlers. It was also found that pre-meet A-state rose significantly form a base-line level and post-match A-state levels were significantly lower than pre-match.

Research findings by Martens and Gill (1976); Martens (1977); Scanlan and Passer (1978) have indicated consistently that high A-trait individuals manifest greater A-state just prior to engaging in competition than low A-trait individuals. However, little is known about the manner in which competitive trait anxiety influences perceived threat during actual competition with an opponent of equal ability. One par related study (Martens and Gill, with A-trait children evidence greater A-state than low A-trait children. Martens (1977) found that the mean scores increased from, the basal level through group tournament
first and second round competition. This result indicated that state
anxiety increased throughout the competitive process.

In another study by Scanlan (1978), the A-state of extreme high
and low A-trait men were assessed while performing in a minimally
evaluative non-competitive situation and again, during competition
with an opponent of demonstrated equal ability. It was hypothesized
that between A-trait groups, no A-state differences would be evidenced.
While performing in the non-competitive situation, but that high A-trait
man would manifest greater A-state while performing in the
competition situation. Some researches have shown that CTA is
effective in predicting various levels of state anxiety (Martens, 1977;
Martens, Rivkin, Burton, 1979), however, the strength of these
relationships are inconclusive.

Amutha and Jayanthi (2010) were compared the selected
psychomotor abilities between volleyball players and athletes. For this
purpose thirty male volleyball players and athletes consisting of ten
jumpers, ten throwers and ten runners were selected from the
Department of Physical Education and Sports Sciences, Annamalai
University. The selected psychomotor parameters such as, visuospatial
coordination, hand eye coordination, visuo motor coordination, leg eye
coordination and psychomotor coordination were selected as criterion
variables. The results of the study showed that there was significant
difference between the volleyball players and athletes in hand eye
coordination, leg eye coordination and psychomotor coordination. There was no significant difference between athletes and volleyball players in visuospatial coordination and visuomotor coordination. The volleyball players were better in hand eye coordination and leg eye coordination and athletes were better in psychomotor coordination.

Bandopadhyay (2008) attempt has been made to look into psychophysiological reactivity and kinesthetic perception of MR children in participation through an organized creative arts programme and play therapy. Subjects were 24 mentally retarded boys of 13-16 years age group of a residential school. They were assigned at random into three groups. C.A. group participated in a special creative arts instruction programme and Gr P.T. underwent in a play therapy programme over and above normal school curriculum and control group participated only in normal school programme. Measurement of reaction time, galvanic skin conductance and kinesthetic perception were taken using appropriate methods. To compare the means of pre and post test data after 10 weeks treatment t-ratio was employed. Results showed that reaction time, Galvanic Skin Conductance and Kinesthetic Perception improved significantly by Creative Arts and Play Therapy programme among MR Boys.

Razeena and Razia (2010) investigated to find out the gender based difference of psychological skills among national level volleyball players. Study conducted on 60 volleyball players showed that among
them 30 were male and 30 female hockey players. Variables in psychological skills were anxiety control, concentration, confidence, mental preparation, motivation and team emphasis. The data were obtained by administering psychological skills inventory for sports (PSIS) developed by Mohoney et. al. To compare gender based difference between the variables, ‘t’ test was applied. The findings revealed significant difference in concentration and team emphasis but there was no difference seen in anxiety control, confidence, mental preparation and motivation.

