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A Cross-Sectional Study of Student-Athlete Needs Satisfaction and Well-Being

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by

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Abstract

Grounded in self-determination theory (Deci & Ryan, 2000), the purpose of this study was to examine (a) the effects of the social environment, as defined by the divisions of the Department of Athletics, on student-athletes' perceptions of basic needs satisfaction, (b) the effects of basic needs satisfaction on well-being, and (c) the effects of time demands, during in-season and off-season, on well-being, among student-athletes at Portland State University (PSU). Participants were student-athletes at PSU (n = 118). The participants completed a multi-section survey assessing basic needs satisfaction and well-being. Cumulative mean scores highlighted the satisfaction of the basic psychological needs as an indicator of positive well-being. The satisfaction of the need for competence emerged as the most important predictor of well-being. In-season time demands may contribute to a lower degree of well-being. The findings suggest that particular aspects of the social environment may be relevant for nurturing the basic psychological needs. The results also emphasize the importance of satisfying the three basic psychological needs in order to create an atmosphere that contributes to positive well-being.

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Chapter 1

Introduction

Collegiate student-athletes are often perceived as physically and psychologically healthy individuals. Physically, this is typically true, but interpersonal relationships can affect an individual's psychological health. If the student-athlete's social environment does not support their well-being, significant negative outcomes can occur. Athletic departments make an attempt to be supportive, but there are instances that may not satisfy a student-athlete's basic psychological needs: autonomy, competence, and relatedness (Ryan & Deci, 2000). The inability to satisfy these needs may lead to decreased feelings of well-being among student-athletes.

Recent new staffing changes and conversations between student-athletes and staff members have prompted the discussion of student-athlete well-being at Portland State University (PSU). These staffing changes include a full-time certified athletic trainer position being transformed into a part-time position in 2012; with an already short staffed sports medicine department. Coaching changes have also been made in a variety of sports at PSU. These changes are seen in a variety to of collegiate settings. The student-athletes do not always have the opportunity to express their attitudes towards these staffing changes and other issues. Therefore, an accurate representation of student-athlete's attitudes is warranted. Another issue that encourages the discussion of the effect of the student-athlete's social environment on their personal well-being is the prioritizing of athletic programs. Typically, football and men's and women's basketball programs are the sports teams that receive the highest priority at an institution. Consequently, other men's and women's sports well-being may be compromised.

PSU makes an attempt to collect the opinions of student-athletes by gathering exit surveys. These exit surveys are distributed among graduating seniors. However, recent discussions confirm that this has not occurred regularly. Seniors are not able to express their opinions about the PSU athletic department and underclassmen are not provided with an opportunity. Consequently, the athletic department is not receiving an accurate measurement of the student-athlete's attitudes. Recently, the athletic department has increased their data-gathering effort by administering surveys to athletes on each sports team to examine satisfaction among student-athletes. This survey complements the research being done on student-athlete need satisfaction and well-being.

Satisfaction of basic psychological needs is predominantly assessed within a student-athletes designated sport. Coaches are usually the focus of this research due to their daily interactions and close contact with the athletes. These coaches are instrumental in maintaining a social environment that benefits the physical and psychological growth and development and well-being in student-athletes (Adie, Duda, & Ntoumanis, 2008; Reinboth, Duda, & Ntoumanis, 2004). However, research is limited on how the entire social environment, beyond coaching, has an effect on student-athlete well-being. This social environment is typically comprised of an administration, academic staff, sports medicine staff, coaching staff, and strength and conditioning staff. Most of these staff members have daily interactions with the student-athletes. Therefore, an evaluation on how the student-athletes view each division of the athletic department is warranted.

Time demands are examined by the National Collegiate Athletics Association (NCAA). There are policies and rules put in place to protect student-athletes from spending an inordinate amount of time on athletics. The Growth, Opportunities,

Aspirations, and Learning of Students in College (GOALS) study was designed to understand the student-athlete experience in the collegiate setting (NCAA, 2006). Findings show that student-athletes self-report spending more than the NCAA maximum time allotment for athletic activity during their sports in-season and off-season (NCAA, 2006; NCAA, 2010). Casual observations of the athletics programs suggest that this could also be the case at PSU. Moreover, satisfaction and well-being could be affected by these significant time demands in athletics.

Well-being, growth, and development in the context of sport are highlighted as important outcomes for the satisfaction of basic psychological needs (Blanchard, Amiot, Perreault, Vallerand, & Provencher, 2009). Overall the present study aimed to examine (a) the effect of the social environment, as defined by the divisions of the Department of Athletics, on student-athletes' perceptions of basic needs satisfaction, (b) the relationship between athletes' basic needs satisfaction on well-being (subjective vitality and athlete satisfaction), and (c) the effects of time demands, during in-season and off-season, on well-being of student-athletes at PSU.

Chapter 2

Review of Literature

Collegiate student-athletes "represent a special population of students with unique challenges and needs different from their non-athlete peers" (Gayles, 2009). These student-athletes are typically undergraduate students enrolled in colleges and universities who partake in institutionally competitive sports, excluding club or intramural sports (Etzel, Watson, Visek, & Maniar, 2006). A student-athlete's social environment is comprised of a plethora of groups, but the group that has the largest effect on the athlete is the athletic department. The student-athlete population is unique, and the athletic departments at colleges and universities should create an environment that encourages personal, academic, and athletic growth. Athletic departments vary between institutions, but are typically comprised of administration, academic staff, sports medicine staff, coaching staff, and strength and conditioning staff. Generally, all of these groups interact with student-athletes on a daily basis. Understanding the needs and promoting the health and well-being of student-athletes is one of the responsibilities of these athletic departments (Etzel et al., 2006) and additional research is warranted to understand the ways in which this is accomplished.

Self-determination theory (SDT) maintains that there is a connection between the social environment and its effect on people's well-being (Deci & Ryan, 2000). SDT, along with the subtheory of basic psychological needs theory (BPNT), has been employed by researchers to examine the effects of the three innate psychological needs; autonomy, competence, and relatedness (Deci & Ryan, 2000). Satisfaction of these three basic psychological needs is essential in maintaining "the necessary conditions for

psychological growth, integrity, and well-being" (Deci & Ryan, 2000, p. 227). Evidence supporting the association between the three basic psychological needs and well-being is found regularly in literature. Each need is necessary for the conditions of psychological well-being, and all three must be satisfied. Deci and Ryan (2000) state "psychological health requires satisfaction of all three needs; one or two are not enough" (p. 229). The inability to satisfy any of these three needs may lead to significant negative outcomes. If the social environment does not provide the means for fulfilling the satisfaction for the basic psychological needs, then significant costs for health and well-being may occur (Deci & Ryan, 2000).

The need for autonomy is satisfied when people recognize that the choices and decisions they make are of their own origin, and they are acting in unity with their own integrated sense of self (Deci & Ryan, 2000). Emphasis has been placed on the degree of autonomy support and its effect on well-being (Deci & Ryan, 1987). Felton and Jowett (2013) found that autonomy-supportive coaches had a positive effect on athlete satisfaction. Similar findings were established by Adie et al. (2008). Autonomy support has also been associated with higher levels of satisfaction for the needs of competence and relatedness (Adie et al., 2008; Felton & Jowett, 2013). Many different measures have been used to evaluate autonomy in the general population and within specific domains such as family, work, exercise, etc.

The second innate psychological need for competence refers to an interaction between one's self and the environment that creates a sense of mastery (Deci & Ryan, 2000). Felton and Jowett (2013) found that satisfaction of competence affects an athlete's well-being positively. Adie et al., (2008) also found this to be true. However, most of the

research shows that the need for competence is a positive, but weak predictor of well-being. Competence is a need that is assessed within the individual, but there is not much research on the extent to which the social environment can have an effect.

Feelings of connections and respect from significant relationships correspond with the final need for relatedness (Deci & Ryan, 2000). Mediation between relatedness and well-being has produced mixed feelings among researchers. Reinboth and Duda (2006) found a relationship in a coaching environment, but Adie et al., (2008) did not. In a study of university students in a psychology class (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000) relatedness was found to be correlated with two positive outcomes, positive affect and vitality, More research is warranted due to the deficiency of studies that have examined the effect of the social environment on relatedness.

Well-being is defined in a variety of ways in the research literature. Some have described well-being as the absence of pain/displeasure or the presence of happiness (Ryan and Deci, 2000). A more eudaimonic perspective of well-being is used when evaluating the association between well-being and need satisfaction. Well-being is described as the degree that a person is optimally functioning in a specific environment (Ryff, 1989). Others have described well-being as a fully functional person (Ryan and Deci, 2000). Researchers have used several different measures to study well-being, which include athlete satisfaction (Burns, Jasinski, Dunn, & Fletcher, 2012; Unruh, 1998; Greenberg, McKnight, Riddick & Stone, 2004), self-esteem (Gagne, 2003), and subjective vitality (Adie et al., 2008; Felton & Jowett, 2013; Gagne, 2003). In the present study, a combination of subjective vitality and satisfaction is used as key indicators of evaluating student-athlete well-being.

Subjective vitality is used as a measure of well-being in many research studies (Adie et al., 2008; Felton & Jowett, 2013; Gagne, 2003). Ryan and Frederick (1997) define subjective vitality as "one's conscious experience of possessing energy and aliveness" (p. 530). It is a variable that can be placed within psychological research to determine if there is an association with well-being (Ryan & Frederick, 1997). SDT suggests that contexts that support the three basic psychological needs should enhance vitality (Deci & Ryan, 2000). Additional research should be completed to assess how an individual's social environment can affect their subjective vitality and, ultimately, their personal well-being.

When well-being is measured as a combination of indicators, it has been positively related to satisfaction of the three basic psychological needs (Ryan & Frederick, 1997). Therefore, another indicator of well-being is satisfaction. Student-athlete satisfaction is defined as "a positive affective state resulting from a complex evaluation of the structures, processes, and outcomes associated with the athletic experience" (Chelladurai & Reimer, 1997, p. 135). Positive interactions between student-athletes and faculty and staff are correlated with higher levels of satisfaction (Engstrom, Sedlacek, & McEwen, 1995). "Satisfaction of the basic psychological needs, within the sport setting, is associated with enhanced experiences of well-being" (Felton & Jowett, 2013).

Recently, student-athlete time demands have become an area of interest for the National Collegiate Athletics Association (NCAA). Rules have been put in place to protect student-athletes from spending too much time on athletics. The NCAA (2012) states that sports are to be restricted to a maximum of twenty hours of athletic activity per

week during in-season. This includes games, practices, film sessions, conditioning, individual workouts, and meetings, with at least one day off, during sports season. During the off-season, this amount of time is restricted even further to eight hours per week. However, these rules have a variety of interpretations and many student-athletes spend a large amount of time on the athletics-related demands of their lives. National surveys are conducted by the NCAA examining student-athlete experiences at colleges and universities across the country. The NCAA (2006) reported that student-athletes self-reported spending over twenty hours a week on athletic activities during their in-season, and high percentages of athletes self-reported spending more time on athletic activities in the off-season than during in-season. The same study was repeated after four years and showed similar results, but even more student-athletes self-reported spending as much-if not more-time on athletics during the off-season (NCAA, 2010). Another study was conducted during the spring of 2014. Student-athletes stated that they view themselves more as athletes than students, and these time demands could be partially responsible for why that is the case.

Research, up to this point, has focused on the satisfaction of needs on one particular aspect of the student-athlete's social environment. The environment that the coach establishes is hypothesized to have a link with basic needs satisfaction and student-athletes' well-being, and research is being done to understand this connection. Coaches are the main focus of research due to the amount of time they spend with the student-athletes and their ability to influence student-athletes in many different areas (Adie et al., 2008; Blanchard et al., 2009; Felton & Jowett, 2013). Academic services are continually evaluated over the years, but there is minimal research done on the effects of the social

relationships between student-athletes and the academic staff. Burns, et al. (2013) found higher satisfaction with academic support services in the student-athletes that were able to make career decisions. More information is needed to determine how the academic staff can affect the well-being of student-athletes. Research in the context of sports medicine focuses on athlete satisfaction with the athletic training services provided (Unruh, 1998; Unruh, Unruh, Moorman, & Seshadri, 2005). Unruh (1998) showed differences between sex, level of competition, and sport profile. Perceived satisfaction for high-profile sports (males in football, basketball, or baseball and females in basketball) was higher than low-profile sports (all other sports), which could be due to staffing issues (Unruh et al., 2005).

Little research has been conducted on the effects of the administration or the strength and conditioning staff on student-athlete well-being. Another area of interest is the differences in satisfaction and well-being between sports, sex, and academic year. Such issues need to be evaluated and considered in order to improve student-athlete well-being within the athletic department and are addressed in the current study.

