SUBJECTIVE WELL-BEING, SPORT PERFORMANCE, TRAINING LOAD AND LIFE EXPERIENCES OF COLLEGE ATHLETES

Tyler Masters

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ABSTRACT

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Purpose: The purpose of this study was to investigate the interrelationships among subjective well-being (SWB), training load, life experiences, and sport performance. **Method:** College athletes (N=66; ages 18-24) from four sports (ice hockey, baseball, softball, swimming) at a Midwestern Division I program were categorized into higher and lower subjective well-being groups based on POMS-B total mood disturbance scores and completed the Satisfaction with Life Scale (SWLS), and College Student Athlete Experiences Survey throughout an academic semester. The surveys were completed bi-weekly for one semester (i.e., 8 times). A coach from each program will complete a Coach's Assessment of Player Performance for each athlete. Life experiences were analyzed using MANOVA and SWLS, performance and total energy expenditure (TEE) using ANOVA. **Results:** Group main effects were significant for all life experiences ($p<.01$) as well as satisfaction with life ($p<.05$). College athletes with higher SWB perceived their life experiences as being less negative and reported higher satisfaction with life than individuals with lower SWB. Significant main effects for time were found for three of the four life experiences ($p<.05$), player performance ($p<.01$), coach performance ($p<.01$), and total energy expenditure ($p<.01$). The lower SWB group showed greater fluctuations in life experiences across time but similar performance and TEE throughout the semester. **Conclusion:** College athletes with higher SWB perceived their life experiences as being less negative than individuals with lower SWB, but contrary to expectations the two groups did not differ in performance or total energy expenditure. This investigation has provided evidence for the need to monitor SWB and the influence of life experience to ensure the psychological health of college athletes.

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CHAPTER I: INTRODUCTION

Introduction

The life of a college student can be overwhelming and stressful. With various issues pulling at these young people it may at times be hard to cope. College students encounter numerous stressful situations that can be detrimental to subjective well-being (SWB) (Jung & Khalsa, 1989). Carruthers and Hood (2004) characterize well-being as the ability to be happy, optimistic, purpose-driven and satisfied while experiencing self-actualization and self acceptance. Other characteristics of well-being include mood states such as tension, depression, anger, fatigue, confusion and vigor (McNair, Lorr & Droppleman, 1971). Mood can be considered as a host of transient and variable affective states (Berger, Pargman, & Weinberg, 2007) and the term was considered synonymous with SWB in the current study.

In the seminal work of Holmes and Rahe (1967), life issues pertaining to the general public's welfare were explored. This work was influential in the investigation of stressors that affect people's everyday lives. A stressor is an internal or external source or demand of a biological, social, or psychological form that affects cognitive and emotional functioning (Lazarus, 1993). The life experiences and stressors a student deals with such as perceptions of time pressure (Case & Gunstone, 2003), romantic relationship difficulties (Andrews & Wilding, 2004; Bailey & Miller, 1998), as well as social and family support and conflict (Bailey & Miller, 1998; Jung, 1997; Jung & Khalsa, 1989) can lead to psychological disturbances and issues such as depression in some college students due to these stressors (Andrews & Wilding, 2004; Jung & Khalsa, 1989). These disturbances are found to be related to the daily stressors and life experiences in student samples (D'Angelo & Wierzbicki, 2003; Jung & Khalsa, 1989) and affect their academic performance (Andrews & Wilding, 2004). The social support from family and

friends can buffer the effects of stressful life experiences on well-being (Bailey & Miller, 1998; Jung & Khalsa, 1989) and enable a student to be successful. For these students it can be a balancing act that at times may seem overwhelming.

Being a college athlete has all the pressures and hassles of other college students with the added pressure of training and performing in a highly competitive atmosphere. The demands of competing at a collegiate level, especially Division I, can be difficult and time consuming. Issues dealing with training load and the well-being (e.g., mood) of these athletes are of great importance (Morgan et al., 1987; Raglin, 2001; Raglin, Ekstein & Garl, 1995). An athlete's ability to perform may be affected by their SWB or mood states (Morgan, 1980; Morgan et al., 1987; Raglin, 2001). This well-being may be affected by the typical stressors (e.g., academics, relationships) a college student deals with, as well as a college athlete's training load (Morgan et al., 1987; Raglin, 2001; Raglin et al., 1995). Overtraining an athlete can result in mood disturbance for some athletes which may impact their ability to perform (Morgan et al., 1987; Raglin, 2001; Raglin et al., 1995; Raglin, Sawamura, Alexiou, Hasseman & Kentta, 2000).

The Mental Health Model (MHM) (Morgan, 1985) specifies that there is a positive relationship between SWB (i.e., mood) and the sport performance of an athlete (Raglin, 2001). That is, if an athlete is in a state of positive well-being, their performance should benefit. Conversely, if an athlete experiences psychological disturbances, their performance should suffer (Raglin, 2001).

During periods of light or easy training, athletes often exhibit the iceberg profile (see Figure 1) (Morgan, 1985). Through use of the Profile of Mood States (POMS) (McNair et al., 1971), Morgan (1985) found that athletes typically score approximately one standard deviation above the norm on vigor while scoring below the norm on the measures of tension, depression,

anger, fatigue and confusion on the POMS assessment which creates an iceberg shape (Morgan et al., 1987; Raglin, 2001). Consistent with the MHM, successful athletes tend to exhibit an iceberg profile compared with less successful athletes (Morgan, 1985). It is recognized within the MHM that dynamic factors in the athletic setting may affect sport performance (Raglin, 2001). For example, elevations in mood disturbance due to increased training that is undertaken in order to improve performance can result in performance decreases (Morgan et al,, 1987; Raglin et al., 2000). If this overtraining practice persists beyond those levels at which the athlete or college athlete can cope, a debilitating level of increased psychological and physiological disturbance can result in a condition known as staleness or the overtraining syndrome (Halson & Jeukendrup, 2004; Kentta & Hassmen, 1998; Meeusen et al., 2006; Morgan et al., 1987; Raglin et al., 2000; Urhausen & Kindermann, 2002). Depending on the severity of the condition, performance levels may not return for several months, if at all (Morgan, 1980, Raglin, 2001).

Although Morgan (1985) emphasized training factors to be the cause of negative outcomes from overtraining (i.e., staleness), the effect of training and other life experiences on SWB and performance has not been systematically examined. Meeusen et al. (2006) suggest that other factors such as family pressure, social environment, relationships with family and friends, personal or emotional problems, and school or work related demands all have the ability to impact SWB and sport performance. Monitoring life experiences, training load, and performance of college athletes is of great importance in ensuring psychological health. As a result, the interrelationship of academic, athletic, and psycho-social factors in a college athlete's life should be considered possible predictors of subjective well-being and sport performance.

Operational Definition of Subjective Well-Being (SWB)

For the purposes of this investigation, subjective well-being was defined as the college

athlete's level of total mood disturbance (TMD). Total mood disturbance was calculated by adding the negative measures of the Profile of Mood states and subtracting the positive measure. Mood is an important component of SWB which also includes measures of satisfaction with life and domain satisfaction. Mood disturbance was used to separate the higher and lower SWB groups in the current investigation.

Gap in the Literature

There is a gap in the literature investigating the subjective well-being of college athletes. The literature has not covered the issue of psychological monitoring of college athletes in a systematic way. The subjective well-being and psychological health of the college athlete may at times be overlooked in favor of performance issues. There are many psychological and physical demands including negative life experiences and training that are placed on college athletes, which may be difficult to cope with (Andrews & Wilding, 2004; Johnson, 1992; Jung & Khalsa, 1989; Morgan et al., 1987; Osman, Barrios, Longnecker & Osman, 1994). The combination of stressors from an athletic setting in addition to those faced in typical college life may lead to psychological and physical problems in some athletes. Athletic departments, coaches, and the athletes themselves should be aware of psychological factors and the affect they can place on college athletes in addition to performance pressures. This is consistent with the notion that "it is equally important to focus on psychological health, both in terms of its impact on sport performance and for the general welfare of the athlete" (Raglin, 2001, p. 887).

Problem Statement

Current research has focused on the effects training has on mood states and performance. However, there is also a need to examine non-athletic factors and their impact on personal well-being and performance in addition to training (Morgan, 1980; Meyers & Whelan, 1998; Raglin,

2001). The purpose of this study is to investigate the interrelationships among subjective well-being, training load, life experiences, and sport performance.

Hypothesis/Research Question

It is hypothesized that college athletes characterized by higher subjective well-being will perform better, have lower Training Energy Expenditure (TEE), and fewer negative life experiences (e.g., stressors) than those athletes characterized as having lower subjective well-being.

Research Question:

Do the relationships among subjective well-being, sport performance, and life experiences change throughout the academic year based on the athletic training schedule (i.e., early season training, late season)?

CHAPTER II: LITERATURE REVIEW

Subjective Well-Being

Subjective well-being (SWB) is the measure of how people view their lives (Diener, Emmons, Larsen, & Griffin, 1985; Diener, Oishi, & Lucas, 2003; Diener, Sapyta, & Suh, 1998; Diener, Suh, Lucas, & Smith, 1999). This measure can encompass, temporary at the moment feelings, as well as more long term evaluations of a persons' life (Diener et al., 2003; Kim-Prieto, Diener, Tamir, Scollon, & Diener, 2005) and is considered by Diener (2006) as an umbrella term of the different evaluations individuals make about their lives. A person's evaluation of life satisfaction as well as their mood can be considered as both state or trait-like (Eid & Diener, 2004). An individual's mood, emotions, and satisfaction with their life, work, and social relationships can all contribute to a subjective measure of well-being (Diener, 2006; Diener et al., 2003; Diener et al., 1998; Diener et al., 1999). Characteristics such as "increased autonomy, enjoyment, environmental mastery, flow, positive mood states and emotions, personal growth, perseverance, self-acceptance and will power" (Berger, 2004, p. 57) are common in individuals experiencing high SWB.

Diener et al. (1999) consider SWB as a broad or global measure of well-being that takes into account mood and emotions (i.e., pleasant and unpleasant affect), as well as life satisfaction and various domain satisfactions. These areas of focus can be seen in Table 1. It is important to consider the intra-individual differences that affect an individual's evaluation of well-being (Diener et al., 1985; Oishi, Diener, Suh, & Lucas, 1999). Individuals may place different emphasis on factors in their lives. Some individuals may place more importance and thus receive satisfaction from work or play, while others may emphasize family or social

relationships. Accompanying mood states and satisfaction with life will result from success in emphasized domains.

A person's own view of their well-being is often overlooked when a scientific approach or use of stringent measures are used (Diener et al., 1998). Diener et al. (1998) suggest that "individuals should decide whether their lives are satisfying based on their individual values, goals and life circumstances" (p. 35). Diener (1994) suggests that humans are very capable of evaluating their life events, circumstances and themselves. These evaluations are continually occurring and if a person views these as positive, their levels of SWB will be high (Diener, 1994). As such, the only true way of investigating a person's level of SWB is through personal evaluation of well-being.

Table 1
Components of Subjective Well-Being

Pleasant affect	Unpleasant affect	Life satisfaction	Domain satisfactions
Joy	Guilt and shame	Desire to change life	Work
Elation	Sadness	Satisfaction with current life	Family
Contentment	Anxiety and worry		Leisure
Pride	Anger	Satisfaction with past	Health
Affection	Stress	Satisfaction with future	Finances
Happiness	Depression	Significant others' views of one's life	Self
Ecstasy	Envy		One's group

Diener, E., Suh, E., Lucas, R. & Smith, H. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*, 276-302.

Mood

An individual's level of subjective well-being can be affected by several factors in their lives, one of which is mood state. In order to gain a global measure of SWB, it is important to

include both state and trait like evaluations. Momentary state like fluctuations in mood are an important construct that can have a significant impact on levels of SWB (Diener et al., 2003; Eid & Diener, 2004).

Eid and Diener (2004) state that "individuals being generally more in a positive mood are more satisfied with their lives in general and with the domains of their lives on average" (p. 267) which could contribute to higher levels of subjective well-being. The domains of a person's life (e.g., social and personal relationships, work or school, etc.) can have a significant impact on an individual's mood which may ultimately affect an individual's assessment of their own lives (Diener et al., 2003).

Diener (2006) considers mood as an important construct of SWB as it "reflect[s] a person's reactions to events that signify to the person that life is proceeding in a desirable way" (p. 400). As a result, the presence of positive mood thus allows for a regular positive evaluation of the factors or domains in a person's life which could contribute to a higher, more stable evaluation of subjective well-being and the same may be held true for the presence of negative mood.

Life Satisfaction

Life satisfaction as a construct of SWB represents a longer lasting trait like component or evaluation of one's life as a whole (Diener, 2006). Research suggests that satisfaction with life constitutes a large portion of a global evaluation of SWB (Eid & Diener, 2004). Diener et al. (1985) suggest that life satisfaction represents a cognitive judgmental evaluation and is based upon a standard that each individual sets for his or her own life. Life satisfaction as defined by Shin and Johnson (1978) is "a global assessment of a person's quality of life according to his chosen criteria" (p. 478). In general, life satisfaction is a broad, reflective appraisal of one's own

life (Diener, 2006). The underlying importance in these statements is that the evaluation of life satisfaction is placed on each individual and is not determined by an external source (Diener et al., 1985). If an individual is successful and happy in the domains they deem important, then satisfaction will be evident through their evaluation of their own life.

Summary of Subjective Well-Being

Subjective well-being is an umbrella term that includes mood, satisfaction with life, and satisfaction with domains in an individual's life (Diener, 2006). It represents a person's overall fulfillment with their lives and the experiences they live. The only true way of investigating subjective well-being is through individual assessment of one's own life.

Mental Health Model

Mood (i.e., SWB) plays an integral role in an athlete's ability to perform (Morgan, 1985; Raglin, 2001). The MHM (Morgan, 1985) postulates the importance of the relationship between mood and sport performance. Morgan (1985) claims that as an athlete's mood state (i.e., SWB) fluctuates in a positive or negative way, his or her performance should fluctuate in a similar manner.

Static Element

The static element refers to the one-time assessment (i.e., static) of psychological states and or traits. The MHM has been suggested as a predictive tool that can be used to determine successful versus unsuccessful athletes (Johnson & Morgan, 1981; Morgan, 1980; Morgan, 1985). Morgan (1978) suggests that a combination of state and trait personality factors contribute to success in athletics. The MHM postulates that those athletes that are characterized by traits such as being anxious, introverted, neurotic, depressed, schizoid, confused, fatigued, and having low scores in vigor will not perform as well as those that are not (Johnson & Morgan,

1981; Morgan, 1978; Morgan, 1980). Morgan (1980) argues that traits such as these account for 20-45% of the variance in athletic sport performance.

In a series of studies, Morgan (1985) used the constructs of the MHM to predict performance through the evaluation of various factors including a number of traits. In a group of elite wrestlers vying for a position on the 1976 Olympic Freestyle Wrestling Team, successful wrestlers (*S*) (n=8) scored lower on 8 of 9 variables than did unsuccessful wrestlers (*U*) (n=8). These variables included measures such as anxiety, depression, and neuroticism. Successful wrestlers reported lower ($p < .05$) scores for tension (d=1.29), depression (d=0.67), anger (d=0.50), fatigue (d=0.58), confusion (d=0.89), and higher scores for vigor (d=1.11). Predictive capability in this sample was 88% for successful candidates and 75% for unsuccessful, based solely on psychological measures. This represented a 38% and 25% increase over simple chance, respectively.

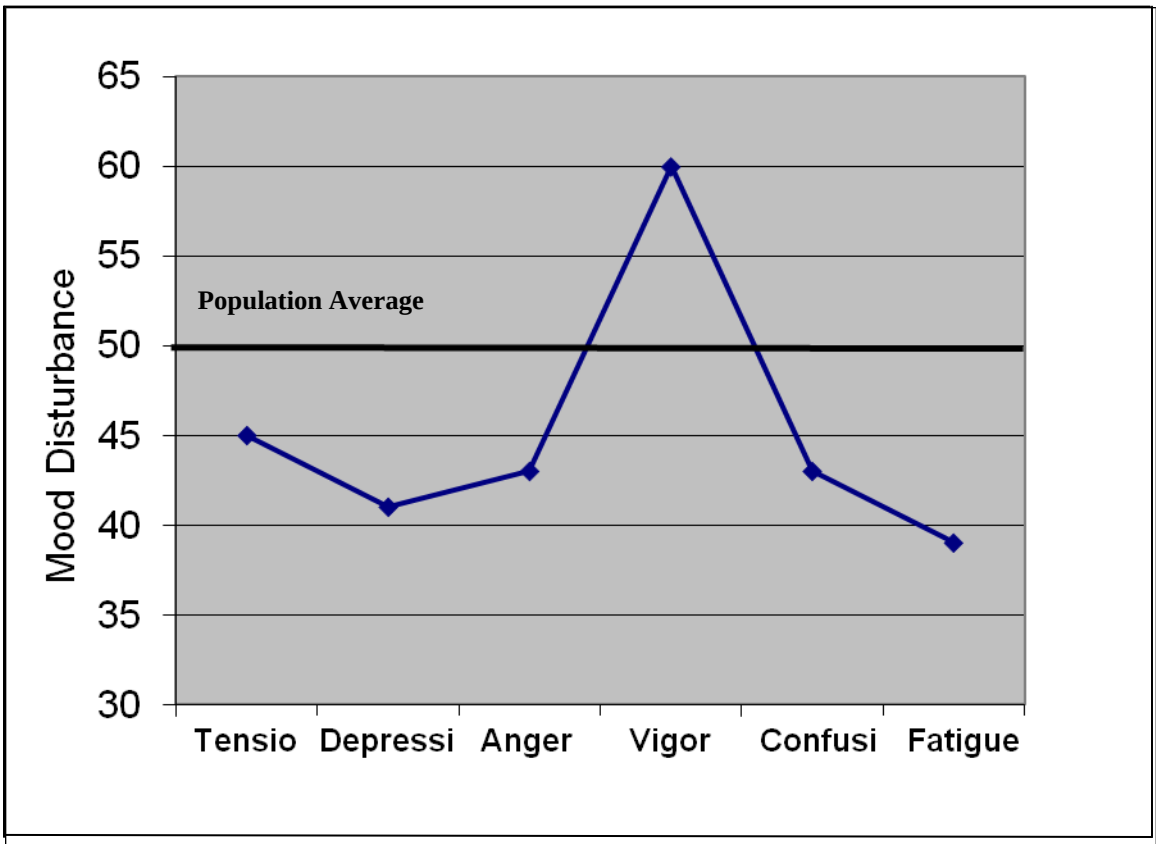
In the same series of studies, Morgan (1985) investigated the 16 elite rowing finalists for the 1974 Lightweight Team. Predictions were made of success or failure in a blind study. Only nine of the competitors' profiles were able to be predicted for success or failure due to the remaining seven competitor profiles being uncharacteristic of successful or unsuccessful athletes. Of the nine predictions, successful rowers (n=4) and unsuccessful rowers (n=5) were predicted with 100% accuracy. Inspection of the mean data illustrated that successful competitors scored lower on 9 of 10 negative constructs (i.e., anxiety, depression, neuroticism), and significantly higher in positive constructs of vigor and extroversion.

Psychological states and traits have consistently shown an ability to predict the success of an athlete (Morgan, 1985; Raglin, 2001). This ability to predict performance has been misunderstood and criticized in the literature (Terry, 1995; Prapavessis, 2000; Prapavessis &

Grove, 1991; Rowley, Landers, Kyllo & Etnier, 1995). Rowley et al. (1995) suggest that any use of the MHM as a selective tool and performance predictor should be discouraged. However, Morgan (1985) also discouraged the use of psychological traits and states for selection purposes as they only account for 20-45% of the variance in performance. Morgan has recommended a multi- disciplinary approach (e.g., psychology, physiology, biomechanics, nutrition) to gain a better understanding of athlete success.

In addition to using trait measures, Morgan (1985) suggested the use of mood state measures using the POMS (McNair et al., 1971) and introduced the Iceberg Profile which characterizes the mood state profile of successful athletes. An Iceberg Profile in successful athletes is characterized by scores for tension, depression, anger, fatigue, and confusion being below the population mean and the vigor score being above the population mean. See Figure 1 for a visual representation of the iceberg profile. Individuals exhibiting an iceberg profile could be considered to have high SWB due to the absence of negative mood and the presence of positive mood factors.

Figure 1: The Iceberg Profile



In a study of 24 Division I male tennis players, Covassin & Pero (2004) reported that losing tennis players had higher total mood disturbance (TMD) (TMD=T+D+A+C+F-V) scores compared to winning tennis players and to college aged norms in a static test. Winning tennis players scored below the college aged norms (T-score= 50) on POMS subscales for tension (T= 38.65), depression (T= 40.17), anger (T= 44.83), fatigue (T= 35.67), and confusion (T= 34.00), and above for vigor (T= 65.25). This desirable mood state profile exemplifies the Iceberg Profile. Losing tennis players however exhibited a less desirable mood profile compared to college aged norms ($T_{tension}$= 49.00, $T_{depression}$= 49.75, T_{anger}= 60.25, T_{vigor}= 52.08, $T_{fatigue}$= 40.58, $T_{confusion}$= 44.17).

A limitation of static measures is that they are done at one time and may not fully capture

differences between successful and unsuccessful performances. In Rowley et al.'s (1995) meta-analysis of the Iceberg Profile, the authors found that successful athletes scored only one sixth of a standard deviation above less successful athletes. This difference is not profound enough to use in selection purposes. Another limitation is that static measures overlook the impact training may have on performance (i.e., heavy versus light). Much of the criticism (Terry, 1995; Prapavessis, 2000) has also overlooked the impact these factors may have. There is a dynamic element to the MHM that may be more useful for understanding the relationship between psychological states and performance. That is, monitoring fluctuations in an athlete's mood (i.e., SWB) (Morgan, 1985; Raglin, 2001) could prove to be extremely beneficial in promoting healthy, successful athletes that are able to perform to the best of their abilities.

Dynamic Element

The dynamic element of the MHM refers to changes in psychological states over time that impact performance (Morgan, 1985; Rowley et al., 1995; Terry, 1995). Suh, Diener and Fujita (1996) reported that fluctuations in mood (i.e., positive & negative) are an important influence on a person's level of SWB. There are a number of factors that may influence mood over time. One of the major influential factors is training load.

Overtraining. The consensus within the research is that increased periods of training are necessary to enable the athlete to reach his or her potential (Halson & Jeukendrup, 2004; Morgan, 1985; Morgan et al., 1987; Raglin, 2001; Raglin et al., 1995; Raglin et al., 2000). However, if these levels of increased training load exceed the coping capabilities of the athlete, decrements in mood (i.e., SWB) and performance can occur (Halson & Jeukendrup, 2004; Morgan, 1985; Morgan et al., 1987; Raglin et al., 2000). That is, mood (SWB) may be influenced by factors such as training load which can have a corresponding effect on

performance according to the dynamic element of the MHM (Morgan, 1985; Morgan et al., 1987; Raglin, 2001; Raglin et al., 2000).

Smith (2003) illustrates that training can be considered as the culmination of physical, intellectual, technical, and psychological preparation or training. Training phases of several weeks to months may be undertaken with the goal of improved psycho-physiological adaptation to the training stimulus leading to improved performance. The stress placed on the athlete can have "both positive and negative effects depending on the state of the athlete and recovery process" (Smith, 2003, p.1104).

If an athlete's training load becomes too heavy and an imbalance between the recovery period and the training load exists for an extended period of time, a state of staleness may occur in that athlete (Fahey, 1997; Kenttä & Hassmen, 1998; Morgan et al., 1987, Raglin et al., 2000). Staleness is an undesired result that can cause performance decreases as well as psychological and physiological ailments, and this condition may persist for an extended period of time (Morgan et al., 1987; Raglin, 2001; Raglin et al., 1995; Raglin et al., 2000). Training load is a major contributing factor in cases of staleness (Lehmann, Foster & Keul, 1993). However in order to achieve the goal of peak performance, it is believed that periods of increased training load are necessary (Morgan et al., 1987; Raglin et al., 2000).

Research on overtraining practices has most frequently been done with endurance athletes such as swimmers, distance runners, and rowers (Morgan et al., 1987; Morgan et al., 1988; Raglin, Morgan & Luchsinger, 1990; Raglin et al., 2000; Wittig, Houmard & Costill, 1989). In endurance sports "overtraining is approached as a deliberate, planned and appropriate feature" (Morgan et al., 1987, p. 107) of training. The extensive training periods these athletes endure can have a profound effect on mood (i.e., SWB) (Morgan et al., 1987).

Kenttä and Hassmen (1998), suggest there are two processes of overtraining. The first being positive overtraining which results in improved performance. This method follows the supercompensation principle by which the athlete is broken down through increased training and then is provided an opportunity to adapt (i.e., become stronger) during a period of reduced training or taper (Fahey, 1997; Kenttä and Hassmen, 1998). The short-term negative effects of increased training on performance are typically due to fatigue, and this stage is referred to as overreaching (Kenttä & Hassmen, 1998). Overreaching is considered necessary for supercompensation. Negative overtraining, occurs when there is an inability to recover from the training stimulus (Kenttä & Hassmen, 1998). This negative outcome of overtraining may result in staleness, which can be characterized by several factors that affect physiological and subjective well-being. Morgan et al. (1987) reported that the incidence of staleness occurs in approximately 10% of athletes undergoing intense training loads.

As noted earlier, the prevalence of experiencing staleness at least once in a career has been reported at about 60 -64% in elite middle distance runners. In a recall study conducted by Raglin et al., (2000), a group of adolescent swimmers (N=231; mean age=14.8yrs, SD=1.4) from various countries (Greece, Japan, Sweden, USA) completed a series of questionnaires. Swimming training, experience of staleness, and mood state (Training Distress Scale Questionnaire) associated with certain phases of training was examined in the sample. The investigators found that the prevalence of staleness within the sample was 34.6% with the average number of episodes being 2.7 (SD=1.4). There was not a significant difference in the occurrence of staleness between boys and girls.