Navaneethan and Thirumoorthi (2006) were designed to examine the level of competitive state anxiety among south zone university basketball players. Two components of anxiety i.e., the level of cognitive anxiety, somatic anxiety and self-confidence were assessed between the genders. The samples include 50 male and 50 female basketball players between the ages of 18 to 25 years from various universities in South India. Anxiety was measured using the Competitive State Anxiety Inventory 2 (CSAI-2) by Martens et. al. The results indicated that there was significant difference according to cognitive and somatic anxiety between male and female players. And also it revealed that there was no significant difference in self-confidence between the genders. Recommendations for future research were also discussed.
Ghai and Saraswat (2008) were conducted to compare the pre-competition temporal patterning of self-confidence, somatic and cognitive anxiety among male athletes. 90 male athletes from three games (football, basketball and volleyball) participated in All India Intervarsity Championship were selected as subjects for the study. The age of the students ranged from 18 to 24 years. The questionnaire used was consist of short form of CSAI-2 by (Cox, Russel and Robb) for measuring somatic and cognitive anxiety, while the self-confidence was measured with 9 items of CSAI-2 by (Maretens, Vealy and Burton) corresponding to self-confidence, the questionnaire were administered to subjects at different time durations prior to competition i.e., two weeks, one week, two days, one day, two hours and thirty minutes prior to competition. The statistical tool used for this study was one way analysis of variance (F-ratio). To find out the paired mean difference the LSD Post hoc test was used. The statistical findings pertaining to self-confidence of football, basketball and volleyball deteriorated gradually as the player approaches closer to the time of competition, the somatic anxiety of basketball players increased from a low level at two weeks prior to competition to a significantly high value just thirty minutes prior to competition. Similarly in the case of cognitive anxiety in all the three games gradually increased when the athlete approaches closer to the time of competition.

Burton (1976) also studied the relationship between trait and state anxiety with movement satisfactory and participation in physical
activities. He found that the high A-trait subjects had higher A-state scores along with lower movement satisfaction scores than did the low A-trait subjects on both pre-tests and post-tests. No change was found in the A-state level of the low A-trait group, but the A-state level of the high A-trait group decreased significantly over the treatment period.

Martens and Gill (1976) reported that subjects A-state levels on the spielberger STAI increased as a number of games won on a motor maze task decreased. Both high and low A-trait subjects increased in A-state after failure, but remained relatively low in A-state after success. Scanlan (1977) contended that successful outcomes reduce threat of potential negative evaluation, whereas failure outcomes reduce threat of potential negative evaluation, whereas failure outcomes maximize threat. His investigation of attribution of high vs low A-trait subjects relative to success-failure on a competitive motor maze task clearly indicated that success-failure was an important factor affecting the perception of threat, as measured by A-state levels. Hall (1980) reported that external were significantly higher on A-trait than intervals, and there was a significant relationship for A-trait and pre-and post-performance A-state, as well as for relationship of post-performance A-state to number of internal attributions.

Scanlan and Passer (1978) found CTA to correlate significantly with basal and pre-competitive state anxiety scores among youth male soccer players. Weinberg and Genuchi’s (1980) investigation of male
college golfers concluded that CTA was a significantly predictor of first round competition scores only. Gruber and Beaucamp (1979) in their study on "Relevancy of the Competitive State Anxiety Inventory in a sport Environment", found changes in anxiety states before and after competition, where state anxiety was significantly reduced after all games that won but remained high after all three games that were lost. The girls were found to be significantly more anxious before the crucial games when compared to the easy games.

Huddlestone and Gill (1981) examined state anxiety as a function of skill level and proximity to competition. The results indicate that state anxiety increased immediately prior to competition. The pre-practice and pre-meet measures, which did not differ from each other, were both significantly higher than the post-practice measure, suggesting that practice creates anxiety levels similar to those generated by a competitive meet. A-state score of qualifiers and non-qualifiers differed only slightly following practice and prior to the meet. The A-state levels of non-qualifiers differed only slightly following practice and prior to the meet. The A-state levels of non-qualified were, however, somewhat more elevated than those of qualifiers prior to practice and immediately before the competitive event. Wandzilak, Potter and Lorentzen (1982) also confirmed the previous findings concerning the relationship between CTA ad pre-game state anxiety. They concluded that state anxiety increases, as the event becomes closer in time.
Singh (1991) conducted a study to find out the significant difference between the players of individual and team games as well as between male and female players on competitive anxiety. The hypotheses of the study were that there would be significant sex differences, as well as differences between the players of individual and team games on competitive anxiety. In order to test these hypotheses, 433 top level Indian players of eleven different games (264 males and 169 females) of individual and team events were administered Marten's Sports Competitions Anxiety test for the measurement of competitive anxiety. The results of the study indicate that there were significant differences between male and female players, both in the case of individual and team games; the male players in both cases were having less competitive anxiety than the females. Significant differences on competitive anxiety were also found between the players of individual and team games, whether males or females, the individual game players were having more competitive anxiety than the team game players both in the case of male and female players.