Chapter 3

Methods

Subjects

Eligible participants were identified from Portland State University's (PSU) compliance roster. Student-athletes at PSU were defined as any student-athlete who participated in a sport during the fall 2013 and winter 2014 seasons. These Division 1 sports include basketball, cross-country, golf, football, soccer, softball, tennis, track and field, and volleyball. Cross-country student-athletes typically participate in track and field so these two sports were combined (i.e., "cross-country/track and field"). The age of the student-athletes range from 18 to 26 years, with no gender or ethnic restrictions. Of the 254 student-athletes recruited to participate in this study, 123 student-athletes returned surveys, yielding a 46% response rate; 5 incomplete surveys were omitted from analysis.

Sampling

Following approval from the PSU Human Subjects Research Review Committee, sports teams were contacted regarding participation in the study. Meetings were held with each team to provide information sheets about the study and to distribute the multi-section surveys to student-athletes who were willing to participate. Student-athletes were instructed to read the information sheet before completing the survey, which implied their informed consent. The survey was available as a hard copy to be completed anonymously and placed in a secure, confidential envelope. A second attempt was made to contact the student-athletes due to a low response rate two weeks after failure to contact them or their coaches. This was done through e-mail, which allowed the student-athletes to come in individually and complete a survey in a separate room. They then placed the surveys in a

secure envelope. The principal investigator was not present in the room, in an effort to ensure the confidentiality of student-athletes completing the surveys.

Measures

A multi-section survey was used to gather data. A total of 113 statements were administered, including a section for each division of the Department of Athletics at PSU: administration, academics, sports medicine, coaches, and strength and conditioning. The same questions were asked about each division to standardize the consistent measurement of the basic psychological needs: autonomy, competence, and relatedness across divisions. Well-being was assessed using subjective vitality and satisfaction with each division of the Department of Athletics. Time demands were also evaluated to examine whether well-being was affected by the amount of time spent on athletics. The measures that were used are described below.

Autonomy

The need for autonomy within an athlete's social environment was assessed via a modified version of the Sports Climate Questionnaire (SCQ; Reinboth, Duda, & Ntoumanis, 2004). The 7-item scale was used to assess the degree to which each division in the athletic department is supportive of autonomy. In each section, statements 1, 2, 3, 4, 5, 6, and 7 were used to evaluate autonomy. Example items include: *"I feel that my coaches provide me choices and options"* and *"I feel understood by my coaches"*. *"My coach"* was replaced with *"the administration"*, *"the sports medicine staff"*, *"the academic staff"*, and *"the sports medicine staff"* to evaluate each division's degree of autonomy support. Participants responded on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with an option to not answer. Some changes to

the wording were made to the items and one item was added in order to reflect both athletics and academics.

Competence

No previously validated instrument was available to assess the satisfaction of the need for competence. Most of the scales used to examine this need are based on the individual's ability to master an experience. Therefore, the principal investigator developed statements that assessed this need based on the student-athlete's social interactions with each division of the athletic department. Four statements were used to describe how the athletic department affects a student-athletes' competence. Statements 3, 4, 12, and 13 were used for each section. Example items include: *"The academic staff is available when I need them"* and *"The academic staff's hours fit into my schedule*". These items reflected how an athlete's ability to master their sport and schoolwork is based on interactions with the athletic department. Each of the five divisions of the athletic department were evaluated. Study participants responded on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with an option to provide no response.

Relatedness

The 5-item Need for Relatedness Scale (NRS; Richer & Vallerand, 1998) was used to assess the student-athlete's satisfaction of the need for relatedness with respect to the different divisions of the athletic department. A 6 statement Likert-type scale was used. Statements that were used for the autonomy scale were also used for the relatedness scale due to their similarities. Items 2, 6, 8, 9, 10, and 11 were used within each section. Example items include: *"I feel supported by the administration"* and *"I feel valued by the*

administration". Once again, each statement was changed to assess the different divisions of the athletic department. A 5-point Likert scale was used with a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with an option to not answer.

Well-being

The Subjective Vitality Scale (SVS; Ryan & Frederick, 1997) was used to examine the student-athlete's perceptions of feeling energetic and alive. This was used as one of the two indicators of well-being of student-athletes. The 6-item measure was rated on a 7-point Likert scale ranging from 1 (*not at all true*) to 7 (*very true*), with the exception of one negatively worded item. Example items include: "*I feel alive and vital*" and "*I had energy and spirit*". Each student-athlete's subjective vitality was examined when they were in-season and out of season to explore possible differences in well-being.

Satisfaction with each of the divisions of the athletic department was used as another indicator of well-being. "Knowledge of the level of an athlete's satisfaction and whether or not the athlete has a positive perception" (Unruh, 1998) of the divisions of the athletic department could assist the athletic department in providing an environment that will enhance well-being of the student-athletes. A 6-item scale with a question about each division, plus an item about the athletic department overall was evaluated with a 5-point Likert scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). There was also an option to provide no response.

Time Demands

The Growth, Opportunities, Aspirations, and Learning (GOALS) of Students in College (NCAA, 2006; NCAA, 2010) was used as a basis to evaluate the time demands of student-athletes. The amount of time that student-athletes spent on certain activities

was rated on an 8-point scale ranging from 1 (*0 hours/week*) to 8 (*31+ hours/week*), with an option to provide no response. A total of 13 items were evaluated and these activities included: "*attending class*", "*practicing*", "*socializing with friends*", and others.

Data Analysis

Once the surveys were completed, student-athletes placed them in secure envelopes which were seen only by a research assistant hired to ensure the confidentiality of the student-athletes. Data were analyzed using a spreadsheet on Google Docs. Basic descriptive statistics were calculated to summarize the responses. A point value was assigned to each response. Means were calculated for autonomy, relatedness, competence, satisfaction, time demands, and well-being. If the subject selected "don't know/not applicable" as the response or the response was not answered, then a score of 0 was assigned. Cumulative mean scores of each section and the survey as a whole were computed to examine differences between sex, sport, and academic class standing.

Chapter 4

Results

For each variable of interest, mean scores were calculated for each subject (i.e., total score of all items divided by the number of items). The scores of all respondents were then used to calculate the mean scores for each sport, gender, and academic class standing. Each score represented an average estimate of student-athletes' satisfaction of the three basic psychological needs, well-being and time demands. The higher a student-athlete scored on the survey, the more satisfied the individual was with the divisions of the Department of Athletics. A higher score in the time demands section of the survey showed a greater amount of time spent on a certain activity. Well-being was scored similarly; higher scores represent greater well-being. A total of 118 (expected n=254) subjects participated, yielding a response rate of 46%. 71 females and 47 males participated with the average age of the participants being 20.5 (±1.4) years. There were 29 freshmen, 24 sophomores, 34 juniors, and 28 seniors. Sample sizes for each sport, gender, and academic class standing are listed in Table 1.

Table 1. Sample sizes for sport, gender, and academic class standing.

		Actual (n)	Expected (n)	Percentage
Sport	Men's Basketball	11	15	73%
	Women's Basketball	10	13	77%
	Football	35	94	37%
	Golf	4	8	50%
	Soccer	16	25	64%
	Softball	20	20	100%
	Men's Tennis	0	8	0%
	Women's Tennis	6	7	86%
	Cross-Country/ Track and Field	6	51	12%
	Volleyball	10	13	77%
	Total	118	254	46%
Gender	Females	71	115	62%
	Males	47	139	34%
Academic Class Standing	Freshmen	29	79	37%
	Sophomores	24	66	36%
	Juniors	34	66	52%
	Seniors	28	43	65%

Student-athletes that responded as being cross-country athletes also responded to being a track and field athlete. Therefore, these two sports were combined and included under the title "cross-country/track and field." For the purpose of classifying academic class standing, student-athletes who responded as being a redshirt were identified with the academic class in which their redshirt was received. For example, redshirt freshmen were classified as freshmen; redshirt sophomores were classified as sophomores and so on.

Administration

The administration was the first division of the Department of Athletics that was examined. All results for basic psychological needs and satisfaction for the administration by sport are listed in Table 2.

Table 2. Basic psychological needs and satisfaction for the administration by sport.

		Autonomy	Relatedness	Competence	Satisfaction
Sport	Men's Basketball	2.66 (±0.9)	2.88 (±0.6)	3.00 (±0.8)	2.64 (±0.9)
	Women's Basketball	2.04 (±0.9)	1.92 (±0.7)	2.45 (±1.1)	2.10 (±0.9)
	Football	3.04 (±1.0)	2.95 (±1.0)	3.19 (±0.9)	2.97 (±1.0)
	Golf	2.96 (±1.1)	2.54 (±0.6)	3.13 (±1.0)	2.75 (±1.5)
	Soccer	3.58 (±0.6)	3.23 (±0.7)	3.83 (±0.5)	3.56 (±0.5)
	Softball	3.00 (±0.9)	2.60 (±0.9)	3.20 (±1.0)	2.75 (±1.1)
	Women's Tennis	4.07 (±0.7)	3.61 (±0.8)	4.17 (±0.3)	3.83 (±0.8)
	Cross-Country/Track and Field	3.60 (±0.9)	3.22 (±0.9)	3.67 (±0.5)	3.67 (±0.8)
	Volleyball	3.47 (±0.6)	2.98 (±0.7)	3.35 (±1.1)	3.20 (±0.8)

Data are presented as mean (standard deviation)

Competence typically had the highest score, followed by autonomy and then relatedness. Women's basketball student-athletes produced the lowest scores at 2.04 (±0.9) for autonomy, 1.92 (±0.7) for relatedness, and 2.45 (±1.1) for competence while women's tennis student-athletes produced the highest results with 4.07 (±0.7) for autonomy, 3.61 (±0.8) for relatedness, and 4.17 (±0.3) for competence. The satisfaction ratings for the administration for each sport related with the basic psychological needs with women's basketball having the lowest satisfaction at 2.10 (±0.9) and women's tennis having the highest at 3.83 (±0.8). Basic psychological needs and satisfaction for the administration by gender is reported in Figure 1.

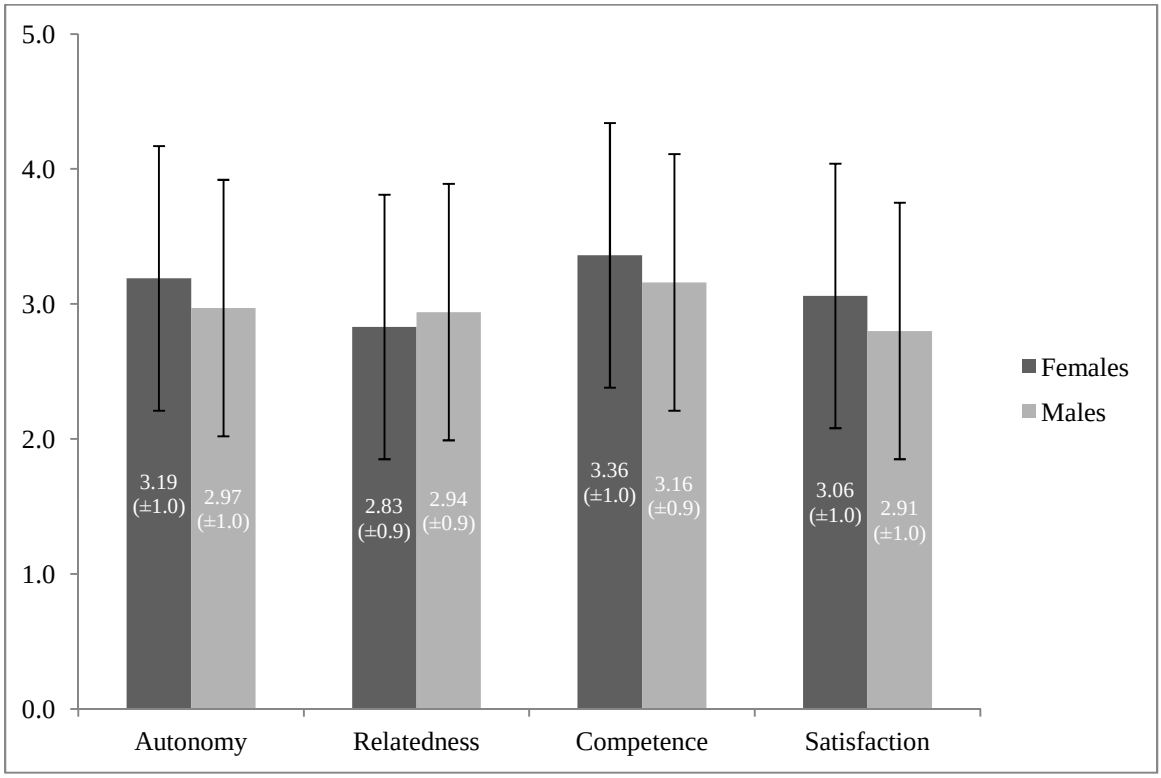

Figure 1. Basic psychological needs and satisfaction for the administration by gender.

