A study of relevant literature is an essential step to get a full picture of what has been done with regard to the problem under study. The investigator has gone through available literature which is relevant to the present study. The relevant literature pertaining to the present study has been abstracted in this chapter to provide the background material to evaluate the significance of this study.

Experiment conducted by Whelan Epkins and Meyers (1990) examined the role of arousal changes in the use of psych-up strategies on a physical strength task and a reaction time-decision task for subjects varying in competitive experience. Mental preparation, or “psych-up” strategies have been assumed to promote physical arousal which subsequently improves certain athletic performances. Eighty-four subjects were reliably divided into high, moderate, or low competitive experience groups and randomly assigned to one of three mental preparation strategies. These strategies which the subjects employed during a mental preparation period for both tasks were either: (a) a self-generated arousal strategy, (b) a prescribed arousal strategy, or (c) a placebo-control strategy. While heart rate was being monitored, each subject completed a baseline trial, then one trial following a 45 sec mental preparation period and one trial following a 45 sec distraction interval. Order of presentation of tasks and order of presentation of distraction and mental preparation trials were counter balanced and statistically analyzed. The results support the utility
of different mental preparation strategies for increasing strength performance, but not reaction time-decision performance for subjects with moderate and high levels of previous competitive experience. Self generated arousal strategies enhanced performance of moderate experienced subjects. Analyses of the heart rate data failed to support the assumption that physiological arousal mediated the influence of psych-up strategies. Mental preparation strategies improved athletes’ performance on certain tasks, however these strategies do not necessarily achieve their effects through increased autonomic arousal.

In a study conducted by Robazza and Bortoli (1998) extensive interviews were conducted with all eight members of the 1996 Italian Olympic archery team regarding psychological factors associated with excellence and mental preparation strategies adopted during competition. Hierarchical inductive analysis revealed that positive expectations, concentration, facilitating emotions, body awareness and technical preparation were the mental aspects described by archers necessary for effective performance. Furthermore, the archers outlined a variety of mental preparation strategies including (a) autonomic control (emotion control, somatic control, internal dialogue, and focus on shooting), (b) imagery (visualization, self-talk), (c) task-focused concentration (body and action control, thought control) and (d) reaction to mistake (focus on correct execution, mistake disregard, shooting analysis). The idiosyncratic nature of the athlete's competition strategies highlights the need of gaining information about the particular demands of the sport and the mental procedures spontaneously developed by the performer, to provide suitable counselling or psychological intervention.

The purpose of Thomas (1977) study was to determine if personality characteristics related to successful participants in Canadian women's intercollegiate basketball could be identified. It was hypothesized that a personality profile for female basketball players could be identified. It was also hypothesized that differences in personality profiles existed between sub-groups related to successful performance: regular versus substitute
players and members of winning teams versus members of losing teams. The Athletic Motivation Inventory and the Cattell Sixteen Personality Factor Questionnaire were administered, during a single sitting, to fifty-six female basketball players participating in the Canada West University Athletic Association. F-ratios for the multivariate test of equality of mean vectors were computed between the sub-group personality profiles. Univariate analyses of variance between individual personality traits were also computed. The results did not identify a specific female basketball personality profile. Therefore no statistical support was given to the premise that there is an identifiable relationship between personality and participation among Canadian women intercollegiate basketball players. In addition the results did not identify a specific personality profile possessed by the more successful athletes. Therefore no support was given to the premise that there is an identifiable relationship between personality and successful performance. In conclusion the AMI was not found to be more sensitive than the 16PF in the psychometric assessment of athletes.

The literature on mental toughness is characterized by a general lack of conceptual clarity and consensus as to its definition, as well as a general failure to operationalize the construct in a consistent manner. This study addressed two fundamental issues surrounding mental toughness: how can it be defined? and what are the essential attributes required to be a mentally tough performer? Ten international performers participated in either a focus group or one-to-one interviews, from which a definition of mental toughness and the attributes of the ideal mentally tough performer emerged. The resulting definition emphasized both general and specific dimensions, while the 12 attributes covered self-belief, desire/motivation, dealing with pressure and anxiety, focus (performance-related), focus (lifestyle-related), and pain/hardship factors. Participants verified that Jones et al.’s (2002) definition of mental toughness was an accurate description of their personal understanding of the construct. Although it was not the main purpose of this study to directly compare Jones et al.’s elite sample with the super elite participants, it is interesting to note that the super elite group agreed with the definition more than the elite group, with mean ratings of
9.33 (SD = 1.05) and 8.7 (SD = 1.06) out of a possible 10, respectively. According to the superelite participants’ interpretation, mental toughness has general and specific elements. The first element permits the mentally tough performer to better cope with the general demands and associated pressures that occur at the highest level of sport than non-mentally tough performers do. In essence, this element relates to the successful coping and balancing of one’s social and personal life with the very specific and unique demands of a modern-day sporting career. The second element highlights a specific outcome dimension (i.e., success, winning) that describes how mentally tough individuals produce more consistent high-level performances via the use of superior psychological strategies and mental skills. Not unusually, therefore, there are some parallels with previous mental-toughness definitions. This is a result of previous research that has linked the notion of enhanced mental skills, coping with pressure, and the desire to succeed in pressure environments with mental toughness.