Staleness however remains difficult to pinpoint and diagnose (Fahey, 1997; Halson & Jeukendrup, 2004; Kenttä & Hassmen, 1998). Staleness can be characterized by the signs and

symptoms of underperformance, muscle weakness, chronic fatigue, sore muscles, increased perceived exertion during exercise, reduced motivation, sleep disturbance, altered mood states (e.g., low scores for vigor, increased scores for fatigue, depression, anger, tension, confusion) (Gleeson, 1998). Although a number of signs and symptoms have been reported, the effects of overtraining on mood states, especially stale athletes, is a more consistent finding than any other physiological variable (Meeusen et al., 2006).

*Long duration training***.** Morgan et al. (1987) conducted a series of eight investigations monitoring the mood state responses to increased training in a group of male (n=200) and female (n=200) swimmers (*N*=400) over a ten year period. The training periods for these athletes lasted several months (i.e., August through March). Both the male and female athletes that participated in this study were exposed to training loads ranging from 3,000 yards to in excess of 11,000 yards per day. This training was often completed in multiple (2) daily sessions, which has become a more frequent practice in today's training (Kenttä & Hassmen, 1998). Following the increase in training load to peak levels, a taper period (i.e., lowered training level, rest) was implemented prior to major competition in the hopes of returning the athlete to baseline levels of mood and allowing for increased performance (Morgan et al., 1987).

In the first investigation by Morgan et al. (1987), mood states for a group of 16 male swimmers, was assessed pre, mid, and post season. Total mood disturbance scores increased significantly ($p<0.01$) during the heaviest level of training load in this sample but returned to baseline following a taper. In Morgan et al.'s (1987) sample there were two swimmers that did not respond to the taper and remained with elevated TMD scores. The changes in TMD levels were attributed to a significant increase in fatigue ($p<0.01$) after inspection of individual POMS scores (Morgan et al., 1987).

In another study conducted within Morgan et al. (1987), TMD was monitored in 40 swimmers (m=22, f=18) over the competitive seasons. An increase in TMD was noted throughout the season mirroring the increase in training load (up to about 13,000 yds/day). However, the female sample reported lower levels of TMD due to a taper administered by the coach in preparation for an important meet. This reduction in TMD was not significant ($p>0.05$) but aided in athlete performance. When those levels of training load were again increased by the coach, an increase in TMD was again noted. Upon completion of the competitive season, levels of TMD decreased to near baseline. The results from Morgan et al. (1987) provide evidence for a dose-response relationship between training load and mood states. This supports the notion that levels of SWB can be affected by the training load. In addition, it can be noted that throughout this study it was apparent that both male and female swimmers experience similar mood disturbance levels due to training load increases.

Similar to Morgan et al.'s (1987) investigations, increased TMD scores were also reported by Raglin et al. (1990), with a group of female rowers adhering to training (n= 22). Increases in TMD reached significance ($p<0.05$) in February, during the highest training volume. The TMD levels of successful adherers to training returned to baseline following a taper.

Raglin, Morgan, and O'Connor (1991) also found that male (n=102) and female (n=84) swimmers reported mood disturbance on measures of depression, anger, vigor, fatigue and confusion as well as TMD in response to increased training load. The swimmers involved in the study completed measures of mood states (i.e., POMS) in three or four week intervals throughout the study. The training load of these swimmers was increased from 3,000 meters per day in August to between 11,000 and 13,000 meters a day during their peak training season (late December, early January). Following the overtraining phase, training load tapered to

approximately 3,500 meters per day. Both males and females responded similarly with improvements on all measures of mood except tension. Tension was significantly higher ($p<0.05$) for females than males. However, this could be potentially explained by an earlier exposure to important competitions for females than males.

During extensive training practices such as those performed in swimming, taper periods are often employed (Morgan et al., 1987; Raglin et al., 1991). Wittig et al. (1989), investigated reduced training in male (N=10) distance runners. Each athlete had maintained a vigorous training schedule for two years and maintained these levels through the first four weeks of the study (considered baseline). Following the initial baseline phase of training, weekly training distances were reduced by 70% with 30% of their new weekly training being completed as interval training (i.e., changes in speed, jog, sprint, jog). The subjects TMD levels were significantly decreased ($p<0.05$) due to this taper. Performance declined in the first week following the taper, but the authors attribute this decline to the possible lack of belief in the process as well as naiveté among the athletes. During the second week of reduced training load, performance returned to previous levels but did not increase beyond those levels. Another possible explanation could be that the taper period was not long enough (3 week taper). The importance of understanding tapering and its effect on mood and well-being when performing lengthy training periods is of great importance.

Short duration training. Disturbances in mood have also been found with shorter duration overtraining. Morgan et al. (1988) reported similar results to those found in longer overtraining periods with a shortened 10 day increase in training load among 12 male college swimmers. These swimmers increased their training load 100% or more over the duration of the study and exercised at 94% of VO_2 max. The workload was increased from 4,000 meters per day

to 9,000 meters per day. The sample reported significant increases in depression, anger, fatigue ($p<0.05$), and TMD ($p<0.001$). TMD increased throughout the ten days from a score of 133 to a high of 153. In addition to mood state levels, athlete's self reported levels of well-being significantly declined ($p<0.05$) throughout the duration of the study. This illustrates the prevalence of disturbance in levels of mood (i.e., SWB) in both long and short durations of overtraining practices.

Kenttä, Hassmén, and Raglin (2006) monitored elite kayakers (N=11; 6 men, 5 women; mean age=19.8, SD=0.9) over a three week pre-season training camp. The POMS questionnaire (6 times per week) was completed throughout the training program along with RPE scores. The athletes averaged 11.5 hrs of training per week throughout the three weeks which was performed in 40-60 minute interval training sessions at 80% to 85% of maximal speed and intensity (mean intensity=15.6, SD=1.9 on Borg's 6-20 rating scale). Weight training was also included within the training camp and occurred twice a week.

Training- recovery cycles were done twice per week (3 POMS assessments/ cycle). The first recovery cycle was a short one night recovery cycle and the second was a longer recovery period including a full day of rest. Energy index (POMS vigor – POMS fatigue) scores decreased throughout training indicating an inability to recover from the overtraining. The POMS vigor scores decreased ($d = 1.273$) from 18.5 (SD=3.9) at pre-training of week one to a low of 13.0 (SD=4.7) during week three. POMS fatigue scores increased ($d=2.031$) from 4.6 (SD=2.9) prior to training of week one to 14.3 (SD=6.1) following the last training session. The longer recovery periods allowed for a rebound above pre-training periods the day before for vigor and fatigue, but did not enable the athlete to return to pre-training baseline measures. The shorter recovery period never allowed the athletes to rebound above the pre-training assessment

from the previous day. TMD disturbance increased from 105.8 (SD=16.1) at the beginning of training to 120.2 (SD=19.0) following the last training session.

Kenttä et al. (2006) suggest that the use of mood state monitoring and the manipulation of overtraining can result in an optimized individual training load. Intense shorter periods of overtraining can have a distinct effect on TMD which is a contributing factor to levels of SWB.

Non-endurance sports. Much of the research involving the monitoring of overtraining has been done with endurance sports such as running or swimming (Morgan et al, 1987; Raglin et al., 2000). However, sports requiring more anaerobic work with athletes that undergo extensive training have not been looked at as frequently (Raglin et al., 1995). Raglin et al., (1995) studied a group of men's varsity collegiate basketball players (N=13) that underwent a five week training period that included both weight lifting and sprint training. They found that the five weeks of pre-season training resulted in a significant increase ($p<0.001$) in TMD and for all of the POMS subscales except confusion. These increases in mood disturbance were similar to those found in research with endurance athletes (Morgan et al., 1987). The athletes in this study returned to baseline levels of mood disturbance after a two day decrease in training load (Raglin et al., 1995). The dose-response relationship between training load and mood found in this study is consistent with results obtained in athletes from endurance sports.

Summary of Static and Dynamic Elements

There is a static and dynamic element of the Mental Health Model. Static evaluation considers the one-time assessment of psychological states or traits, while the dynamic element evaluates psychological states over time (i.e., the emphasis of this investigation). Much literature has been dedicated to the investigation of endurance sports using the MHM, however it has also been shown to have considerable application with non-endurance sports, as well as

training periods of short and long duration.

Psychological Monitoring

There has been a call in the literature for a method of monitoring the mood (i.e., SWB) of athletes dynamically (Morgan, 1985; Terry, 1995). Psychological monitoring or profiling of athletes could prove beneficial toward athlete well-being (Morgan, 1985; Rowley et al., 1995) and the systematic monitoring of fluctuations in SWB (e.g., mood) may positively affect sport performance. The use of Total Mood Disturbance (TMD) measures along with individual athlete Iceberg profiles may prove to be effective monitoring devices (Morgan et al., 1987).

In a study of male (n=9) and female (n=7) intercollegiate cross country runners, Frazier (1989) measured changes in mood states (SWB) of these athletes throughout their competitive seasons. Athletes' well-being was measured across three points of the competitive season: pre-season, in-season and post season, and Frazier reported that the female group was characterized as having distinct Iceberg Profiles throughout the season. The male group however, did not exhibit a similar profile. Taking the averages of the means of each sample at the three various measurement points (i.e., pre, mid, & post season), the successful female group scored lower on the negative measures (Tension= 8.66, Depression= 7.09, Anger= 6.99, Fatigue= 7.23, Confusion=6.52) and higher on the positive (Vigor= 21.00) than did their unsuccessful male counterparts (Tension=16.74, Depression= 22.48, Anger= 17.97, Fatigue= 11.74, Confusion= 12.9, Vigor, 15.02) Upon further investigation the female group was shown to exhibit mood stability and superior mood scores on the POMS subscale measures throughout the competitive season while the male subjects had greater fluctuations in mood disturbance throughout the competitive season. Frazier (1989) suggests that an intervention strategy could have perhaps aided the men's team in having a more successful season. This investigation provides evidence

that SWB fluctuates over time for some and not others. It also indicates that monitoring mood states could prove beneficial for performance.

Berger et al. (1999) monitored the effects of a short duration training program on the TMD of elite pursuit cyclists (N=8; age range=17-25, M=20.8, SD=2.7). The athletes completed the POMS questionnaire 13 times throughout the six week training period which included a baseline week (3 POMS assessments), three weeks of overtraining (6 POMS assessments), and two weeks of taper (4 POMS assessments). The three week overtraining period consisted of high-intensity interval training performed above 85 % HR_{peak}. Berger et al. (1999) reported that TMD increased significantly from baseline scores during the second week of overtraining but returned to near baseline in the third week. The decrease in mood disturbance in the third week may have been due to the athletes' anticipatory effects of the coming taper. Scores for vigor were above college norms at all points except the second week of the overtraining period. The negative subscales peaked during the second week of overtraining but decreased following that week as well. In fact it was reported that TMD levels dropped below baseline levels during the taper. Berger et al. (1999) attributed this to not having a true baseline measure during the first week of the study.

Berger et al. (1999) also reported an increase in participant performance throughout the duration of the study. Four kilometer pursuit times improved from 301.1 sec (SD=34.2) at baseline to 281.5 sec (SD=26.6) during the overtraining period and to 275.8 sec (SD=28.2) during the taper. In addition, it was reported that power output increased from a 369.9 watts (SD=35.9) baseline mean to a mean of 394.5 watts (SD=36.3) during the overtraining period and to 403.4 watts (SD=36.6) after taper. The participants in the study experienced relatively stable TMD and increased cycling performance. This monitoring study reiterates how in some cases,

SWB (i.e., mood) may be affected by training processes but in other situations such as this, it is not. By monitoring SWB throughout training, those athletes that experience decreases in mood due to the training stimulus may potentially benefit from having their training loads reduced.

In a work on psychological monitoring, Berglund and Safstrom (1994) monitored psychological changes in a group (*N*=14) of male (n=9) and female (n=5) elite canoeists preparing for the Olympic Games. These athlete's levels of TMD were monitored throughout their training period (May- August) via the POMS questionnaire. During the heavy portion of training (i.e., June- August), a significant increase in TMD (*d*=1.506) was reported compared to early May (beginning of training). This illustrates the importance of monitoring mood states as proposed by Morgan (1985) and other researchers (Rowley et al., 1995; Terry, 1995).

Additionally, Berglund and Safstrom (1994) conducted POMS measures weekly during the training stimulus to monitor psychological responses to intense training, and training was manipulated based on athlete's responses. Athletes reporting TMD levels 50% above normal individual baseline levels had their training load reduced while those athletes reporting TMD levels within 10% of baseline levels had their training increased. All athletes experienced a drop in TMD following the taper prior to the Olympic Games, and for most athletes the improvement in mood (i.e., back to baseline levels) occurred upon reducing training load. In one case, mood returned to baseline following three weeks of reduced training. As a result, the authors suggested the use of psychological monitoring as a means of reducing the occurrence of staleness due to overtraining. Every athlete involved in the study planned to continue using the POMS and psychological monitoring as a part of their programs. This study lends support for the use of psychological monitoring and for the MHM as a means to ensure athlete well-being.

Each athlete has a unique psychological state that is associated with optimal performance.

Some athletes succeed having "theoretically negative profiles" (Terry, 1995, p. 313). In other words, athletic success is associated with having a more desirable psychological mood profile, but this is relative to each athlete. Rowley et al. (1995) have suggested the use of within-subject analysis versus between subject analysis to account for individual differences of athlete profiles. Since SWB and factors that influence SWB fluctuate over time for most individuals, psychological monitoring based on the dynamic element of the MHM (Morgan, 1985; Raglin, 2001) could prove to be extremely beneficial in promoting healthy, successful athletes' that are able to perform to the best of their abilities.

Summary of Psychological Monitoring

The use of the Mental Health Model has shown success in the psychological monitoring of mood (i.e., SWB) in athletes. This use has benefitted performance and promoted the well-being of athletes in numerous sports. The psychological monitoring of dynamic fluctuations in well-being could prove beneficial in ensuring the psychological health of college athletes.

Life Experiences

Within the framework of the MHM (Morgan, 1985), factors other than training load that affect SWB (i.e., mood) have not been investigated. Morgan (1985) reports within the MHM that SWB (i.e., mood) and sport performance show a dose-response relationship. However, other factors such as life experiences also may affect SWB. In Morgan et al.'s (1987) work, it is stated that increased TMD during training is directly attributable to the training stimulus and is not a factor of other outside stressors. However, this comparison involved college athletes and non-athletes, and the additional stressors of college life on top of training may contribute to increased mood disturbance when overtraining is employed. In other words, training load is a potent stimulus, but non-training factors may also contribute to SWB and subsequently performance

(Meyers & Whelan, 1998). For example, college athletes encounter stressors such as those created through relationship difficulties, academics, time pressures, and social and family support (Andrews & Wilding, 2004; Bailey & Miller, 1998; Case & Gunstone, 2003; Jung, 1997; Jung & Khalsa, 1989; Meyers & Whelan, 1998). These stressors have the ability to affect a college athlete's level of SWB, especially when they are also undergoing overtraining.

Stressors

A stressor is an internal or external source or demand of a biological, social, or psychological form that affects cognitive and emotional functioning (Lazarus, 1993). In a study of stressors, Sarafino and Ewing (1999) describe issues with life events as major changes in a person's life such as personal relationships or health. They conducted an investigation with various samples of 18-24 year old undergraduate students to validate the Hassles Assessment Scale for Students in College. They report that hassles are daily annoyances or irritants such as time pressures or interpersonal conflicts. Sarafino and Ewing (1999) found that male and female college students reported the same frequency of stressors, however female students showed higher unpleasantness and dwelling towards those stressors. Sarafino and Ewing (1999) also found that unique stressors of academic and societal pressures are increased in college populations.

D'Angelo and Wierzbicki (2003) reported in a sample of 34 college students (men=15, women=19; mean age=20), that daily stressors such as issues of time pressures, romantic concerns, social mistreatment and friendship problems are related to levels of emotional distress and anxiety. As the level of daily stressors increased, levels of depression and state anxiety increased in this student sample (D'Angelo & Wierzbicki, 2003). D'Angelo and Wierzbicki (2003) reported that state anxiety and depression were moderately correlated (α=.38, $p<.05$).

Five of the seven life experiences subscales of the College Students Recent Life Experiences Questionnaire were significantly correlated with depression and six of the seven were significantly correlated with state anxiety.

Andrews and Wilding (2004) report in their sample of 351 (Men=87, Women=264) United Kingdom undergraduates that the most common student problems were relationship difficulties which was reported by 29% of the sample. Other difficulties reported in this sample included: close other's illness or death (28%), financial difficulties (21%), valued item lost or stolen (10%), and personal illness, injury or unwanted pregnancy (6%). Some of these events could be considered minor stressors while others may be major stressors or experiences. Either way, they have the ability to affect a student's level of SWB and health. In this sample, 60% of the students experienced at least one of these events and 24% experienced two or more illustrating the prevalence of life stressors in a college population (Andrews & Wilding, 2004). The stressors described by Andrews and Wilding (2004) made a contribution to the prediction of anxiety and depression in these students with relationship difficulties making a significant contribution to levels of anxiety ($p<.01$).

Johnson (1992) found that social exchange (e.g., negative interactions with others that may lead to isolation) among family members and the stress related to those interpersonal relationships have a major impact on undergraduate college students (N=102; Men=41, Women=61). The authors suggested that the stress college students deal with is potentially different from those populations no longer in college reiterating the thought of Sarafino and Ewing (1999) that college students face unique stressors. Financial, work-related, and home maintenance stressors are not of great concern to college students (Johnson, 1992). Health and family stressors and concerns were main predictors of increased psychopathology levels

(Johnson, 1992).

Social Support

It is reported by Edwards, Hershberger, Russell, and Markert (2001) that interpersonal issues are the dominant concern of college students. In a group of 206 undergraduates (M=108, F=98; mean age=19.11 years), Edwards et al. (2001) investigated positive social support and negative social exchange to determine the "role negative interpersonal interactions play in health and well-being and in the ability to cope with stress" (p. 75). Stress was indicated as exposure to both life events and daily hassles (Edwards et al., 2001). Negative social exchange showed a relationship to both physical and subjective well-being. The authors report that women's' levels of subjective well being were significantly lower ($p<.04$) than men ($d = 0.299$). This may be due to women reporting significantly higher ($p<.03$) negative social exchange ($d =0.306$) and physical ailments ($d = 0.630$). Interestingly, better health and well-being was related more to a lack of negative social exchange than the presence of positive social exchange. It was also shown that negative social exchange has a significant relationship with physical symptoms ($p<.001$). These physical ailments along with decreases in subjective well-being may be the result of negative social exchange.

Jung and Khalsa (1989) suggest that those receiving more social support are less impaired by the stressors (i.e., hassles) they face. It is reported by Jung and Khalsa (1989) that the level of daily stressors in a group of 160 college students is related to greater levels of depression. However, perceived support from family was a buffer to levels of depression. That is, perceived family support may help students cope with stressors in their lives. The type of support a student gives or receives as well as the level of stress in that student's life contribute to well-being (Jung, 1997).

Life Involvement

In an investigation of 243 (male=86, female=157; mean age=20.59) undergraduate students, Bailey and Miller (1998) reported that the more involved a student is in their lives, the more overall satisfaction they will have with their lives including school performance. It is suggested by Bailey and Miller (1998) that a student that is not forced to focus on negative romantic and family problems, can focus their energies on goal attainment and productive work which leads to increased life satisfaction. Bailey and Miller (1998) also found that those that were most satisfied received support and contentment in their family relationships. The most satisfied students were characterized by an increasing life involvement (i.e., more responsibilities and roles) (Bailey & Miller, 1998). These students showing greater life satisfaction (i.e., SWB) were more pleased with school performance, family relationships, and dating relationships (Bailey & Miller, 1998).

If this involvement however leads to overwhelming stressors and depressive levels, Andrews and Wilding (2004), suggest that this can affect the student's academic performance which may also affect their levels of SWB. Mismanagement of these time pressures can have an impact on student learning (Case & Gunstone, 2003) and levels of well-being. Academic performance is one aspect of many interconnecting domains in a college athlete's life that can affect their level of SWB (Meyers & Whelan, 1998).

Summary of Life Experiences

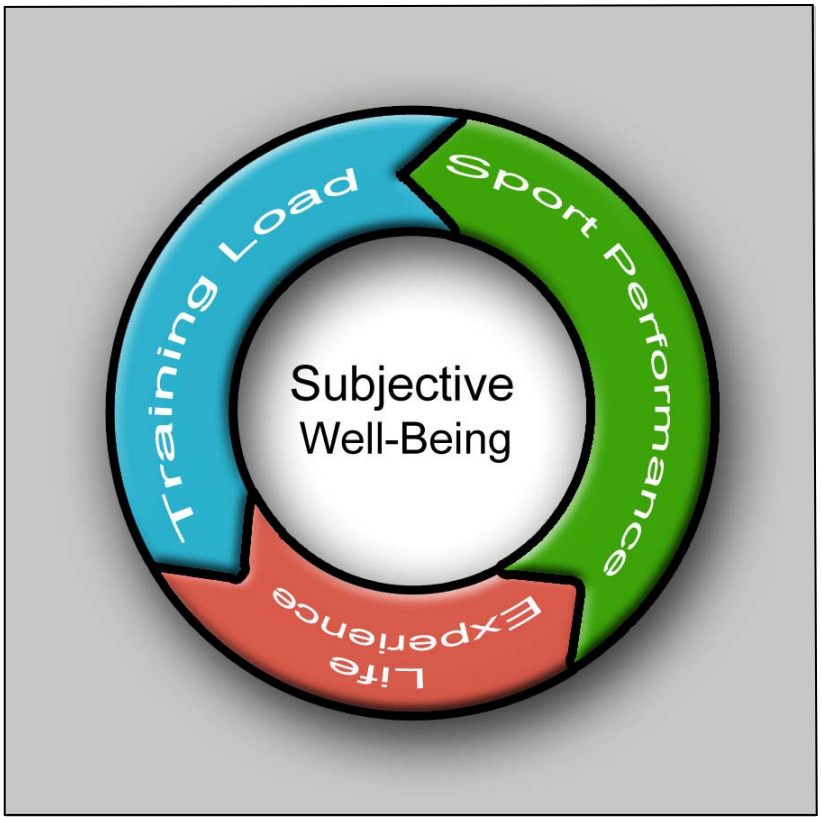
College students face unique life experiences that other populations may not encounter. These life experiences such as academic pressure, time pressure, social isolation, as well as relationship issues have the potential to place undue stress on the student and may ultimately affect levels of SWB. Positive relationships and social support have the potential to buffer the

pressure these students face and benefit well-being. However if significant relationships in a student's life are negative, feelings of isolation may occur which can lead to decreased academic performance and levels of subjective well-being.

Summary of Literature Review

Mood (i.e., SWB) is an important aspect in sport performance (Morgan, 1985, 1987). A college athlete's training load has the ability to affect mood. If an athlete is not able to adequately recover from their levels of training, performance decrements and staleness may occur. The MHM postulates that as mood (SWB) increases or decreases, sport performance should increase or decrease in a corresponding manner. Based on the dynamic element of the MHM, the fluctuations in mood state may be monitored to prevent negative outcomes associated with training practices (i.e., overtraining) during the off-season or competitive season. The MHM considers both training load and sport performance, and their relationship to mood (SWB). However, the MHM does not consider how life experiences can affect the SWB of a student. Factors such as a student's social relationships, time pressures and academic responsibilities can all contribute to levels of SWB (Andrews & Wilding, 2004). In order to gain a more complete understanding of SWB and how it relates to performance, a measure of student life experiences must be taken into account in the MHM. This will provide valuable insight into the psychological monitoring of several factors that affect SWB and fill a much needed gap in the literature on psychological monitoring of college athletes.

Figure 2: Interconnected Factors of Subjective Well-Being in College Athletes



CHAPTER III: METHOD

Participants

The participants in this study were college athletes from a Mid-Western University. The college athletes came from four separate Division I athletic programs including Men's hockey (*n*=12), Men's baseball (*n*=29), Women's softball (*n*=15) and Women's swimming (*n*=10). Sixty-six college athletes were involved from the various athletic programs. Approximately two-thirds of the study was with male athletes (*n*=44) which created several limitations. These students and programs were selected for the similarities between the sports of softball and baseball (i.e., sports that perform in the same athletic setting, during the same time of the semester, and have very similar rules) and the differences between the sports of hockey and swimming (i.e., sports that perform in different settings, during the same time of the semester, and share no overlap in rules). The reason for selecting these participants was to see whether the interrelationships between SWB, performance, life experiences, and training load vary for college athletes from different sports or similar sports.

Table 2: Descriptive statistics of the study sample

	Total Athletes	Mean TMD	Mean Age	Mean Year in School	Total Freshmen	Total Sophomore	Total Junior	Total Senior	Total 5th Year Senior
Baseball	29	14.1	19.76	2.38	7	9	8	5	X
Softball	15	19.0	19.40	1.93	8	3	1	3	X
Hockey	12	10.9	20.92	2.00	2	8	2	x	X
Swimming	10	20.3	20.50	3.00	3	X	2	4	1
Entire Sample	66	15.6	20.00	2.30	20	20	13	12	1

The ages of these students ranged from 18 – 24 years of age. All college athletes were undergraduate students and were expected to be in good mental and physical health as monitored routinely by the university's athletic training staff and doctors. The participants were members

of competitive Division I programs and as such participated in sport specific training and workout programs designed and carried out by the strength and conditioning staff of the university's athletic department. All athletes had availability to athletic training staff that was qualified and able to deal with any athletic injury that may have occurred during training or competition.