Females had appeared to have higher scores than males in autonomy and competence, but not in relatedness. The basic psychological needs scores for females were 3.19 (±1.0) for autonomy, 2.83 (±0.9) for relatedness, and 3.36 (±1.0) for competence. For the males, the scores were 2.97 (±1.0) for autonomy, 2.94 (±0.9) for relatedness, and 3.16 (±0.9) for competence. Males appeared to have lower satisfaction rating at 2.91 (±1.0) than females at 3.06 (±1.0). For academic class standing, basic psychological needs and satisfaction are shown in Figure 3.

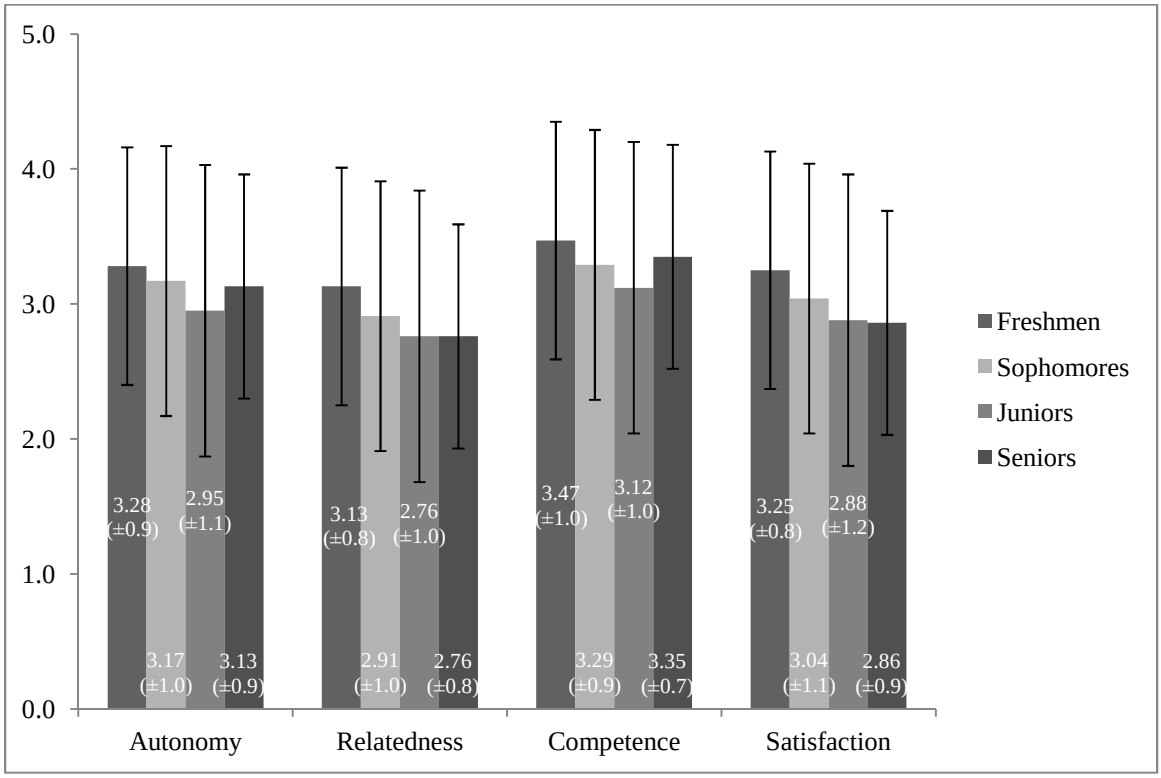

Figure 2. Basic psychological needs and satisfaction for the administration by academic class standing.

Freshmen appeared to have the highest scores at 3.28 (±0.9) for autonomy, 3.13 (±0.8) for relatedness, and 3.47 (±1.0) for competence. Juniors had the lowest scores at 2.95 (±1.1) for autonomy, 2.76 (±1.0) for relatedness, and 3.12 (±1.0) for competence. The satisfaction ratings were slightly different compared to the basic psychological needs ratings. Freshmen appeared to have the highest satisfaction rating for the administration at 3.25 (±0.8), and seniors seemed to have the lowest satisfaction rating at 2.86 (±0.9).

Academic Staff

For the academic staff, competence tended to have the highest score followed by autonomy and then relatedness. Results for basic psychological needs and satisfaction for the academic staff by sport are listed in Table 3.

Table 3. Basic psychological needs and satisfaction for the academic staff by sport.

		Autonomy	Relatedness	Competence	Satisfaction
Sport	Men's Basketball	3.04 (±1.0)	2.86 (±1.0)	3.20 (±0.9)	3.09 (±1.2)
	Women's Basketball	3.11 (±0.8)	3.10 (±0.9)	3.38 (±0.9)	3.30 (±0.9)
	Football	3.12 (±1.0)	2.97 (±1.1)	3.39 (±1.0)	3.03 (±1.2)
	Golf	4.14 (±1.0)	3.96 (±1.3)	4.25 (±0.8)	4.00 (±1.4)
	Soccer	3.88 (±0.7)	3.73 (±0.8)	3.91 (±0.6)	3.75 (±0.9)
	Softball	3.88 (±0.8)	3.85 (±0.8)	3.90 (±0.8)	3.70 (±1.0)
	Women's Tennis	4.12 (±0.2)	4.08 (±0.2)	4.08 (±0.4)	4.67 (±0.5)
	Cross-Country/Track and Field	4.40 (±0.4)	4.33 (±0.6)	4.42 (±0.5)	4.00 (±0.0)
	Volleyball	3.96 (±0.9)	3.72 (±1.0)	3.45 (±1.0)	3.20 (±0.9)

Data are presented as mean (standard deviation)

Men's basketball student-athletes had the lowest scores for the basic psychological needs at 3.04 (±1.0) for autonomy, 2.86 (±1.0) for relatedness, and 3.20 (±0.9) for competence. Cross-Country/Track and field student-athletes had the highest scores at 4.40 (±0.4) for autonomy, 4.33 (±0.6) for relatedness, and 4.42 (±0.5) for competence. The satisfaction ratings were different than the basic psychological needs ratings. Football seemed to have the lowest satisfaction rating at 3.03 (±1.2) while women's tennis appeared to have the highest rating at 4.67 (±0.5). The basic psychological needs and satisfaction for the academic staff by gender are reported in Figure 3.

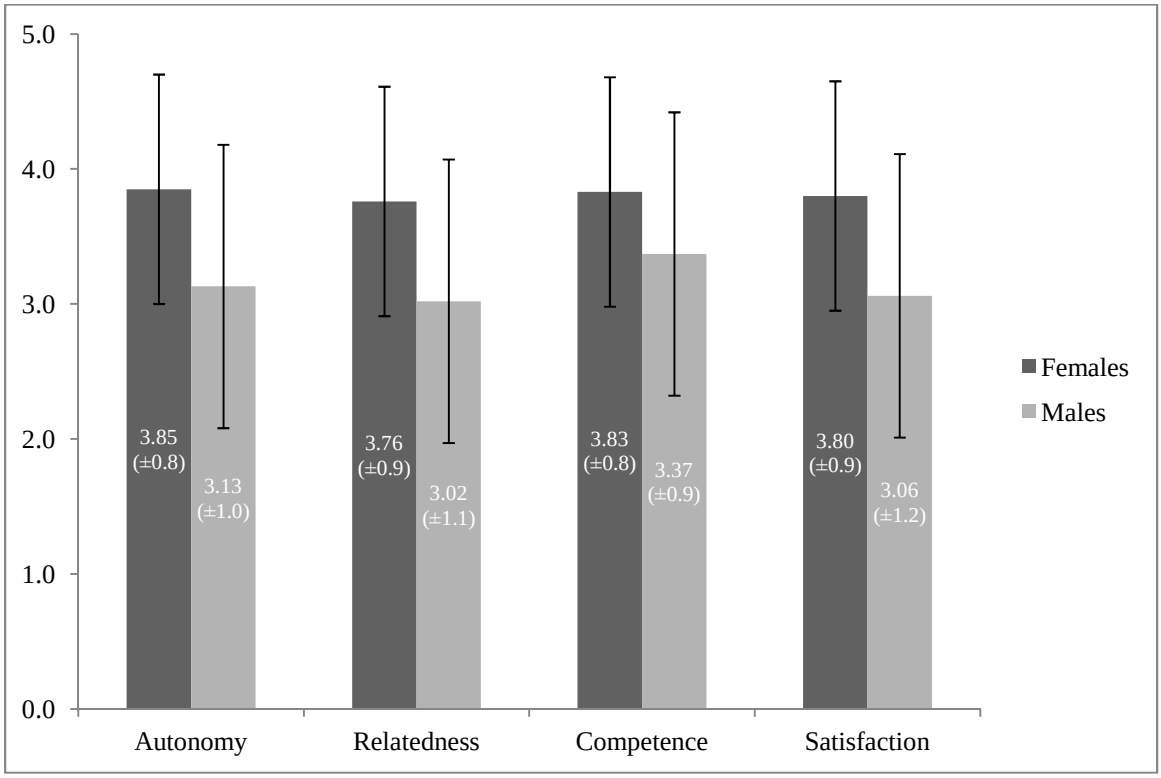

Figure 3. Basic psychological needs and satisfaction for the academic staff by gender.

Females appeared to have higher ratings than males. The females' basic psychological needs scores were 3.85 (±0.8) for autonomy, 3.76 (±0.9) for relatedness, and 3.83 (±0.8) for competence with a satisfaction rating of 3.80 (±0.9). Males were slightly lower at 3.13 (±1.0) for autonomy, 3.02 (±1.1) for relatedness, and 3.37 (±0.9) for competence with a satisfaction rating of 3.06 (±1.2). Academic class standing was also evaluated and the results are reported in Figure 4.

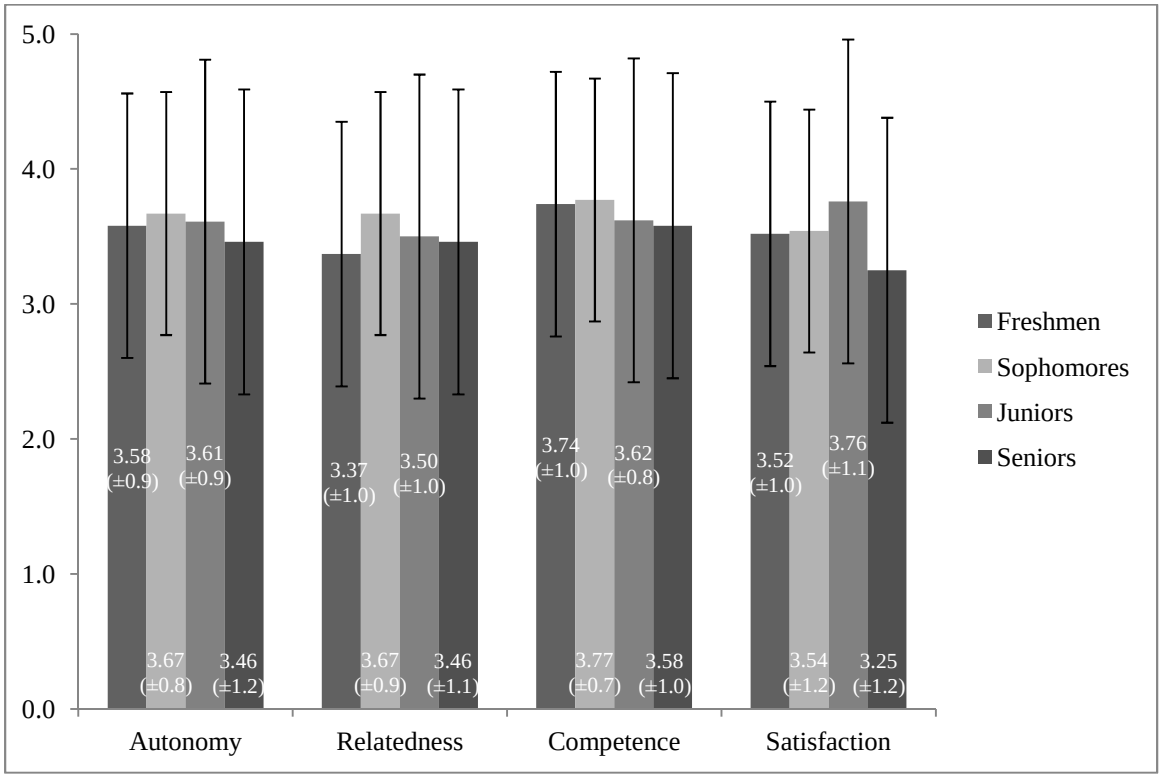

Figure 4. Basic psychological needs and satisfaction for the academic staff by academic class standing.

Sophomores appeared to have the highest scores at 3.67 (±0.8) for autonomy, 3.67 (±0.9) for relatedness, and 3.77 (±0.7) for competence and seniors the lowest at 3.46 (±1.2) for autonomy, 3.46 (±1.1) for relatedness, and 3.58 (±1.0) for competence. The satisfaction ratings did not fully relate with the basic psychological needs scores with juniors appearing to have the highest at 3.76 (±1.1) and seniors the lowest at 3.25 (±1.2).