In a study Golby and Michael (2003) examined the potency of measures of personality style and mental skills in predicting success in the criterion sport of professional rugby league. The increasingly business-like environment of professional sport has resulted in greater scrutiny and analysis of players’ performance. The roles of physiological parameters in predicting success in the world of professional and amateur sport are well established. However, to date, evidence is sparse concerning the role of personality traits in predicting such success. Mental toughness was assessed by questionnaire using the Psychological Performance Inventory. Hardiness was assessed by questionnaire using the Personal Views Survey III-R. Subjects in this study were 115 professional rugby league footballers representing the top three playing levels in the game in Great Britain (International, Super League, and Division One). Findings demonstrated that performers playing at the highest standard (International players) scored significantly higher in all three hardiness subscales (commitment, control and challenge) and in two of the seven mental toughness subscales (negative energy control and attention control). Results are discussed relative to previous findings, in particular, of the
efficacy of high levels of hardiness. Practical implications focus on the advocacy of mental toughness and hardiness training to improve sports performance.

Seven participants from a previous study (Connaughton, 2002) agreed to be interviewed about the development of mental toughness. Connaughton et al., (2008) aimed to determine whether mental toughness requires maintenance. Semi-structured interviews were conducted to elicit the participants’ perceptions of how mental toughness is cultivated and retained. Findings indicated that the development of mental toughness is a long-term process that encompasses a multitude of underlying mechanisms that operate in a combined, rather than independent, fashion. In general, these perceived underlying mechanisms related to many features associated with a motivational climate (e.g. enjoyment, mastery), various individuals (i.e. coaches, peers, parents, grandparents, siblings, senior athletes, sport psychologists, teammates), experiences in and outside sport, psychological skills and strategies, and an insatiable desire and internalized motives to succeed. It was also reported that once mental toughness had been developed, three perceived underlying mechanisms were required to maintain this construct: a desire and motivation to succeed that was insatiable and internalized, a support network that included sporting and non-sporting personnel, and effective use of basic and advanced psychological skills. Practical implications and future avenues of research are discussed.

The psychological aspects of youth sports participation is one area of research that has been identified as important by parents, coaches, and sport psychology researchers. Unfortunately, little research has been conducted on this topic with elite young athletes. This paper (Feltz, 1987) briefly reviews the psychological research on children in sport in the areas of participation motivation and psychological stress and then focuses on the psychological research with elite young athletes. The last section of the paper discusses issues and recommendations for studying the elite young athlete.
The relations between motivation for physical activity, level of participation indices and psychological outcomes of activity were examined by Frederick and Ryan (1993) for 376 adult subjects. Three participation motivation factors, interest/enjoyment, competence, and body-related motives were measured, using a new scale presented in the study. A primary purpose was to examine motivational differences between two groups: persons whose primary activity is an individual sport and those whose primary activity is fitness- or exercise-oriented. Results showed individual sport participants to have higher interest/enjoyment and competence motivation than fitness group participants, while the fitness group scored higher on body-related motivation. Correlations showed all types of motivation to be related to participation indices; however, only interest/enjoyment and competence motivation were related to positive psychological outcomes. Body-related motivation was associated with greater depression and anxiety, but not with self-esteem. Level of participation indices generally correlated with feelings of physical fitness, but not with mental health outcomes.

An important issue facing youth sport researchers understands why youth participate in sport programs. Most participation motivation studies have been carried out in the United States and in Anglophone countries such as the United Kingdom, Canada, and Australia. These studies have identified a fairly consistent set of motivational factors for participation. Starting from this premise, descriptive research on youth participation motivation is reported (Buonamano, 2002) to verify if, in a Latin country with a sport culture different from Anglophone countries, the same set of motivational factors could be identified. Young athletes (N=2,598, aged 9-18 years), involved in different sports, completed the modified Italian version of the Participation Motivation Questionnaire (Gill, Gross, & Huddleston, 1983). Factor analyses showed a set of motivational factors fairly consistent with the research conducted in Anglophone countries. Differences were found among participants in relation to gender, age, sport, parents’ educational level, and geographical area.
In a study Jim and Sheard (2003) examined the potency of measures of personality style and mental skills in predicting success in the criterion sport of professional rugby league. The increasingly business-like environment of professional sport has resulted in greater scrutiny and analysis of players’ performance. The roles of physiological parameters in predicting success in the world of professional and amateur sport are well established. However, to date, evidence is sparse concerning the role of personality traits in predicting such success. Mental toughness was assessed by questionnaire using the Psychological Performance Inventory. Hardiness was assessed by questionnaire using the Personal Views Survey III-R. Subjects in this study were 115 professional rugby league footballers representing the top three playing levels in the game in Great Britain (International, Super League, and Division One). Findings demonstrated that performers playing at the highest standard (International players) scored significantly higher in all three hardiness subscales (commitment, control and challenge) and in two of the seven mental toughness subscales (negative energy control and attention control). Results are discussed relative to previous findings, in particular, of the efficacy of high levels of hardiness. Practical implications focus on the advocacy of mental toughness and hardiness training to improve sports performance.

This study (Gould, Dieffenbach and Moffett, 2002) was designed to examine psychological characteristics and their development in Olympic champions. Ten U.S. Olympic champions (winners of 32 Olympic medals) were interviewed, as were one of their coaches (n = 10), and a parent, guardian, or significant other (n = 10). A battery of psychological inventories was also administered to the athletes. It was found that the athletes were characterized by: (a) the ability to cope with and control anxiety; (b) confidence; (c) mental toughness/resiliency; (d) sport intelligence; (e) the ability to focus and block out distractions; (f) competitiveness; (g) a hard-work ethic; (h) the ability to set and achieve goals; (i) coachability; (j) high levels of dispositional hope; (k) optimism; and (l) adaptive perfectionism. Results also revealed that a number of
individuals and institutions influenced the athletes’ psychological development including the community, family, the individual himself or herself, non-sport personnel, sport environment personnel, and the sport process. Coach and family influences were particularly important. Ways in which these sources influenced the athletes were both direct, like teaching or emphasizing certain psychological lessons, and indirect, involving modeling or unintentionally creating certain psychological environments. Psychological characteristic findings verified current sport psychological research on psychological characteristics associated with peak performance (Williams & Krane, 2001). They also suggest that adaptive perfectionism, dispositional hope, and high levels of optimism are new variables to consider. Results are also discussed relative to Bloom's (1985), Ct's (1999) and Csikzentmihalyi, Rathunde, Whalen, and Wong's (1993) talent development research. Practical implications focus on implementing parenting and coaching practices related to the development of psychological characteristics associated with athletic success.