Instruments

Demographic Data Sheet

A demographics data sheet was included in the questionnaires to identify the subjects for organizational purposes. Questions related to athlete name, birth date, hometown, sport, year in school, year on team were all included in the data sheet. This demographics sheet was the only way in which these athletes could be identified. The student-athletes self report weight was included in this measure for use within the Assessment of Physical Training Activities. Each athlete received a coded number that identified them (see Appendix C).

Profile of Mood States Brief Form (POMS-B)

The Profile of Mood States Brief form (POMS-B; McNair, Lorr & Droppleman, 1989, 2003) is a 30 item survey that contains six sub-scales of measurement (see Appendix D). As to minimize time requirements for each subject, the brief form of the POMS was used as opposed to the standard form which is a 65 item measure. Participants completed the inventory in about 3-5 minutes. The six sub-scales of the POMS-B include five measures of negative mood (i.e., tension, depression, fatigue, anger, and Confusion) and one measure of positive mood, vigor. Each subscale contains five question items. A measure of Total Mood Disturbance (TMD) can be attained by summing the 5 negative mood scales and subtracting the vigor score.

The POMS-B is rated on a five-point Likert scale from 0 (Not at all) to 4 (Extremely).

These measures generally relate to either how the person is feeling over the past week, including today or how they are feeling right now. For purposes of this study the measure being used was "how have you felt over the past two weeks, including today". The reason for the modification was due to the two week intervals in which the POMS-B inventory was administered to the college athletes involved. Reliability measures for the POMS short form for college student samples are all at α =.8 and above with the exception of males for tension (α =.73) and confusion for both male and female samples (α =.67 for both men and women) (McNair, Lorr & Droppelman, 1992).

Satisfaction with Life Scale (SWL)

The Satisfaction with Life Scale (Diener et al., 1985) is a 5-item survey that measures a global assessment of life satisfaction (see Appendix E). The five items of the Satisfaction with Life Scale are measured on a seven-point likert scale anchored at 1 (strongly disagree) and 7 (strongly agree). The items ask the participant to rate to what degree they feel the item represents their life. The participants were encouraged to be open and honest in their responses. Participants completed this survey in less than 2 minutes. A measure of total life satisfaction can be attained by summing the five items within the scale resulting in a score ranging from 5 to 35. Reliability measures for the satisfaction with life scale are at α =.87 with a test re-test correlation coefficient of .82 (Diener et al., 1985). See Appendix F for a copy of the survey.

College Athletes Experiences Survey

The College Athletes Experiences Survey is a 16-item questionnaire that was developed by the investigator and consists of various measures relevant to a student-athlete. Within the questionnaire is a modified version of the Inventory of College Students Recent Life Experiences, questions related to Personal Performance Expectations, Team Performance

Expectations, Injury Occurrence and an assessment of physical training activities. See Appendix F for a copy of the survey.

Modified inventory of college student's recent life experiences (Mod-ICSRLE). The Modified Inventory of College Students' Recent Life Experiences (Mod-ICSRLE) is a 12-item questionnaire that was modified by the investigators from the original 49-item questionnaire (Kohn, Lafreniere, & Gurevich, 1990) due to time constraints and relevance to college athletes. The original ICSRLE was developed to judge the daily stressors that affect college undergraduate populations. The Modified ICSRLE assesses aspects of academic concerns, time pressure, general social mistreatment, and relationship problems. Each of the four sub-scales contains three items. The four sub-scales were selected and modified to attain a measure of college student's life experiences in various domains. This measure is rated on a four-point Likert scale measuring how much an item is a part of life. The scale is anchored at 0 (Not at all) and 4 (Very much so) (see Appendix F). Based on data collected for this study, Cronbach's Alpha reliability measures for the life experiences scales were measured at three points (i.e., assessment points 1, 5, and 8). Reliability scores for academic pressures are; assessment point 1, α =.75, assessment point 5, α =.80, assessment point 8, α =.83. Reliability scores for time pressures are; assessment point 1, α =.49, assessment point 5, α =.70, assessment point 8, α =.72. Reliability scores for social isolation are; assessment point 1, α =.72, assessment point 5, α =.80, assessment point 8, α =.82. Reliability scores for relationship issues are; assessment point 1, α =.87, assessment point 5, α =.82, assessment point 8, α =.89. Test-retest correlation coefficients were run for each of the four life experiences and are provided in Appendix I.

Injury occurrence. A question related to injury was added to the College Athletes Experiences survey by the investigator for selection purposes. This question was used to

eliminate from the analysis those athletes that reported more than two injury occurrences. The question was: Are you Currently suffering from an injury that has/ will force you to miss practice/ competition for at least 1 week? This question was simply answered in a yes or no fashion (see Appendix F).

Personal performance assessment. A measure of personal performance was added by the investigator to the College Athletes Experience Survey in order to gauge an athlete's expected performance levels alongside a coach performance measurement. The question is, "Over the past two weeks, rate your athletic performance compared to personal expectations?" This measure is rated on a five-point Likert scale anchored at (1) well below performance expectations to (5) well above performance expectations. By completing this question, the researchers were able to examine the subjective assessments of performance with measures of subjective well-being, life experiences, and training load (see Appendix F).

Assessment of physical training activities: total energy expenditure (TEE). In order to judge the caloric expenditure of each athlete for physical training for the previous two week period (i.e., time between assessment points), an assessment of physical activities (Ainsworth et al., 1993) was included to the College Athletes Experiences survey. A coding scheme for each form of physical activity was derived from the Compendium of Physical Activities and was used to calculate daily energy expenditure expressed in kcal. The physical activities that were included for assessment are resistance exercise (conditioning exercise code: 02050), Running (codes: 12020 through 12190), plyometrics (conditioning exercise code: 02020), practice/ playing time (hockey code: 15360, swimming codes: 18230 through 18290, baseball & softball code: 15620). Along with these physical exercises, an open ended space was available for each athlete to enter any other relevant physical activity they wished to add as well as an area for

studying. The studying portion of the compendium was included to judge the amount of time the student-athletes engage in studying, but was not included in the assessment of energy expenditure for physical training activities.

In order to calculate the total energy expenditure, an intensity level was included as well as the time duration (i.e., amount of time performing that activity over the last 2 weeks) the athlete performed each individual activity (see appendix F). A measure of intensity levels for each activity was measured using an interval scale from 1 (low intensity) to 10 (high intensity). For the purpose of coding, athletes reporting intensities from 1-3 were categorized for low intensity, 4-7 for moderate intensity, and 8-10 for high intensity.

The formula for calculating total energy expenditure is:

TEE (kcal) = [MET level x Weight (kg)] x (time performing activity/ 60 min)

An example for total energy expenditure (kcal) for a 60 kg student-athlete who performs moderate intensity running (7 mph) for three hours over a two week period is as follows:

Moderate running: code 12070 which correlates to an expenditure = 11.5 METs

(11.5 METs x 60 kg body weight) x (180 min/ 60min) = 2070 kcal for the two week period due to the running this student-athlete performed.

By calculating these measures for each individual physical activity and summing those activities, approximate kcal energy expenditure for the two week period was assessed. Every activity the college athlete performed in their daily lives was not being measured, however an approximate kcal measurement of the activities performed related to their sport participation was sufficient.

Coach Performance Assessment

A coaches' measure of player performance has been added by the investigator and was

included in the study to gauge coaches expected performance levels alongside the individual player's performance measurement. The coaches were asked to *please rate how they feel each individual player had performed over the past two weeks as compared to their personal expectation of performance for each individual athlete*. The same coach completed the assessment at each time point. This measure is rated on a five-point Likert scale anchored at (1) well below performance expectations to (5) well above performance expectations. By having the coaches complete this assessment, the researcher was able to correlate the individual player's judgment of performance to coaches' judgment of performance (see Appendix H).

Procedure

The procedure for this study was to administer the survey throughout the academic semester (beginning January 7 and ending April 25) to four Division I Mid-Western athletic programs. Throughout these seasons the college athletes were asked to complete surveys once every two weeks until the end of the 2007 - 2008 academic year (i.e., April, 2008) (see Table 3 at end of section).

In order to recruit athletes the primary researcher obtained permission from the Human Subjects Review Board and the University's Athletic Department. Upon receiving permission from both organizations the primary investigator contacted the prospective coaches from the four athletic programs (Men's baseball, Men's hockey, Women's softball, Women's swimming) to meet regarding the study. At this meeting the investigator described the purpose and the procedures to the coaches as well as the coach's responsibility to complete a brief measure of athlete performance and provide the investigator with a time to meet with their athletes. The benefits of the study were explained and the investigator informed the coaches that they would receive a copy of both the total sample means and their team mean, but would not see any

individual scores. The investigator obtained coach's informed consent to perform the study with their players and ensured the coach that each individual athlete had the option to decline participation.

After receiving the coach's informed consent (see Appendix A), the primary researcher attended the designated practice time that was agreed upon by the coaching staff of each individual team. The primary researcher described the purpose, procedures and the benefits that would be received by the college athletes during the first meeting. The researcher also described the informed consent letter to the athletes (see Appendix B), and each athlete checked one of three options in the informed consent letter. The three options were: 1) I choose to participate and will complete the questionnaires at the scheduled time, 2) I choose to participate but would prefer to do it on my own time, and 3) I choose not to participate in this study. The reason for completing the informed consent this way was it allowed each individual athlete the option to not participate, or participate on their own time without facing pressure from their teammates. Those college athletes who chose to participate on their own time could drop the surveys they received during the allotted team times in the campus mail. Those who chose not to participate could simply discard the surveys. Each athlete was provided with a pre-addressed envelope. For the college athletes completing the surveys at the allotted team time, each participant completed the assessments on their own with no discussion with their teammates, prior to the assigned team practice during the week of assessment. If they had any questions regarding the study, they were instructed to ask the researcher. Upon completion of the surveys, each individual survey was enclosed in an envelope to protect the confidentiality of each college athlete. All athletes in the study chose option 1 and completed the assessments at the assigned times.

When all surveys were enclosed in the envelope, the primary researcher returned and

sorted each individual player's survey into their own personal file that was locked, along with the other participants of their team in a filing cabinet in the office of the primary researcher.

Included throughout the year, a coach from each individual program (same head coach each time) completed a brief rating of each player's athletic performance (see Appendix G) in the same two week increments as the athletes. This information was also locked in the same filing cabinet in the primary investigators office. The coach's measures of athlete performance were placed with the corresponding weekly measures of each team's players. The information gained from the coach's performance assessment of the player, along with each player's personal performance rating was used in determining how sport performance is affected by the subjective well-being of the college athlete.

Each athlete was enrolled in classes during the academic semester and faced similar academic requirements throughout the semester. At each assessment point, fluctuations in athlete well being and other variables (i.e., life experiences, TEE) occurred throughout the academic semester regardless of whether the athletes were in or out of season. The hockey and swimming groups' season had already begun at the onset of the study and their seasons continued until about the fourth and fifth assessments at which point they began off season training. The baseball and softball teams were in offseason training at the onset of the study and their competitive seasons began around the fifth assessment of the study.

Table 3: Study Design Outline:

Assessment Period	Time	Questionnaires
Assessment 1: January 7-11	25 min.	Informed Consent, Demographics, POMS, SWLS, Modified ICSRLE
Assessment 2: January 21-25	10 min.	POMS, Modified ICSRLE
Assessment 3: February 4-8	10 min.	POMS, Modified ICSRLE
Assessment 4: February 18-22	10 min.	POMS, Modified ICSRLE
Assessment 5: March 10-14	10 min.	POMS, SWLS, Modified ICSRLE,
Assessment 6: March 24-28	10 min.	POMS, Modified ICSRLE
Assessment 7: April 7-11	10 min.	POMS, Modified ICSRLE
Assessment 8: April 21-25	10 min.	POMS, SWLS, Modified ICSRLE

Data Analysis

It was hypothesized that college athletes characterized by higher subjective well-being will perform better, have lower TEE and fewer negative life experiences (e.g., hassles) than those athletes characterized as having lower subjective well-being. To address this hypothesis, the independent variables for this study were subjective well-being (SWB) groups, and time (i.e., each assessment point). The two levels of SWB were lower and higher subjective well-being. The dependent variables for the study were player performance measure, coach performance measure, training energy expenditure, and life experiences. A series of 2-way (SWB group x time) ANOVA's with repeated measures were used to analyze the dependent variables of player performance measure, coach performance measure, and training energy expenditure. The dependent variable of life experiences (4 subscales) was analyzed using a 2-way MANOVA with

repeated measures for time (i.e., each assessment point). If the multivariate main interaction effects were significant, then follow up univariate analyses were used along with appropriate post hoc tests. Calculation of effect sizes (i.e., Cohen's *d*, *n* squared) were performed for significant findings. The analyses detailed above were performed three times. One set of analyses included the baseball and softball teams, another set of analyses included the hockey and swimming teams, and the last set of analyses included the entire sample. The separate analyses were completed due to the similarities and differences of their competitive seasons and sports.

In order to operationally define and categorize the subjective well-being groups, the total mood disturbance for each individual athlete across all assessments was averaged to render a mean score of total mood disturbance for each athlete. In order to ensure equal representation of gender within the two categories of subjective well-being (due to potentially unequal numbers of male and female participants), each gender was analyzed separately and then grouped together into each individual SWB category. A median split procedure was used with athletes having an average TMD score in the lower half of their respective genders being classified into the higher subjective well-being group. Athletes having an average TMD score in the upper half of their respective gender were classified into the lower subjective well-being group. The median split numbers for men and women were a TMD of 11.13 and 21.37 respectively. By completing the study this way, equal proportions of male and female athletes were included in the two SWB categories. This protected against any one gender occupying the majority of the SWB category (e.g., mostly female athletes occupying the higher well-being category).

A correlation matrix was created at each of the 8 assessment points for all the variables including mood states, sport performance, life experiences (4 factors), and training energy

expenditure in order to investigate the interrelationships of the variables over time. All analysis were evaluated at an alpha = 0.05.

Missing Data

For those participants that had missing data for two assessment point measures, the average from the adjacent values was substituted. If there was only one adjacent value (i.e., assessment points 1 & 8), the value from the adjacent assessment was substituted for the missing data. For those participants that had missing data for more than two assessment points, their data was omitted from analysis as part of this study.

In addition, within the College Student-Athletes Experiences Survey, a question asking the athlete if they were experiencing an injury that would force them to miss one week of practice or competition was included. For those athletes reporting two or less injury occurrences, their mean scores from the adjacent assessment points were substituted for all variables at that point. Those athletes reporting more than two, injury occurrences were omitted from analysis within this study.

CHAPTER IV: RESULTS

Initial Analysis/ Descriptive Statistics

A median split procedure of Total Mood Disturbance scores was performed to establish SWB groups to ensure equal gender representation in the high and low SWB groups. The SWB median split value for the men was 11.13 and for the women it was 21.37. The average TMD for the high SWB group was 6.41 with the low SWB groups average TMD being 24.70. An independent t-test was run to test the means and this difference was significant at the $p<.001$ level. *Table* 2 illustrates the breakdown of participants including total athletes from each sport, mean age, and the number of athletes in each class for each sport.

The main set of analysis within this investigation will focus on the differences between high and low SWB within each of the dependant variables. The sub-groups of baseball and softball as well as hockey and swimming will be investigated in addition to the entire sample.

Life Experiences

For the baseball and softball group, a two-way doubly multivariate ANOVA with repeated measures was completed to determine the effect of SWB group and time on the four dependant variables of academic pressures, time pressures, social isolation, and relationship problems. The MANOVA results indicated that the main effect for SWB group (Wilks' Lambda = .569, $F(4,39) = 7.39$, $p < .01$, partial $n^2 = .431$) and time (Wilks' Lambda =.186, $F(28, 15)=2.35$, $p <.05$, partial $n^2 =.814$) significantly affected the combined dependant variables of life experiences. The multivariate interaction effect was not significant.

Follow up univariate ANOVA's were conducted. Significant group effects identified that the low SWB group experienced higher negative life experiences for academic pressure ($F(1,42)=11.19$, $p<.005$, partial $n^2=.210$), time pressure ($F(1,42)=9.75$, $p<.005$, partial $n^2=.188$),

social isolation (F(1,42)=27.13, p<.001, partial n^2=.392), and relationship issues (F(1,42)=11.07, p<.005, partial n^2=.209). Analysis of variance tests indicated significant change in life experiences across time for academic pressure (F(7, 294)=2.31, p <.05, partial n^2 =.052), time pressure (F(7,294)=4.30, p <.01, partial n^2 =.093), and relationship problems (F(7,294)=7.20, p <.01, partial n^2 =.146). Using a Tukey's HSD post hoc test (α=.05) to compare assessment points, it was found that academic pressures were significantly higher at assessment point 6 than they were at assessment point 2. Time pressures were found to be significantly higher at assessment point 6 as compared to assessment point 1 as well as assessment 7 being significantly higher than assessment points 1, 2, and 3. Finally, relationship problems at assessment points 1 and 2 were significantly higher than points 5, 6, 7, and 8 with assessment points 3 and 4 also being significantly higher than points 7 and 8. A graphic illustration of mean scores of baseball and softball players within the high and low SWB groups across time is provided for life experiences in Figures 3 through 6.

For the hockey and swimming group, a two-way doubly multivariate ANOVA with repeated measures was completed to determine the effect of SWB group and time on the four dependant variables within life experiences. However, the MANOVA could not be run because of insufficient residual degrees of freedom. Univariate ANOVA's were conducted using a Bonferroni corrected alpha to protect against inflation of the Type 1 error rate. Based on the 4 life experiences scales, an alpha of .0125 (.05/4) was used to determine statistical significance. Analysis of variance tests indicated significant change in life experiences across time for academic pressure (F(7, 140)=4.39, p <.0125, partial n^2 =.178) but no other variables. Using a Tukey's HSD post hoc test (α=.05) to compare assessment points, it was found that scores for academic pressures during assessment points 6, 7, and 8 were significantly higher than

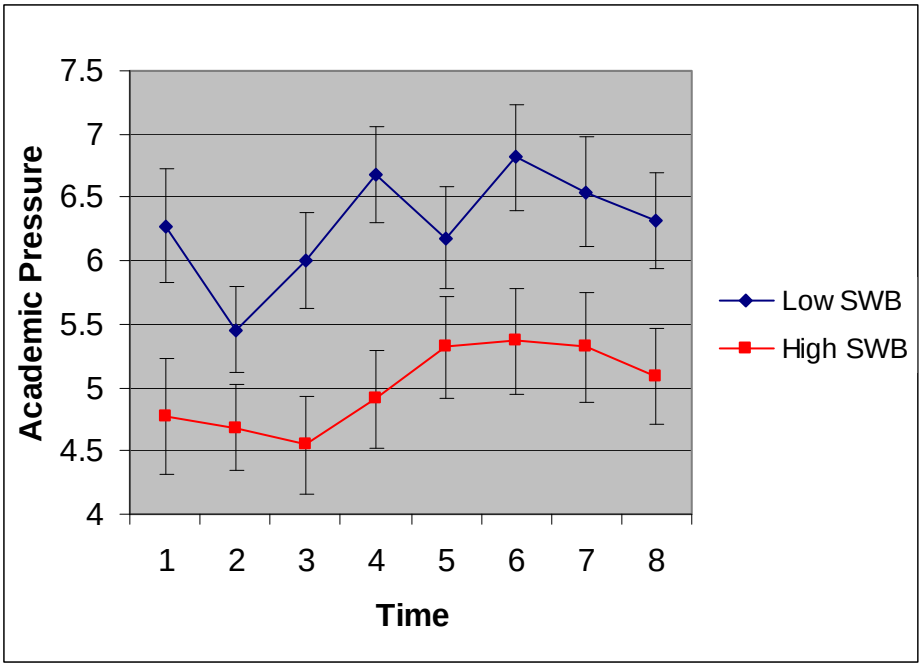
assessment time point 2 with assessment point 7 also being significantly higher than assessment point 1 for academic pressures. A graphic illustration of mean scores of hockey players and swimmers within the high and low SWB groups across time is provided for life experiences in Figures 7 through 10.

Due to the limited sample number when groups were separated into baseball/softball and hockey/swimming sub groups, a two-way doubly multivariate ANOVA with repeated measures was completed using the entire sample to determine the effect of SWB group and time on the four dependant variables within life experiences. The MANOVA results indicated that the main effect for SWB group (Wilks' Lambda= .663, $F(4,61)=7.74$, $p<.01$, partial $n^2=.337$) and time (Wilks' Lambda=.401, $F(28,37)=1.97$, $p<.05$, partial $n^2=.599$) significantly affected the combined dependant variables of life experiences. The multivariate interaction effect was not significant.

Follow up univariate ANOVA's were conducted. Significant group effects identified that the low SWB group experienced higher negative life experiences for academic pressure ($F(1,64)=9.66$, $p<.005$, partial $n^2=.131$), time pressure ($F(1,64)=7.94$, $p<.01$, partial $n^2=.110$), social isolation ($F(1,64)=26.19$, $p<.001$, partial $n^2=.290$), and relationship issues ($F(1,64)=10.51$, $p<.005$, partial $n^2=.141$). Analysis of variance tests indicated significant change in life experiences across time for academic pressure ($F(7, 448)=5.74$, $p<.001$, partial $n^2=.082$), time pressure ($F(7,448)=2.48$, $p<.05$, partial $n^2=.037$), and relationship problems ($F(7,448)=2.65$, $p<.05$, partial $n^2=.040$). Using a Tukey's HSD post hoc test ($\alpha=.05$) to compare assessment points, it was found that academic pressures were initially significantly higher at assessment point 4 than they were at assessment point 2. In addition, assessment points 5, 6, 7, and 8 were significantly higher than assessment point 2 with assessments 6 and 7 also being significantly

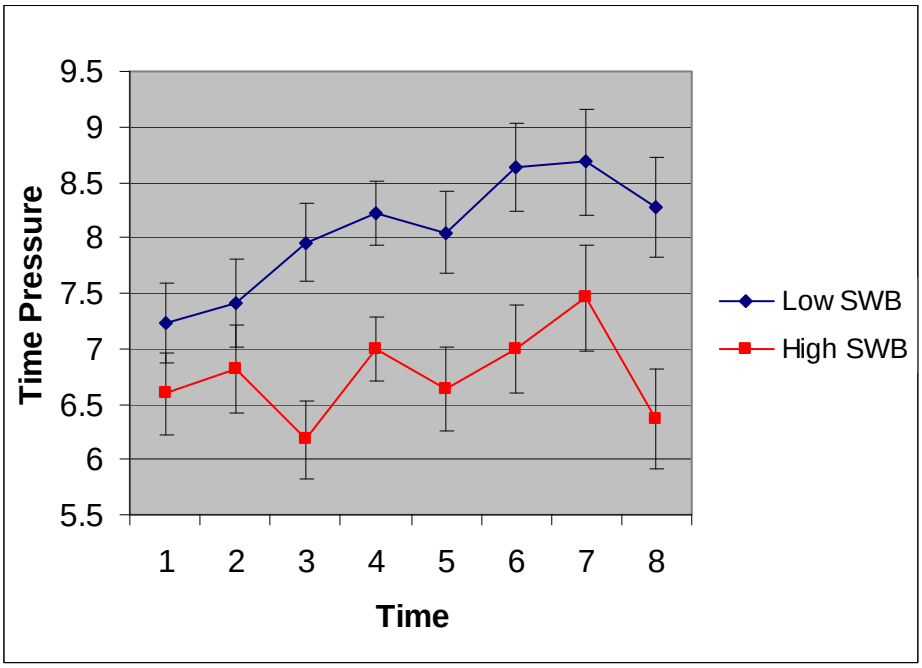
higher than assessments 1 and 3. Time pressures were found to be significantly higher at assessment point 7 as compared to assessment points 1and 3. Tukey's HSD post hoc tests (α=.05) did not identify statistically significant pair-wise assessment points for relationship issues. However, assessment points 1 and 7 approached significance. A graphic illustration of mean scores for the entire sample within the high and low SWB groups across time is provided for life experiences in Figures 11 through 14.

