UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

EXAMINATION OF ATHLETIC IDENTITY AND EXERCISE REGULATION MOTIVATION AFTER SPORT RETIREMENT

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

By

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Norman, Oklahoma
2016

EXAMINATION OF ATHLETIC IDENTITY AND EXERCISE REGULATION MOTIVATION AFTER SPORT RETIREMENT

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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Acknowledgements

I am truly honored to have the opportunity to acknowledge and thank all of the wonderful people who have provided guidance and immeasurable support throughout the completion of my dissertation.

First, to my committee chair, **Dr. Denise Beesley**: Thank you for serving such an important role during my graduate training, not only as my committee chair, but also as a mentor. Without your encouragement and continuous support, my relationship to the research process would have been significantly impacted. Thank you for believing in my research and for your investment in me.

To my committee member, **Dr. Melissa Frey**: Thank you for your support in my research interests and for your valuable mentorship as a supervisor. You have been fundamental in fostering my professional voice and have always encouraged me to listen to my voice and most importantly, to trust in myself. I cannot thank you enough for your guidance and investment in me.

To my committee member, **Dr. Alexis Arczynski**: Thank you for the immeasurable impact you have had on my development in course work and throughout this research process. Thank you for meeting me where I was in my development and encouraging me to push further and broaden my perspective regarding matters of social justice and the value of qualitative inquiry to the research literature.

To my committee member, **Dr. Michael Crowson**: Thank you for your mentorship and guidance regarding statistical understanding and analysis both in class and throughout this project. Thank you for remaining patient, even when the numbers became nothing but a blur to me. Lastly, thank you for your passion and commitment to my research interests.

To my committee member, **Dr. Siduri Haslerig**: Thank you for the wisdom and perspective you provided while serving as my outside committee member. You continuously provided a thorough and helpful perspective on collegiate athletic culture, which helped ensure a rich and unique contribution to the current literature. I hope to have more opportunities to collaborate in the future.

I would also like to thank many friends and colleagues, including **Drs. Ricki Walker, Cody Commander, Carmen Tebbe-Priebe, Aubrette Kinne, and Ally Wade.** Thank you for your continued support and encouragement when this project felt insurmountable and for your continued support in my professional development.

Finally, I would like to thank **my family and my partner Carrie** for their never-ending encouragement and steadfast support. Thank you for wiping my tears, picking me up, and convincing me to continue the journey when I felt like my time and work would never pay off. Thank you for never letting me forget how proud you are of me and for believing that I will accomplish whatever I set my mind to. Most importantly, thank you for your patience and understanding throughout my seemingly endless academic career. Thank you for your investment in me and for the sacrifices you each have made in supporting my success. I would not have accomplished any of this without your sacrifice, your support, and your faith in this process. I love you all.

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Abstract

This study sought to fill several gaps in the current exercise motivation literature by utilizing self-determination theory and identity theory in exploration of the relationship between athletic identity, exercise identity, and exercise motivation on perceived psychological need fulfillment and overall quality of life among NCAA retired collegiate athletes. To date, several studies have explored motivations for long-term exercise maintenance, but have predominately focused on inconsistently active individuals (Brunet & Sabiston, 2011; Burns et al., 2012) or current competitive athletes (Adler & Adler, 1991; Amorose & Horn, 2000, 2001; Brewer, Van Raalte, & Linder, 1993). Additionally, minimal attention has focused on distinguishing between athletic identity and exercise identity and how these statuses may evolve over time. Consequently, exercise motivations and the impact of athletic identity and exercise identity on long-term engagement in exercise for retired collegiate athletes served as the focus for the current study. Results revealed participants' exercise identity significantly predicted scores on psychological need fulfillment, and participants' athletic identity significantly predicted scores on perceived quality of life. Additionally, results indicated self-determined motivations for exercise significantly predicted higher levels of both psychological need fulfillment and quality of life. Women reported significantly higher exercise identity scores when compared to men participants, and participants who competed at the Division I level reported significantly higher exercise identity scores when compared to participants who competed at Divisions II and III. Strengths and limitations of the study are discussed and areas for further research are posited.