Sports Medicine Staff

The sports medicine staff was evaluated as another division of the Department of Athletics. The scores for the basic psychological needs for sports medicine were similar, but typically competence had the highest score followed closely by autonomy and relatedness. Results for basic psychological needs and satisfaction for the sports medicine staff by sport are listed in Table 4.

Table 4. Basic psychological needs and satisfaction for the sports medicine staff by sports.

		Autonomy	Relatedness	Competence	Satisfaction
Sport	Men's Basketball	3.48 (±0.9)	3.61 (±0.9)	3.48 (±1.0)	3.27 (±1.1)
	Women's Basketball	2.89 (±1.0)	2.93 (±0.8)	3.10 (±0.8)	3.00 (±0.7)
	Football	3.73 (±1.1)	3.73 (±1.1)	3.78 (±1.1)	4.20 (±0.8)
	Golf	4.00 (±0.6)	4.29 (±0.9)	3.88 (±0.6)	4.00 (±0.8)
	Soccer	3.72 (±0.8)	3.72 (±0.9)	4.14 (±0.5)	3.60 (±0.7)
	Softball	4.01 (±0.7)	3.97 (±0.7)	3.96 (±0.7)	4.20 (±0.8)
	Women's Tennis	4.24 (±0.7)	4.19 (±0.5)	4.33 (±0.6)	4.67 (±0.5)
	Cross-Country/Track and Field	3.81 (±0.7)	3.61 (±0.9)	3.71 (±0.6)	3.50 (±0.8)
	Volleyball	3.69 (±0.5)	3.67 (±0.7)	3.65 (±0.8)	3.30 (±0.8)

Data are presented as mean (standard deviation)

Women's basketball student-athletes had the lowest scores with 2.89 (±1.0) for autonomy, 2.93 (±0.8) for relatedness, and 3.10 (±0.8) for competence. Women's tennis student-athletes had the highest scores with 4.24 (±0.7) for autonomy, 4.19 (±0.5) for relatedness, and 4.33 (±0.6) for competence. The satisfaction ratings corresponded with the basic psychological needs scores with women's basketball having the lowest at 3.00 (±0.7) and women's tennis having the highest at 4.67 (±0.5). Basic psychological needs and satisfaction for the sports medicine staff by gender are reported in Figure 5.

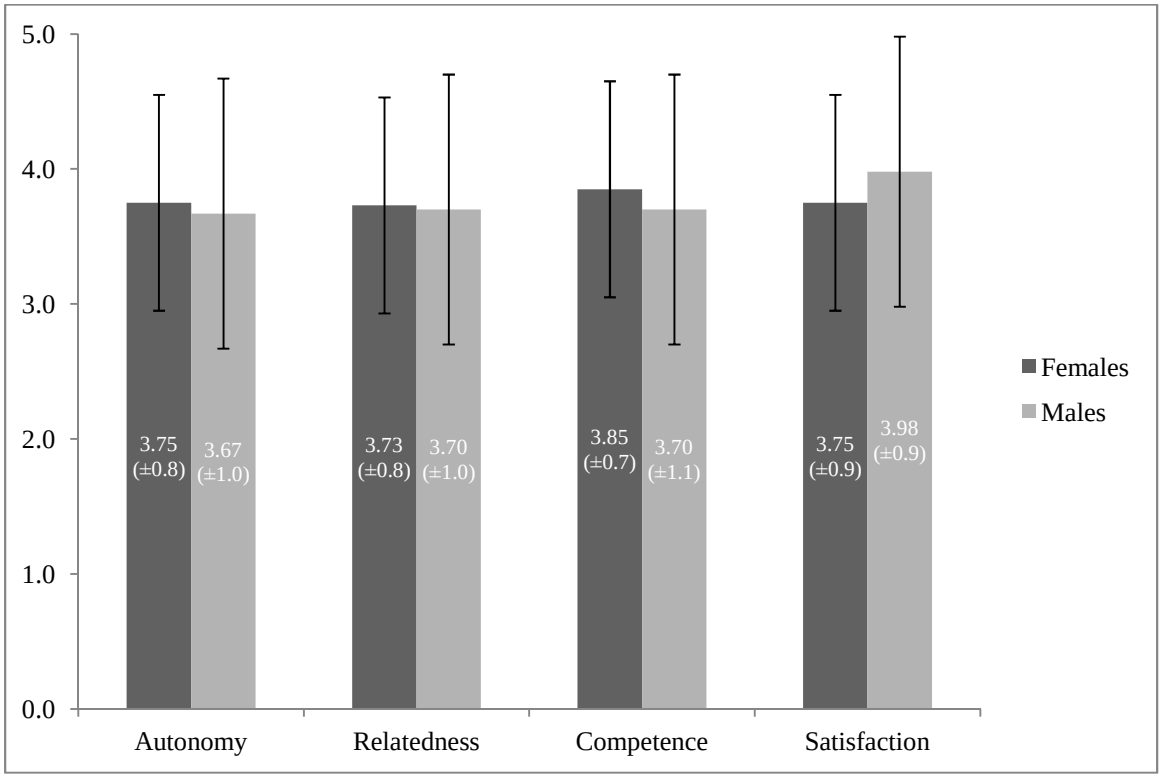

Figure 5. Basic psychological needs and satisfaction for the sports medicine staff by gender.

Females seemed to have slightly higher scores for the basic psychological needs than males. Female's scores were 3.75 (±0.8) for autonomy, 3.73 (±0.8) for relatedness, and 3.85 (±0.7) for competence. Male's scores were 3.67 (±1.0) for autonomy, 3.70 (±1.0) for relatedness, and 3.70 (±1.1) for competence. The satisfaction scores seemed to not be related to the basic psychological needs scores with females having a score of 3.75 (±0.9) and males having a score of 3.98 (±0.9). Results for the basic psychological needs and satisfaction for the sports medicine staff by academic class standing are reported in Figure 6.

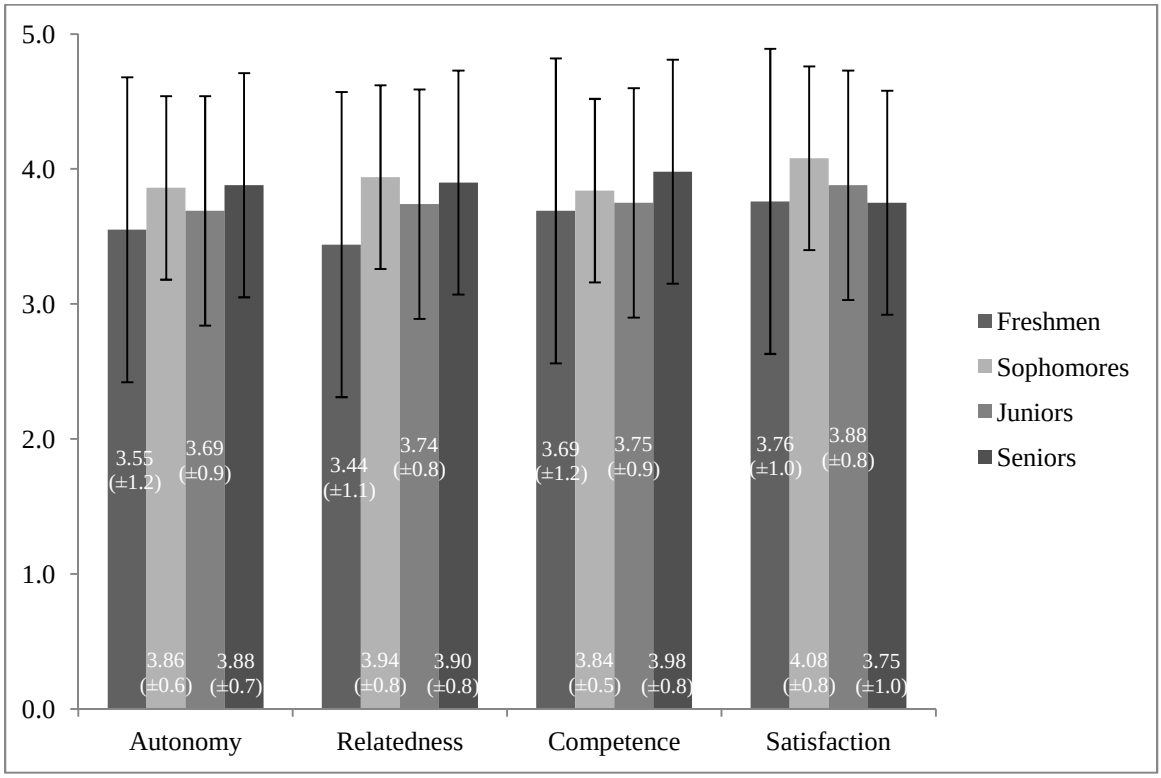

Figure 6. Basic psychological needs and satisfaction for the sports medicine staff by academic class standing.

Freshmen seemed to have the lowest basic psychological needs scores at 3.55 (±1.2) for autonomy, 3.44 (±1.1) for relatedness, and 3.69 (±1.2) for competence. Seniors appeared to have the highest scores at 3.88 (±0.7) for autonomy, 3.90 (±0.8) for relatedness, and 3.98 (±0.8) for competence. Satisfaction ratings did not relate with the basic psychological needs scores with sophomores having the highest at 4.08 (±0.8) and seniors having the lowest at 3.75 (±1.0).

Coaching Staff

With regard to the coaching staff, competence was typically the highest basic psychological need followed by relatedness and autonomy. Results for the basic psychological needs and satisfaction for the coaching staff by sport is listed in Table 5.

Table 5. Basic psychological needs and satisfaction for the coaching staff by sport.

		Autonomy	Relatedness	Competence	Satisfaction
Sport	Men's Basketball	2.69 (±0.8)	2.76 (±0.8)	3.16 (±0.9)	3.18 (±0.8)
	Women's Basketball	2.19 (±0.8)	2.58 (±0.8)	2.60 (±0.6)	2.10 (±0.9)
	Football	3.03 (±1.1)	3.06 (±1.1)	3.62 (±1.0)	3.00 (±1.2)
	Golf	2.64 (±1.9)	2.21 (±1.6)	2.63 (±1.9)	2.50 (±1.3)
	Soccer	3.17 (±1.0)	3.39 (±0.9)	3.88 (±0.6)	3.25 (±1.2)
	Softball	1.86 (±0.7)	1.92 (±0.6)	2.35 (±0.8)	1.45 (±0.8)
	Women's Tennis	4.02 (±0.8)	3.94 (±0.7)	4.33 (±0.6)	4.17 (±0.8)
	Cross-Country/Track and Field	4.26 (±1.0)	4.11 (±1.0)	4.38 (±0.8)	4.33 (±0.8)
	Volleyball	3.67 (±0.7)	3.35 (±0.8)	3.33 (±0.7)	3.80 (±1.4)

Data are presented as mean (standard deviation)

Softball student-athletes had the lowest scores with 1.86 (±0.7) for autonomy, 1.92 (±0.6) for relatedness, and 2.35 (±0.8) for competence. Cross-country/track and field student-athletes had the highest scores with 4.26 (±1.0) for autonomy, 4.11 (±1.0) for relatedness, and 4.38 (±0.8) for competence. Satisfaction ratings related to the basic psychological needs scores with softball being the lowest at 1.45 (±0.8) and cross-country/track and field being the highest at 4.33 (±0.8). Basic psychological needs and satisfaction for the coaching staff by gender are reported in Figure 7.