Figure 3: The perception of academic pressures for high and low SWB groups across time in baseball and softball players



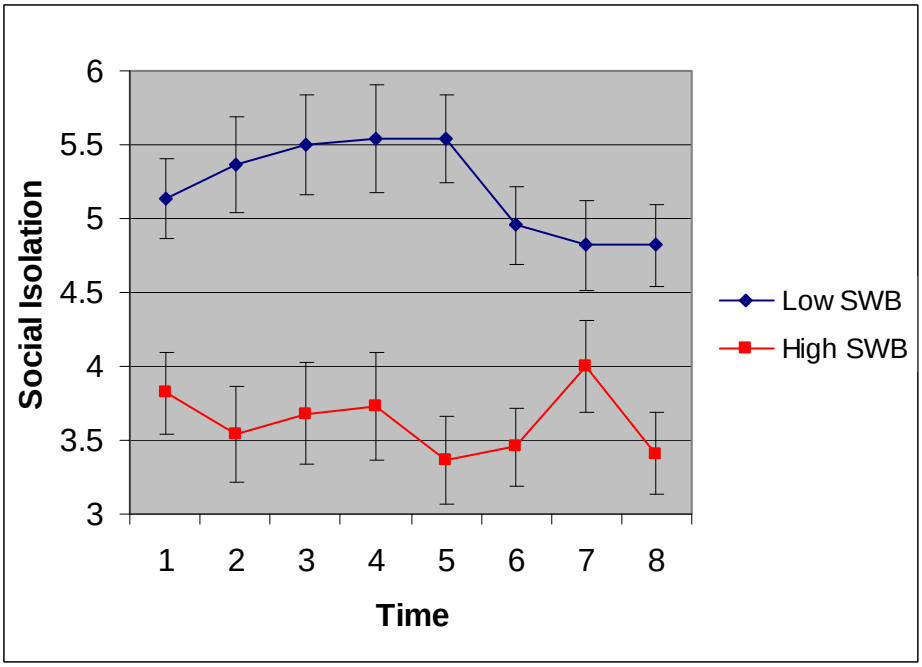
**Time main effect, p<.05, Group main effect, p<.001*

Figure 4: The perception of time pressures for high and low SWB groups across time in baseball and softball players



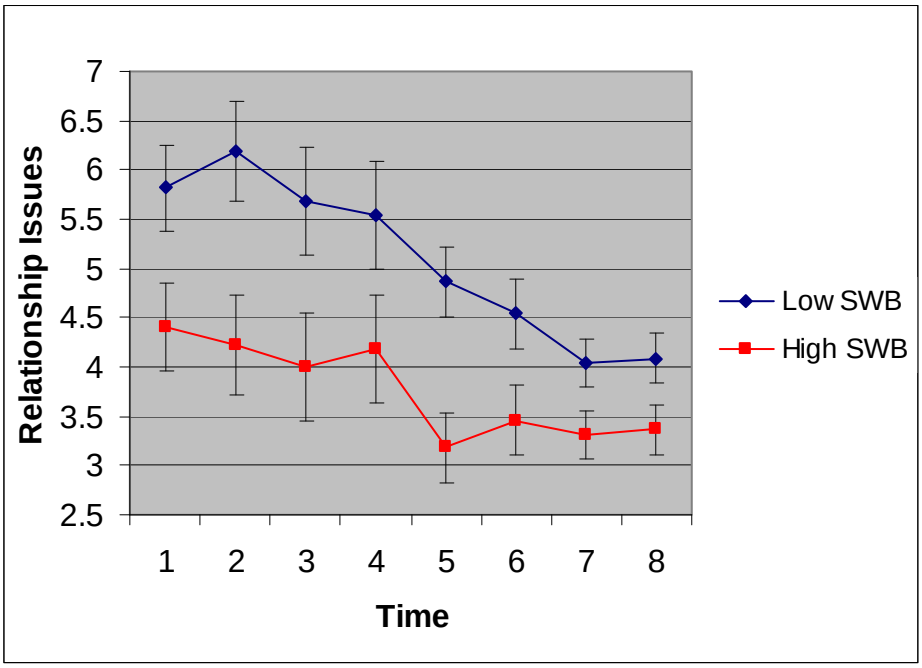
**Time main effect, p<.05, Group main effect, p<.001*

Figure 5: The perception of social isolation for high and low SWB groups across time in baseball and softball players



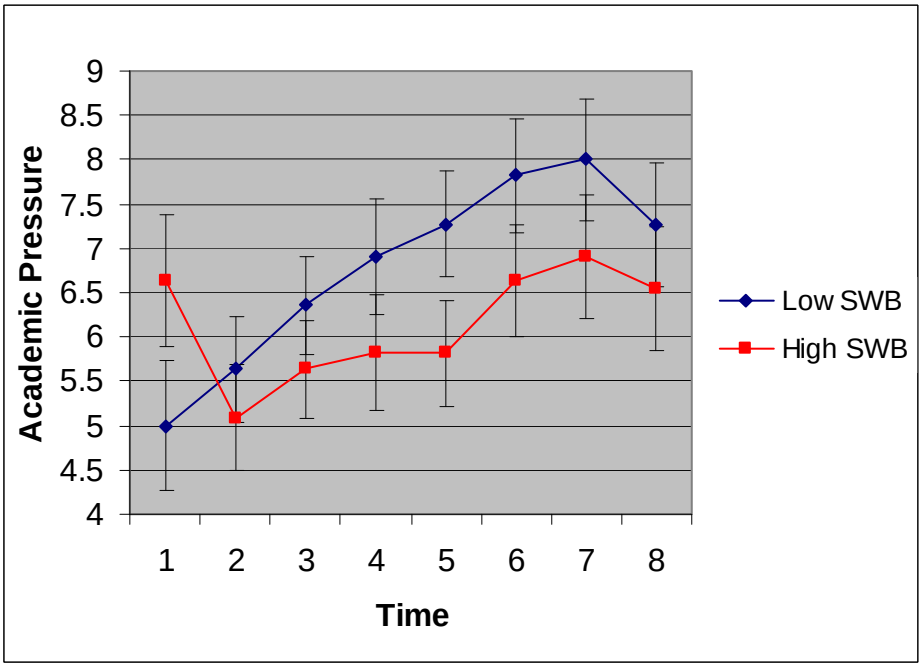
**Time main effect, p<.05, Group main effect, p<.001*

Figure 6: The perception of relationship issues for high and low SWB groups across time in baseball and softball players



**Time main effect, p<.05, Group main effect, p<.001*

Figure 7: The perception of academic pressures for high and low SWB groups across time in hockey players and swimmers



**Time main effect, p<.0125*

Figure 8: The perception of time pressures for high and low SWB groups across time in hockey players and swimmers

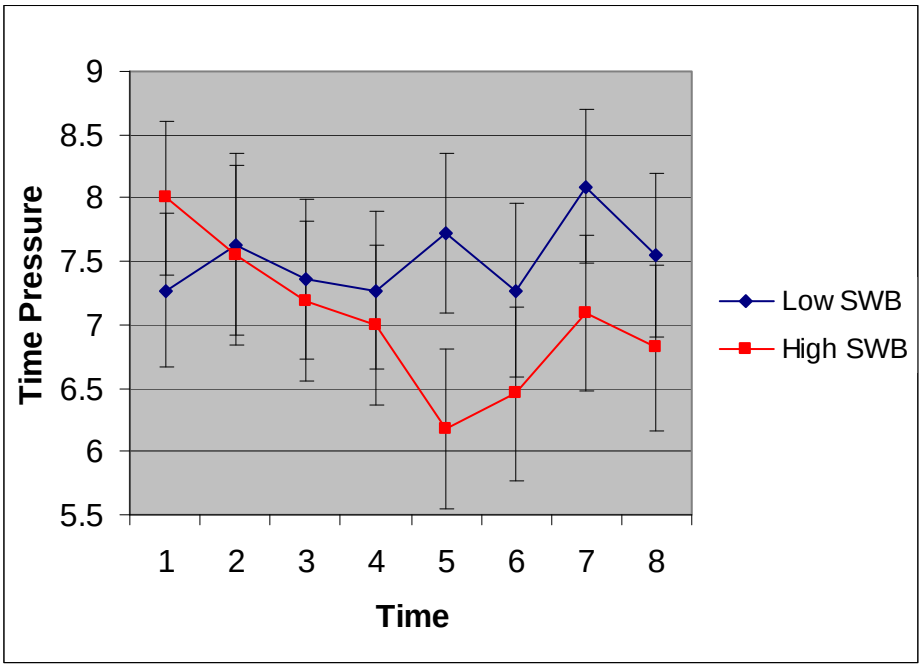


Figure 9: The perception of social isolation for high and low SWB groups across time in hockey players and swimmers

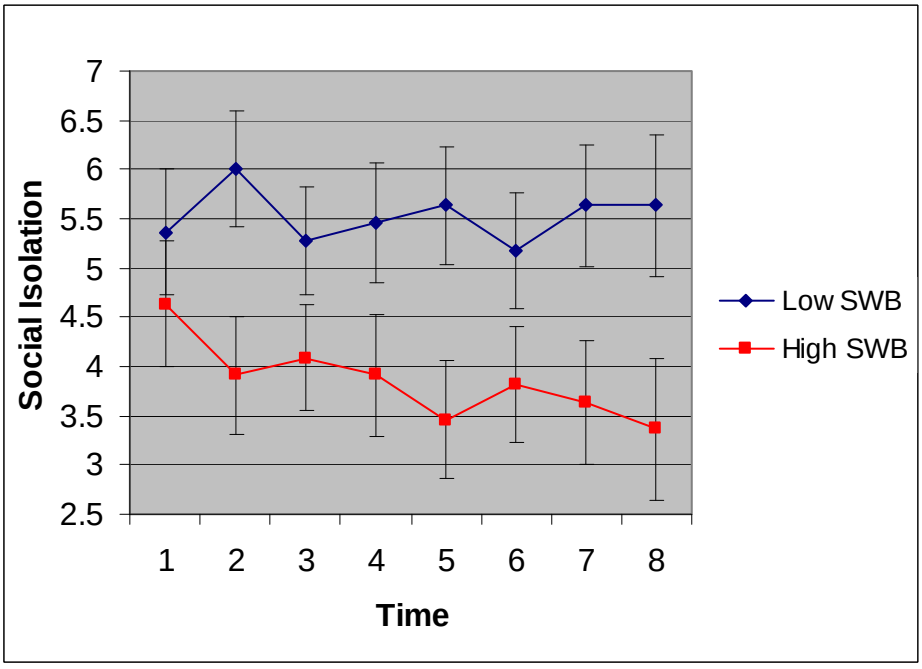


Figure 10: The perception of relationship issues for high and low SWB groups across time in hockey players and swimmers

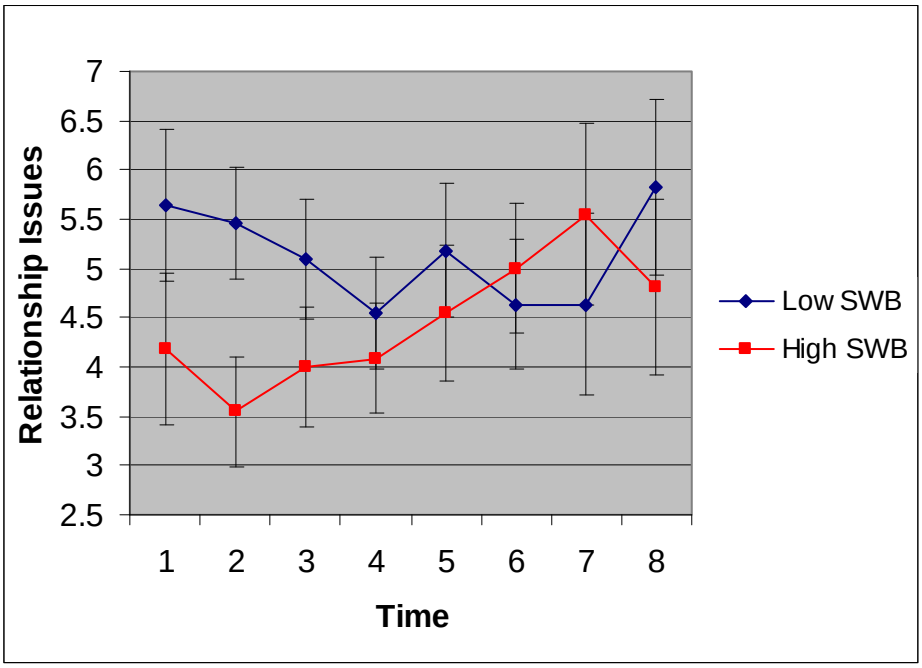
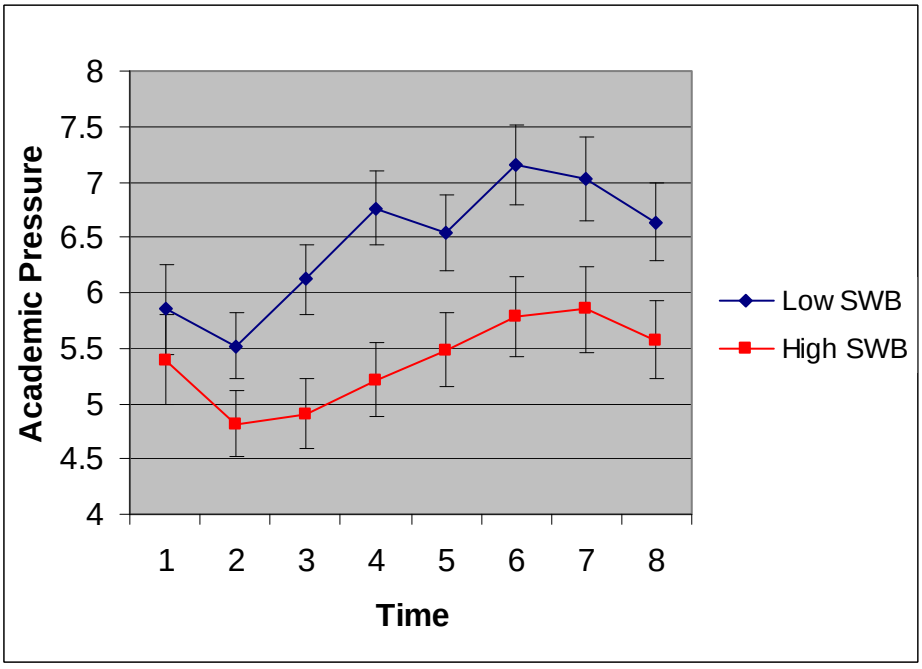
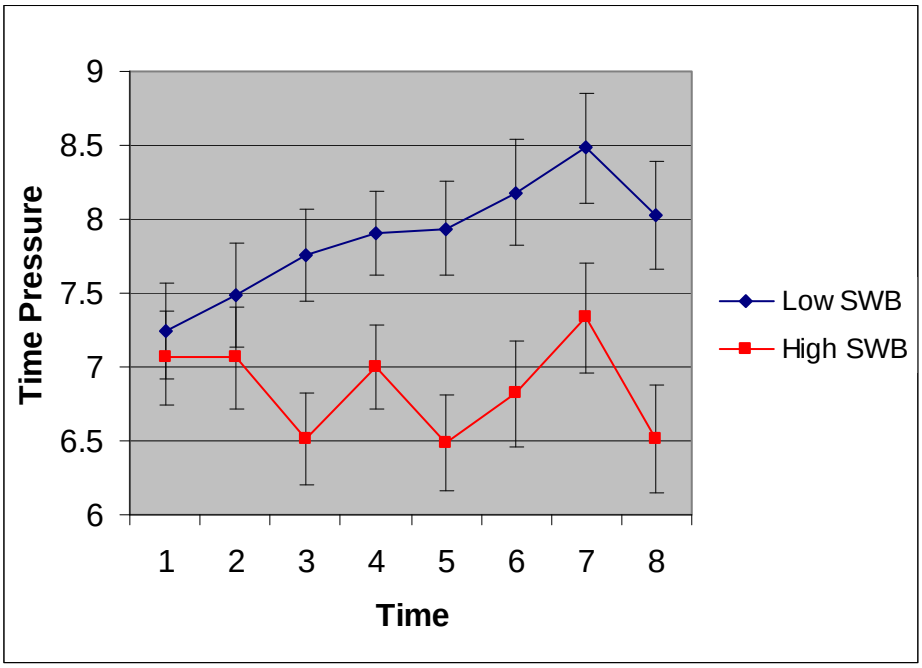


Figure 11: The perception of academic pressures for high and low SWB groups across time in the entire sample



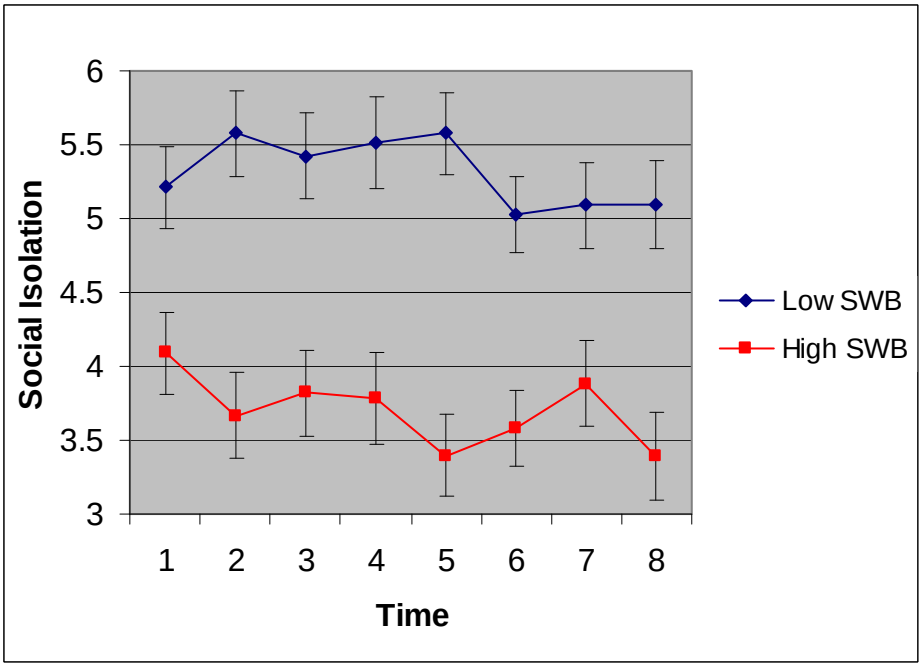
**Time main effect, p<.05, Group main effect, p<.005*

Figure 12: The perception of time pressures for high and low SWB groups across time in the entire sample



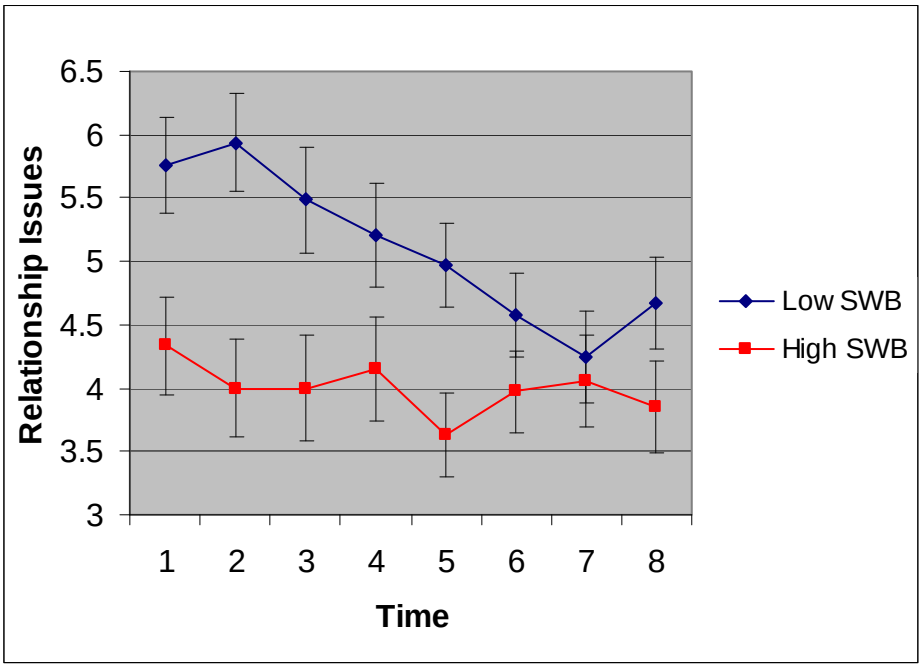
**Time main effect, p<.05, Group main effect, p<.001*

Figure 13: The perception of social isolation for high and low SWB groups across time in the entire sample



** Group main effect, p<.01*

Figure 14: The perception of relationship issues for high and low SWB groups across time in the entire sample



**Time main effect, $p<.05$, Group main effect, $p<.005$*

Personal Performance Assessment

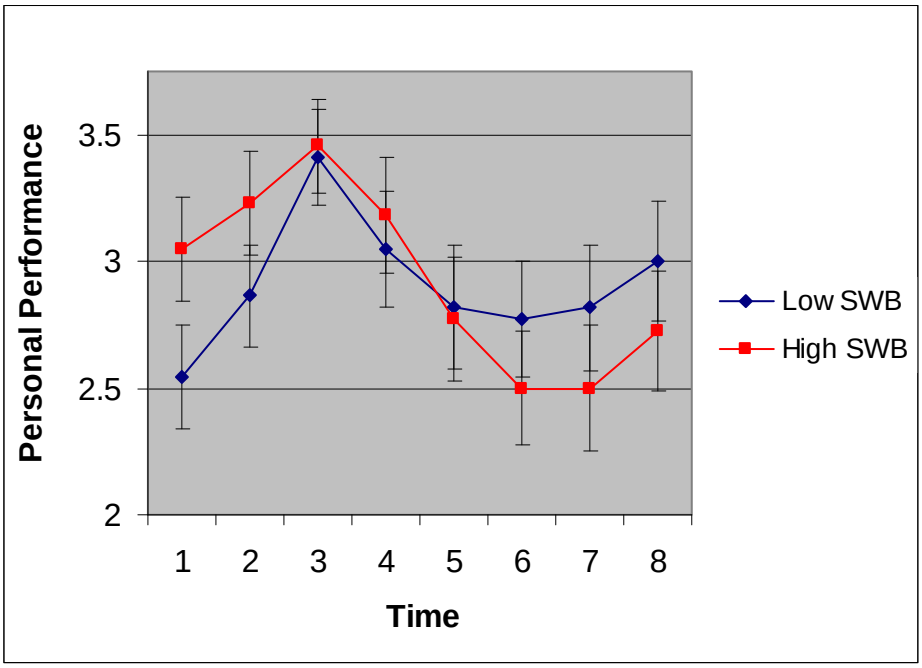
For the baseball and softball group, a 2 x 8 repeated measures ANOVA was conducted to determine the effect of SWB (i.e., high and low) and time (i.e., 8 assessment points) on personal performance assessment. The main effect for time was significant ($F(7,294) = 4.42$, $p<.005$, partial $n^2=.095$). Using a Tukey's HSD post hoc test ($\alpha=.05$) to compare assessment points, it was found that scores for personal performance for assessment point 3 was significantly higher than assessment time points 1, 5, 6, and 8. No significant main effect was found for SWB groups ($F(1, 42)=.01$, $p>.05$, partial $n^2=.000$) or for the SWB group x time interaction effect ($F(7,294) = 1.45$, $p>.05$, partial $n^2=.033$). A graphic illustration of mean scores of baseball and softball players within the high and low SWB groups across time is provided in Figure 15.

For the Hockey and Swimming group, a 2 x 8 repeated measures ANOVA was conducted to determine the effect of SWB (i.e., high and low) and time (i.e., 8 assessment points) on

personal performance assessment. No significant main effects were found for time (F(7, 140)=1.35, p>.05, partial n^2=..063), between SWB groups (F(1, 20)=1.11, p>.05, partial n^2=.052) or for the SWB group x time interaction effect (F(1, 20)=.94, p>.05, partial n^2=.045). A graphic illustration of mean scores of hockey players and swimmers within the high and low SWB groups across time is provided in Figure 16.

For the entire sample, a 2 x 8 repeated measures ANOVA was conducted to determine the effect of SWB (i.e., high and low) and time (i.e., 8 assessment points) on personal performance assessment The main effect for time was significant (F(7,448)=3.64, p<.01, partial n^2=.054). Using a Tukey's HSD post hoc test (α=.05) to compare assessment points, it was found that scores for personal performance for assessment points 3 and 4 were significantly higher than assessment points 1, 6, and 7. No significant main effect was found between SWB groups (F(1, 64)=.36, p>.05, partial n^2=.006) or for the SWB group x time interaction effect (F(7,448)=1.55, p>.05, partial n^2=.024). A graphic illustration of mean scores for high and low SWB group across time for the entire sample is provided in Figure 17.