A study was conducted by Vealey and Cambell(1988) to (a) determine what achievement goal orientations are present in adolescent figure skaters, (b) examine the relationship between the goal orientations conceptualized by Maehr and Nicholls (1980) and those conceptualized by Vealey (1986), and (c) investigate the influence of different goal orientations on the precompetitive self-confidence, precompetitive anxiety, and actual performance of adolescent skaters. Subjects included 106 youth figure skaters participating in regional competition. Skaters were found to have two achievement goal orientations which were termed extrinsic and task orientations. Some support was found for the relationship between the achievement orientations and the sport-confidence/competitive orientation constructs of Vealey. Also, a multivariate relationship was supported between the sport-confidence/achievement orientation predictor constructs and the self-confidence, anxiety, and performance of adolescent figure skaters in sport competition. Results were discussed based on developmental characteristics of adolescent athletes and the socially evaluative achievement context of sport. The need to decrease the
threatening nature of competitive sport for adolescents by emphasizing intrinsic enjoyment and the pursuit of personal performance goals is advocated.

Martin and Gill (1991) examined the relationships among trait and state psychological variables and performance in male high school distance runners using the Sport Orientation Questionnaire (SOQ; GiU & Deeter, 1988), the Competitive Orientation Inventory (COI; Vealey, 1986), the Trait Sport-confidence Inventory (TSCI; Vealey, 1986), the State Sport-confidence Inventory (SSCI; Vealey, 1986), the Competitive State Anxiety Inventory-2 (CSAI-2; Martens, Wilton, Vealey, Bump, & Smith, 1990), and separate self-efficacy scales for performance (time) and outcome (place). As hypothesized, trait sport-confidence predicted state sport-confidence and outcome self-efficacy. However, competitive orientation did not contribute to the prediction of state measures. State sport confidence and self-efficacy predicted performance, as hypothesized. Surprisingly, outcome self-efficacy was a stronger predictor than performance self-efficacy, which did not contribute to the prediction of performance time or place. The runners’ youth and lack of competitive track experience may have prevented them from forming accurate performance self-efficacy judgments. In contrast, the familiar and small competitive field may have allowed these athletes to form accurate outcome self-efficacy judgments.

In a study by Jones et al., (1989) examined situational antecedents of multidimensional competitive state anxiety and self-confidence in a sample of 125 elite intercollegiate middle-distance runners. Cognitive anxiety, somatic anxiety, and self-confidence were measured 1 hour prior to performance via the Competitive State Anxiety Inventory-2. Subjects also completed the 19-item Pre-Race Questionnaire (PRQ) which was designed to examine situational antecedents of the competitive state anxiety components. Factor analysis of the PRQ revealed five factors: perceived readiness, attitude toward previous performance, position goal, coach influence, and external environment. Stepwise multiple regression analyses demonstrated that cognitive anxiety was predicted by the first
three of these factors. However, none of the factors were found to significantly predict somatic anxiety. Self-confidence was also predicted by two factors, perceived readiness and external environment. These findings suggest that cognitive anxiety and self-confidence share some common antecedents but that there are also factors unique to each. Examines situational antecedents of multidimensional competitive state anxiety and self-confidence in elite intercollegiate middle-distance runners. Measures cognitive anxiety, somatic anxiety, and self-confidence one hour prior to performance, using the Competitive State Anxiety Inventory-2. Subjects also complete the 19-item Pre-Race Questionnaire (PRQ). Factor analysis of the PRQ reveals five factors: perceived readiness, attitude toward previous performance, position goal, coach influence, and external environment. Stepwise multiple regression analyses demonstrate that cognitive anxiety is predicted by the first three of these factors. However, none of the factors significantly predicts somatic anxiety. Self-confidence is also predicted by two factors: perceived readiness and external environment.

The initial study of Griffin et. al., (1984) of movement confidence as a construct attempted to answer the research questions of whether confidence is more than competence and whether the determinants of confidence vary in relation to the movement situation. The study was designed as a preliminary examination of these two concerns in terms of the three components – competence, potential for enjoying moving sensations, and potential for harm – which were proposed in the model for movement confidence. Factor and regression analyses of data from 352 college students indicated that movement confidence is more than competence, and the determinants of movement confidence seem to vary in relation to movement situations and possibly in relation to gender. The major contribution of perceived level of confidence generally is a personal feeling of competence. The precise contributions of additional modifiers cannot be specified at present.
The primary objective of the study by Callow and Water (2005) was to examine the efficacy of a kinesthetic imagery intervention on the sport confidence of three professional flat-race horse jockeys, with the secondary objective of examining the relationship between performance and sport confidence.