Bawa and Debnath (1991) have conducted a study to determine the relationship of level of competition to sports competition anxiety. Sport Competition Anxiety Test by Rainer Martens was administered on 29 subjects at District level, on 26 subjects at State level and at 12 subjects at National level gymnastics competitions. It has been found that competition anxiety was significantly higher at National level competition than State and District level competitions and significantly
higher at State level competition than District level competition. It is concluded from the study that level of competitions also determine the level of anxiety.

Varghese and Acharya (1998) studied the determinant of competitive anxiety by applying the measurement scale of Manifest annuity self-esteem inventory and Eysenk personality those were concerned with, Trivendreum police Division and Kerala Electricity Board. They have not found any difference between higher levels and lower level performance. But when sports person and non sportsperson were compared the level of self esteem, extroversion, sports anxiety and displeasure was higher among sportsperson.

Manoj Kumar Chouhan, Vipin kumar and Ajay Malice (2000) in their study "A study of anxiety level in young Athlete just before the semifinal match" colleted data from Hundred athletes (60 Man, 40 women) applying "Sinha Anxiety scale" just before beginning of the match through simple random technique. As a consequence they found that men had greater level of anxiety them their female counterparts. They also found greater level of anxiety before final match than before semi finals in both the sexes.

Panda, Kaul and Mittai (2004) have examined the difference among elite and sub-elite athletes on sport competition trait anxiety and goal orientations. The sample comprised elite athletes (n=32) and sub-elite athletes (n=30). All the subjects were tested on task and ego
orientations, and sport competition trait anxiety using standardized questionnaires. T-test was applied to study the group difference between elite and sub-elite athletes on task and ego orientations, and sport competition trait anxiety. Results indicated that there is a significant difference between elite and sub-elite athletes on sport competition trait anxiety, and goal orientations. It was found that elite athletes experience less anxiety as compared to sub-elite athletes. It was also observed that the elite athletes were more task oriented and more ego oriented than the sub-elite athletes.


This meta-analysis (k=48) investigated two relationships in competitive sport: (1) state cognitive anxiety with performance and (2) state self-confidence with performance. The cognitive anxiety mean effect size was $r = 0.10$ (P<0.05). The self-confidence mean effect size was $r = 0.24$ (P<0.001). A paired-samples t-test revealed that the magnitude of the self-confidence mean effect size was significantly greater than that of the cognitive anxiety mean effect size. The moderator variables for the cognitive anxiety-performance relationship were sex and standard of competition. The mean effect size for men ($r = 0.22$) was significantly greater than the mean effect size for women ($r = 0.03$). The mean effect size for high-standard competition ($r = 0.27$)
was significantly greater than that for comparatively low-standard competition (r=70.06). The significant moderator variables for the self-confidence–performance relationship were sex, standard of competition and measurement. The mean effect size for men (r=0.29) was significantly greater than that for women (r =0.04) and the mean effect size for high-standard competition (r = 0.33) was significantly greater than that for low standard competition (r= 0.16). The mean effect size derived from studies employing the Competitive State Anxiety Inventory-2 (r =0.19) was significantly smaller than the mean effect size derived from studies using other measures of self-confidence (r=0.38). Measurement issues are discussed and future research directions are offered in light of the results.