Figure 15: The perception of personal performance for high and low SWB groups across time in baseball and softball players



**Time main effect, p<.005*

Figure 16: The perception of personal performance for high and low SWB groups across time in hockey players and swimmers

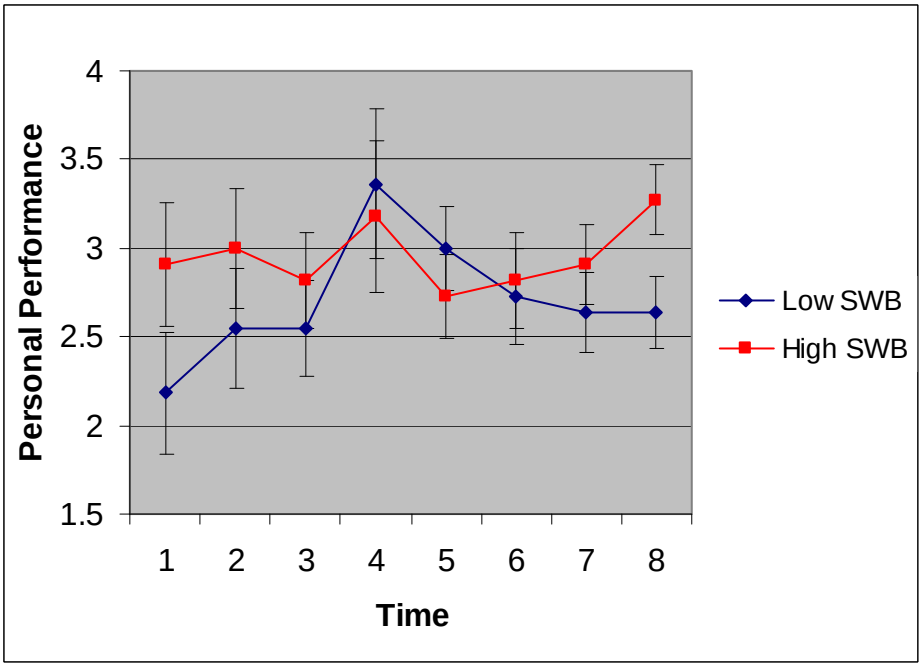
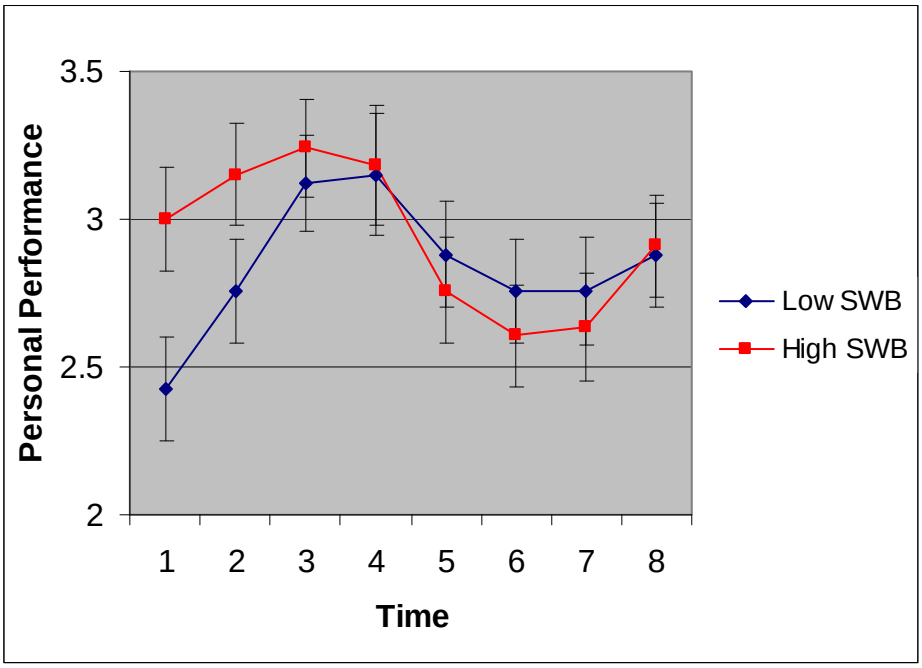


Figure 17: The perception of personal performance for high and low SWB groups across time in the entire sample



**Time main effect, $p<.01$*

Coach Performance Assessment

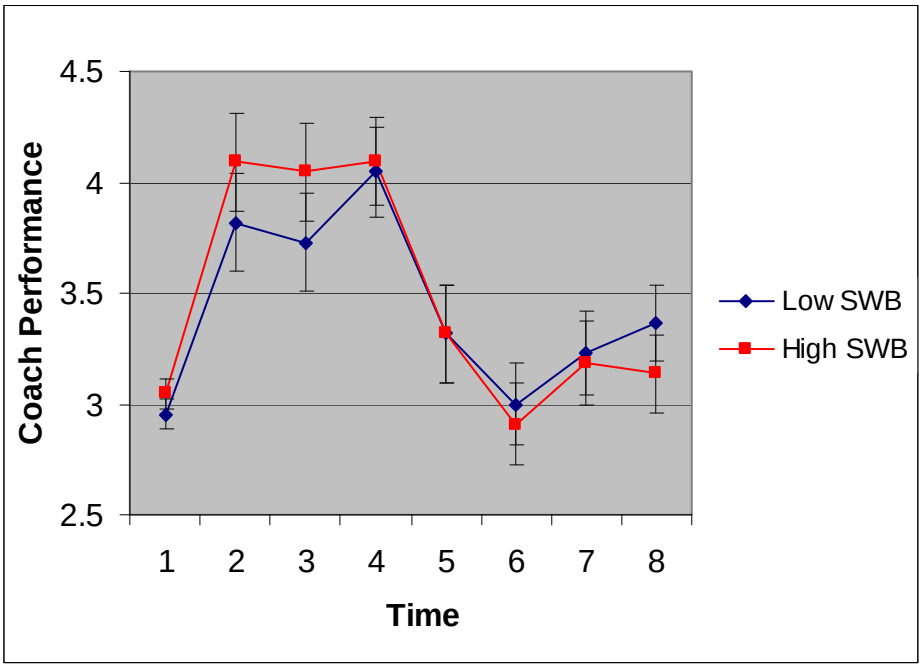
For the baseball and softball group, a 2 x 8 repeated measures ANOVA was conducted to determine if there was a relationship between SWB (i.e., high and low) and time (i.e., 8 assessment points) on coach performance assessment. The main effect for time was significant ($F(7,294)=13.97$, $p<.01$, partial $n^2=.250$). Using a Tukey's HSD post hoc test ($\alpha=.05$) to compare assessment points, it was found that coach performance scores at assessment point 2, 3, and 4 were significantly higher than assessment points 1, 5, 6, 7, and 8. No significant main effect was found between SWB groups ($F(1,42)=.09$, $p>.05$, partial $n^2=.002$) or for the SWB group x time interaction effect ($F(7,294)=.58$, $p>.05$, partial $n^2=.014$). A graphic illustration of mean scores for high and low SWB groups across time is provided in Figure 18.

For the hockey and swimming group, a 2 x 8 repeated measures ANOVA was conducted to determine if there was a relationship between SWB (i.e., high and low) and time (i.e., 8

assessment points) on coach performance assessment. No significant main effect was found for time ($F(7,140)=.76$, $p>.05$, partial $n^2=.036$), between SWB groups ($F(1, 20)=1.30$, $p>.05$, partial $n^2=.061$) or for the SWB group x time interaction effect ($F(7,140)=1.55$, $p>.05$, partial $n^2=.072$). A graphic illustration of mean scores for high and low SWB groups across time is provided in Figure 19.

For the entire sample, a 2 x 8 repeated measures ANOVA was conducted to determine if there was a relationship between SWB (i.e., high and low) and time (i.e., 8 assessment points) on coach performance assessment. The main effect for time was significant ($F(7,448)=10.55$, $p<.01$, partial $n^2=.142$). Using a Tukey's post hoc test ($\alpha=.05$) to compare assessment points, it was found that coach performance scores for assessment point 2 and 3 were significantly higher than assessment points 1, 6, 7, and 8. In addition, coach performance scores for assessment point 4 were significantly higher than points 1, 5, 6, 7, and 8. No significant main effect was found between SWB groups ($F(1,64)=.77$, $p>.05$, partial $n^2=.012$) or for the SWB group x time interaction effect ($F(7,448)=.60$, $p>.05$, partial $n^2=.009$). A graphic illustration of mean scores for high and low SWB group across time for the entire sample is provided in Figure 20.

Figure 18: The perception of coach performance measure for high and low SWB groups across time in baseball and softball players



**Time main effect, p<.01*

Figure 19: The perception of coach performance measure for high and low SWB groups across time in hockey players and swimmers

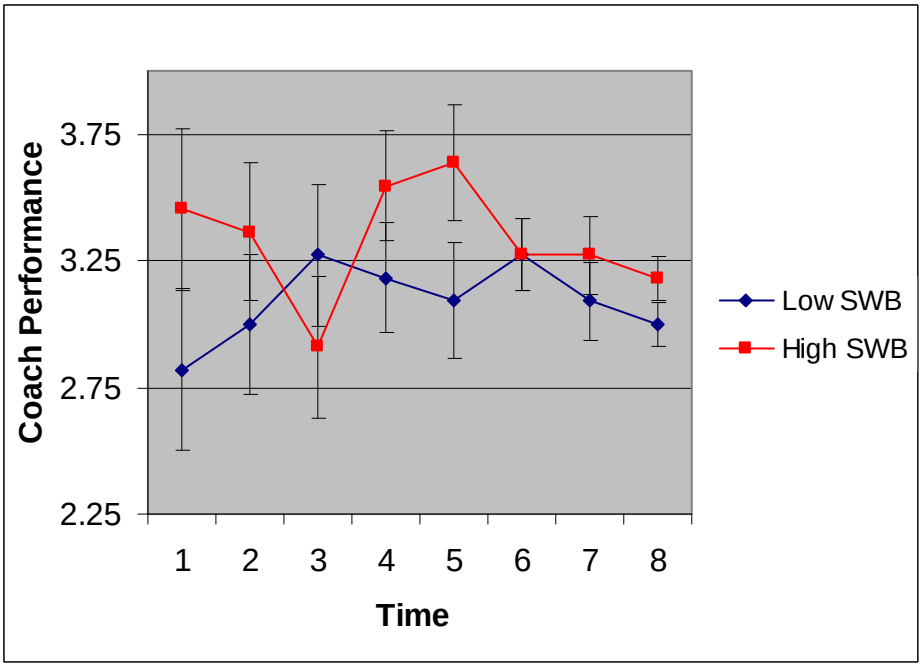
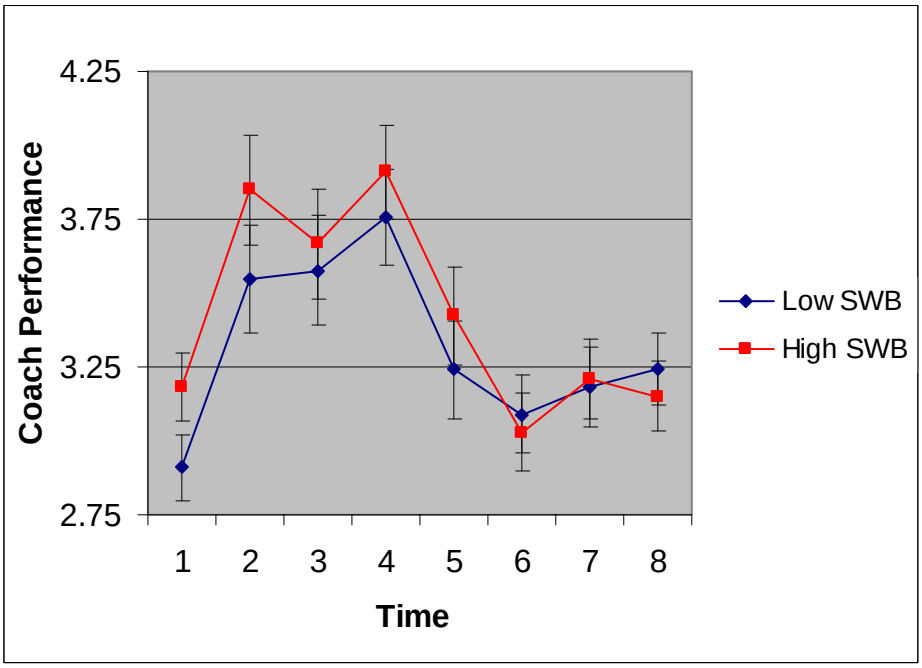


Figure 20: The perception of coach performance measure for high and low SWB groups across time in the entire sample



**Time main effect, p<.01*

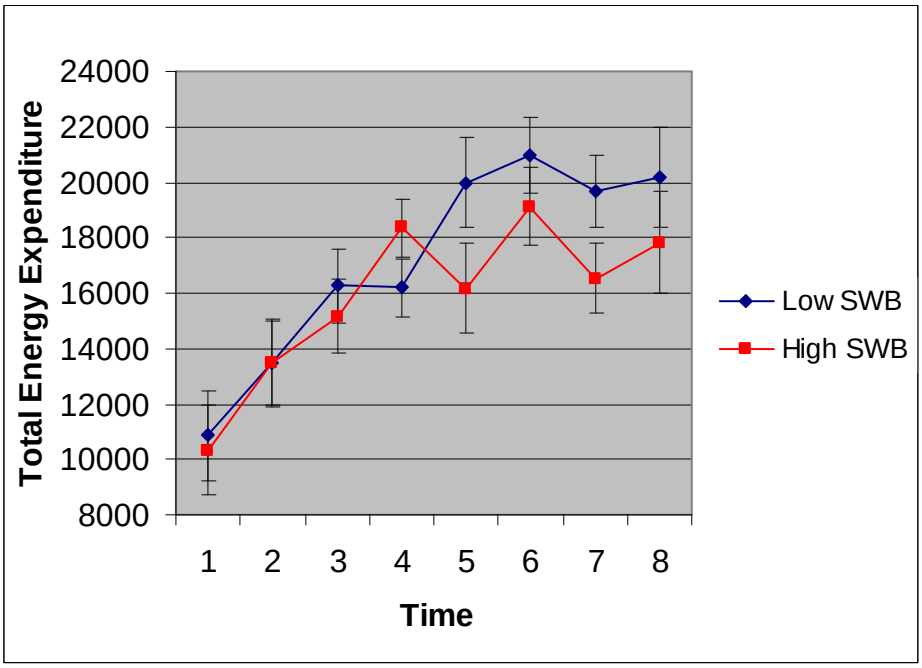
Total Energy Expenditure (TEE)

For the baseball and softball group, a 2 x 8 repeated measures ANOVA was conducted to determine if there was a relationship between SWB (i.e., high and low) and time (i.e., 8 assessment points) on TEE. The main effect for time was significant ($F(7,294)=13.63$, $p<.01$, partial $n^2=.245$). It was found that TEE consistently increased across time until assessment point 7. Using a Tukey's HSD post hoc test ($\alpha=.05$) to compare assessment points, it was found that the TEE score for assessment point 3 was significantly higher than assessment point 1. It was also found that assessment points 4, 5, 6, 7, and 8 were significantly higher than points 1 and 2 with assessment point 6 also being higher than assessment 3. No significant main effect was found between SWB groups ($F(1,42)=.96$, $p>.05$, partial $n^2=.022$) or for the SWB group x time interaction ($F(7,294)=1.26$, $p>.05$, partial $n^2=.029$). A graphic illustration of mean scores for high and low SWB groups across time is provided in Figure 21.

For the hockey and swimming group, a 2 x 8 repeated measures ANOVA was conducted to determine if there was a relationship between SWB (i.e., high and low) and time (i.e., 8 assessment points) on TEE. The main effect for time was significant ($F(7,140)=20.10$, $p<.01$, partial $n^2=.501$). It was found that TEE decreased until assessment point 4 were it increased slightly. Following assessment point 4, TEE decreased again until assessment 7 where it increased slightly through assessment 8. Using Tukey's HSD post hoc tests ($\alpha=.05$) to compare assessment points, it was found that TEE scores for assessment point 1, 2, 3, and 4 were significantly higher than assessment points 5, 6, 7, and 8 with assessment point 1 also being significantly higher than assessment point 3. No significant main effect was found between SWB groups ($F(1,20)=.09$, $p>.05$, partial $n^2=.005$) or for the SWB group x time interaction ($F(7,140)=.77$, $p>.05$, partial $n^2=.037$). A graphic illustration of mean scores for high and low SWB groups across time is provided in Figure 22.

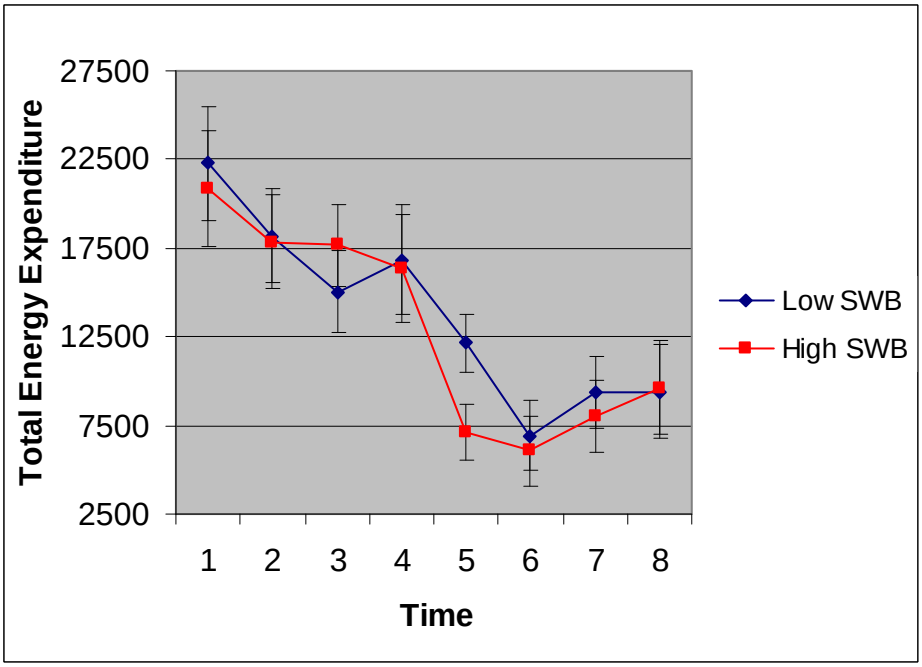
Analysis for the entire sample was also conducted. A 2 x 8 repeated measures ANOVA was calculated to determine the effect of SWB (i.e., high and low) and time (i.e., 8 assessment points) on TEE. The main effect for time was not significant ($F(7,58)=.97$, $p>.05$, partial $n^2=.015$) No significant main effect was found between SWB groups ($F(1,64)=.79$, $p>.05$, 012) or for the SWB group x time interaction effect ($F(7,58)=1.10$, $p>.05$, partial $n^2=.016$). A graphic illustration of mean scores for high and low SWB groups across time for the entire sample is provided in Figure 23.

Figure 21: The perception of total energy expenditure for high and low SWB groups across time in baseball and softball players



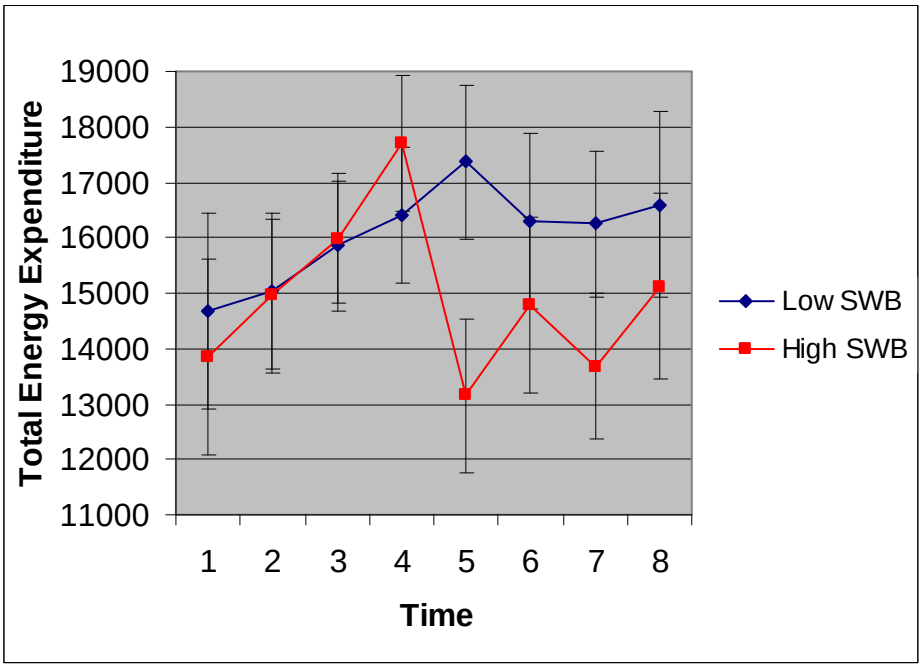
**Time main effect, p<.01*

Figure 22: The perception of total energy expenditure for high and low SWB groups across time in hockey players and swimmers



**Time main effect, p<.01*

Figure 23: The perception of total energy expenditure for high and low SWB groups across time in the entire sample



Satisfaction with Life

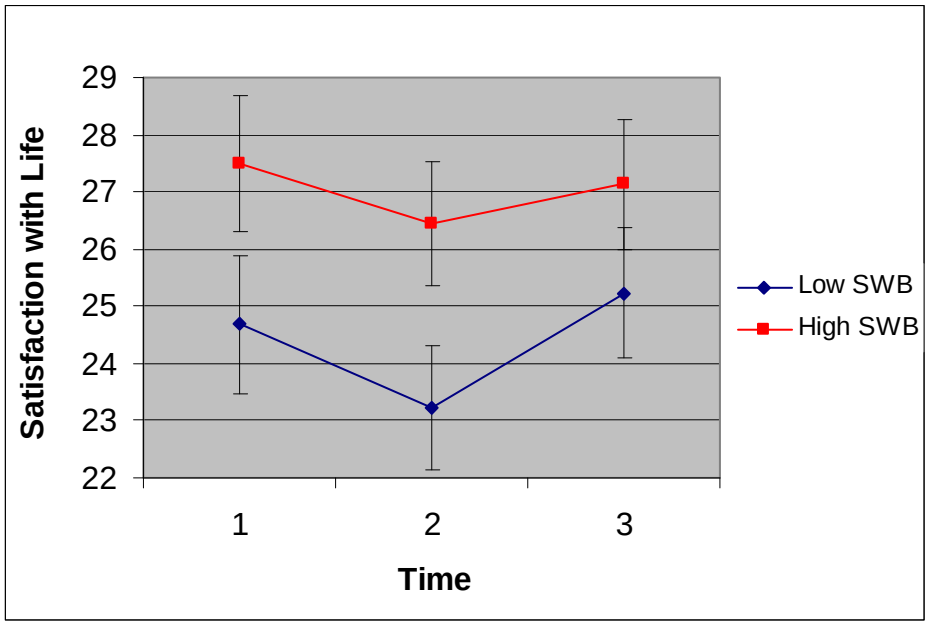
For the baseball and softball group, a 2 x 3 repeated measures ANOVA was conducted to determine if there was a relationship between SWB (i.e., high and low) and time (i.e., 3 assessment points) on satisfaction with life. The main effect for time ($F(2, 41)=2.87$, $p=.077$, partial $n^2=.064$) and SWB groups ($F(1,42)=3.39$, $p=.073$, partial $n^2=.075$) approached significance. There was no significant SWB group x time interaction effect ($F(2,42)=.58$, $p>.05$, partial $n^2=.014$). A graphic illustration of mean scores for high and low SWB groups across time is provided in Figure 24.

For the hockey and swimming group, a 2 x 3 repeated measures ANOVA was conducted to determine if there was a relationship between SWB (i.e., high and low) and time (i.e., 3 assessment points) on satisfaction with life. The interaction effect of SWB group x time was found to be significant ($F(2,19)=4.62$, $p<.05$, partial $n^2=.188$). Using a Tukey's HSD post hoc

test (α=.05) to compare assessment points, it was found that the high SWB group was significantly higher in life satisfaction at assessment points 2 and 3. No significant main effect was found for time (F(2, 19)=.72, p>.05, partial n^2=.035) or between SWB groups (F(1,20)=2.03, p>.05, partial n^2=.092). A graphic illustration of mean scores for high and low SWB groups across time is provided in Figure 25.

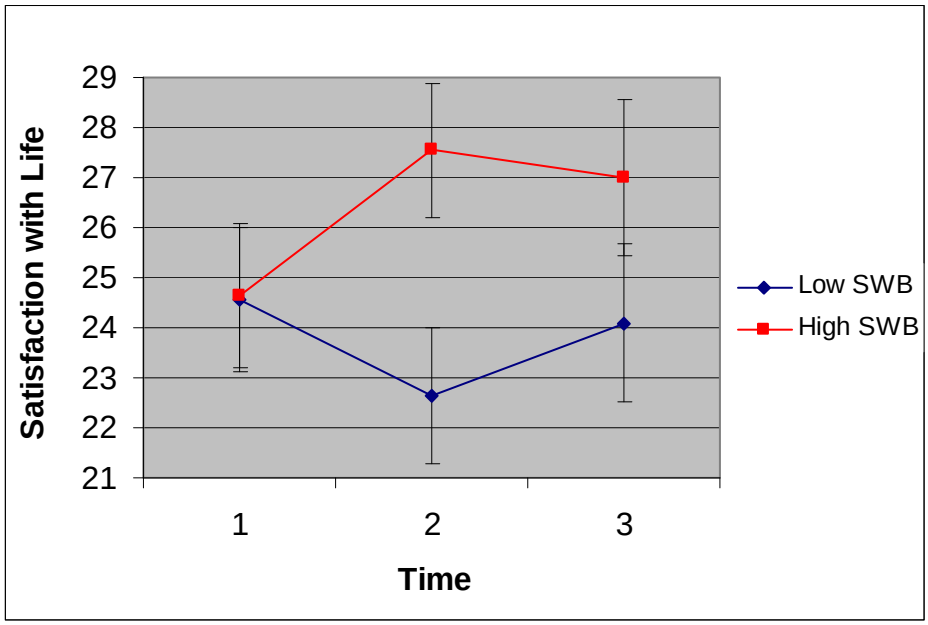
Analysis for the entire sample was also conducted. A 2 x 3 repeated measures ANOVA was conducted to determine if there was a relationship between SWB (i.e., high and low) and time (i.e., 3 assessment points) on satisfaction with life. The main effect between SWB groups was found to be significant (F(1,64)=5.52, p<.05, partial n^2=.079). No significant main effects were found for time (F(2,63)=2.22, p>.05, partial n^2=.034) or for the SWB group x time interaction effect (F(2,63)=1.99, p>.05, partial n^2=.030). A graphic illustration of mean scores for high and low SWB groups across time for the entire sample is provided in Figure 26.