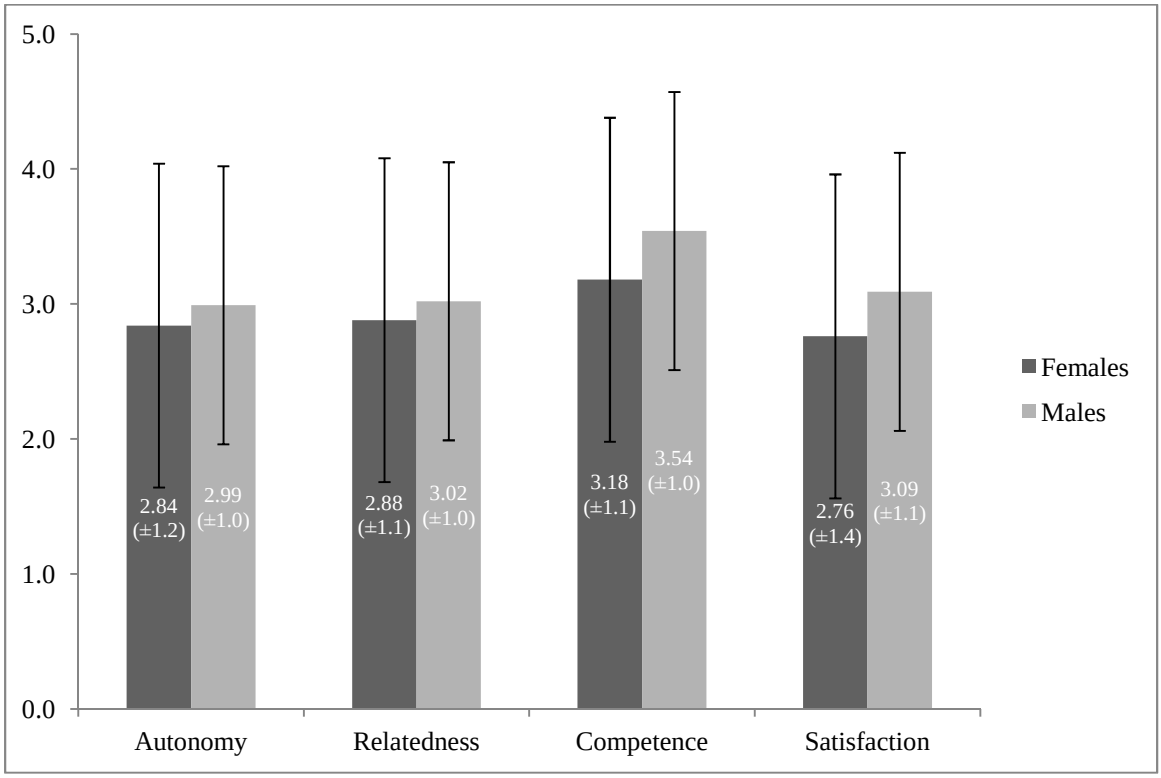

Figure 7. Basic psychological needs and satisfaction for the coaching staff by gender.

Females appeared to have lower basic psychological needs scores than males. The female's scores were 2.84 (±1.2) for autonomy, 2.88 (±1.1) for relatedness, and 3.18 (±1.1) for competence. Male's scores were as follows: 2.99 (±1.0) for autonomy, 3.02 (±1.0) for relatedness, and 3.54 (±1.0) for competence. The satisfaction ratings were related to the basic psychological needs scores with females at 2.76 (±1.4) and males at 3.09 (±1.1). Results for the basic psychological needs and satisfaction for the coaching staff by academic class standing are reported in Figure 8.

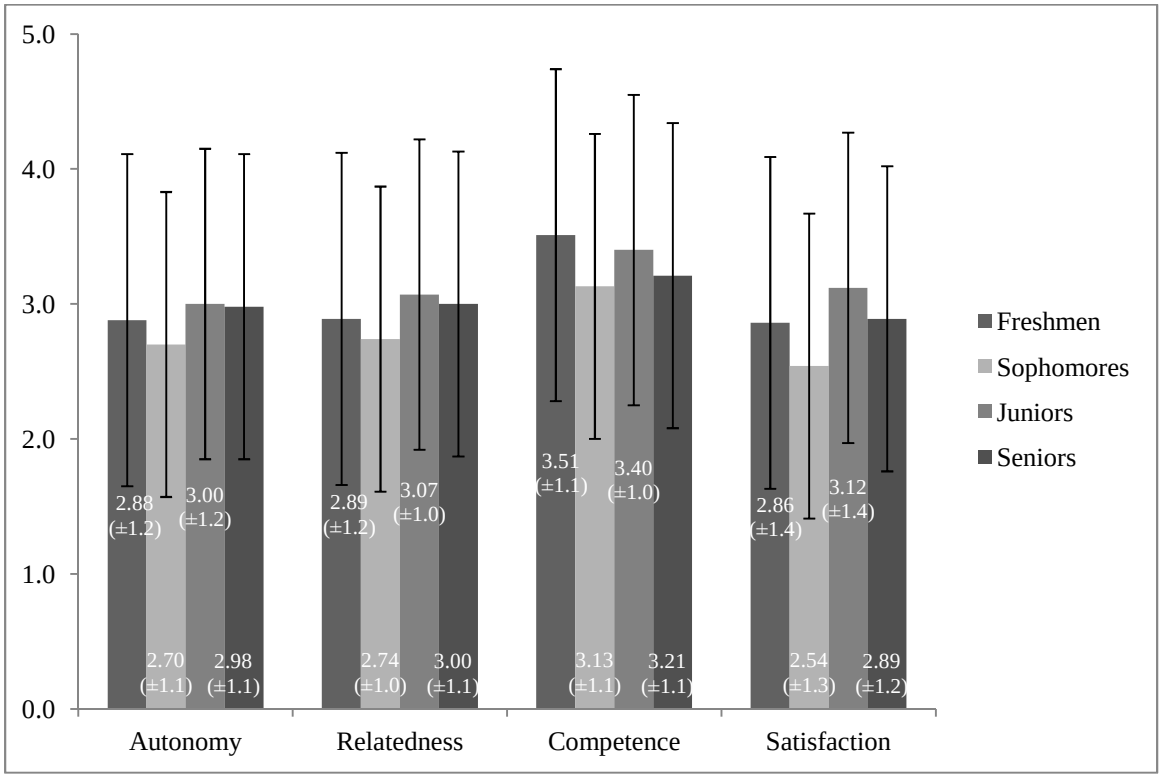

Figure 8. Basic psychological needs and satisfaction for the coaching staff by academic class standing.

Sophomores appeared to have the lowest scores with 2.70 (±1.1) for autonomy, 2.74 (±1.0) for relatedness, and 3.13 (±1.1) for competence and juniors had the highest scores with 3.00 (±1.2) for autonomy, 3.07 (±1.0) for relatedness, and 3.40 (±1.0) for competence. The satisfaction ratings related to the scores with sophomores being the lowest at 2.54 (±1.3) and juniors being the highest at 3.12 (±1.4).

Strength and Conditioning Staff

The final division of the Department of Athletics that was analyzed was the strength and conditioning staff. Cross-country/track and field was not included in the calculations because they did not respond and do not participate in the strength and conditioning program at PSU. Competence was the highest score for the basic psychological needs followed by relatedness and autonomy. Results for the basic

psychological needs and satisfaction for the strength and conditioning staff by sport are listed in Table 6.

Table 6. Basic psychological needs and satisfaction for the strength and conditioning staff by sport.

		Autonomy	Relatedness	Competence	Satisfaction
Sport	Men's Basketball	3.29 (±1.2)	3.14 (±1.2)	3.30 (±1.2)	2.91 (±0.9)
	Women's Basketball	2.71 (±1.0)	2.98 (±0.8)	3.03 (±1.0)	3.40 (±0.8)
	Football	4.04 (±0.8)	4.10 (±0.8)	4.11 (±0.7)	3.97 (±1.2)
	Golf	2.82 (±0.5)	2.54 (±0.9)	2.88 (±0.5)	3.25 (±0.5)
	Soccer	3.58 (±0.5)	3.75 (±0.5)	3.97 (±0.6)	4.13 (±0.6)
	Softball	2.56 (±1.0)	2.69 (±0.9)	2.75 (±1.1)	2.85 (±0.7)
	Women's Tennis	3.98 (±0.6)	3.92 (±0.7)	4.08 (±0.6)	4.50 (±0.5)
	Cross-Country/Track and Field	N/A	N/A	N/A	N/A
	Volleyball	1.87 (±0.9)	2.22 (±1.3)	2.33 (±1.3)	3.00 (±1.1)

Data are presented as mean (standard deviation)

Football student-athletes had the highest scores with 4.04 (±0.8) for autonomy, 4.10 (±0.8) for relatedness, and 4.11 (±0.7) for competence. Volleyball student-athletes had the lowest scores with 1.87 (±0.9) for autonomy, 2.22 (±1.3) for relatedness, and 2.33 (±1.3) for competence. The satisfaction ratings were not related to the basic psychological needs scores with softball being the lowest at 2.85 (±0.7) and women's tennis being the highest at 4.50 (±0.5). Basic psychological needs and satisfaction for the strength and conditioning staff by gender are reported in Figure 9.

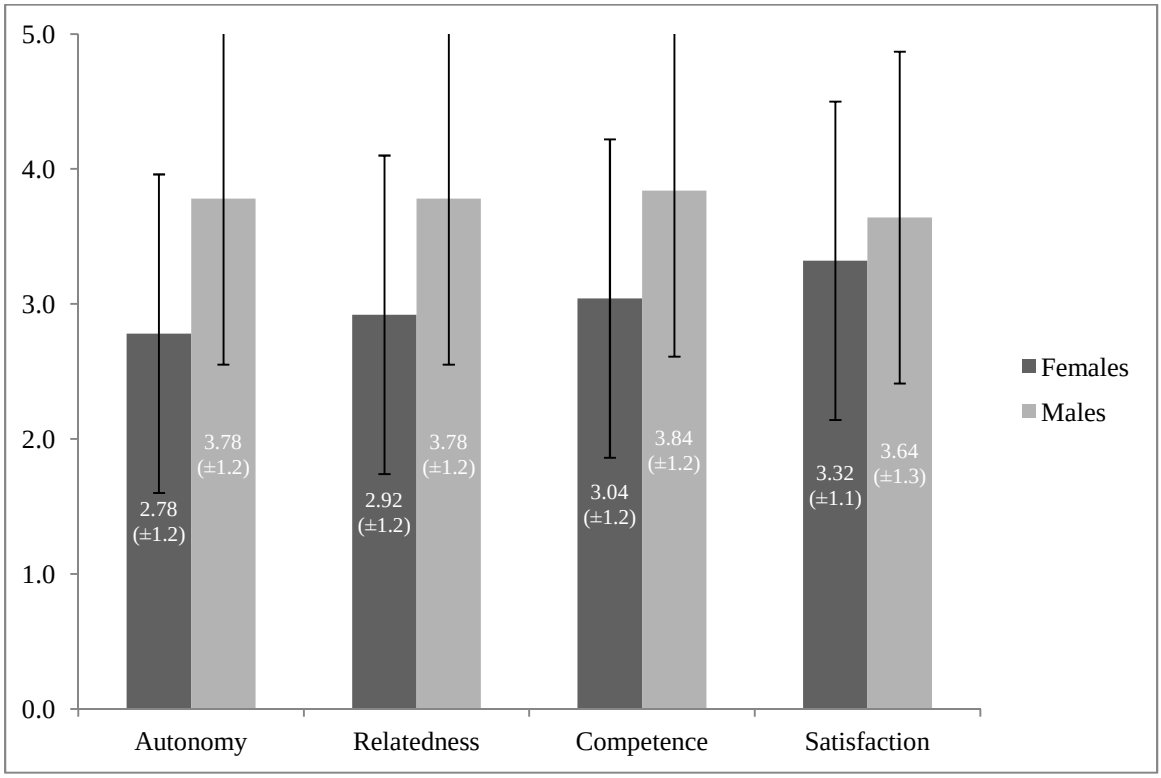

Figure 9. Basic psychological needs and satisfaction for the strength and conditioning staff by gender.

Females appeared to have lower scores than males with 2.78 (±1.2) for autonomy, 2.92 (±1.2) for relatedness, and 3.04 (±1.2) for competence. Male's scores were 3.78 (±1.1) for autonomy, 3.78 (±1.1) for relatedness, and 3.84 (±1.1) for competence. The satisfaction ratings were related to the basic psychological needs scores with females at 3.32 (±1.1) and males at 3.64 (±1.3). Results of basic psychological needs and satisfaction for the strength and conditioning staff by academic class standing are reported in Figure 10.