A multiple-baseline across participants research design was employed. The State Sport Confidence Inventory [SSCI; Vealey, R.S. (1986). Conceptualization of sport confidence and competitive orientation: Preliminary investigation and instrument development. Journal of Sport Psychology, 8, 221–246.] was administered twice weekly, prior to a total of 23, 25, and 27 races for participants 1, 2, and 3, respectively. In addition, performance data were collected on each SSCI data collection day. The kinesthetic imagery intervention consisted of six kinesthetic imagery sessions, twice weekly during a 3-week period. The intervention was introduced after race 7, 9, and 11 for participants 1, 2, and 3, respectively. Approximately, 1 week after the end of the data collection, participants completed a post experimental questionnaire. ITSACORR [Crosbie, J. (1993). Interrupted time-series analysis with brief single-subject data. Journal of Consulting and Clinical Psychology, 6, 966–974.] was employed to analyze the sport confidence data. The results of ITSACORR along with visual inspection, demonstrated a significant increase in sport confidence for participants 1 and 3, and a non-significant increase for participant 2. Kendall's tau b correlations failed to find a significant relationship between performance and confidence. The results are discussed in terms of the value of kinesthetic imagery as a tool for athletes to practice and develop. Furthermore, this study demonstrates the ability of ITSACORR to provide a statistical analysis for serially dependent single-subject data.

Much research in sport psychology has examined the relationship between confidence and performance during a competitive event by administering a questionnaire to subjects about an hour before the competition and then correlating responses to questionnaire items with performance results. A major criticism to this approach is that if the time
between confidence assessment and performance is too large, intervening cognitions, not assessed, may occur and cause the original assessment to be less relevant. In order to account for this drawback, a study was designed which allowed for confidence assessment during competitive performance. Fifty-four golfers participated in an 18-hole putting match against a competitor. Immediately before the first putt of each hole, players stated whether they were very, somewhat, or not confident of making the putt they were attempting. After the first putt of each hole, players stated how confident (very, somewhat, or not) they were during the putting stroke that they had made the putt attempted. From post-experiment questionnaire responses, any player who stated that he could not report confidence without taking the result into account was omitted from the analysis. Confidence measures taken before and during the first putt of each hole were then correlated with putting performance for each hole. Putting performance was defined as whether or not subjects made or missed the putt they attempted. Results showed that confidence during putting had a stronger relation with performance than confidence before putting. Confidence also had a stronger relation with performance during matchplay competition than medalplay competition. Future research might examine many different measures of performance to determine if the criterion variable used affects the relationship found between confidence and performance.

To assess psychological skills relevant to exceptional athletic performance, a 51-item questionnaire was administered to a national sample of 713 male and female athletes from 23 sports. The athlete sample comprised 126 elite competitors, 141 preelite athletes, and 446 nonelite collegiate athletes. Sixteen leading sport psychologists also completed the questionnaire as they thought the ideal athlete might. Omnibus, individual item, discriminant, regression, factor, and cluster analyses all revealed significant differences among the athlete subsamples. The themes of concentration, anxiety management, self-confidence, mental preparation, and motivation were seen to have potential importance in skill-level differentiation, although age-difference confounds as well as gender
and sport differences may have been involved. The ideal profile constructed by the sport psychologists generally paralleled the skill differences encountered, although the elite athletes did not report selected amplitudes in the profile. Compares the psychological skill profiles reported by elite athletes with those predicted by sport psychologists in their depiction of the ideal athlete. Male and female athletes (n=713) from 23 sports respond to a 51-item questionnaire (the Psychological Skills Inventory for Sports) intended to assess five broad themes: anxiety measurement, concentration, self-confidence, mental preparation, and team emphasis. Sixteen leading sport psychologists also complete the questionnaire as they think the ideal athlete might complete it. Finds significant differences among elite, pre-elite, and non-elite collegiate athletes. The ideal profile constructed by the psychologists generally parallels the skill differences encountered, although the elite athletes did not report selected amplitudes in the profile.

A study by Orlick and Partigton (1988) included 235 Canadian Olympic athletes who participated in the 1984 Olympic Games in Sarajevo and Los Angeles. Individual interviews were carried out with 75 athletes and a questionnaire was completed by another 160 to assess their mental readiness for the Olympic Games and factors related to mental readiness. Common elements of success were identified, as well as factors that interfered with optimal performance at the Olympic Games. Statistically significant links were found between Olympic performance outcome and certain mental skills. Assesses the level of mental readiness and mental control experienced by Canadian athletes (n=235) who participated in the 1984 Olympic Games at Sarajevo and Los Angeles. Carries out individual interviews with 75 athletes. In addition, 160 athletes complete a questionnaire. Identifies common elements of success, as well as factors that interfere with optimal performance at the Olympic Games. Finds statistically significant links between Olympic performance outcome and certain mental skills.
In a study of Mahoney and Avener (1977) thirteen male gymnasts were given a standard questionnaire and interviewed during the final trials for the U.S. Olympic team. Particular attention was given to psychological factors and cognitive strategies in their training and competition. Using their final competitive grouping as the primary dependent variable, correlations were performed to assess the relationship between these factors and superior athletic performance. Data from this exploratory study suggested that varying patterns of cognition may be strongly correlated with successful and superior gymnastic performance. Specifically, dream frequency, self-verbalizations, and certain forms of mental imagery seemed to differentiate the best gymnasts from those who failed to make the Olympic team. These two groups also appeared to show different anxiety patterns and different methods of coping with competitive stress. The implications of these results for sport psychology are briefly discussed.

Confirmatory factor analysis was used as the basis for a new form of the Athletic Coping Skills Inventory (ACSI) by Smith et al. The ACSI-28 contains seven sport-specific subscales: Coping With Adversity, Peaking Under Pressure, Goal Setting/Mental Preparation, Concentration, Freedom From Worry, Confidence and Achievement Motivation, and Coachability. The scales can be summed to yield a Personal Coping Resources score, which is assumed to reflect a multifaceted psychological skills construct. Confirmatory factor analyses demonstrated the factorial validity of the ACSI-28, as the seven subscales conform well to the underlying factor structure for both male and female athletes. Psychometric characteristics are described, and preliminary evidence for construct and predictive validity is presented.