Déborah Alix-Sy, Christine Le Scanff and Edith Filaire in their study investigated pre-competition physiological and psychological states of eighteen elite soccer players. Salivary cortisol was assessed during a non-training day and before three league games. Affective states (unpleasant and pleasant, somatic and transactional emotions) were evaluated using the Tension and Effort-Stress Inventory before the three league games. Participants formed 2 groups, 11 starters and 7 non-starters, depending on the starting list established by the coach. All players reported more intense pleasant transactional and somatic emotions than unpleasant ones prior to all games (p < 0.05), and relatively stable profiles of these psychological responses were observed across the three league games. However, salivary cortisol levels
increased during pre-game for all players in comparison with the non-training day ($p < 0.001$). This anticipatory rise was only related to unpleasant somatic emotions ($p < 0.001$). This demonstrates that cortisol can be used as an index of emotional response to competition.

KooHyoung Lee NeuroSky (2009) has examined the Evaluation of Attention and Relaxation Levels of Archers in Shooting Process using Brain Wave Signal Analysis Algorithms. Archer’s capability of attention and relaxation control during shooting process was evaluated using EEG technology. Attention and meditation algorithms were used to represent the levels of mental concentration and relaxation levels. Elite, mid-level, and novice archers were tested for short and long distance shootings in the archery field. Single channel EEG was recorded on the forehead (Fp1) during the shooting process, and attention and meditation levels were computed by real time. Four types of variations were defined based on the increasing and decreasing patterns of attention and meditation levels during shooting process. Elite archers showed increases in both attention and relaxation while mid-level archers showed increased attention but decreased relaxation. Elite archers also showed higher levels of attention at the release than mid-level and novice archers. Levels of attention and relaxation and their variation patterns were useful to categorize archers and to provide feedback in training.
Joe Slowinski (2011) examined a Pre-Shot Routine on a Bowler’s Psychophysiology. He explored the impact of breathing on target accuracy. Specifically, he presented a research project and he completed which illustrates the effectiveness of a specific breathing technique on performance.

He measures the impact of a two-tiered pre-shot routine on shot execution consistency. The two-tiered process includes an elongated breathing technique as well as an effective, established and proven targeting process. This complete process was designed after a review of research on psychophysiology, the study of the interrelationship between physiological response and psychological aspects of a player. With the pre-shot breathing protocol added, C.A.T.S. revealed a significant improvement in a bowler’s ability to execute more consistent shots. Specifically, six of seven bowlers in the study improved their break point consistency by an average of 4.4 boards more consistency over ten shots with three of the bowlers improving their consistency by over 5 boards down the lane, where it matters most. These bowlers were much more consistent with less errant shots. Six of the seven study participants improved their accuracy in the front part of the lane, with an average improvement in consistency of .79 boards at 15 feet. Finally, five of the bowlers improved or equaled their speed consistency suggesting that the adding breathing technique helped to reduce body and hand tension as well as grip pressure.
Tremayne and Barry (1987) state that a psychophysiology in sports psychology heart rate responses to relevant and irrelevant stimuli as a function of anxiety and defensiveness in elite gymnasts.

One problem in the optimization of athletic performance is that consistency in practice situations is not always carried over to competitive situations. There is an increase in irrelevant stimuli in competition which cannot always be gated out satisfactorily by the anxious athlete. We investigated the physiological responses to relevant and irrelevant stimuli of 48 elite female gymnasts differing in levels of anxiety and defensiveness. Cardiac responses were recorded to tone presentations and analyzed as a function of instructions, anxiety manipulation and group. The results suggest that phasic responses of high-anxious gymnasts were larger than those of low-anxious gymnasts. High-anxious gymnasts experience more difficulty in completely gating out the occurrence of irrelevant stimuli than do low-anxious gymnasts. Finally, under anxiety-producing conditions, high levels of defensiveness and anxiety in combination appear to have a debilitating effect on the gymnast’s ability to discontinue processing of irrelevant stimuli, while truly low-anxious subjects appear distracted from processing relevant stimuli. Further investigation of the interactions between levels of trait anxiety and anxiety-producing situations in a sport-specific domain appear warranted. The role of defensiveness in these interactions should also be investigated.