Keywords: athletic identity, sport retirement, behavioral regulation, self-determination

Chapter 1: Introduction

The benefits of physical activity have been extensively explored and empirically supported throughout decades of research. The American College of Sports Medicine (ACSM) indicate several physical and psychological benefits associated with physical activity including weight control, improved mood, increased energy, and lower risk of cardiovascular disease, stroke, and diabetes (Haskell, Lee, Russell, Pate, Powell, Blair, et al., 2007). However, these benefits depend on consistent maintenance of physical activity throughout the lifespan (Sarna, Sahi, Koskenvuo, & Kaprio, 1993). In fact, international physical activity guidelines indicate individuals should engage in at least 30 minutes of moderate level physical activity a minimum of five days per week for enhanced health (Garber, Blissmer, Deschenes, Franklin, Lamonte, Lee, et al., 2011). Despite these guidelines, public health officials continue to posit concern that a majority of the population in the United States is insufficiently active. Additionally, individuals who do exercise report difficulty sustaining consistent behavior over long periods of time (Brunet & Sabiston, 2011).

However, one population has not regularly been a focus of exercise adherence research; namely, retired athletes. While retirement from competitive sport may occur at various life stages, there remains a significant lack of research that examines the exercise experiences of athletes who have retired after competing at the collegiate level. This lack of focus may be due to an assumption that retired collegiate athletes are consistently active and have integrated a value for physical activity into their overall identity. However, several researchers indicate participation in athletic activity or competitive sport does not necessarily predict engagement in consistent exercise

behavior after sport retirement (Dishman, Sallis, & Orienstein, 1985; Koukouris, 1991; Stephan & Bilard, 2003). In fact, Sparling and Snow (2002) found 44% of retired athletes surveyed reported being less active after leaving college. However, their findings also indicated a significant, positive correlation between behavioral persistence after college and the athlete's reported level of physical activity while in college. These findings appear to imply that although physical activity may decrease after retiring from collegiate competition, there are likely factors within the collegiate competitive environment that help promote or motivate consistent exercise behavior habits beyond competitions alone. Based on the lack of research within the retired athlete population and given there are currently over 460,000 current NCAA athletes competing at the collegiate level (NCAA, 2015) who will eventually retire from sport, this is an important population worthy of examination.

There are several perspectives regarding reasons for insufficient or inconsistent exercise patterns, and exploring factors which contribute to healthy exercise behaviors continues to serve an important role in the health and wellness literature. By identifying variables associated with consistent physical activity, interventions promoting life-long exercise engagement can be developed and implemented (Hagger & Chatzisarantis, 2007). One variable found to substantially contribute to the initiation and maintenance of physical activity is motivation (Bauman, Reis, Sallis, Wells, Loos, Martin, et al., 2012; Duncan, Hall, Wilson, & Jenny, 2010). Consequently, a focus on motivational factors in exercise is considered a promising research approach (Hagger & Chatzisarantis, 2007).

Within the construct of motivation, researchers also question its source and maintenance over time. A well-established theoretical model that is particularly beneficial in understanding the motivations involved in physical activity initiation and maintenance is self-determination theory (Teixeira, Carraca, Markland, Silva, & Ryan, 2012; Wilson, Rodgers, & Fraser, 2002). As its name suggests, self-determination theory emphasizes the degree to which an individual's behavior is self-determined or autonomous as opposed to controlled or contingent on external factors. When determining the qualitative nature of one's behavior, the foundational tenets of self-determination theory view humans as active and integrative beings who receive behavioral or emotional reinforcements from sources within one's social-environmental context (Wilson et al., 2002). These reinforcements may be nurturing and/or impeding and can impact the value or worth one ultimately places on a behavior (Deci & Ryan, 2008; Ryan & Deci, 2000). Using the reasoning behind self-determination theory, one can argue that the value one places on initiating and maintaining consistent exercise behavior is influenced by the social messages and/or reinforcements one receives during development. Social messages and reinforcements are particularly salient for retired collegiate athletes, who've spent years in an environment that places a premium on physical exercise and competition and in order to reach the collegiate level of competition.