The Psychological Skills Inventory for Sports (PSIS R-5; Mahoney, Gabriel, & Perkins, 1987) contains 45 items designed to measure six psychological skills related to athletic performance. The present study examined selected psychometric properties of the PSIS R-5. Results of confirmatory factor analyses, conducted using intercollegiate athletes (N=340), indicated that the predicted six-factor model did not fit the data.
Model modifications were examined but failed to provide an adequate fit. Internal consistency estimates for five of the six scales also indicated poor reliability. The results are discussed in relation to the applied use of the PSIS R-5. Emphasis is placed on the need to carefully evaluate the psychometric characteristics of instruments that are designed for use in applied sport psychology.

A study by Meyers et al., (1994) investigated mood state and psychological skills of world-ranked female tennis athletes, and psychological differences between top, middle, and bottom-ranked tennis athletes. Mood state and psychological skills were assessed in 45 tennis players (age 24.3 plus/minus 4.7 yrs) of the Women's International Tennis Association (WITA). Following informed consent, the Profile of Mood States (POMS) and the Psychological Skills Inventory for Sports (PSIS) were administered to athletes prior to matches. Data was compiled using WITA world computer ranking into three groups due to a natural split in the ranking of subjects participating in this study: top-ranked (1 to 65), middle-ranked (75-180), and bottom-ranked (200 plus). Wilks-Lambda criterion indicated no significant differences (F=0.56; Prob greater than F=0.7626; p greater than .05) in TEN, DEP, ANG, VIG, FAT, CON, or TMD between top, middle, or bottom-ranked players. Although the effect of rank (F=0.46; Prob greater F=0.8330; p greater than .05) was not significant across all dependent variables, there was a trend for top-ranked competitors to exhibit greater concentration (61.1 percent plus/minus 1.3 vs 75.8 percent plus/minus 1.8) than indicated in bottom-ranked players. Overall scores of athletes at this competitive level exhibited the 'iceberg profile.' In conclusion, world-ranked female tennis athletes exhibit mood state patterns and psychological skills similar to athletes in other sports. The high patterns and psychological skills variability and psychological skills within and between skill level coincide with highly individualized responsivity found in other cognitive, somatic and behavioral studies on sports.

The Psychological Skills Inventory for Sport (PSIS; Mahoney, 1988) identifies certain psychological skills or characteristics possessed by
successful athletes. However, little has been done to connect the PSIS with other variables that may have an impact on the athletes' psychological skills. Therefore the purpose of White (1993) study was twofold. First, the psychometric properties of the PSIS for all subjects and by gender were determined. Second, the relationship between the PSIS, experience, practice commitment, and gender of collegiate skiers was examined. A random sample of 131 male and female collegiate skiers responded to the 45-item PSIS. Overall, the six PSIS subscales (anxiety, concentration, confidence, mental preparation, motivation, and team emphasis) demonstrated acceptable internal reliability (coeff. alpha = .69-.84). Results of a 4 X 3 X 2 (Experience X Practice Commitment X Gender) MANOVA and follow-up univariate F-tests revealed a significant gender effect on the team emphasis subscale. Female collegiate skiers were more team oriented than male collegiate skiers and placed more importance on the social and affiliative aspects of being on a team than did their male counterparts.

Wrisberg and Draper (1988) examined the influence of sex and sex-role orientation on the perceptions of cohesion held by intercollegiate basketball players. Male (n=71) and female (n=61) athletes from 13 NCAA institutions complete the Bem Sex Role Inventory (BSRI) and the Group Environment Questionnaire (GEQ). Subjects also rate items on the GEQ with respect to their importance to a positive team atmosphere. Results indicate that the cohesion scores of the athletes are differentiated by sex, with female team members having higher levels of cohesion than their male counterparts. Finds that perceived importance of the various cohesion components is a function of sex-role orientation, with feminine and androgynous subjects attributing more importance to group integration than undifferentiated and (to some extent) masculine subjects.

The purpose of Cox and Yoo (1995) investigation was to study the relationship between selected psychological skills and playing position of American football players. Subjects were 43 Division 1 intercollegiate football players from a large Midwest university. Subjects were grouped as
a function of team (offense or defense) and position (line or backfield). Athletes completed the Psychological Skills Inventory for Sports (PSIS R-5). Data were analyzed to determine the relationship between the independent variables of team and position with the dependent variable of psychological skill. The MANOVA for the psychological skills data resulted in a significant player position main effect, $F(6,34)=3.02$, $p$ less than .05 and a significant interaction between team and player position, $F(6,34)=3.08$, $p$ less than .05. Follow-up univariate ANOVA's revealed significant differences between line and backfield players for anxiety control ($p$ less than .01), concentration ($p$ less than .05), and confidence ($p$ less than .01). Significant differences were observed between offensive and defensive players for the psychological skill of anxiety control ($p$ less than .05). The ANOVA on the motivation psychological skill of anxiety control ($p$ less than .05). The variable resulted in a significant team by position interaction ($p$ less than .05). The most consistent observation was that a difference in psychological skill exists between linesmen and backfield players, regardless of team (offense/defense). Backfield players tend to score higher than linesmen on measured psychological skills.