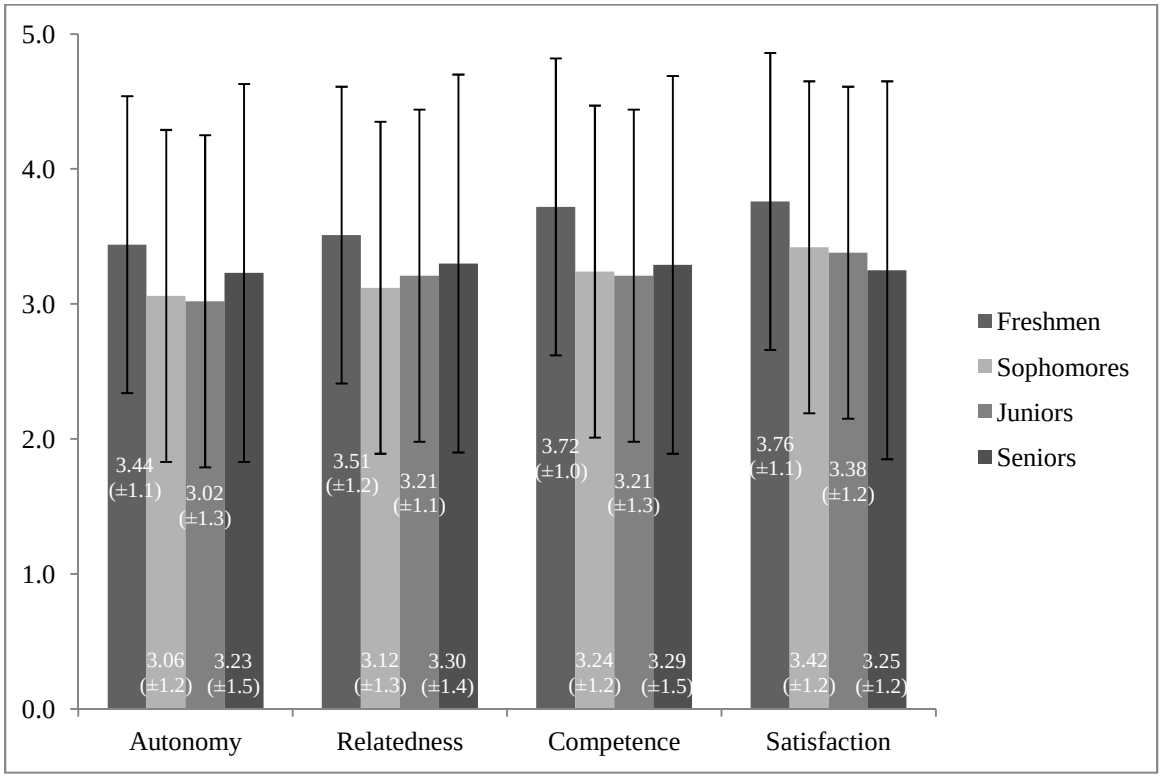

Figure 10. Basic psychological needs and satisfaction for strength and conditioning staff by academic class standing.

Freshmen appeared to have the highest basic psychological needs scores with 3.44 (±1.1) for autonomy, 3.51 (±1.2) for relatedness, and 3.72 (±1.0) for competence. Sophomores had the lowest scores with 3.06 (±1.2) for autonomy, 3.12 (±1.3) for relatedness, and 3.24 (±1.2) for competence. The satisfaction ratings somewhat related to the basic psychological needs with the freshmen having the highest at 3.76 (±1.1) and seniors having the lowest at 3.25 (±1.2).

Well-being

Well-being using the Subjective Vitality Scale was analyzed in the same manner as the basic psychological need scores and the satisfaction ratings. In-season and off-season well-being was evaluated for sports, gender, and academic class standing. Track

and field student-athletes did not answer the questions about well-being during the off-season due to the fact that many of them do not have an off-season. These student-athletes typically compete in cross-country and track and field, and therefore are competing during the entire academic year. Results for well-being in-season and off-season by sport are listed in Table 7.

Table 7. Well-being in-season and off-season by sport.

		In-Season	Off-Season
Sport	Men's Basketball	3.39 (±1.2)	4.55 (±1.1)
	Women's Basketball	1.90 (±0.7)	4.27 (±1.9)
	Football	3.70 (±1.7)	4.25 (±1.4)
	Golf	2.88 (±1.1)	3.83 (±1.5)
	Soccer	3.66 (±0.5)	3.38 (±1.3)
	Softball	2.78 (±0.9)	3.19 (±1.3)
	Women's Tennis	4.22 (±1.3)	5.36 (±0.7)
	Cross-Country/Track and Field	4.47 (±0.9)	N/A
	Volleyball	3.95 (±0.9)	3.22 (±1.4)

Data are presented as mean (standard deviation)

During the in-season, women's basketball student-athletes had the lowest well-being at 1.90 (±0.7), while cross-country/track and field student-athletes had the highest well-being at 4.47 (±0.9). During the off-season, softball student-athletes had the lowest well-being at 3.19 (±1.3), and women's tennis student-athletes had the highest well-being at 5.36 (±0.7). Overall, well-being scores were higher during the off-season than during the in-season. Well-being during the in-season and off-season by gender is reported in Figure 11.

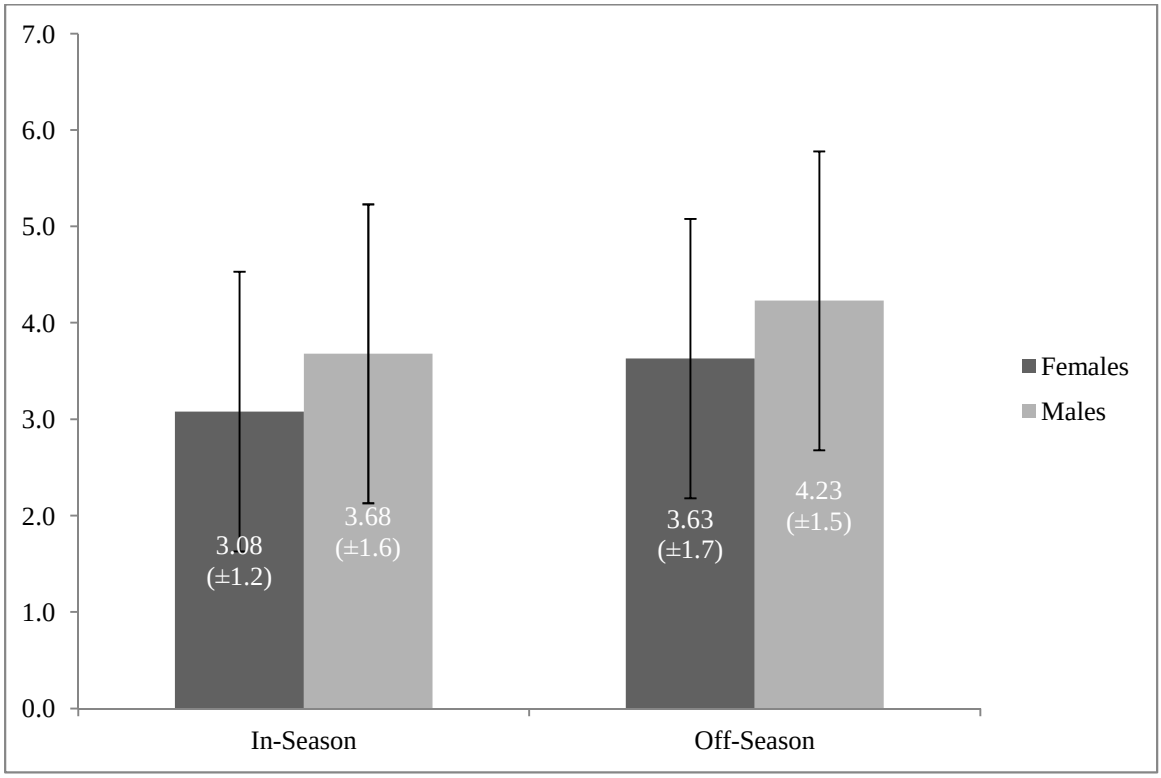

Figure 11. Well-Being in-season and off-season by gender.

Male student-athletes appeared to have rated their well-being as higher than female well-being. During the in-season, female student-athletes recorded their well-being at 3.08 (±1.2), and males recorded theirs at 3.68 (±1.6). During the off-season, female student-athletes recorded their well-being at 3.63 (±1.7), and males recorded theirs at 4.23 (±1.5). Results for well-being during the in-season and off-season by academic class standing are reported in Figure 12.

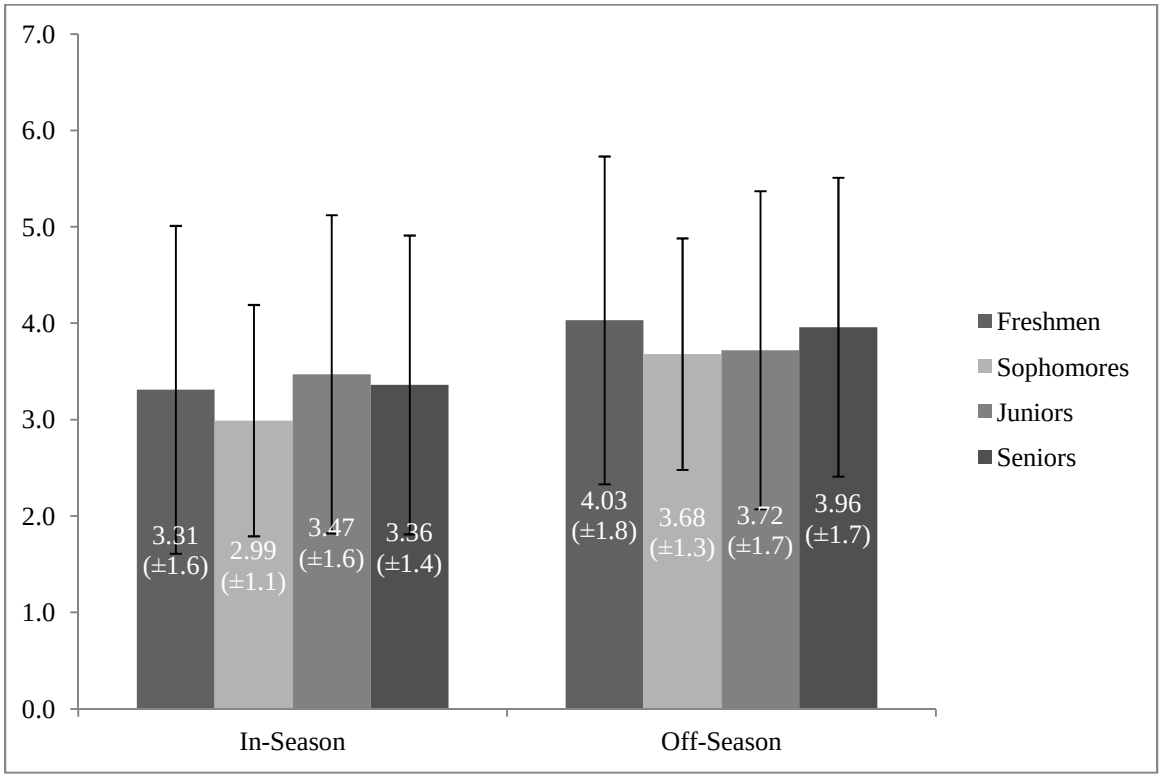

Figure 12. Well-being in-season and off-season by academic class standing.

Well-being scores were higher during the off-season when compared to the in-season. During the in-season, sophomore student-athletes appeared to have the lowest well-being score at 2.99 (±1.1), and juniors the highest well-being score at 3.47 (±1.6). During the off-season, sophomores appeared to have the lowest well-being score at 3.68 (±1.3), and freshmen student-athletes the highest well-being score at 4.03 (±1.8).

Time Demands

The final item analyzed was time demands of student-athletes during the in-season and off-season. Cross-county/track and field student-athletes chose not to answer the time demands in the off-season portion of the questionnaire due to the fact that they do not have an off-season. Results for in-season time demands by sport are reported in Table 8 and results for off-season time demands by sport are reported in Table 9.

Table 8. In-season time demands by sport.

	Basketball (Men's)	Basketball (Women's)	Football	Golf	Soccer	Softball	Tennis (Women's)	Cross-Country/Track and Field	Volleyball
Attending Class	11-15	11-15	11-15	6-10	11-15	11-15	11-15	11-15	6-10
Studying	11-15	11-15	6-10	11-15	6-10	11-15	11-15	11-15	11-15
Practicing	21-25	21-25	16-20	16-20	16-20	16-20	16-20	16-20	11-15
Competing	11-15	11-15	6-10	16-20	6-10	11-15	16-20	11-15	11-15
Weightlifting and Conditioning	11-15	6-10	6-10	1-5	1-5	6-10	1-5	6-10	1-5
Traveling	11-15	16-20	6-10	11-15	11-15	11-15	11-15	6-10	11-15
In the athletic training room	6-10	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5
Volunteer/Community Service	1-5	0	0	1-5	0	0	0	1-5	1-5
Socializing with Friends	11-15	6-10	11-15	1-5	1-5	6-10	1-5	6-10	11-15
Extracurricular Activities	1-5	0	1-5	0	0	1-5	0	0	1-5
Working for pay	1-5	1-5	1-5	6-10	0	0	0	1-5	1-5
Eating	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10
Sleeping	16-20	21-25	21-25	21-25	21-25	21-25	26-30	26-30	26-30

Data are represented as hours/week.

Table 9. Off-season time demands by sport.