Also important to note within self-determination theory is the likelihood that motivations can change or evolve throughout one's life or in differing environmental contexts. For example, Miller and Iris (2002) proposed a person's motivation for exercising may change as one ages. Specifically, the most common reported reasons for

young adults engaging in physical activity include weight control for improved appearance, physical attractiveness, and social recognition while older individuals prioritize health benefits or improvement in mood (Ingledew & Sullivan, 2002; Sabiston, Crocker, & Munroe-Chandler, 2005; Strong, Martin Ginis, Mack, & Wilson, 2006). Conversely, Sallis (2000) reported an overall steady decline in physical activity throughout the adult years regardless of one's motivation for exercising. Additionally, Mullan and Markland (1997) examined levels of self-determined exercise behavior using a stages of change theoretical framework and found individuals in early stages of change demonstrated low levels of self-determined behavior compared to individuals who were at a later stage of change. However, the authors also found as individuals progressed from early to later stages of change, their reported level of self-determined behavior increased as well. Information regarding stage of change and exercise motivation is important when considering the development and implementation of interventions designed to promote consistent exercise behavior. It is also relevant information for the current study, which examines the impact of participants' motivations for exercise after retirement from competitive sport and the impact of these motivations on psychological well-being and perceived quality of life.

Another variable found to impact behavioral motivations and regulations for exercise is the role of financial incentives. From the perspective of self-determination theory, financial incentives provide an external source of motivation that may create lower levels of intrinsic motivation (Moller et al., 2013). These results have been demonstrated in several contexts in addition to competitive sport, including diet, physical activity, and weight management (Burns, Donovan, Ackermann, Finch,

Rothman, & Jeffery, 2012; Paul-Ebhohimhen & Avenell, 2007). These are important findings to consider for the retired athlete population given financial incentives are extensively used at both the collegiate and professional competition level (Kingston, Horrocks, & Hanton, 2006). One context for exploring the relationship between financial incentives and behavioral motivations for exercise in the collegiate athlete population is examining the impact of athletic scholarships on college athletes' motivations for and regulation of exercise behaviors (Moller et al., 2013).

Previous research findings indicate student athletes who receive athletic scholarships reported less enjoyment and lower intrinsic motivation for their sport when compared to non-scholarship teammates (Moller et al., 2013; Ryan 1977, 1980). However, replication studies conducted by Amorose and Horn (2001) indicated athletes who received full athletic scholarships reported a higher level of intrinsic motivation when compared to non-scholarship athletes. Consequently, the impact of financial incentives on collegiate athletes' motivation for exercise remains unclear. Additionally, there also remains a gap in the literature regarding the impact of collegiate scholarship status on exercise motivations and behaviors once the athlete has retired from sport.

Another important variable to consider when examining the initiation and maintenance of exercise behaviors is an individual's identity development (Wilson, Mack, & Grattan, 2008). Specifically, identity theory (Anderson & Cychosz, 1994, 1995; Hagger & Chatzisarantis, 2009; Vlachopoulos, 2009) assumes an individual uses identity statuses to define oneself and monitor behavior based on how congruent the behavior is to a perceived identity role (Burke & Reitzes, 1981). Role identities are considered to be subunits of an integrated self and are important constructs for study

given the impact of these identities to influence behavioral decisions and create role expectations. Two important role identities examined in the current research are athletic identity and exercise identity.