Figure 24: The perception of satisfaction with life for high and low SWB groups across time in baseball and softball players



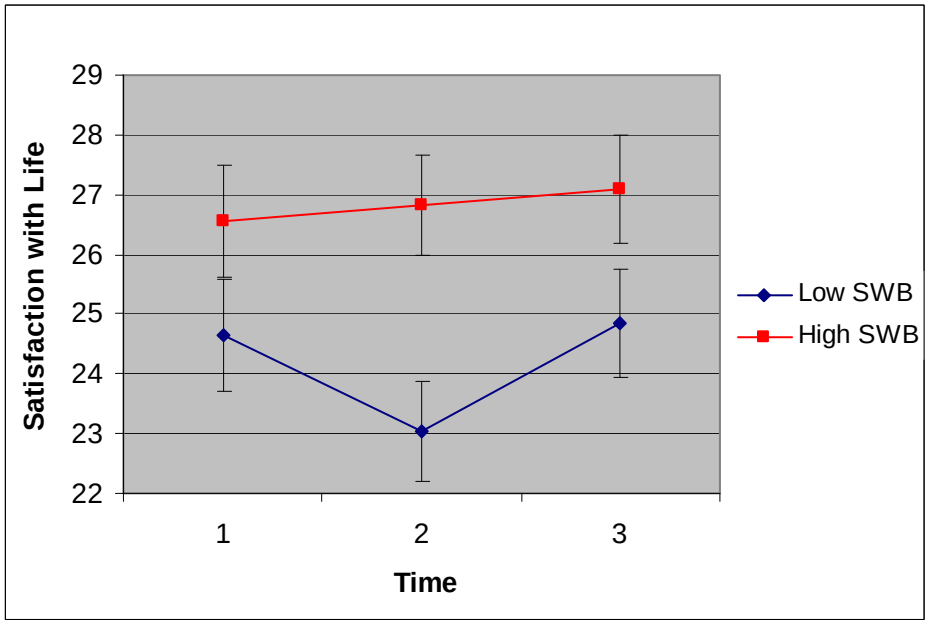
**Time main effect, p=.077, Group main effect, p=.073*

Figure 25: The perception of satisfaction with life for high and low SWB groups across time in hockey players and swimmers



**Group x Time interaction effect, p<.05*

Figure 26: The perception of satisfaction with life for high and low SWB groups across time in the entire sample



** Group main effect, p<.05*

Subjective Well-Being, Life Experiences, Total Energy Expenditure, and Sport Performance across Time: A Correlation Matrix

A Pearson correlation coefficient was calculated for the relationships between the variables at each assessment point. In addition, upon secondary inspection, selected mood states were found to correlate ($p<.05$) with recent life experiences. To further view these correlations, see Appendix I. In addition, the focus of this particular analysis will be on the entire sample. To view specific correlations for either the baseball/softball or hockey/swimming, please see Appendix H.

Total Mood Disturbance

Total mood disturbance was related to academic pressures ($p<.05$) at assessment points 3, 4, 5, 6, and 8. College athletes who reported higher scores for academic pressure also reported more TMD, and correlations ranged from .27 to .55.

Total mood disturbance was related to time pressures ($p<.05$) at assessment points 1, 3, 4, 5, 6, 7, and 8. College athletes who reported higher scores for time pressure also reported more TMD, and correlations ranged from .34 to .55.

Total mood disturbance was related to social isolation ($p<.05$) at all assessment points. College athletes who reported higher scores for social isolation also reported more TMD, and correlations ranged from .44 to .63.

Total mood disturbance was related to relationship issues ($p<.05$) at all assessment points. College athletes who reported higher scores for relationship issues also reported more TMD, and correlations ranged from .26 to .54.

Total mood disturbance was related to player performance ($p<.05$) at assessment point 1. College athletes who reported higher scores in player performance reported lower TMD, at a

correlation of -.45.

Total mood disturbance was related to TEE ($p<.05$) at assessment points 1 and 3. College athletes who reported higher scores for TEE also reported more TMD, and correlations were .29 and .40.

Total mood disturbance was related to life satisfaction ($p<.05$) at assessment points 1 and 5. College athletes who reported higher scores for life satisfaction reported lower TMD, and correlations were -.48 and -.28.

Satisfaction with Life

Life satisfaction was related to academic pressures ($p<.05$) at assessment points 1 and 5. College athletes who reported higher scores for academic pressure reported lower SWL, and correlations were -.25 and -.38.

Life satisfaction was related to time pressure ($p<.05$) at assessment point 1. College athletes who reported higher scores for time pressure reported lower SWL, at a correlation of -.38.

Life satisfaction was related to social isolation ($p<.05$) at assessment points 1 and 5. College athletes who reported higher scores for social isolation reported lower SWL, and correlations were -.34 and -.47.

Life satisfaction was related to relationship issues ($p<.05$) at assessment point 1. College athletes who reported higher scores for relationship issues reported lower SWL, at a correlation of -.33.

Life satisfaction was related to player performance ($p<.05$) at assessment point 1. College athletes who reported higher scores for player performance reported higher SWL, at a correlation of .32.

Life satisfaction was related to TEE ($p<.05$) at assessment point 1. College athletes who report higher scores for TEE reported lower SWL, at a correlation of -.33.

Player Performance Assessment

Player performance assessment was related to social isolation ($p<.05$) at assessment point 2. College athletes who reported higher scores for social isolation reported lower player performance, at a correlation of -.25.

Player performance assessment was related to relationship issues ($p<.05$) at assessment point 1. College athletes who reported higher scores for relationship issues reported lower player performance, at a correlation of -.24.

Player performance assessment was related to coach performance assessment ($p<.05$) at assessment points 1, 2, and 3. College athletes who reported higher scores for the coach performance assessment reported higher player performance, and correlations ranged from .30 to .33.

Coach Performance Assessment

Coach performance assessment was related to academic pressures ($p<.05$) at assessment point 2. College athletes who reported higher scores for academic pressure scored higher on the coach performance assessment, at a correlation of .29.

Coach performance assessment was related to social isolation ($p<.05$) at assessment points 1 and 2. College athletes who reported higher scores for social isolation scored lower on the coach performance assessment, at correlations of -.29 and -.26 respectively.

Coach performance assessment was related to relationship issues ($p<.05$) at assessment points 4 and 6. Correlations for the two points were -.32 and .27 respectively.

CHAPTER V: DISCUSSION

The primary focus of the current study was to investigate college athlete subjective well-being [i.e., total mood disturbance (TMD)] and the factors that were affected and can be affected by SWB. It was hypothesized that college athletes characterized by higher subjective well-being would perform better, have lower Training Energy Expenditure (TEE), and fewer negative life experiences (e.g., stressors) than those athletes characterized as having lower subjective well-being. The following discussion focuses on SWB and the variables of life experiences, TEE, and sport performance.

Life Experiences and Subjective Well Being

The SWB of a student may be affected by the life experiences they encounter (Andrews & Wilding, 2004; D'Angelo & Wierzbicki, 2003; Edwards et al., 2001; Sarafino & Ewing, 1999). In addition, college athletes' dedicate a large portion of their time to athletic responsibilities including performance which may be affected by an individual's mood or level of SWB (Morgan, 1985). If the student faces overwhelming stressors, deleterious effects on levels of SWB may occur.

In support of the hypothesis proposed, college athletes characterized by high SWB experienced fewer negative life experiences than college athletes characterized as having lower SWB. The results of this longitudinal study have in many ways illustrated that multiple factors in a college athlete's life impact their levels of SWB throughout an academic semester. Various life experiences have the potential to affect a college athlete (Andrews & Wilding, 2004; D'Angelo & Wierzbicki, 2003; Edwards et al., 2001). For example, academic pressures changed across the semester for all of the sport teams included in this study.

Within baseball and softball players, the low SWB group experienced higher academic pressures as compared to the high SWB group. This is consistent with the findings of Iglesias et al. (2005) that students experiencing negative feelings will likely experience greater academic struggles and pressure. The differences in academic pressures in the current study, could have been a contributing factor to individual levels of SWB. Academic pressures in the entire sample significantly correlated with SWB at several time points throughout the investigation. This relationship between academic pressures and TMD reached significant values around the middle of the semester and near the end. This was about the time that midterms, projects, and finals occur which could be responsible for some of the increased academic pressure. This illustrates the relationship between perceived academic stress in college athletes and SWB. In addition, academic pressures negatively correlated with life satisfaction at the beginning, middle, and end of the semester.

As expected in college students, academic pressures increased across the semester with the highest perceived stress reported at the end of the semester (Iglesias et al, 2005). These findings were consistent with those found by Ross, Niebling, and Heckert (1999) and illustrate that academic stressors increase throughout the semester. These stressors in conjunction with athletic and other concerns may overwhelm the college athlete and ultimately have the potential to impact and even decrease SWB. In fact, with the exception of assessment point 1 in the hockey and swimming group, those college athletes that were classified as low SWB perceived greater academic pressures throughout the entire academic semester. This pressure may have been a contributing factor to their low SWB classification.

Iglesias et al, (2005) have reported that students that perceived high levels of stress due to academic concerns showed motivation to learn coping strategies, and that these coping strategies

had a positive effect on these students. Levels of anxiety and anger, as well as negative physiological markers all decreased after the stress management program which included coping skills, relaxation, breathing, and imagery techniques. If the college athletes in the current study had been monitored, perhaps the academic pressures these individuals were facing could have been identified and the necessary steps could have been undertaken to alleviate some of the stress.

Struthers, Perry, and Menec (2000) report in their investigation of coping strategies, that problem focused coping strategies have the potential to buffer academic stress and benefit performance. They have reported that those individuals that used these coping strategies showed greater motivation to perform well and as a result showed greater academic performance. Academic stress in students showed an inverse relationship with course grade. Struthers et al. (2000) suggest that students that take advantage of study skill and time management strategies will be better able to deal with the academic stressors they face. Having the ability to cope with these stressors and succeed academically could have potentially benefitted those in the current study classified as low SWB, allowing each of them to move towards or even into the high SWB group.

Feelings of social isolation can also contribute to perceived stress in a college athlete's life and possibly impact well-being. Edwards et al. (2001) suggest that interpersonal issues are a dominant concern of college students. As such, the presence of negative social exchange (e.g., negative interactions with others that may lead to isolation) leading to social isolation may impact a college athletes' view of well-being at this important stage of life. Experiences in early adulthood and the college years are instrumental for the development of identity and interpersonal intimacy according to Erikson's (1959) life stages. Therefore, it is not surprising

that social intimacy and feelings of isolation may be experienced in the college years as the person continues to form his or her identity. Those individuals who have not fully developed their identity may struggle with intimate and interpersonal relationships according to Erikson (1959, 1968). Individuals that show higher levels of social isolation may not have fully formed this personal identity making it more difficult to cultivate intimate relationships at this point in time which may affect levels of well-being.

It was evident in the sample investigated that athletes characterized by lower SWB experienced more social isolation as compared to those athletes with higher SWB. Correlational values for the relationship between social isolation and TMD were consistently significant throughout the entire study. Life satisfaction was also significantly negatively correlated with social isolation at two of the three assessment points.

The presence of social support and lack of negative social exchange (Edwards et al., 2001) could contribute to an increased level of SWB. In fact, Edwards et al., (2001) have reported that negative social exchange and positive social support can significantly impact mental and physical health in college students. Jung and Khalsa (1989) state those students receiving more social support would be less impaired by various stressors they face. Daily stressors have the potential to impact well-being of college students (Edwards et al., 2001). In this study, college athletes who reported more social isolation (i.e., low SWB group) may be more adversely affected by daily stressors contributing to their low subjective well-being. Interventions to improve interpersonal and other life skills may aid student-athletes with low SWB to foster positive social support and minimize the effects of negative life stressors and feelings of social isolation.

In addition to feelings of social isolation, relationship issues are also a major concern

among college students (Andrews & Wilding, 2004). Negative relationship issues can include disagreements with an important individual in a person's life, separation from important others, significant others' health issue, or other serious problems with a friend, family member, or significant other, and these issues have the potential to affect SWB (Andrews & Wilding, 2004; Chow, 2007). The status of relationships with friends, family or significant others can impact an individuals' view of personal well-being (Johnson, 1992). Johnson (1992) has reported that stressors and issues with family significantly correlated with psychological issues such as depression, anxiety, anger, paranoia, somatization, as well as eating and sleeping problems in their sample of college undergraduates. Chow (2007) has also reported relationships with friends, family, and significant others as a significant predictor of well-being in their sample of collegiate students. Those individual's reporting more positive relationships in the study, showed higher levels of well-being (Chow, 2007).

In general, college athletes with lower SWB, scored higher in relationship issues concerning friends, family, and significant others. These findings were consistent with those of Chow (2007). Exceptions to this generalization were for assessment points 6 and 7 of the hockey and swimming sample. Relationship issues using the entire sample showed significant and consistent correlations throughout the study with SWB as defined by TMD. Relationship pressures have the potential to impact a students' level of SWB (Chow, 2007) which may have been the case in the current sample. Monitoring the well-being and daily stressors (e.g., relationship issues) in the lives of college athletes may have aided those classified as having lower SWB through intervention strategies to improve these relationships.

In addition to academic pressures, social isolation issues, and relationship issues, another important concern in a college athletes' life is the presence of time pressures. Bailey and Miller

(1998) reported that up to a certain point, the greater a students' involvement in their life the more satisfied they will be with their life. Andrews and Wilding (2004) stated however, that if involvement leads to overwhelming stress or possible time conflicts, then this pressure can lead to decreased academic performance and levels of SWB. The potential for overwhelming time concerns is increased in college athletes due to added athletic responsibilities such as practices, games, and other university and community involvement.

College athletes with lower SWB reported greater pressures due to time constraints. Interestingly, when the entire sample was investigated, the high SWB group showed moderate consistency in time pressure scores throughout the study while the low SWB group showed a continual increase in time pressures throughout the semester up to the final week of the semester. For the entire sample, time pressures significantly and consistently correlated with TMD throughout the investigation with the exception of assessment point 2 illustrating the impact time pressures place on SWB. This suggests the possibility of greater coping resources to time constraints in the high SWB group. Jones and Johnston (1997) reported that coping strategies benefitted overwhelmed first year student nurses in dealing with the stressors they encountered (e.g., time constraints, academic concerns, financial responsibilities).

Taking a holistic view of the life experiences investigated within this study, it is clearly evident that the stressors college athletes encounter over an academic semester were associated with SWB. In the current study, college athletes characterized by low and high SWB reacted differently to the life experiences each faced across the academic/competitive season. The four life experiences investigated within the current study are similar to those D'Angelo and Wierzbicki (2003) and Ross et al. (1999) have identified as major stressors in a college student's life.

A possible explanation for the differences in the life experiences investigated may have been an inability of the low SWB group to cope with the stress or negative life experiences they faced which in turn contributed to their lower levels of SWB. Coping mechanism have been shown to help alleviate the deleterious effects of negative life experiences (Iglesias et al, 2005; Jones & Johnston, 1997; Moneta & Spada, 2009; Struthers, Perry, & Menec, 2000). Monitoring life experiences in conjunction with developing coping skills may benefit student-athletes with low SWB.

The monitoring of fluctuations in life experiences and their effect on perceived stress in college athletes could prove to be a valuable tool in promoting SWB and would be consistent with Raglin's (2001) recommendations for evaluating psychological health for both the performance and the general health of the athletes. Monitoring could provide the opportunity to aid college athletes in coping with negative life experiences in order to increase SWB which may also benefit other aspects in their lives.

Training Energy Expenditure and Subjective Well Being

In addition to life experiences, other factors in a college athlete's life have the potential to affect SWB. Morgan (1985, 1987) has reported on the dose-response relationship between training load and mood (i.e., SWB). Morgan et al. (1987) has reported that increased training load leads to increased mood disturbance or decreased levels of well-being.

Contrary to the hypothesis proposed, college athletes characterized by higher SWB did not have lower total energy expenditure than those athletes characterized as having lower SWB in the current study. A level of total energy expenditure was used to determine an approximate training load for both high and low SWB groups. There was no statistically significant difference in TEE between high and low SWB groups when baseball and softball, hockey and

swimming, or the entire sample groups were investigated. In other words both groups were engaging in comparable training levels.

Standardized training programs may yield positive results for some athletes and negative results for other athletes. That is, some athletes are better able to handle higher training loads. It is possible that the higher SWB group utilized better coping strategies such as engaging in more recovery activities and having better time management. As such, there may have been less of an impact on mood disturbance and SWB in the high SWB group as compared to the low SWB group.

If this were indeed the case, training levels for the low SWB groups could have been titrated based on measures of SWB, such as mood states. Berglund and Safstrom (1994) implemented a monitoring process in their investigation of Olympic canoeists and found that this process benefitted these athletes' levels of well-being in response to heavy training periods. The improvement in SWB that could have potentially occurred in the current study may have in fact improved the classification of low SWB individuals entirely. Titration of training levels based on mood state responses is a product of the dose-response relationship between these two variables identified in the overtraining literature (Berger, 1999; Berglund & Safstrom, 1994; Morgan, 1985; Morgan et al. 1987; Raglin, Morgan, & O'Connor, 1991). By monitoring individual training loads, SWB may be maintained or enhanced in college athletes.

Sport Performance and Subjective Well Being

Another factor that has the potential to affect SWB as well as be affected by SWB is the sport performance of student-athletes. According to the Mental Health Model (Morgan, 1985), well-being (i.e., mood) is positively associated with performance. That is, athletes generally perform better when they are experiencing more positive mood than when they are not. It may

also be argued that athletic performance can have an adverse affect on the life experiences and the SWB of college athletes.

Contrary to the hypothesis proposed, college athletes characterized by high SWB did not perform better than those athletes classified as having lower SWB. Both groups showed similar performance fluctuations across time throughout the study. Performance measures for both personal and coach assessments indicated no significant differences in player performance for either group. These findings were unexpected. Performance was shown to fluctuate over time in both the player and coach assessments as expected over a long season, but no group or interaction effects were noted for performance.

According to the MHM it could be expected that an individual with low mood disturbance (i.e., high SWB) should outperform an individual with high mood disturbance (i.e., low SWB). However this is not always the case as was shown in the current study. An important factor to consider was the consistency of individual athlete profiles and each individual's optimum level for functioning (Jokela & Hanin, 1999; Oishi, Diener, & Lucas, 2007; Terry, 1995). Those individual's classified as low SWB could potentially outperform individuals with high SWB.

Individual's that were classified as having low SWB and would be consistently lower in SWB could experience bouts or periods of more positive mood and well-being as compared to their individual normal levels, while still being classified as low SWB. This in turn could have led to increased levels of performance. These thoughts are consistent with those of Morgan's (1985) that individuals showing more positive mood will generally perform better, but this was regardless of the SWB classification.

Conversely, individuals that were classified as having higher SWB and would be

consistently higher in SWB could experience bouts of more negative mood and well-being as compared to their normal levels affecting their performance in a negative direction. As a result, an individual that has a theoretically negative profile could potentially experience higher levels of well-being as compared to their own individual profile, potentially allowing them to perform as well or even possibly outperform someone who is high in SWB.

Using the work of Morgan (1985) and the MHM in this context, a possible explanation for the unexpected similarities in performance between the high and low SWB groups may be provided.

Implications

This study provides support for the need to monitor athlete's level of subjective well-being to ensure both psychological and physical health. Numerous stressors faced by college students have the potential to impact well-being. College athletes face the additional stressor of playing and performing at a highly competitive level. Athletic departments, coaches, and the athletes themselves need to be aware of the importance of evaluating these stressors and the impact they may have on performance and more importantly mental health. College athletes are not immune to psychological disturbance or suicidal ideation (Manair, Chamberlain, & Moore, 2005). By monitoring fluctuations in well-being, any athlete that is suffering or feeling undue stress as a result of the pressures they face, should be identified and the proper precautions should be taken to ensure the athlete receives proper care. This care should be the responsibility of athletic departments and coaches. Physical injuries athletes encounter are treated with the utmost care. Psychological injury and disturbance should be treated in the same fashion. Any one athlete that experiences mental health instability due to the stressors they face academically and athletically may crumble under the pressures. No coach or athletic department wants to

explain to the family of that one individual why they were not being monitored for mental as well as physical health.

Limitations

Several limitations have arisen within the study that should be noted. One possible limitation is the sample size of the study. The study began with approximately one-third of the athletic population at a Mid-Western University but due to the extended length of the study and the parameters set forth (i.e., athletes missing more than 2 assessments would be omitted from analysis) within the study, several athletes were either removed from final data analysis or chose not to participate. The majority of athletes removed or choosing not to participate were in the Hockey and Swimming group which caused several statistical limitations within that group. An unforeseen attrition by senior athletes (i.e., no longer attended meetings, some left to play professional sport) in this group following completion of the athletic season accounted for some of the difficulties. The Baseball and Softball athletic seasons continued through the end of the academic semester which more than likely contributed to the increased adherence rate.

Another limitation within the study was the lack of an objective measure of performance. Having an objective measure of performance may have provided a more accurate depiction of individual performance fluctuations and their relationship to both the high and low SWB groups. An objective measure such as performance times, points, or other relevant sport performance information, could have provided a more accurate analysis of performance throughout the academic and athletic seasons.

A possible issue to also be considered is the generalizability of this study to all college athletes. This investigation was performed at a midsized Mid-Western University and as such may only be relevant to similar institutions and athletes. It is possible that college athletes in

different regions or at differing levels of athletic competition may not experience the same pressures the individuals in this study encountered. As such these results should be interpreted carefully.

The last possible limitation was that the study only consisted of one academic semester. Having an entire academic and athletic year from August to May would have provided more comprehensive information. However, due to the length of the study, athlete dropout may have increased above current levels.

Future Directions

Future investigations should examine Subjective Well-Being as measured by the individual scales of the POMS. In order to address the monitoring of college athlete well-being it would be essential to gain an in depth understanding of dynamic individual levels of well-being and the factors affecting each college athlete. This would allow for a more applied sport psychology/counseling approach to the well-being of college athletes which would be necessary to gain an accurate representation of individual life experiences, training load, sport performance, and SWB. Using an individual and holistic approach to the monitoring of SWB, one may find that an athlete with a theoretically negative profile may show consistency within that profile which may ultimately benefit academic and athletic performance. By taking this approach through possible case studies and building upon the work completed within the current investigation, as well as the MHM, a more comprehensive and complete view of college athlete monitoring may be available.

Summary

This investigation has revealed that college athletes with higher SWB perceived their life experiences as being less negative than individuals with lower SWB. College athletes with higher SWB surprisingly did not differ in performance or TEE as expected compared to lower SWB college athletes. In both the high and low SWB groups, life experiences and performance changed across an academic/competitive season. Academic pressures were found to significantly correlate with well-being around the middle and end of the semester when midterms, final exams, and projects demand more of a student's time. Time pressures, social isolation, and relationship issues correlated significantly with SWB throughout the investigation illustrating the importance of these experiences to well-being in college athletes.

This investigation has provided evidence for the need to monitor SWB to ensure the psychological health of college athletes which may increase the probability of college athletes performing better as a result of heightened levels of well-being (Morgan, 1985; Raglin, 2001). The interrelationships of academic, athletic, and psycho-social factors (See Figure 2) in a college athlete's life need to be considered when evaluating subjective well-being. By monitoring the dynamic fluctuations in all variables, a more comprehensive understanding of the factors that affect a college athlete's ability to experience high levels of well-being and performance can be gained.

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Appendix A

Coach Informed Consent Form

Project Title: Psychological Well-Being, Sport Performance, Training Load and Life Experiences of College Athletes

Research Group: Tyler Masters, Graduate Student, Developmental Kinesiology
David Tobar, Assistant Professor, School of HMSLS
Mike Urbin, Undergraduate Student, Kinesiology

The purpose of this study will be to examine the relationships between sport performance, training, life experiences, and psychological factors in a sample of student athletes from the BGSU Men's Hockey, Men's Baseball, Women's Softball and Women's Swimming programs. The study is being conducted for a Graduate Student's Master's Degree. We are interested in examining personality, training load, and life experiences as they relate to the psychological responses and performance of athletes during the academic and competitive seasons. We are also interested in whether these relationships in college athletes are consistent across the different sports. A goal of this study is to provide information on factors related to sport performance and the psychological well being of athletes which may be used in later investigations to develop strategies to enhance the experience of college student athletes in the athletic and/or academic setting.

Athletes who participate in this study will be asked to complete questionnaires once every two weeks throughout the off season and competitive season for the duration of one academic year. For all but two assessment points, completion of the questionnaires will take approximately 10 minutes. The initial and final assessments will take approximately 20 minutes. As a part of the study I will provide the researcher with a coaches' assessment of player performance in the same two week intervals.

If you have any additional questions or concerns about this study, please feel free to contact Tyler Masters, 419-575-4232, tylerjm@bgsu.edu or Dr. Tobar, 419-372-6914, dtobar@bgsu.edu. Participants with questions or concerns may also contact the Chair, Bowling Green State University's Human Subjects Review Board, 419-372-7716.

My signature below indicates that: I provide consent for the researchers to ask the athletes on my team if they would like to participate in this research study. Additionally, I have been informed that:

- All information collected from participating athletes will be confidential,
- My athletes' participation is entirely voluntary,
- Athletes may withdraw consent and terminate participation at any time during the project,
- I have been informed of the procedures that will be requested of my athletes,
- Upon request, athletes and coaches will receive a summary of the findings of the study, and
- As part of the study, I am responsible for completing the Coaches Assessment of Each Player's Performance Measure which will be provided to me.

_____ _____

Signature Date Printed Name

_____ _____

Address Phone Number/ E-mail

Appendix B

Athlete Informed Consent Form

Project Title:	Sport Performance, Training Load, Life Experiences and Mood States of College Athletes.
Research Group:	Tyler Masters, Graduate Student, Developmental Kinesiology David Tobar, Assistant Professor, School of HMSLS Mike Urbin, Undergraduate Student, Kinesiology

I willingly provide my consent to participate in a research study examining the relationship between personality, training load, life experiences, mood state and performance in a sample of BGSU athletes. I understand this study is being conducted for a Master's Degree program. My involvement in this study includes completing questionnaires measuring the factors mentioned above once every two weeks throughout the academic and competitive seasons. The total duration of the study will last one scholastic year. Completion of the questionnaires is estimated at 10 minutes per assessment with the initial/ final assessments estimated at 20 minutes. I have been informed that my coach will provide the researchers with the performance of each athlete and the team for the competitive season.

All data that I provide as a participant in this study will be kept in a locked file cabinet in a locked office to protect the confidentiality of my identity, and only the researchers will see the data that I provide. It has been explained that any reference to my name or identifying feature that could be used to identify me will be removed or coded during data analysis and in publication of results of this study. I have been informed that there is minimal, if any risk associated with participation in this study, and a goal of this study is to provide information on factors related to the psychological well-being of athletes which may be used in later investigations to develop strategies to enhance the experience of college student athletes in the athletic and/or academic setting.

If I have any questions about this study, I may contact Tyler Masters, 419-575-4232, tylerjm@bgsu.edu or Dr. Tobar, 419-372-6914, dtobar@bgsu.edu. I may also contact the Chair, Bowling Green State University's Human Subjects Review Board, 419-372-7716 or hsrb@bgsu.edu, with questions or concerns about my rights as a research participant.