The purposes of Giacobbi and Weinberg (2000) investigation were to examine the coping responses of different subgroups of athletes (e.g., high and low trait anxious athletes), and to assess the consistency of athlete's coping behaviors across situations. Two-hundred and seventy-three athletes completed the Sport Anxiety Scale (SAS) by Smith, Smoll, & Schutz (1990) and coping assessments in trait and state versions of the sport adapted COPE (MCOPE) by Crocker and Graham (1995). The state coping measures assessed coping responses of situations for which the athletes actually experienced. The results of three separate, doubly multivariate, repeated measures, MANOVA's showed that high trait anxious athletes responded to stressful situations using different coping behaviors (e.g., denial, wishful thinking, and self-blame) than the low trait anxious athletes. In addition, coping appears to be more stable than situationally variable as Pearson correlational coefficients computed between the three
measures ranged from 0.53 to 0.80. The results are discussed with regard to theoretical, research and applied issues.

The Crocker and Graham (1995) study evaluated patterns of coping, relationships between coping and negative and positive affect, and gender differences in coping and affect in competitive athletes. A sample of 235 female and male athletes reported recent stressful performance situations and indicated appraisals related to performance goals, coping, and affective responses. Lack of goal attainment (goal incongruence) was used as a measure of stress. Group means for coping indicated that athletes primarily used strategies such as increasing effort, planning, suppressing competing activities, active coping, and self-blame. Females used higher levels of seeking social support for emotional reasons and increasing effort to manage goal frustration. Males experienced higher levels of positive affect. For positive affect, regression analysis found a significant five-variable solution ($R^2 = .31$). For negative affect, there was also a significant five-variable solution ($R^2 = .38$). The gender differences were not congruent with views that males would use higher levels of problem-focused coping.

In Grove and Herad (1997) study sport performers ($N=213$) completed either a questionnaire measure of dispositional optimism or a questionnaire measure of trait sport confidence and then provided information about how they cope with performance slumps. The use of task-focused, emotion-focused, and avoidance-oriented coping strategies was assessed with a slump-referenced version of the Coping Inventory for Stressful Situations (CISS; Endler & Parker, 1990a). Results indicated that both personality measures were positively related to the use of problem-focused strategies and negatively related to the use of emotion-focused strategies. These findings are discussed in relation to previous research on confidence in sport and a model of sport-related coping proposed by Hardy, Jones, and Gould (1996). Practical implications for the effective management of performance slumps are also addressed.
The role of physical and psychological skills as predictors of performance and survival in professional baseball was studied by Smith and Christensen (1995) in a sample of 104 minor league baseball players. Psychological and physical skills were largely uncorrelated with one another and appear to be measuring separate and independent skill domains. Preseason scores on the Athletic Coping Skills Inventory (ACSI-28) and coaches'/managers' ratings of the same skills on an ACSI Rating Form each accounted for as much performance variance in batting average (approximately 20 percent) as did physical skills when differences in the latter were statistically controlled, and the psychological measures accounted for substantially more variance in pitchers' earned run averages than did the expert ratings of physical skills. The psychological skills measures also predicted athletes' survival in professional baseball 2 and 3 years after they were obtained. Bayesian hit rate analyses indicated substantially increased survival predictability over simple base rate predictions.

The objectives of Hanatona et al., (2004) study was to examine performers' retrospective explanations for the relationship between self-confidence, competitive anxiety intensity, and symptom interpretation toward performance. Method: Semi-structured interviews were conducted with 10 elite performers to determine how self-confidence levels influenced the perceived effects of pre-competitive anxiety intensity and identify the confidence management strategies used to protect symptom interpretation. Results: Two causal networks were identified, showing self-confidence to influence the relationship between competitive anxiety intensity and symptom interpretation. In the absence of self-confidence, increases in competitive anxiety intensity were perceived as outside of the performers’ control and debilitating to performance. Under conditions of high self-confidence, increases in symptoms were reported to lead to positive perceptions of control and facilitative interpretations. To protect against debilitating interpretations of competitive anxiety, performers reported the use of cognitive confidence management strategies including mental rehearsal, thought stopping, and positive self-talk. Conclusions: The
findings highlight self-confidence as an essential quality for elite athletes to possess in order to protect against potentially debilitating thoughts and feelings experienced in competitive situations.

This study Kerr and Goss (1997) investigated the extent to which young elite female gymnasts reported a sense of personal control or internal locus of control. Furthermore, the relationships between this sense of personal control and other aspects of psychological well-being, namely, self-esteem, and trait anxiety, were examined. The subjects included 30 elite, female gymnasts between the ages of 11 and 17 years. The measures for locus of control, self-esteem and trait anxiety included the Nowicki-Strickland Locus of Control Scale for Children, the Coopersmith Self-Esteem Inventory, and the Spielberger State-Trait Anxiety Inventory for Children, respectively. The results indicated that these gymnasts reported higher external locus of control and lower self-esteem scores than the published age- and gender appropriate norms while the trait anxiety scores did not differ significantly from the norms. Implications are made for enhancing the sense of personal control of these young female athletes within the context of high performance sport.

This study by Hanton and Connaughton (2002) examined performers retrospective beliefs and explanations of the relationship between anxiety symptoms and self-confidence and performance. Qualitative interviews were used to determine how the presence of pre-race anxiety symptoms and the accompanying directional interpretation affected performance in 12 swimmers (6 elite and 6 subelite). Four causal networks, identified through analyses of the data, revealed that perceived control was the moderating factor in the directional interpretation of anxiety, and not the experience of anxiety symptoms alone. In all cases, symptoms perceived to be under control, were interpreted to have facilitative consequences for performance; however, symptoms perceived to be outside the performers control were viewed as debilitative. Increases or decreases in self-confidence were consistently perceived to improve or lower performance. The findings reveal how cognitive and somatic
information was processed, what strategies were adopted and how this series of events related to performance.