	Basketball (Men's)	Basketball (Women's)	Football	Golf	Soccer	Softball	Tennis (Women's)	Cross-Country/Track and Field	Volleyball
Attending Class	11-15	16-20	11-15	11-15	11-15	11-15	11-15	N/A	6-10
Studying	11-15	11-15	6-10	11-15	11-15	11-15	16-20	N/A	11-15
Practicing	11-15	11-15	6-10	11-15	11-15	11-15	11-15	N/A	11-15
Competing	6-10	1-5	1-5	1-5	1-5	0	0	N/A	1-5
Weightlifting and Conditioning	6-10	1-5	11-15	1-5	1-5	6-10	1-5	N/A	1-5
Traveling	0	0	0	6-10	1-5	1-5	0	N/A	1-5
In the athletic training room	6-10	1-5	1-5	1-5	1-5	1-5	1-5	N/A	1-5
Volunteer/Community Service	1-5	0	1-5	0	0	1-5	1-5	N/A	1-5
Socializing with Friends	11-15	11-15	11-15	16-20	6-10	6-10	6-10	N/A	11-15
Extracurricular Activities	6-10	1-5	1-5	0	0	1-5	1-5	N/A	6-10
Working for pay	6-10	6-10	1-5	6-10	1-5	1-5	0	N/A	6-10
Eating	11-15	11-15	11-15	11-15	6-10	6-10	6-10	N/A	6-10
Sleeping	16-20	21-25	16-20	21-25	21-25	21-25	26-30	N/A	26-30

Data are represented as hours/week.

Women's basketball, golf, soccer, and women's tennis student-athletes self-reported spending more time on academics such as attending class and studying in the off-season when compared to the in-season. The rest of the sports reported spending equal amounts of time on academics during the in-season and off-season. For athletics, all of the sports self-reported spending more time on athletics during the in-season compared to the off-season. Items considered athletic activities included practicing, competing, weightlifting and conditioning, traveling and time spent in the athletic training room. During the off-season, the time self-reported decreased, but were still substantial. Men's basketball student-athletes perceived spending the most time on

athletics during the in-season and off-season. Other activities involved with time demands included volunteer/community service, socializing with friends, extracurricular activities, working for pay, eating, and sleeping. All sports self-reported spending more time on these other activities in the off-season compared to the in-season. Most of the sports self-reported being able to socialize with friends, participate in extracurricular activities, and volunteer more during the off-season.

Results for in-season time demands by gender and academic class standing are reported in Table 10 and results for off-season time demands by gender and academic class standing are reported in Table 11.

Table 10. In-season time demands by gender and academic class standing.

	Gender			Academic Class Standing			
	Females	Males		Freshmen	Sophomores	Juniors	Seniors
Attending Class	11-15	11-15		11-15	11-15	11-15	11-15
Studying	11-15	6-10		11-15	6-10	6-10	11-15
Practicing	16-20	16-20		16-20	16-20	16-20	21-25
Competing	6-10	6-10		6-10	6-10	6-10	11-15
Weightlifting and Conditioning	1-5	6-10		6-10	1-5	6-10	6-10
Traveling	11-15	6-10		6-10	11-15	11-15	11-15
In the athletic training room	1-5	1-5		1-5	1-5	1-5	1-5
Volunteer/Community Service	0	0		0	0	0	0
Socializing with Friends	6-10	6-10		6-10	1-5	6-10	11-15
Extracurricular Activities	1-5	1-5		1-5	0	1-5	1-5
Working for pay	1-5	1-5		0	0	1-5	1-5
Eating	6-10	6-10		11-15	6-10	6-10	6-10
Sleeping	21-25	16-20		26-30	21-25	21-25	21-25

Data are represented as hours/week.

Table 11. Off-season time demands by gender and academic class standing.

	Gender			Academic Class Standing			
	Females	Males		Freshmen	Sophomores	Juniors	Seniors
Attending Class	11-15	11-15		11-15	11-15	11-15	11-15
Studying	11-15	6-10		11-15	6-10	11-15	11-15
Practicing	11-15	11-15		11-15	11-15	11-15	6-10
Competing	1-5	1-5		1-5	1-5	1-5	1-5
Weightlifting and Conditioning	1-5	11-15		6-10	6-10	6-10	6-10
Traveling	1-5	0		1-5	0	0	0
In the athletic training room	1-5	1-5		1-5	1-5	1-5	1-5
Volunteer/Community Service	0	1-5		1-5	0	1-5	1-5
Socializing with Friends	6-10	11-15		11-15	6-10	6-10	11-15
Extracurricular Activities	1-5	1-5		1-5	0	1-5	1-5
Working for pay	1-5	1-5		1-5	1-5	1-5	6-10
Eating	6-10	11-15		11-15	6-10	11-15	6-10
Sleeping	21-25	16-20		26-30	21-25	21-25	16-20

Data are represented as hours/week.

When comparing gender, females self-reported spending more time on academics than males, but no changes were seen between in-season and off-season. Both females and males self-reported spending about the same amount of time on athletics during the in-season, but males perceived spending more time than females on athletics during the off-season. During the in-season, females self-reported spending more time on other activities than males. In the off-season, males self-reported spending more time on other activities than females. The males perceived getting less sleep, but more time volunteering, socializing with friends, and eating than females.

Academic class standing was another area of interest. Freshmen, sophomores, and seniors self-reported spending the same amount of time on academics during the in-season and off- season. Juniors self-reported spending less time on academics during the in-season. All academic classes perceived spending more time on athletics during the in-

season compared to the off-season. Junior and senior student-athletes self-reported spending more time on athletics during the in-season when compared to freshmen and sophomores. For the other activities, all academic classes perceived spending more time with volunteer/community service, socializing with friends, extracurricular activities, working for pay, eating, and sleeping during the off-season.

Chapter 5

Discussion and Conclusion

The primary goals of this study were to examine 1) the effects of the social environment–defined by the divisions of the Department of Athletics–on student-athletes' perceptions of basic needs satisfaction, 2) the relationship between student-athletes' basic needs satisfaction on well-being, and 3) the effects of time demands on well-being of student-athletes at PSU. The findings provide insight for the relevance of the three basic psychological needs—autonomy, relatedness, and competence—to well-being.

Autonomy, relatedness, and competence were examined for each division of the Department of Athletics. Satisfaction of these three innate psychological needs is necessary to provide the proper environment for individuals to achieve a positive well-being. In this study, competence was the need that was satisfied the most. This was a common theme among sports teams, gender, and academic class standing. Increased satisfaction of competence allows individual's to develop a greater sense of mastery (Deci & Ryan, 1987). Student-athletes must feel that they experience an environment that supports their academic and athletic growth. Among sports teams, student-athletes perceived relatedness with sports medicine, coaching, and strength and conditioning, as the next need to be satisfied behind competence. A possible reason for this is that student-athletes spend a majority of their time with their coaches, athletic trainers, and strength and conditioning coaches. There should be a sense of significant relationships and connectedness among people who spend a vast majority of their time together. The satisfaction for the need for autonomy was shown to be perceived higher among the administration and academic staff. These two divisions of the Department of Athletics do

not have daily interactions with the student-athletes. Their interactions are limited and they usually only discuss items that need to be changed or ask opinions for future growth.

Another theme that possibly emerged from the data was the higher the satisfaction of the basic psychological needs, the more satisfied the student-athletes were with the division of the Department of Athletics. If autonomy, relatedness, and competence are experienced within an environment, an individual is more likely to be satisfied with that specific environment. The Department of Athletics at Portland State University, as a whole, provides a suitable environment for student-athletes to excel in academics and athletics, but they do not necessarily allow for feelings of connectedness and an integrated sense of self. Well-being of student-athletes at PSU can be increased with the satisfaction of all three basic psychological needs. Satisfaction of only one need is not sufficient enough to provide positive outcomes for an individual's well-being (Deci & Ryan, 2000). Autonomy can be satisfied by allowing the student-athletes more opportunities to express their opinions and by offering learning opportunities that allow the student-athletes to draw their own conclusions. The need for relatedness can be increased by valuing and caring about the student-athletes. Competence can still be improved on by allowing more support for the student-athletes academically and athletically.

Well-being for sports, gender, and academic class standing was shown to be higher during the off-season when compared to the in-season. This was expected because student-athletes do not spend as much time on athletics and have more time to spend on academics and other activities. Women's basketball student-athletes reported the lowest well-being during the in-season which appears to be correlated with the perceptions of

lack of satisfaction with the administration, sports medicine, and coaching staffs. The student-athletes tend to spend more time with these divisions of the Department of Athletics during the in-season. If the satisfaction of the basic psychological needs is low then the student-athlete's perceptions of well-being will likely be low. Volleyball student-athletes reported the second lowest well-being during the off-season which could be correlated to the amount of time that they spend weightlifting and conditioning. These athletes reported lower satisfaction of basic psychological needs and satisfaction with the strength and conditioning staff. On the contrary, football student-athletes may have reported higher well-being during the off-season due to the fact that they perceived higher satisfaction of the basic psychological needs with the strength and conditioning staff. Softball student-athletes reported the lowest satisfaction with coaching which could be a possible explanation for the reports of lower well-being during the in-season. More time is spent with the coaching staff during the in-season when compared to the off-season.

It was thought that football, men's basketball, and women's basketball would have higher well-beings due to the prioritization of these specific sports. During the in-season, this was not the case. Football had the fourth highest well-being, men's basketball had the 6th highest, and women's basketball had the lowest. It was interesting that cross-county/track and field and women's tennis had the highest well-beings during the in-season out of all the sports. On the contrary, the well-beings for football, men's basketball, and women's basketball did improve during the off-season. Women's tennis student-athletes still reported having a higher well-being than these three sports.

Therefore, student-athletes' well-being did not necessarily suffer because of low prioritization of smaller sports.

Males reported having higher levels of well-being than females during in-season and off-season. Reasons for this are unknown. Males and females had similar satisfactions of a basic psychological needs and overall satisfaction. No pattern emerged among academic class standing. Sophomores experienced the lowest levels of well-being for both in-season and off-season. Sophomores had the lowest scores for the three basic psychological needs for coaching and strength and conditioning, but the highest for academics. Juniors reported having the highest well-being during the in-season, and freshmen reported having the highest well-being during the off-season. There did not appear to be a pattern for the ratings of satisfaction and well-being among the different academic classes.

Time demands have been the subject of considerable concern among collegiate student-athletes. There are limits on the amount of time student-athletes can spend on their particular sport during the in-season and off-season. According to the time demands section of the survey, student-athletes self-reported spending substantial amounts of time on athletics. These time demands surpass the maximal amount of time allowed for athletes to spend during the in-season and off-season. More time should be spent on academics, but only three sports reported spending more time on academics during the off-season. A reason for this could be that student-athletes are still self-reporting spending a significant amount of time on athletics. Well-being during the in-season could be lower due to the time demands placed on these student-athletes. They also spend less time doing other activities such as socializing with friends, extracurricular activities, and

volunteering/community service. During the off-season, well-being may be increased due to more time spent on these other activities. Another finding was that student-athletes report a reduced amount of sleep during the in-season and off-season; this could be another reason for lower well-being.

The analysis of these data is limited in several ways. First, due to the cross-sectional nature of the data, interpretations of causality cannot be made. Second, the data for each variable of interest displayed relatively large standard deviations, which make interpretation difficult. More precise instruments and/or larger sample sizes would likely improve the ability to detect differences among sports, genders, and academic class. Third, these findings were limited to student-athletes enrolled at Portland State University, which limits the external validity. Finally, the instrument used was a self-report multi-section questionnaire. Recall bias and social bias may have been factors while the student-athletes were completing the surveys.

The present study provides preliminary support for Deci and Ryan's (2000) basic needs theory in the context of an entire Department of Athletics at PSU. The findings tentatively suggest that the social environment at PSU supports the need for competence, but this is not enough. The Department of Athletics needs to improve on the other two basic psychological needs: autonomy and relatedness. This may help maximize the satisfaction of the three basic needs, which in turn could possibly increase student-athletes' well-being.

Although this study examined the student-athletes' entire social environment, more research is needed in order to determine if the results are generalizable. The administration, academics, sports medicine, coaching, and strength and conditioning staff

spend a substantial amount of time with the student-athletes, and they all need to be considered within their social environment. Each division of the Department of Athletics needs to provide more choices and opinions encouraging one's integrated sense of self in order to increase the satisfaction of the need of autonomy. For example, the strength and conditioning staff could provide student-athletes with the ability to change their workouts to better fit within their sports, or the administration could ask student-athletes their opinions on how to make their social environment better. To satisfy the need for relatedness, the staff at PSU could improve care and more highly value the relationship with student-athletes. An example would be coaches checking in with their student-athletes more often and learning about who they are as a person. Finally, competence can still be improved by supporting the student-athletes academically and athletically even more than was already reported. For example, the administration and the academic staff could attend more competitions to show their support for the student-athletes. Improvements can be made within the Department of Athletics at PSU, and the perceptions of the student-athletes on the basic needs satisfaction and well-being should be considered.

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Appendix A

Student-athlete Well-Being Questionnaire

This questionnaire contains items that are related to your experiences with the administration, academics staff, sports medicine staff, coaching staff, and strength and conditioning staff at Portland State University. Your responses are confidential. Please read and answer the following questions honestly and carefully.