My signature below indicates that I have been informed:

- I must be over the age of 18 in order to participate in this study,
- all information that I provide will be confidential,
- my coaches will not receive any information about this study in which my individual responses can be identified,
- my decision to participate in this study is entirely voluntary and will have no impact on my standing with the team, grades, class standing or relationship to BGSU in any way,
- I may withdraw consent and terminate participation at any time during the project,
- I have been informed of the procedures that will be requested of me,
- A copy of this informed consent document will be provided to me, and
- Upon request athletes and coaches will receive a summary of the findings of the study.

_____ _____

Signature Date Printed Name

_____ _____

Address Phone Number/ E-mail

Appendix C

Demographics Sheet

Name:

Sport:

Height: Weight:

Year in School (e.g., 1st year, 2nd year, etc):

Appendix D

POMS™ Brief Form

BY DOUGLAS M. McNAIR, Ph.D., MAURICE LORR, Ph.D., JW P. HEUCHERT, Ph.D., & LEO F. DROPPLEMAN, Ph.D.

Name: _____ **Age:** _____ **Gender:** Male Female (Circle one)

Birth Date: ___/___/___ (Month / Day / Year) **Today's Date:** ___/___/___ (Month / Day / Year)

To the Administrator:

Place a checkmark ✔ in one box to specify the time period of interest.

To the Respondent:

Below is a list of words that describe feelings that people have. Please read each word carefully. Then circle the number that best describes

☒ how you have been feeling during the PAST WEEK, INCLUDING TODAY.

☒ how you feel RIGHT NOW.

☑ other: how you have been feeling during the past 2 weeks including today

If no box is marked, please follow the instructions for the first box.

POMS™

		Not at all	A little	Moderately	Quite a bit	Extremely
1.	Tense	0	1	2	3	4
2.	Angry	0	1	2	3	4
3.	Worn out	0	1	2	3	4
4.	Lively	0	1	2	3	4
5.	Confused	0	1	2	3	4
6.	Shaky	0	1	2	3	4
7.	Sad	0	1	2	3	4
8.	Active	0	1	2	3	4
9.	Grouchy	0	1	2	3	4
10.	Energetic	0	1	2	3	4
11.	Unworthy	0	1	2	3	4
12.	Uneasy	0	1	2	3	4
13.	Fatigued	0	1	2	3	4
14.	Annoyed	0	1	2	3	4
15.	Discouraged	0	1	2	3	4
16.	Nervous	0	1	2	3	4
17.	Lonely	0	1	2	3	4
18.	Muddled	0	1	2	3	4
19.	Exhausted	0	1	2	3	4
20.	Anxious	0	1	2	3	4
21.	Gloomy	0	1	2	3	4
22.	Sluggish	0	1	2	3	4
23.	Weary	0	1	2	3	4
24.	Bewildered	0	1	2	3	4
25.	Furious	0	1	2	3	4
26.	Efficient	0	1	2	3	4
27.	Full of pep	0	1	2	3	4
28.	Bad-tempered	0	1	2	3	4
29.	Forgetful	0	1	2	3	4
30.	Vigorous	0	1	2	3	4

Please ensure you have answered every item.

Appendix E

The Satisfaction With Life Scale (SWLS)

Instructions: Using the rating scale provided below, please indicate your agreement with each item. Place the appropriate number on the line preceding the item. Be open and honest in your responses.

Rating Scale:
(1) strongly disagree, **(2)** disagree, **(3)** slightly disagree, **(4)** neither agree nor disagree, **(5)** slightly agree, **(6)** agree, **(7)** strongly agree.

_____ 1. In most ways my life is close to my ideal.

_____ 2. The conditions of my life are excellent.

_____ 3. I am satisfied with my life.

_____ 4. So far I have gotten the important things I want in my life.

_____ 5. If I could live my life over, I would change almost nothing.

Appendix F

College Student Athletes Experiences Survey

Following is a list of experiences which many students have some time or other. Please indicate for each experience how much it has been a part of your life over the past two weeks. Please circle the number representative of your intensity of experience. Please circle the first honest answer that comes to your mind.

*Intensity of Experience over **Past 2 Weeks***

1= *not at all* part of my life, 2= *only slightly* part of my life, 3= *distinctly* part of my life, 4= *very much* part of my life

	Not at All----------Very much so			
1. Struggling to meet your own academic standards	1	2	3	4
2. Not enough leisure time	1	2	3	4
3. Social isolation	1	2	3	4
4. Being let down or disappointed by friend/ girlfriend/ boyfriend/ family	1	2	3	4
5. Lower grades than you hoped for	1	2	3	4
6. Not enough time to meet your obligations	1	2	3	4
7. Being taken for granted	1	2	3	4
8. Conflict with friend/ boyfriend/ girlfriend/ family	1	2	3	4
9. Finding courses too demanding	1	2	3	4
10. A lot of responsibilities	1	2	3	4
11. Being ignored	1	2	3	4
12. Having your trust betrayed by friend/ girlfriend/ boyfriend/ family	1	2	3	4

13. Over the past two weeks, rate your athletic performance compared to personal expectations?

Below Somewhat below At Somewhat above Well above

14. Over the past two weeks, rate your team's performance compared to personal expectations for the team?

Below Somewhat below At Somewhat above Well above

15. Are you **Currently** suffering from an injury that has/ will force you to miss practice/ competition for at least 1 week?

Yes No

16. Please indicate over the past two weeks the amount of time you have spent doing the following and the intensity with which you performed?

	Past 2 Weeks Time in hours/ minutes	Intensity Very Easy 1 2 3 4 5 6 7 8 9 10 Very Hard
Studying	_____hrs _____min	1 2 3 4 5 6 7 8 9 10
Resistance Exercise	_____hrs _____min	1 2 3 4 5 6 7 8 9 10
Running	_____hrs _____min	1 2 3 4 5 6 7 8 9 10
Plyometrics	_____hrs _____min	1 2 3 4 5 6 7 8 9 10
Practice/ Playing Time	_____hrs _____min	1 2 3 4 5 6 7 8 9 10
_____	_____hrs _____min	1 2 3 4 5 6 7 8 9 10
_____	_____hrs _____min	1 2 3 4 5 6 7 8 9 10

Appendix G

Coaches Assessment of Each Athlete's Performance

Please rate how you feel each individual player has performed over the past **2 Weeks as compared to your personal expectation of performance for each individual athlete.**

Player Name	Sport Performance Measure Compared to Average Over Past 2 Weeks				
Player #1	Below	Somewhat below	At	Somewhat above	Well above
Player #2	Below	Somewhat below	At	Somewhat above	Well above
Etc.	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above
_____	Below	Somewhat below	At	Somewhat above	Well above

Appendix H

Subjective Well-Being, Life Experiences, Total Energy Expenditure, and Sport Performance Across Time: A Correlation Matrix

Assessment Point 1: January 7-11

Baseball/Softball

A positive correlation was found between TMD and social isolation ($r(42)=.490$, $p<.01$), and between TMD and relationship issues ($r(42)=.474$, $p<.01$). Student-athletes experiencing high TMD score high in social isolation and relationship issues. A negative correlation was found between TMD and player performance ($r(20)=-.316$, $p<.05$) and between TMD and satisfaction with life ($r(42)=-.495$, $p<.01$). Student-athletes scoring high on TMD score low on player performance and satisfaction with life.

A positive correlation was found between TEE and academic pressure ($r(42)=.381$, $p<.05$), and between TEE and time pressure ($r(42)=.455$, $p<.01$). Student-athletes experiencing high TEE score high in academic pressure and time pressure.

Negative correlations were found between satisfaction with life and academic pressure ($r(42)=-.318$, $p<.01$), between satisfaction with life and time pressure ($r(42)=-.372$, $p<.05$), between satisfaction with life and social isolation ($r(42)=-.485$, $p<.01$), and between satisfaction with life and relationship issues ($r(42)=-.349$, $p<.05$). Student-athletes scoring high on satisfaction with life score low in academic pressure, time pressure, social isolation, and relationship issues.

Hockey/Swimming

A positive correlation was found between TMD and time pressure ($r(20)=.587$, $p<.01$), and between TMD and TEE ($r(20)=.554$, $p<.01$). Student-athletes experiencing high TMD score high in time pressure and TEE. A negative correlation was found between TMD and player

performance ($r(20)=-.612$, $p<.01$) and between TMD and satisfaction with life ($r(20)=-.463$, $p<.05$). Student-athletes scoring high on TMD score low on player performance and satisfaction with life.

A negative correlation was found between player performance and relationship issues ($r(20)=-.494$, $p<.01$). Student-athletes scoring high on player performance are low in relationship issues.

A positive correlation was found between coaches' measure of performance and player performance ($r(20)=.497$, $p<.05$). Student-athletes scoring well in the coaches rating score high in player performance.

A negative correlation was found between satisfaction with life and social isolation ($r(20)=-.458$, $p<.05$). Student-athletes scoring high on satisfaction with life are low in social isolation.

Entire Sample

Positive correlations were found between TMD and time pressure ($r(64)=.336$, $p<.01$), between TMD and social isolation ($r(64)=.444$, $p<.01$), between TMD and relationship issues ($r(64)=.521$, $p<.01$), and between TMD and TEE ($r(64)=.404$, $p<.01$),. Student-athletes scoring high on TMD score high on time pressure, social isolation, relationship issues and TEE. A negative correlation was found between TMD and player performance ($r(64)=-.453$, $p<.01$) and between TMD and satisfaction with life ($r(64)=-.479$, $p<.01$). Student-athletes scoring high on TMD score low on player performance and satisfaction with life.

A negative correlation was found between player performance and relationship issues ($r(64)=-.243$, $p<.05$). Student-athletes scoring high on player performance, scored low in relationship issues.

A negative correlation was found between coaches' measure of performance and social isolation ($r(64)=-.287$, $p<.05$). Student-athletes scoring high on the coaches' measure of performance are low in social isolation. A positive correlation was found between coaches' measure of performance and player performance ($r(64)=.327$, $p<.01$). Student-athletes scoring well in the coaches rating score high in player performance.

A positive correlation was found between TEE and academic pressure ($r(64)=.342$, $p<.01$), and between TEE and time pressure ($r(64)=.446$, $p<.01$). Student-athletes experiencing high TEE score high in academic pressure and time pressure.

Negative correlations were found between satisfaction with life and academic pressure ($r(64)=-.377$, $p<.01$), between satisfaction with life and time pressure ($r(64)=-.380$, $p<.01$), between satisfaction with life and social isolation ($r(64)=-.468$, $p<.01$), between satisfaction with life and relationship issues ($r(64)=-.326$, $p<.01$), and between satisfaction with life and TEE ($r(64)=-.326$, $p<.01$). Student-athletes scoring high on satisfaction with life score low in academic pressure, time pressure, social isolation, relationship issues, and TEE. A positive correlation was found between satisfaction with life and player performance ($r(64)=.321$, $p<.01$). Student-athletes scoring high in satisfaction with life score high in player performance.

Assessment Point 2: January 21-25

Baseball/Softball

A positive correlation was found between TMD and social isolation ($r(42)=.589$, $p<.01$), and between TMD and relationship issues ($r(42)=.530$, $p<.01$). Student-athletes experiencing high TMD score high in social isolation and relationship issues.

A positive correlation was found between TEE and academic pressure ($r(42)=.370$, $p<.05$), and between TEE and coaches' measure of performance ($r(42)=.333$, $p<.05$). Student-

athletes experiencing high TEE score high in academic pressure and on the coaches' measure of performance.

A positive correlation was found between coaches' measure of performance and player performance ($r(42)=.329$, $p<.05$). Student-athletes scoring high on the coaches' measure of performance score high on the personal performance measure.

Hockey/Swimming

A positive correlation was found between TMD and social isolation ($r(20)=.538$, $p<.01$), and between TMD and relationship issues ($r(20)=.429$, $p<.05$). Student-athletes experiencing high TMD score high in social isolation and relationship issues.

A positive correlation was found between coaches' measure of performance and academic pressure ($r(20)=.610$, $p<.01$). Student-athletes scoring well in the coaches rating are high in academic pressure.

Entire Sample

A positive correlation was found between TMD and social isolation ($r(64)=.558$, $p<.01$), and between TMD and relationship issues ($r(20)=.498$, $p<.01$). Student-athletes experiencing high TMD score high in social isolation and relationship issues.

A positive correlation was found between player performance and social isolation ($r(64)=.247$, $p<.05$). Student-athletes experiencing scoring high on personal performance score high in social isolation.

A positive correlation was found between coaches' measure of performance and academic pressure ($r(64)=.290$, $p<.05$), and between coaches' measure of performance and player performance ($r(64)=.530$, $p<.05$). Student-athletes scoring high on coaches' measure of performance score high in academic pressure and on the player performance measure. A

negative correlation was found between coaches' measure of performance and social isolation ($r(64)=-.257$, $p<.05$). Student-athletes scoring high on the coaches' measure of performance score low on social isolation.

A positive correlation was found between TEE and academic pressure ($r(64)=.380$, $p<.01$), and between TEE and time pressure ($r(64)=.304$, $p<.05$). Student-athletes experiencing high TEE score high in academic pressure and time pressure.

Assessment Point 3: February 4-8

Baseball/Softball

A positive correlation was found between TMD and time pressure ($r(42)=.399$, $p<.01$), between TMD and social isolation ($r(42)=.756$, $p<.01$), and between TMD and relationship issues ($r(42)=.518$, $p<.01$). Student-athletes experiencing high TMD score high in time pressure, social isolation, and relationship issues.

A positive correlation was found between coaches' measure of performance and player performance ($r(42)=.337$, $p<.05$). Student-athletes scoring high on the coaches' measure of performance score high on the personal performance measure.

A positive correlation was found between TEE and academic pressure ($r(42)=.395$, $p<.01$). Student-athletes experiencing high TEE score high in academic pressure.

Hockey/Swimming

A positive correlation was found between TMD and academic pressure ($r(20)=.453$, $p<.05$), and between TMD and time pressure ($r(20)=.539$, $p<.05$). Student-athletes experiencing high TMD score high in academic pressure, and time pressure.

A positive correlation was found between TEE and academic pressure ($r(20)=.441$, $p<.05$). Student-athletes experiencing high TEE score high in academic pressure.

Entire Sample

Positive correlations were found between TMD and academic pressure ($r(64)=.307$, $p<.05$), between TMD and time pressure ($r(64)=.443$, $p<.01$), between TMD and social isolation ($r(64)=.556$, $p<.01$), and between TMD and relationship issues ($r(64)=.400$, $p<.01$),. Student-athletes scoring high on TMD score high on academic pressure, time pressure, social isolation, and relationship issues.

A positive correlation was found between coaches' measure of performance and player performance ($r(64)=.330$, $p<.01$). Student-athletes scoring high on the coaches' measure of performance score high on the personal performance measure.

A positive correlation was found between TEE and academic pressure ($r(64)=.274$, $p<.05$). Student-athletes scoring high on TEE score high in academic pressure.

Assessment Point 4: February 18-22

Baseball/Softball

A positive correlation was found between TMD and academic pressure ($r(42)=.530$, $p<.01$), between TMD and time pressure ($r(42)=.385$, $p<.01$), between TMD and social isolation ($r(42)=.741$, $p<.01$), and between TMD and relationship issues ($r(42)=.577$, $p<.01$). Student-athletes experiencing high TMD score high in academic pressure, time pressure, social isolation, and relationship issues.

A positive correlation was found between coaches' measure of performance and relationship issues ($r(42)=.414$, $p<.01$). Student-athletes scoring high on the coaches' measure of performance score high on relationship issues.

A negative correlation was found between TEE and player performance ($r(42)=-.389$, $p<.01$). Student-athletes scoring high in TEE score low on the player measure of performance.

Hockey/Swimming

A positive correlation was found between TMD and academic pressure ($r(20)=.668$, $p<.01$). Student-athletes experiencing high TMD score high in academic pressure.

A positive correlation was found between TEE and player performance measure ($r(20)=.714$, $p<.01$) and TEE and coaches measure of performance($r(20)=.574$, $p<.01$). Student-athletes experiencing high TEE score high on the player performance measure and the coaches' measure of performance.

Entire Sample

A positive correlation was found between TMD and academic pressure ($r(64)=.550$, $p<.01$), between TMD and time pressure ($r(64)=.378$, $p<.01$), between TMD and social isolation ($r(64)=.631$, $p<.01$), and between TMD and relationship issues ($r(64)=.516$, $p<.01$). Student-athletes experiencing high TMD score high in academic pressure, time pressure, social isolation, and relationship issues.

A negative correlation was found between coaches' measure of performance and relationship issues ($r(64)=-.323$, $p<.01$). Student-athletes scoring high on the coaches' measure of performance score low in relationship issues.

Assessment Point 5: March 10-14

Baseball/Softball

A positive correlation was found between TMD and time pressure ($r(42)=.404$, $p<.01$), between TMD and social isolation ($r(42)=.771$, $p<.01$), between TMD and relationship issues ($r(42)=.606$, $p<.01$), and between TMD and TEE ($r(42)=.330$, $p<.05$). Student-athletes experiencing high TMD score high in time pressure, social isolation, relationship issues and TEE.

Hockey/Swimming

Positive correlations were found between TMD and academic pressure ($r(20)=.617$, $p<.01$), between TMD and time pressure ($r(20)=.594$, $p<.01$), and between TMD and relationship issues ($r(20)=.468$, $p<.05$). Student-athletes experiencing high TMD score high in academic pressure, time pressure, and relationship issues. A negative correlation was found between TMD and satisfaction with life ($r(20)=-.512$, $p<.05$). Student-athletes scoring high on TMD are low in satisfaction with life.

A positive correlation was found between player performance and social isolation ($r(20)=.457$, $p<.05$). Student-athletes scoring high on player performance score high in social isolation.

Positive correlations were found between TEE and time pressure ($r(20)=.475$, $p<.05$), and between TEE and player performance ($r(20)=.425$, $p<.05$). Student-athletes experiencing high TEE score high in time pressure and player performance. A negative correlation was found between TEE and the coaches' measure of performance ($r(20)=-.513$, $p<.05$). Student-athletes scoring high on TEE are low on the coaches' measure of performance.

Negative correlations were found between satisfaction with life and academic pressure ($r(20)=-.529$, $p<.05$), between satisfaction with life and social isolation ($r(20)=-.573$, $p<.01$), and between satisfaction with life and relationship issues ($r(20)=-464$, $p<.05$). Student-athletes experiencing high satisfaction with life score low in academic pressure, social isolation, and relationship issues.

Entire Sample

Positive correlations were found between TMD and academic pressure ($r(64)=.359$, $p<.01$), between TMD and time pressure ($r(64)=.466$, $p<.01$), between TMD and social isolation

($r(64)=.566$, $p<.01$), between TMD and relationship issues ($r(64)=.538$, $p<.01$), and between TMD and TEE ($r(64)=.289$, $p<.05$). Student-athletes experiencing high TMD score high in academic pressure, time pressure, social isolation, relationship issues and TEE. A negative correlation was found between TMD and the satisfaction with life ($r(64)=-.281$, $p<.05$). Student-athletes scoring high on TMD are low in satisfaction with life.

A negative correlation was found between satisfaction with life and academic pressure ($r(64)=-.245$, $p<.05$), and between satisfaction with life and social isolation ($r(64)=-.338$, $p<.01$). Student-athletes experiencing high satisfaction with life score low in academic pressure and social isolation.

Assessment Point 6: March 24-28

Baseball/Softball

A positive correlation was found between TMD and academic pressure ($r(42)=.341$, $p<.05$), between TMD and time pressure ($r(42)=.566$, $p<.01$), between TMD and social isolation ($r(42)=.682$, $p<.01$), and between TMD and relationship issues ($r(42)=.521$, $p<.01$). Student-athletes experiencing high TMD score high in academic pressure, time pressure, social isolation, and relationship issues.

Hockey/Swimming

A positive correlation was found between TMD and time pressure ($r(20)=.524$, $p<.05$). Student-athletes scoring high on TMD score high in time pressure.

A negative correlation was found between player performance measure and time pressure ($r(20)=-.522$, $p<.05$). Student-athletes scoring high on the player performance measure score low on time pressure.

Entire Sample

Positive correlations were found between TMD and academic pressure ($r(64)=.312$, $p<.05$), between TMD and time pressure ($r(64)=.547$, $p<.01$), between TMD and social isolation ($r(64)=.511$, $p<.01$), and between TMD and relationship issues ($r(64)=.384$, $p<.01$). Student-athletes experiencing high TMD score high in academic pressure, time pressure, social isolation, and relationship issues.

A positive correlation was found between the coaches' measure of performance and relationship issues ($r(64)=.266$, $p<.05$). Student-athletes scoring high on the coaches' measure of performance score high in relationship issues.

Assessment Point 7: April 7-11

Baseball/Softball

Positive correlations were found between TMD and time pressure ($r(42)=.422$, $p<.01$), between TMD and social isolation ($r(42)=.731$, $p<.01$), and between TMD and relationship issues ($r(42)=.404$, $p<.01$). Student-athletes experiencing high TMD score high in time pressure, social isolation, and relationship issues.

A positive correlation was found between the coaches' measure of performance and player performance ($r(42)=.298$, $p<.05$). Student-athletes scoring high on the coaches' measure of performance score high on player performance.

Hockey/Swimming

A positive correlation was found between the coaches' measure of performance and relationship issues ($r(20)=.557$, $p<.01$). Student-athletes scoring high on the coaches' measure of performance score high in relationship issues.

A positive correlation was found between TEE and the coaches' measure of performance

($r(20)=.601$, $p<.01$). Student-athletes scoring high in TEE score high on the coaches' measure of performance.

Entire Sample

Positive correlations were found between TMD and time pressure ($r(64)=.411$, $p<.01$), between TMD and social isolation ($r(64)=.529$, $p<.01$), and between TMD and relationship issues ($r(64)=.278$, $p<.05$). Student-athletes experiencing high TMD score high in time pressure, social isolation, and relationship issues.

Assessment Point 8: April 21-25

Baseball/Softball

Positive correlations were found between TMD and time pressure ($r(42)=.414$, $p<.01$), between TMD and social isolation ($r(42)=.688$, $p<.01$), and between TMD and relationship issues ($r(42)=.486$, $p<.01$). Student-athletes experiencing high TMD score high in time pressure, social isolation, and relationship issues.

A negative correlation was found between TEE and the coaches' measure of performance ($r(42)=-.358$, $p<.05$). Student-athletes scoring high on TEE are low in the coaches' measure of performance.

Hockey/Swimming

Positive correlations were found between TMD and time pressure ($r(20)=.578$, $p<.01$), and between TMD and social isolation ($r(20)=.502$, $p<.05$). Student-athletes experiencing high TMD score high in time pressure, and social isolation. A negative correlation was found between TMD and the players measure of performance ($r(20)=-.587$, $p<.01$). Student-athletes scoring high on TMD are low in the players' measure of performance.

Negative correlations were found between the players measure of performance and time

pressure ($r(20)=-.490$, $p<.05$), between players measure of performance and social isolation ($r(20)=-.521$, $p<.05$), and between players measure of performance and relationship issues ($r(20)=-.465$, $p<.05$). Student-athletes scoring high on the player's measure of performance score low in time pressure, social isolation, and relationship issues.

A positive correlation was found between TEE and the coaches' measure of performance ($r(20)=.646$, $p<.01$). Student-athletes scoring high in TEE score high on the coaches' measure of performance.

Negative correlations were found between satisfaction with life and academic pressure ($r(20)=-.645$, $p<.01$) and between satisfaction with life and time pressure ($r(20)=-.475$, $p<.05$). Student-athletes scoring high in satisfaction with life score low in academic pressure and time pressure. A positive correlation was found between satisfaction with life and the players measure of performance ($r(20)=.477$, $p<.05$). Student-athletes scoring high in satisfaction with life score high on the players' measure of performance.

Entire Sample

Positive correlations were found between TMD and academic pressure ($r(64)=.265$, $p<.05$), between TMD and time pressure ($r(64)=.466$, $p<.01$), between TMD and social isolation ($r(64)=.569$, $p<.01$), and between TMD and relationship issues ($r(64)=.260$, $p<.05$). Student-athletes experiencing high TMD score high in academic pressure, time pressure, social isolation, and relationship issues.

A negative correlation was found between TEE and relationship issues ($r(64)=-.243$, $p<.05$). Student-athletes scoring high on TEE score low on relationship issues.

A negative correlation was found between satisfaction with life and academic pressure ($r(64)=-.379$, $p<.01$). Student-athletes scoring high on satisfaction with life score low on academic pressure.