This study by Mellalieu (2004) using Jone (1995) model of control, intensity (level) and direction (interpretation) of symptoms associated with competitive trait anxiety were examined as a function of sport type and competitive experience. Participants from gross explosive and fine motor skill sports (n = 162) completed a trait version of the CSAI-2 (Martens, Burton, Vealey, Bump, Smith, 1990) including intensity and direction subscales (Jones & Swain, 1992). Main effects for experience and sport type were reported with gross explosive sports indicating symptoms associated with competitive anxiety as more facilitative to performance than fine motor skill sports. Experienced performers also reported more facilitating interpretations of symptoms than their less experienced counterparts. The findings provide support from a dispositional context to suggest that sport type and the level of competitive experience influence interpretation of symptoms usually experienced in pressure situations. Implementation of activation, relaxation or restructuring interventions contingent upon the nature of the sport is recommended with consideration of the development of confidence building strategies in less experienced performers.

The objectives of the study by Fletcher and Hanton (2001) was to investigate equivocal findings within the literature addressing the relationship between competitive anxiety responses and psychological skills. Intensity (i.e. level) and direction (i.e. interpretation of intensity as facilitative or debilitating) dimensions of competitive state anxiety and self-confidence were examined in performers with different levels of psychological skills usage. Design. Cross-sectional design assessing psychological constructs during competition. The independent variable was psychological skill usage (“high” and “low” groups) and dependent variables were competitive anxiety responses. Method. Non-elite competitive swimmers (N=114) completed a modified version of the Competitive State Anxiety Inventory-2 (CSAI-2) which examined both intensity and direction
dimensions prior to racing. Following the event these participants completed the Test of Performance Strategies (TOPS) which measures psychological skills usage. Based on the TOPS scores the swimmers were dichotomised using post-hoc median-split into high and low usage groups for certain psychological skills. Results. MANOVAs revealed significant differences in the CSAI-2 scores between the high and low usage groups for the skills of relaxation, self-talk and imagery. ANOVAs indicated significant differences on all CSAI-2 subscales for relaxation groups, and differences on cognitive intensity, somatic direction and self-confidence for self-talk groups, and self-confidence for the imagery groups. Conclusions. Non-elite swimmers, in contrast with previous research examining elite swimmers (Hanton, S. & Jones, G. (1999a). The acquisition and development of cognitive skills and strategies: I. Making the butterflies fly in formation. The Sport Psychologist, 13, 1–21), primarily use relaxation strategies to reduce and interpret their anxiety intensity levels as facilitative, relying minimally on other psychological skills.

Hanton et al., (2003) study examined the effects of hardiness, its subcomponents and skill level upon the intensity and direction dimensions of competitive trait anxiety and self-confidence intensity. Participants (n=199) completed the Dispositional Resilience Scale, a modified version of the Sport Anxiety Scale and the self-confidence scale extracted from a modified version of the Competitive State Anxiety Inventory-2. Findings partially supported the hypotheses that elite athletes high in hardiness, commitment and control would demonstrate lower levels of worry and a more facilitative interpretation of the anxiety response. Self-confidence analyses revealed significant interactions for the commitment and skill interaction only. No interactions were found between skill level and challenge, although main effects were evident for intensity (challenge) and direction (skill level). These findings identify hardiness as an important personality construct within a sport specific situation, and provide support for skill level as being a vital individual difference variable when measuring competitive anxiety. The role of self-confidence and possible coping
behaviors are also discussed, as are measurement issues regarding the cognitive terms of "worry" and "concern".

Spink's (1995) study examined whether perceptions of team cohesiveness could be used to predict intention to participate during a following season. In Study 1, female participants in recreational ringette teams completed the Group Environment Questionnaire after completing the season. Intention to return for the next season also was assessed via questionnaire. Discriminant function analysis revealed that those intending to return for the next season held significantly greater perceptions of social cohesion. In Study 2, a replication of Study 1 using elite ringette team members, perceptions of social cohesion once again proved to be reliable predictors of intention to participate next season. Elite female athletes who indicated that they would return for another season were most likely to perceive the social cohesiveness with their team as high. Both studies support the conclusion that perceptions of social cohesiveness are positively related to the intention to continue to participate.

Brawley, et al., (1957) reports 3 studies concerning inspection of the Group Environment Questionnaire's (GEQ) concurrent, predictive, and construct validities, using a total of 438 athletes. In Study 1, the GEQ exhibited the predicted correspondence with similar measures of cohesion. In Study 2, the GEQ successfully discriminated team and individual sport athletes by predicting their membership to these groups on the basis of their task cohesion scores. Study 3 provides evidence for the predicted difference in self-responsibility attributions between high and low task-cohesive athletes of team sports.

Matherson (1997) study examined the influence of winning and losing on team cohesion of two coacting (swimming, gymnastics) and two interacting (lacrosse, basketball) female intercollegiate athletic teams. Fifty-six of the original 70 subjects were administered the Group Environment Questionnaire (GEQ) (Widmeyer, Brawley, & Carron, 1985) three times during the playing season: preseason, after winning and after losing
contests. The GEQ measures four subscales of cohesion: Attraction to the Group-Task (AGT), Attraction to the Group-Social (AGS), Group Integration-Task (GIT), Group Integration-Social (GIS). A 2 by 2 ANCOVA examined the influence of type of team (coacting, interaction) and outcome (win, loss) on the four subscale measures of GEQ. Significant interaction effects (p less than .05) were obtained on the AGT and GIT subscales, with coacting teams in each instance scoring higher than interacting teams in losing situations. Significant main effect (outcome) differences (p less than .05) were found between coaching and interacting teams on only the AGT subscale, with coacting teams recording higher scores than interacting teams. Results were discussed in terms of the effects of anticipated outcome of competition and divisional level of competition.