Brewer et al. (1993) defined athletic identity as "the degree to which an individual identifies with the athlete role and looks to others for acknowledgement of that role" (p. 237). Based on the definition for athletic identity, the more an individual identifies as an athlete, the more likely they are to engage in athletic behaviors such as consistent exercise. While athletic identity appears to be a strong characteristic and identity status for the purposes of physical health and exercise engagement, research conducted by Brewer et al. (1993) concluded athletes who do not pursue additional activities in addition to their sport participation are at risk of having a self-identity composed exclusively of their athlete role. Consequently, the perceived loss of identity after retirement from sport can be particularly detrimental. For example, Lavallee et al. (1997) found when examining participants' adjustment to retirement after sport, participants who reported a high athletic identity at the time of retirement experienced higher rates of emotional adjustment difficulties compared to participants whose reported athletic identity was lower at the time of retirement. Instead, Reifsteck, Gill, and Brooks (2013) argue the characteristics of an exercise identity play a more important role in maintaining consistent physical activity behavior. Given these findings, it is important to explore the qualitative differences between an athletic identity and an exercise identity, and research examining the transition in identity status seems particularly critical for collegiate athletes retiring from sport.

However, it would be erroneous to assume that identifications with the athlete and/or exercise roles are the only, or primary source of motivations for exercise or engagement in physical activity. Instead, other components of an individual's identity development must also be considered. For example, gendered socialization between men and women have been argued to create differential relationships with organized sport or athletic culture in particular (Clifton & Gill, 1994). Specifically, it has been argued that men's gender socialization associates masculinity with competition, physical strength, and competent performance while women's socialization emphasizes relatedness and less competition (Sabo, 1985). Research findings have also indicated that men overall tend to demonstrate higher levels of athletic identity and interest in exercise in general when compared to women (Martinovic, Ilic, & Visnjic, 2011). However, research remains unclear regarding whether these differences are as evident between men and women athletes who compete at the collegiate level, as well as how the motivations may persist or change after retirement from competitive sport.

Race and ethnicity are also identity statuses that must be considered when conceptualizing identification with the athlete and exercise role as well as continued motivation for exercise. Specifically, several researchers have found that regardless of gender, African-American athletes report higher levels of athletic identity when compared to White athletes (Harrison, Sailes, Rotich, & Bumper, 2011). Several perspectives have been proposed to help account for these findings, with one argument being the source of primary support and motivation between the two communities. For example, Messner (1990) discussed White athletes obtain a majority of their support from primary family members while African-American athletes receive large support

from extended family and the larger social community. Lastly, an individual's identification to their socioeconomic class has been found to be impactful for one's motivation for exercise engagement and identification as an athlete. Specifically, Messner (1990) found that individuals from middle-class or affluent statuses may experience more of a "future oriented" mindset that includes consideration of job training and career opportunities outside of organized sport while individuals from lower social class statuses may not be presented with as many opportunities, leading to a potential for early foreclosure as an athlete.

Consequently, it is evident that several identity components impact one's tie to exercise and athletic roles and subsequently, one's motivation to engage in physical activity. However, what remains important for research is a continued focus on the intersecting nature of one's identities. As such, these identity variables were all included in the current study in order to examine the individual and collective impact of identity statuses on one's motivations for exercise, psychological need fulfillment and quality of life

The current study aimed to fill several gaps in the current exercise motivation literature. To date, several studies have utilized self-determination theory when exploring motivations for initiating and sustaining long-term physical activity behaviors. However, a majority of these studies focus on populations who have previously been inactive or inconsistently active at best (Biddle, 2001; Boiche, Sarrazin, Groucet, Pelletier, & Chanal, 2008; Brunet & Sabiston, 2011; Burns, Donovan, Ackermann, Finch, Rothmen, & Jeffery, 2012; Cardinal & Cardinal, 1999). Individuals

who maintain a strong motivation for exercise after retiring from collegiate competition have not received extensive research attention.