Assessment Point 1

Hockey/Swimming

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.499*	.224	-.010	-.156	.148	.348	-.509	.063	-.038	-.095	.168	.182	-.278	.109
Time Pressure	.583**		.339	.248	-.252	-.020	.371	-.366	.404	.212	.562**	.660**	.264	-.539**	.587**
Social Isolation	.109	.215		.306	-.288	-.399	-.174	-.458*	.472*	.416	.550**	-.052	.434*	-.064	.376
Relationship Issues	.055	.295	.645**		-.494*	.072	.183	-.321	.337	.730**	.546**	.251	.552**	-.551**	.604
Player Performance	.072	.168	-.045	-.076		.497*	-.262	.430	-.555**	-.671**	-.380	-.388	-.568**	.424*	-.612**
Coach Performance	.000	.000	-.159	.035	.156		.226	-.026	-.497*	-.255	-.247	.022	-.258	-.106	-.225
TEE	.381*	.455**	.154	.168	.251	.071		-.278	.348	.397	.167	.612**	.460*	-.654**	.554**
SWL	-.318*	-.372*	-.485**	-.349*	.261	.120	-.336*		-.362	-.482*	-.416	-.305	-.240	.378	-.463*
Tension	-.167	-.020	.365*	.238	-.369*	-.100	.263	-.326*		.736**	.636**	.421	.564**	-.517*	.804**
Depression	.090	.243	.773**	.746**	-.084	-.042	.312*	-.570**	.576**		.709**	.386	.727**	-.612**	.853**
Anger	.147	-.103	.148	.174	-.197	-.121	.037	-.201	.316*	.215		.443*	.441*	-.484*	.795**
Fatigue	.106	.243	.286	.361*	-.255	-.085	.248	-.357*	.555**	.583**	.328*		.323	-.802**	.749**
Confusion	.221	.254	.295	.178	-.101	.136	.185	-.391**	.494**	.509**	.275	.488**		-.537**	.710**
Vigor	.005	.198	.004	-.084	.175	-.052	.106	-.026	.116	-.030	-.235	-.038	.007		-.837**
TMD	.098	.123	.490**	.474**	-.316*	-.053	.265	-.495**	.756**	.769**	.589**	.788**	.700**	-.267	

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Baseball/Softball

Assessment Point1

Entire Sample

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.550**	.166	.026	-.027	.091	.342**	-.377**	-.094	.046	.052	.145	.198	-.108	.109
Time Pressure			.290*	.263*	-.025	.007	.446**	-.380**	.105	.229	.208	.455**	.228	-.102	.336**
Social Isolation				.475**	-.171	-.287*	.068	-.468**	.378**	.610**	.358**	.166	.320**	-.039	.444**
Relationship Issues					-.243*	.049	.127	-.326**	.272*	.735**	.327**	.274*	.313*	-.262*	.521**
Player Performance						.327**	-.044	.321**	-.416**	-.291*	-.290*	-.331**	-.251*	.280*	-.453**
Coach Performance							.192	.014	-.285*	-.142	-.172	.027	-.101	-.084	-.143
TEE								-.326**	.201	.294	.163	.529**	.184	-.235	.404**
SWL									-.320**	-.541**	-.283	-.352**	-.327**	.107	-.479**
Tension										.620**	.408**	.426**	.520**	-.084	.742
Depression											.395**	.468**	.570**	-.225	.786**
Anger												.407**	.311*	-.346**	.690**
Fatigue													.342**	-.364**	.754**
Confusion														-.174	.671**
Vigor															-.508**
TMD															

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Assessment Point 2

Hockey/Swimming

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.589**	-.041	-.083	-.181	.610**	.377		.459*	.175	-.063	.567**	.104	-.238	.340
Time Pressure	.491**		-.240	-.396	-.075	.265	.285		.319	-.136	-.034	.528*	-.212	-.225	.182
Social Isolation	.135	.235		.710**	-.181	-.331	-.027		.455*	.668**	.470*	.118	.685**	-.248	.538**
Relationship Issues	.147	.227	.778**		-.156	-.153	-.182		.320	.668**	.426*	-.049	.672**	-.110	.429*
Player Performance	-.076	.036	-.273	-.165		.185	.161		-.201	-.558**	-.398	-.240	-.118	.445*	-.428
Coach Performance	.209	.076	-.180	-.200	.329*		.393		.101	-.101	-.160	.332	-.009	.042	.051
TEE	.370*	.287	-.068	-.096	-.042	.333*			.627**	.083	.052	.678**	.057	-.193	.389
SWL															
Tension	.126	.243	.476**	.373*	-.189	-.131	-.052			.648**	.506*	.741**	.628**	-.537**	.866**
Depression	.165	.250	.713**	.675**	-.086	-.150	-.044		.657**		.807**	.314	.772**	-.535*	.846**
Anger	.133	.253	.473	.440**	.082	-.076	-.010		.531**	.687**		.257	.602**	-.606**	.780**
Fatigue	.125	.392**	.198	.203	-.023	-.092	.220		.482**	.466**	.633**		.277	-.645**	.718**
Confusion	.208	.131	.576**	.551**	-.103	-.121	.017		.642**	.842**	.740**	.444**		-.395	.744**
Vigor	-.029	.143	-.243	-.140	.342*	.068	.068		-.236	-.299*	-.205	-.195	-.338*		-.783**
TMD	.174	.275	.589**	.530**	-.124	-.141	.023		.781**	.876**	.844**	.732**	.871**	-.445**	

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Baseball/Softball

Assessment Point 2

Entire Sample

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.536**	.070	.060	-.127	.290*	.380**		.234	.165	.060	.297*	.158	-.119	.231
Time Pressure			.043	.005	-.024	.091	.304*		.251*	.109	.142	.442**	-.006	-.019	.233
Social Isolation				.710**	-.247*	-.257*	-.015		.442**	.682**	.466**	.163	.579**	-.257*	.558**
Relationship Issues					-.139	-.125	-.154		.368**	.668**	.430**	.125	.590**	-.108	.498**
Player Performance						.304*	.003		-.173	-.240	-.092	-.105	-.088	.392**	-.228
Coach Performance							.220		-.012	-.122	-.095	.047	-.035	.103	-.065
TEE									.153	-.004	.013	.384**	-.008	-.069	.144
SWL															
Tension										.650**	.519**	.569**	.644**	-.316**	.807**
Depression											.723**	.414**	.816**	-.369**	.865**
Anger												.498**	.690**	-.342**	.822**
Fatigue													.385**	-.357**	.726**
Confusion														-.330**	.827**
Vigor															-.553**
TMD															

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Assessment Point 3

Hockey/Swimming

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.445*	-.084	.038	-.204	.340	.441*		.466*	.533*	.045	.493*	.045	-.237	.453*
Time Pressure	.351*		-.101	-.276	-.236	.163	-.025		.539**	.198	.247	.637**	.303	-.282	.539**
Social Isolation	.287	.313*		.248	-.007	-.038	-.154		.267	.299	.162	-.185	.383	.191	.133
Relationship Issues	.178	.111	.637**		-.005	-.104	-.082		-.030	.103	.117	.039	-.166	-.213	.069
Player Performance	-.100	-.019	-.047	-.150		-.021	.388		-.270	-.338	-.302	-.111	-.007	.257	-.295
Coach Performance	-.207	-.032	-.037	-.166	.337*		.321		.259	.427*	.297	.342	.158	-.183	.399
TEE	.176	.395**	.174	.166	-.312	.016			.166	.020	-.311	.214	.024	.037	.037
SWL															
Tension	.295	.478**	.611**	.551**	-.141	-.246	.254			.705**	.587**	.583**	.703**	-.054	.846**
Depression	.240	.377*	.751**	.451**	-.093	-.148	.118		.737**		.606**	.349	.483*	-.277	.776
Anger	.197	.163	.619**	.548**	-.149	-.220	.082		.691**	.721**		.402	.419	-.210	.749**
Fatigue	.156	.562**	.384*	.141	.059	.078	.149		.512**	.531**	.296		.365	-.411	.773**
Confusion	.192	.226	.699**	.595**	-.203	-.151	.181		.744**	.717**	.782**	.330*		-.189	.685**
Vigor	-.007	.119	-.152	.121	.138	-.188	.320*		.105	-.067	.083	-.070	-.051		-.471*
TMD	.257	.399**	.756**	.518**	-.151	-.129	.118		.849**	.895**	.823**	.641**	.851**	-.192	

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Baseball/Softball

Assessment Point 3

Entire Sample

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.384**	.168	.127	-.191	-.108	.274*		.326**	.313*	.157	.275*	.121	-.098	.307*
Time Pressure			.166	-.006	-.108	.011	.230		.491**	.315**	.187	.590**	.233	-.016	.443**
Social Isolation				.523**	-.040	-.043	.051		.495**	.612**	.485**	.155	.597**	-.052	.556**
Relationship Issues					-.079	-.120	.084		.398**	.366**	.446**	.104	.435**	.047	.400**
Player Performance						.330**	-.062		-.137	-.143	-.187	-.003	-.078	.217	-.173
Coach Performance							.095		-.062	.018	-.090	.165	-.016	-.118	.030
TEE									.216	.082	-.043	.177	.121	.212	.087
SWL															
Tension										.727**	.655**	.531**	.730**	.071	.847**
Depression											.690**	.455**	.657**	-.117	.861**
Anger												.323**	.688**	.005	.800**
Fatigue													.326**	-.185	.681**
Confusion														-.058	.799**
Vigor															-.264*
TMD															

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Assessment Point 4

Hockey/Swimming

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.506*	.016	.077	-.019	.365	.250		.482*	.318	.294	.658**	.556**	-.270	.668**
Time Pressure	.384*		-.122	-.127	.003	-.035	.198		.349	.161	.156	.453*	.270	-.152	.411
Social Isolation	.466**	.381*		.564**	-.325	-.384	-.286		.088	.565**	.355	.116	.366	-.134	.393
Relationship Issues	.287	.146	.577**		-.391	-.305	-.265		.097	.211	.086	.213	.390	-.140	.271
Player Performance	-.177	.014	.055	.204		.370	.714**		.465*	-.363	-.333	-.043	-.214	.506*	-.235
Coach Performance	.033	.121	.014	-.414**	.134		.574**		.223	-.301	-.359	.184	-.156	.062	-.092
TEE	.043	-.059	-.094	-.065	-.389**	.014			.620**	-.245	-.284	.105	-.067	.390	-.047
SWL															
Tension	.348*	.527**	.637**	.550**	.070	-.227	-.004			.186	.181	.165	.373	.431*	.370
Depression	.401**	.351*	.731**	.638**	.064	-.172	.000		.801**		.805**	.258	.614**	-.286	.778**
Anger	.475**	.171	.649**	.520**	-.119	-.026	.067		.573**	.732**		.221	.700**	-.279	.781**
Fatigue	.438**	.350*	.462**	.346*	-.142	-.063	.048		.580**	.647**	.638**		.592**	-.337	.683**
Confusion	.461**	.280	.741**	.493**	-.148	-.125	-.028		.637**	.847**	.781**	.596**		-.403	.905**
Vigor	-.269	-.083	-.084	.012	.250	.084	.059		.081	.012	.011	-.082	-.263		-.467*
TMD	.530**	.385**	.741**	.577**	-.106	-.150	.011		.788**	.905**	.848**	.790**	.916**	-.235	

**. Correlations is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)
Grey area signifies these items are not measured at this assessment point

Baseball/Softball

Assessment Point 4

Entire Sample

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.408**	.298*	.208	-.101	.072	.136		.393**	.367**	.413**	.503**	.455**	-.268*	.550**
Time Pressure			.164	.070	.000	.109	.092		.442**	.275*	.159	.402**	.267*	-.107	.378**
Social Isolation				.557**	-.101	-.100	-.186		.449**	.673**	.556**	.325**	.625**	-.101	.631**
Relationship Issues					.014	-.323**	-.122		.429**	.551**	.430**	.307*	.479**	-.025	.516**
Player Performance						.169	.220		.219	-.070	-.182	-.105	-.162	.346**	-.144
Coach Performance							.232		-.110	-.183	-.091	.047	-.094	.074	-.116
TEE									.277*	-.090	-.072	.079	-.033	.210	-.011
SWL															
Tension										.639**	.467**	.425**	.563**	.193	.674**
Depression											.747**	.518**	.801**	-.066	.879**
Anger												.500**	.762**	-.066	.833**
Fatigue													.575**	-.173	.740**
Confusion														-.288*	.911**
Vigor															-.293
TMD															

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Assessment Point 5

Hockey/Swimming

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.547**	.249	.559**	.284	-.097	.280	-.529*	.396	.551**	.588**	.328	.486*	-.330	.617**
Time Pressure	.172		.141	.154	.024	-.210	.475*	-.352	.448*	.366	.463*	.477*	.505*	-.363	.594**
Social Isolation	.388**	.540**		.330	.457*	.071	.222	-.573**	.231	.304	.267	-.092	.243	-.068	.229
Relationship Issues	.289	.344*	.789**		.319	-.052	.114	-.464*	.420	.472*	.272	.243	.382	-.297	.468*
Player Performance	.188	.232	.036	.159		-.071	.425*	-.313	.172	.251	.357	-.067	.206	.186	.172
Coach Performance	.238	.148	.072	-.065	.257		-.513*	.021	-.438*	-.117	-.200	-.229	-.392	-.265	-.234
TEE	.144	.026	.189	.208	-.125	.240		-.188	.375	.222	.310	.197	.479*	.195	.300
SWL	-.116	-.134	-.203	-.012	-.131	.048	-.134		-.297	-.542	-.601**	.079	-.479*	.404	-.512*
Tension	.339*	.376*	.711**	.537**	.101	.010	.224	-.057		.660**	.368	.662**	.674**	-.228	.797**
Depression	.290	.423**	.803**	.675**	.014	.012	.290	-.089	.822**		.684**	.402	.732**	-.205	.838**
Anger	.033	.388**	.625**	.597**	-.041	-.122	.269	.082	.750**	.783**		.081	.655**	-.291	.715**
Fatigue	.164	.465**	.606**	.490**	.000	.133	.259	-.050	.659**	.667**	.666**		.536*	-.341	.670**
Confusion	.245	.303*	.733**	.601**	.065	.044	.257	-.418**	.709**	.776**	.669**	.611**		-.317	.868**
Vigor	-.076	.192	.013	.192	.122	-.169	-.190	.349*	.065	.036	.162	-.037	-.233		-.542**
TMD	.251	.404**	.771**	.606**	.003	.056	.330*	-.181	.862**	.893**	.831**	.829**	.879**	-.201	

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Baseball/Softball

Assessment Point 5

Entire Sample

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.290*	.329**	.416**	.211	.142	.062	-.245*	.344**	.367**	.253*	.192	.280*	-.179	.359**
Time Pressure			.367**	.241	.164	.036	.182	-.212	.398**	.402**	.407**	.469**	.359**	-.006	.466**
Social Isolation				.584**	.156	.070	.157	-.338**	.530**	.603**	.474**	.352**	.556**	-.020	.566**
Relationship Issues					.201	-.054	.051	-.167	.475**	.576**	.470**	.373**	.487**	-.012	.538**
Player Performance						.190	-.029	-.172	.116	.072	.071	-.018	.088	.133	.042
Coach Performance							.055	.030	-.104	-.024	-.140	.042	-.051	-.195	-.019
TEE								-.139	.242	.253*	.200	.256*	.313*	-.026	.289*
SWL									-.129	-.237	-.156	-.015	-.430**	.363**	-.281*
Tension										.771**	.611**	.659**	.697**	-.024	.843**
Depression											.739**	.585**	.754**	-.042	.874**
Anger												.458**	.636**	-.013	.782**
Fatigue													.596**	-.119	.783
Confusion														-.240	.869**
Vigor															-.305
TMD															

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Assessment Point 6

Hockey/Swimming

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.213	.105	.376	-.381	.031	.032		.309	.291	.267	.147	.409	-.163	.326
Time Pressure	.518**		.254	.004	-.522*	-.192	.215		.365	.531*	.336	.561**	.351	-.268	.524*
Social Isolation	.167	.446**		.166	.122	.104	-.017		.365	.261	.098	.265	.402	-.069	.314
Relationship Issues	.097	.229	.578**		.002	.103	.138		.202	.210	.250	.266	.127	-.014	.230
Player Performance	.079	.187	.128	.229		.284	.189		.009	-.392	-.182	-.189	-.314	.299	-.285
Coach Performance	.119	.049	.103	.297	.211		.099		-.108	-.146	-.259	-.205	-.359	.154	-.256
TEE	.028	-.107	-.040	.159	.077	.016			.374	.113	.093	.311	-.005	.502*	.096
SWL															
Tension	.454**	.520**	.673**	.538**	.078	.174	.095			.733**	.667**	.732**	.792**	-.068	.849**
Depression	.333*	.506**	.730**	.512**	.065	.171	.050		.810**		.728**	.718**	.729**	-.351	.900**
Anger	.293	.595**	.604**	.541**	.114	.194	.095		.652**	.777**		.527*	.605**	-.085	.744**
Fatigue	.389**	.601**	.363*	.199	.205	.205	.127		.633**	.636**	.580**		.664**	-.315	.866**
Confusion	.231	.279	.670**	.614**	.054	.206	.215		.744**	.852**	.661**	.468**		-.308	.865**
Vigor	.276	.127	-.022	.062	.479**	.119	-.086		.050	-.015	-.012	.087	-.152		-.464*
TMD	.341*	.566**	.682**	.521**	.039	.197	.147		.854**	.921**	.850**	.765**	.853**	-.184	

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Baseball/Softball

Assessment Point 6

Entire Sample

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.331**	.156	.244*	-.037	.142	-.158		.351**	.303*	.247*	.250*	.297*	.045	.312*
Time Pressure			.331**	.088	-.047	-.047	.155		.471**	.507**	.517**	.598**	.289*	.001	.547**
Social Isolation				.395**	.126	.108	-.082		.515**	.522**	.401**	.300*	.551**	-.060	.511**
Relationship Issues					.161	.266*	-.042		.360**	.381**	.407**	.187	.417**	-.013	.384**
Player Performance						.229	.030		.406	-.072	.040	.071	-.057	.384**	-.064
Coach Performance							-.118		.074	.093	.098	.074	.083	.075	.079
TEE									.226	.064	.137	.241	.064	.235	.125
SWL															
Tension										.775**	.644**	.678**	.750**	.022	.850**
Depression											.751**	.662**	.804**	-.145	.913**
Anger												.560**	.625**	-.014	.805**
Fatigue													.529**	-.051	.801**
Confusion														-.222	.853**
Vigor															-.286*
TMD															

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Assessment Point 7

Hockey/Swimming

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.629**	.390	-.41	-.020	.090	.333		.167	.475*	.204	-.027	.359	-.409	.345
Time Pressure	.196		.307	-.118	-.001	-.064	.338		.404	.442*	.153	.049	.382	-.344	.380
Social Isolation	.323*	.336*		.040	.005	-.149	.123		.226	.343	.168	-.052	.620**	-.158	.279
Relationship Issues	.236	.078	.543**		-.096	.557**	.214		.071	.126	.337	.416	.111	-.073	.298
Player Performance	.057	.141	.110	.055		-.138	-.161		-.229	-.090	-.183	.035	-.410	-.100	-.126
Coach Performance	-.043	-.007	-.173	.109	.298*		.601**		.051	.185	.077	.076	-.068	.014	.083
TEE	.296	-.137	.140	.206	-.014	.017			.346	.461*	.304	.039	.137	.071	.254
SWL															
Tension	.270	.270	.280	.168	-.012	.003	.053			.520*	.310	.396	.703**	-.138	.653**
Depression	.199	.375*	.759**	.321*	-.017	-.251	.040		.434**		.546	.352	.504*	-.155	.694**
Anger	.067	.186	.612**	.506**	-.130	-.266	-.075		.421**	.755**		.613**	.389	-.307	.762**
Fatigue	.145	.542**	.387**	.254	.208	.054	.192		.241	.468**	.338*		.318	-.497*	.821**
Confusion	.189	.198	.649**	.335*	-.031	-.150	.133		.537**	.841**	.703**	.404**		-226	.656**
Vigor	-.065	.043	-.082	.118	.169	.001	-.112		-.058	-.010	.092	.099	-.052		-.607**
TMD	.184	.422**	.731**	.404**	-.043	-.188	.094		.531**	.903**	.818**	.640**	.856**	-.165	

**. Correlations is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)
Grey area signifies these items are not measured at this assessment point

Baseball/Softball

Assessment Point 7

Entire Sample

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.283*	.350**	.166	.051	-.015	.053		.165	.232	.087	.103	.199	-.215	.212
Time Pressure			.305*	-.054	.103	-.017	.072		.296*	.400**	.180	.351**	.245*	-.080	.411**
Social Isolation				.215	.073	-.151	.070		.219	.563**	.426**	.181	.593**	-.121	.529**
Relationship Issues					.007	.213	-.040		.035	.144	.323**	.343**	.159	-.024	.278*
Player Performance						.230	-.071		-.048	-.038	-.142	.157	-.103	.087	-.063
Coach Performance							.127		.011	-.162	-.207	.055	-.135	.005	-.131
TEE									.184	.202	.044	.049	.143	.015	.137
SWL															
Tension										.447**	.400**	.232	.556**	-.054	.533**
Depression											.704**	.407**	.762**	-.048	.844**
Anger												.403**	.641**	-.023	.801**
Fatigue													.358**	-.157	.688**
Confusion														-.094	.804**
Vigor															-.309*
TMD															

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Assessment Point 8

Hockey/Swimming

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.590**	.144	.246	-.262	.154	.309	-.645**	.024	.302	.32	.419	.222	-.379	.401
Time Pressure	.277		.396	.051	-.490*	-.028	.140	-.475*	.165	.469*	.499*	.654**	.363	-.347	.578**
Social Isolation	.347*	.359		.309	-.521*	-.187	-.231	-.345	.425*	.709**	.380	.133	.625**	-.215	.502*
Relationship Issues	.074	.104	.723**		-.465*	-.256	-.310	-.350	.100	.265	.382	-.055	.175	-.165	.202
Player Performance	-.009	.191	.052	.140		.020	.065	.477*	-.475*	-.492*	-.615**	-.317	-.603**	.284	-.587**
Coach Performance	-.256	.219	-.024	-.023	.142		.646**	-.033	-.020	-.020	-.149	.031	-.081	-.101	-.019
TEE	.111	-.165	.165	.153	.155	-.358*		-.063	.135	.167	.252	.427*	.089	-.136	.294
SWL	-.223	-.126	-.029	.067	-.206	.123	.013		-.106	-.454*	-.353	-.240	-.142	.258	-.344
Tension	.244	.433**	.550**	.378*	-.015	.065	-.044	-.187		.560**	.545**	.376	.874**	-.223	.740**
Depression	.258	.316*	.705**	.474**	-.018	-.227	-.039	-.223	.728**		.592**	.358	.647**	-.360	.738**
Anger	.179	.266	.497**	.470**	-.127	-.347*	-.001	-.031	.479**	.763**		.605**	.658**	-.376	.823**
Fatigue	.154	.579**	.571**	.393**	-.186	.132	.048	-.030	.653**	.559**	.498**		.392	-.552**	.782**
Confusion	.276	.241	.738**	.528**	.157	-.013	.060	-.339*	.650**	.832**	.484**	.480**		-.315	.804**
Vigor	.131	.193	.209	.250	.320*	.066	.105	-.038	.127	.068	.144	.159	.115		-.657**
TMD	.235	.414**	.688**	.486**	-.033	-.115	-.019	-.172	.821**	.920**	.768**	.757**	.785**	-.070	

**. Correlations is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)
Grey area signifies these items are not measured at this assessment point

Baseball/Softball

Assessment Point 8

Entire Sample

	Academic Pressures	Time Pressure	Social Isolation	Relationship Issues	Player Performance	Coach Performance	TEE	SWL	Tension	Depression	Anger	Fatigue	Confusion	Vigor	TMD
Academic Pressures		.362**	.256*	.248*	-.061	-.187	.028	-.379**	.133	.245*	.199	.264*	.212	-.060	.265*
Time Pressure			.353**	.054	.034	.177	-.047	-.232	.361**	.358**	.326**	.599**	.278*	.015	.466**
Social Isolation				.445**	-.132	-.061	-.062	-.171	.451**	.652**	.404**	.348**	.636**	.007	.569**
Relationship Issues					-.075	-.100	-.243*	-.153	.160	.289*	.310*	.137	.247*	.024	.260*
Player Performance						.122	.095	-.044	-.113	-.117	-.225	.051	-.020	.304*	-.167
Coach Performance							-.115	.099	.063	-.187	-.300*	.098	-.008	.034	-.085
TEE								.016	.055	.038	.102	.143	.115	.009	.107
SWL									-.156	-.284*	-.112	-.108	-.270*	.062	-.223
Tension										.687**	.499**	.549**	.712**	.019	.795**
Depression											.723**	.486**	.780**	-.061	.864**
Anger												.514**	.532**	-.008	.778**
Fatigue													.438**	-.110	.759**
Confusion														-.028	.791**
Vigor															-.274*
TMD															

**. Correlations is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Grey area signifies these items are not measured at this assessment point

Appendix I

Academic Pressure

	Assess. 1	Assess. 2	Assess. 3	Assess. 4	Assess. 5	Assess. 6	Assess. 7	Assess. 8
Assess. 1		.417**	.363**	.282*	.308**	.365**	.317*	.447**
Assess. 2	.484**		.660**	.418**	.304*	.290*	.327**	.506**
Assess. 3	.452**	.682**		.371**	.459**	.425**	.471**	.574**
Assess. 4	.258*	.630**	.549**		.524**	.513**	.426**	.422**
Assess. 5	.215	.564**	.642**	.655**		.543**	.624**	.581**
Assess. 6	.277*	.619**	.569**	.591**	.714**		.627**	.687**
Assess. 7	.300*	.588**	.615**	.543**	.770**	.612**		.716**
Assess. 8	.239	.491**	.582**	.567**	.743**	.636**	.614**	

Time Pressure

Social Isolation

	Assess. 1	Assess. 2	Assess. 3	Assess. 4	Assess. 5	Assess. 6	Assess. 7	Assess. 8
Assess. 1		.657**	.500**	.507**	.580**	.490**	.419**	.460**
Assess. 2	.476**		.755**	.757**	.765**	.643**	.488**	.677**
Assess. 3	.366**	.647**		.718**	.822**	.611**	.587**	.651**
Assess. 4	.470**	.716**	.664**		.800**	.617**	.558**	.469**
Assess. 5	.458**	.526**	.482**	.567**		.723**	.631**	.628**
Assess. 6	.307*	.280*	.133	.336**	.593**		.650**	.706**
Assess. 7	.112	.102	.134	.136	.409**	.615**		.730**
Assess. 8	.083	.112	.157	.198	.415**	.464**	.462**	

Relationship Issues