1. What is your age? ___18 ___19 ___20 ___21

   ___22 ___23 ___24 ___25 ___26 ___Other

2. What is your sex? ___Male ___Female

3. What sport(s) do you participate in?

   ___Basketball ___Cross Country ___ Golf

   ___Football ___Soccer ___Softball ___Tennis

   ___Track and Field ____Volleyball

4. What year in school are you? ___Freshman

   ___Redshirt Freshman ___Sophomore

   ___Redshirt Sophomore ___Junior ___Redshirt

   Junior ___Senior ___Redshirt Senior ___5th Year

   Senior ___Other

Here is a list of statements about what you may feel towards the administration, academics staff, sports medicine staff, coaching staff, and strength and conditioning staff. Please indicate to what extent you agree with each of the following items. **(Equitable – dealing fairly and equally with everyone)**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't Know/Not Applicable
1	2	3	4	5	N/A

Administration (e.g. Director of Athletics, Associate Athletics Directors, Business Affairs, and Compliance)

5. I feel that the **administration** provides me choices and options.

1 2 3 4 5 N/A

6. I feel understood by the **administration**.

1 2 3 4 5 N/A

7. The **administration** conveys confidence in my ability to do well at athletics.

1 2 3 4 5 N/A

8. The **administration** conveys confidence in my ability to do well at academics.

1 2 3 4 5 N/A

9. The **administration** encourages me to ask questions.

1 2 3 4 5 N/A

10. The **administration** listens to how I would like to do things.

1 2 3 4 5 N/A

11. The **administration** encourages my input on what they do.

1 2 3 4 5 N/A

12. I feel supported by the **administration**.

1 2 3 4 5 N/A

13. I feel valued by the **administration**.

1 2 3 4 5 N/A

14. The **administration** treats men's and women's programs equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

15. The **administration** treats different sports teams equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

16. The **administration** is available when I need them.

1 2 3 4 5 N/A

17. The **administration** office hours fit into my schedule.

1 2 3 4 5 N/A

Academic Staff (e.g. Academic Advisors)

18. I feel that the **academic staff** provides me choices and options.

1 2 3 4 5 N/A

19. I feel understood by the **academic staff**.

1 2 3 4 5 N/A

20. The **academic staff** conveys confidence in my ability to do well at athletics.

1 2 3 4 5 N/A

21. The **academic staff** conveys confidence in my ability to do well at academics.

1 2 3 4 5 N/A

22. The **academic staff** encourages me to ask questions.

1 2 3 4 5 N/A

23. The **academic staff** listens to how I would like to do things.

1 2 3 4 5 N/A

24. The **academic staff** encourages my input on what they do.

1 2 3 4 5 N/A

25. I feel supported by the **academic staff**.

1 2 3 4 5 N/A

26. I feel valued by the **academic staff**.

1 2 3 4 5 N/A

27. The **academic staff** treats men's and women's programs equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

28. The **academic staff** treats different sports teams equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

29. The **academic staff** is available when I need them.

1 2 3 4 5 N/A

30. The **academic staff's** hours fit into my schedule.

1 2 3 4 5 N/A

Sports Medicine Staff (e.g. Athletic Trainers and Graduate Assistant Athletic Trainers)

31. I feel that the **sports medicine staff** provides me choices and options.

1 2 3 4 5 N/A

32. I feel understood by the **sports medicine staff**.

1 2 3 4 5 N/A

33. The **sports medicine staff** conveys confidence in my ability to do well at athletics.

1 2 3 4 5 N/A

34. The **sports medicine staff** conveys confidence in my ability to do well at academics.

1 2 3 4 5 N/A

35. The **sports medicine staff** encourages me to ask questions.

1 2 3 4 5 N/A

36. The **sports medicine staff** listens to how I would like to do things.

1 2 3 4 5 N/A

37. The **sports medicine staff** encourages my input on what they do.

1 2 3 4 5 N/A

38. I feel supported by the **sports medicine staff**.

1 2 3 4 5 N/A

39. I feel valued by the **sports medicine staff**.

1 2 3 4 5 N/A

40. The **sports medicine staff** treats men's and women's programs equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

41. The **sports medicine staff** treats different sports teams equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

42. The **sports medicine staff** is available when I need them.

1 2 3 4 5 N/A

43. The **athletic training room** hours fit into my schedule.

1 2 3 4 5 N/A

Coaching Staff (e.g. Head Coaches, Assistant Coaches, Graduate Assistant Coaches)

44. I feel that **my coaches** provide me choices and options.

1 2 3 4 5 N/A

45. I feel understood by **my coaches**.

1 2 3 4 5 N/A

46. **My coaches** convey confidence in my ability to do well at athletics.

1 2 3 4 5 N/A

47. **My coaches** convey confidence in my ability to do well at academics.

1 2 3 4 5 N/A

48. **My coaches** encourage me to ask questions.

1 2 3 4 5 N/A

49. **My coaches** listen to how I would like to do things.

1 2 3 4 5 N/A

50. **My coaches** encourage my input on what they do.

1 2 3 4 5 N/A

51. I feel supported by **my coaches**.

1 2 3 4 5 N/A

52. I feel valued by **my coaches**.

1 2 3 4 5 N/A

53. **My coaches** treat men's and women's programs equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

54. **My coaches** treat different sports teams equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

55. **My coaches** are available when I need them.

1 2 3 4 5 N/A

56. **My coaches'** office hours fit into my schedule.

1 2 3 4 5 N/A

Strength and Conditioning Staff (e.g. Strength and Conditioning Coaches and Interns)

57. I feel that the **strength and conditioning staff** provides me choices and options.

1 2 3 4 5 N/A

58. I feel understood by the **strength and conditioning staff**.

1 2 3 4 5 N/A

59. The **strength and conditioning staff** conveys confidence in my ability to do well at athletics.

1 2 3 4 5 N/A

60. The **strength and conditioning staff** conveys confidence in my ability to do well at academics.

1 2 3 4 5 N/A

61. The **strength and conditioning staff** encourages me to ask questions.

1 2 3 4 5 N/A

62. The **strength and conditioning staff** listens to how I would like to do things.

1 2 3 4 5 N/A

63. The **strength and conditioning staff** encourages my input on what they do.

1 2 3 4 5 N/A

64. I feel supported by the **strength and conditioning staff**.

1 2 3 4 5 N/A

65. I feel valued by the **strength and conditioning staff**.

1 2 3 4 5 N/A

66. The **strength and conditioning staff** treats men's and women's programs equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

67. The **strength and conditioning staff** treats different sports teams equitably (dealing fairly and equally with everyone).

1 2 3 4 5 N/A

68. The **strength and conditioning staff** is available when I need them.

1 2 3 4 5 N/A

69. The **strength and conditioning** room hours fit into my schedule.

1 2 3 4 5 N/A

In the next section, please indicate **how many hours** you spent on each of the following activities during a **typical week** during your sport's **in-season**.

0 hours/week	1-5 hours/week	6-10 hours/week	11-15 hours/week	16-20 hours/week	21-25 hours/week	26-30 hours/week	31+ hours/week	Don't Know/Not Applicable
1	2	3	4	5	6	7	8	N/A

70. Attending Class

1 2 3 4 5 6 7 8 N/A

71. Studying

1 2 3 4 5 6 7 8 N/A

72. Practicing for your sport

1 2 3 4 5 6 7 8 N/A

73. Competing in your sport

1 2 3 4 5 6 7 8 N/A

74. Weightlifting and conditioning for your sport

1 2 3 4 5 6 7 8 N/A

75. Traveling for games or events

1 2 3 4 5 6 7 8 N/A

76. In the athletic training room

1 2 3 4 5 6 7 8 N/A

77. Volunteer/Community service

1 2 3 4 5 6 7 8 N/A

78. Socializing with friends

1 2 3 4 5 6 7 8 N/A

79. Extracurricular Activities (Ex: clubs, intramurals, church, student government, SAC)

1 2 3 4 5 6 7 8 N/A

80. Working for pay

1 2 3 4 5 6 7 8 N/A

81. Eating

1 2 3 4 5 6 7 8 N/A

82. Sleeping

1 2 3 4 5 6 7 8 N/A

In the next section, using the same scale, please indicate **how many hours** you spent on each of the following activities during a **typical week** during your sport's **off-season**.

83. Attending Class

1 2 3 4 5 6 7 8 N/A

84. Studying

1 2 3 4 5 6 7 8 N/A

85. Practicing for your sport

1 2 3 4 5 6 7 8 N/A

86. Competing in your sport

1 2 3 4 5 6 7 8 N/A

87. Weightlifting and conditioning for your sport

1 2 3 4 5 6 7 8 N/A

88. Traveling for games or events

1 2 3 4 5 6 7 8 N/A

89. In the athletic training room

1 2 3 4 5 6 7 8 N/A

90. Volunteer/Community service

1 2 3 4 5 6 7 8 N/A

91. Socializing with friends

1 2 3 4 5 6 7 8 N/A

92. Extracurricular Activities (Ex: clubs, intramurals, church, student government, SAC)

1 2 3 4 5 6 7 8 N/A

93. Working for pay

1 2 3 4 5 6 7 8 N/A

94. Eating

1 2 3 4 5 6 7 8 N/A

95. Sleeping

1 2 3 4 5 6 7 8 N/A

Please rate your **overall satisfaction** with each of the following departments.

Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Don't Know/Not Applicable
1	2	3	4	5	N/A

96. Administration

1 2 3 4 5 N/A

97. Academic Staff

1 2 3 4 5 N/A

98. Sports Medicine Staff

1 2 3 4 5 N/A

99. Coaching Staff for Your Sport

1 2 3 4 5 N/A

100. Strength and Conditioning Staff

1 2 3 4 5 N/A

101. The athletic department **overall**

1 2 3 4 5 N/A

Please rate the following statements using the scale below.

Not true at all			Somewhat true			Very true	Don't Know/Not Applicable
1	2	3	4	5	6	7	N/A

During my sports in season…

102. I felt alive and vital.

1 2 3 4 5 6 7 N/A

103. Sometimes I felt so alive I just wanted to burst.

1 2 3 4 5 6 7 N/A

104. I had energy and spirit.

1 2 3 4 5 6 7 N/A

105. I looked forward to each new day.

1 2 3 4 5 6 7 N/A

106. I nearly always felt alert and awake.

1 2 3 4 5 6 7 N/A

107. I felt energized.

1 2 3 4 5 6 7 N/A

During my sports off season…

108. I felt alive and vital.

1 2 3 4 5 6 7 N/A

109. Sometimes I felt so alive I just wanted to burst.

1 2 3 4 5 6 7 N/A

110. I had energy and spirit.

1 2 3 4 5 6 7 N/A

111. I looked forward to each new day.

1 2 3 4 5 6 7 N/A

112. I nearly always felt alert and awake.

1 2 3 4 5 6 7 N/A

113. I felt energized.

1 2 3 4 5 6 7 N/A

Thank you very much for your time and honesty while completing this questionnaire.

Appendix B

Human Subjects Approval

Post Office Box 751 503-725-2227 tel
Portland, Oregon 97207-0751 503-725-8170 fax

Human Subjects Research Review Committee
hsrrc@lists.pdx.edu

Date: April 30, 2014

To: Gary Brodowicz, Abigail Gunnink
From: Karen Cellarius, HSRRC Chair

Re: HSRRC approval for your project titled, "A Cross-Sectional Study of Student-Athlete Need Satisfaction and Well Being: A Program Evaluation"
HSRRC Proposal # 143021

Approval-Expiration: April 30, 2014 – April 29, 2015

Review Type: Expedited, Categories

In accordance with your request, the PSU Human Subjects Research Review Committee has reviewed your request for approval of the project referenced above for compliance with PSU and DHHS policies and regulations covering the protection of human subjects. The Committee is satisfied that your provisions for protecting the rights and welfare of all subjects participating in the research are adequate, and your project is approved. Please note the following requirements:

Approval: You are approved to conduct this research study only during the period of approval cited above; and the research must be conducted according to the plans and protocol submitted (approved copy enclosed).

Changes to Protocol: Any changes in the proposed study, whether to procedures, survey instruments, consent forms or cover letters, must be outlined and submitted to the Committee immediately. The proposed changes cannot be implemented before they have been reviewed and approved by the Committee.

Continuing Review: ***This approval will expire on 4/29/2015.*** It is the investigator's responsibility to ensure that a *Continuing Review Report* on the status of the project is submitted to the HSRRC two months before the expiration date, and that approval of the

study is kept current. The *Continuing Review Report* is available at www.rsp.pdx.edu/compliance_human.php and in the Office of Research and Strategic Partnerships (RSP).

Adverse Reactions and/or Unanticipated Problems: If any adverse reactions or unanticipated problems occur as a result of this study, you are required to notify the Committee immediately. If the issue is serious, approval may be withdrawn pending an investigation by the Committee.

Completion of Study: Please notify the Committee as soon as your research has been completed. Study records, including protocols and signed consent forms for each participant, must be kept by the investigator in a secure location for three years following completion of the study (or per any requirements specified by the project's funding agency).

If you have questions or concerns, please contact the Office of Research Integrity in the PSU RSP at hsrrc@pdx.edu.