The exploratory study of Kozub and McDonnell (2000) examined the relationship between perceived cohesion and collective efficacy in rugby teams. Ninety-six athletes from seven rugby union clubs completed Widmeyer, Brawley, and Carron's (1985) Group Environment Questionnaire and a collective efficacy measure designed to assess the athletes' perceptions of their team's functioning in seven performance areas. Multiple regression analyses indicated that the cohesion dimensions accounted for a significant proportion of the variance (i.e., 32 %) in the collective efficacy scores. Inspection of the standardized regression coefficients revealed that the task measures of cohesion were stronger predictors of collective efficacy than were the social measures of cohesion. The results were consistent with Spink's (1990) study of elite volleyball teams and supported Zaccaro, Blair, Peterson, and Zazanis (1995) contention that properties of the of the group have great potential to contribute to a team's sense of efficacy.

The relationship between leadership behaviors and team cohesion among baseball and softball players at two school levels was analyzed by Shields et al., (1997) in relation to predictions based on Chelladurai and Carron's (1978) Multidimensional Model of Leadership (MML). Athletes (n = 307) completed the perceived and preferred versions of the Leadership
Scale for Sports (LSS) and the Group Environment Questionnaire (GEQ). Athletes' coaches (n = 23) completed the self-perceived version of the LSS. Task and social cohesion were assessed in relation to the scales of the three individual versions of the LSS and in relation to two types of discrepancy scores: value and perceptual. Although the concept of discrepancy is prominent in MML theory, the perceptual discrepancy score represents an innovation. Results indicated that, in general, team cohesion was most strongly related to the perceived LSS version and the perceptual discrepancy scores.

This investigation by Boone et al., (1997) was designed to study the effects of a baseball team's season record on cohesion in collegiate baseball. Sixty-five (32 winners, 33 losers) baseball team members from four Division III colleges participated as subjects. Cohesion was measured by the Group Environment Questionnaire (GEQ). The questionnaire was administered one week prior to the announcement of those who would travel on the spring training trip, after returning home from the trip, and at the end of the season. Members of losing teams exhibited significant decreases in Attraction to Group-Task and Group Integration-Task, while perceptions of task cohesion from members of winning teams were not enhanced. Members of losing teams also exhibited significant decreases in Group Integration-Social, while members of winning teams showed no positive or negative effect. The sub-scale Attraction to the Group-Social revealed no significant differences between winner or losers at any assessment time.

In the Hardy et al., (2005) study, a heterogeneous sample of 105 athletes (mean age = 21.4 years) was used to gain insight into the potential negative consequences of high team cohesion. Athletes were asked open-ended questions relating to the potential disadvantages of high task and high social cohesion. It was found that 56% of athletes reported possible disadvantages to high social cohesion, whereas 31% of athletes reported possible disadvantages to high task cohesion. Furthermore, data analyses revealed multiple dimensions of negative consequences for both high task and social cohesion. More specifically, analysis of responses revealed both
group- and personal-level consequences. The findings contrast with the popularly held view that high cohesion is always beneficial for teams and team members. It was suggested that future research assess the prevalence and importance of the disadvantages of high cohesion.

Williams and Widmeyer (1991) undertook a study entitled The Cohesion-Performance Outcome Relationship in a Coaching Sport. The cohesion-performance outcome relationship was reexamined in coaching teams utilizing a recent multidimensional approach to group cohesion (Carron, Widmeyer, & Brawley, 1985). Contrary to the results of earlier studies, a positive rather than negative relationship was hypothesized. Teams with high cohesion were predicted to have higher intrateam communication and member motivation. The latter two variables, in turn, were hypothesized to predict performance. Subjects were 83 female golfers from 18 NCAA Division I teams who participated in a 54-hole tournament. Cohesiveness was assessed by the Group Environment Questionnaire (Carron et al., 1985), and performance outcome was assessed by the team tournament score minus the NCAA differential (handicap) score. Cohesion significantly predicted performance outcome ($r^2=16.7$), with task cohesion being the best predictor. Cohesiveness also significantly predicted communication ($r^2=23$) and motivation as assessed by commitment to the team goal ($r^2=28$). Communication and motivation accounted for only 5% of the variance in performance, with motivation being the only significant predictor. The results are discussed in terms of measurement contaminants, Steiner's group productivity model, and future research needs.

The purpose of Waltemyer (2008) research was to build upon, and extend, the sport diversity research. Specifically, Study 1 adopted a compositional approach to examine the effects of ethnicity, age, and team tenure on a team process (team assists), and their indirect effects on overall team performance (team points) through that team process. Hierarchical regression analyses, after controlling for team ability, indicated that the block of diversity variables accounted for 6.5% ($p < .05$) of the variance in team assists. Further results indicated that ethnic diversity was
significantly, and negatively, related to team assists, while age and team tenure diversity were not related to team assists. In turn, team assists accounted for 22% (p < .001) of the variance in team points, above and beyond team ability. Team assists were significantly, and positively, related to overall team performance. Results suggest that team diversity does impact team processes and, indirectly, team performance. Study 2 adopted a relational approach to examine how being similar, or dissimilar, influences the dyadic relationship between the goal scorer and assistor. The MANOVA analyses were significant for ethnicity, Wilks' ? = .976 (p < .001), age group, Wilks' ? = .952 (p < .001), and team tenure group, Wilks' ? = .896 (p < .001), indicating that there were differences between those goal scorers receiving assists from the various subgroups within each of these three categories. In general, results support the similarity-attraction paradigm, in that, a player is likely to assist a teammate who is similar to himself more so than he is to assist a player who is different, with regards to these three demographic characteristics. Results have practical implications for coaches and managers, while also contributing to the theoretical body of literature for sport and diversity research.