Additionally, although retirement from sport is often viewed as a process (Richardson, 2009), minimal attention has been focused on distinguishing the differences between athletic identity and exercise identity and how these identifications may change as the length of time since an athlete's retirement increases. Given that considerable research evidence has demonstrated the benefit of exploring exercise motivations from self-determination theory and identity theories' perspectives (Vlachopoulos et al., 2011) discussed above, exploring the behavioral motivations of retired athletes could provide important insights into the impact of athletic identity and exercise identity on long-term engagement in physical activity. To this end, the following research questions are proposed:

1. Do athletic identity and exercise identity scores predict significant variance in self-reported basic psychological need fulfillment and overall quality of life scores of retired collegiate athletes?
2. Do scores on behavioral self-determination and motivation in exercise predict additional significant variance in scores on basic psychological need fulfillment and overall quality of life scores for retired collegiate athletes, after controlling for athletic and exercise identity?
3. Do retired collegiate athletes who received over half of their financial support from athletic scholarships demonstrate significantly different scores on measures of athletic identity, exercise identity, behavioral regulation, perceived psychological need fulfillment, and perceived overall quality of life when

compared to retired collegiate athletes who received less than half or no financial support from athletic scholarships?

4. Are there significant differences in reported athletic identity scores, exercise identity scores, or behavioral motivation scores among participants with differing demographic variables such as race, gender, NCAA level, scholarship status, length of retirement from sport, or reason for sport retirement?
5. Are there significant differences in reported psychological need fulfillment in exercise or overall well-being scores among participants with differing demographic variables such as race, gender, NCAA level, scholarship status, length of retirement from sport, or reason for sport retirement?

Chapter 2: Literature Review

The self-determination theory was a theoretical model that was foundational in the conceptualization and design of the current study. As such, the first section of this chapter is dedicated to an outline of the overall theory and its four sub-theories as well as discussion of the current literature utilizing self-determination theory in physical activity research. Additionally, given the current examination of the impact of athletic scholarship on motivation for exercise, a brief overview of the impact of financial incentives on physical activity initiation and maintenance is discussed, including mixed research findings for competitive athletes. Lastly, the remainder of the chapter introduces the impact of identity statuses on role identification and behavior engagement and introduces the two primary identity statuses examined in the current study: athletic identity and exercise identity. Also discussed within the section on identity statuses is an overview of the impact of gender socialization, race, and socioeconomic status on identity development and behavioral role expectations.

Self-Determination Theory

When seeking to understand human behavior, personality theorists have historically disagreed about growth, personality, and self-development. For example, behavioral psychologists argue personality and identity development rely on histories of reinforcement and current expectations to regulate behavior (Deci & Ryan, 2002). Conversely, psychologists who ascribe to social-cognitive perspectives indicate personality is constructed as a collection of selves or "self-schemas" elicited by any number of potential cues (Ryan & Deci, 2000). As such, one's personality is seen as a storehouse of various identities which are activated by variables within one's social

context (Deci & Ryan, 2002). While these views have been foundational in exploring the basic concepts of human behavior, the polarization of these perspectives is unhelpful in applied research.

Instead, applied research is best conducted by utilizing a theoretical model that conceptualizes behavior from an integrated perspective, unlike the individual behavioral and social-cognitive perspectives discussed above. In the area of personality psychology, one such perspective is self-determination theory. This theory (Deci & Ryan, 2002) operates under the premise that "all individuals have natural, innate, and constructive tendencies to develop an ever more elaborated and unified sense of self" (p. 5). It provides a framework that integrates previously juxtaposed perspectives regarding human behavior. The self-determination theory is preferable for use in applied research because it holistically describes human behavior in more complex and rich ways.

Within the self-determination theory, several developmental outcomes are possible and occur on a continuum. These outcomes range from the development of an active and integrated self to a fragmented, passive, or alienated self (Deci & Ryan, 2002). However, each outcome is dependent upon the contextual variables present in one's environment (Wilson et al., 2002). Variables that are nurturing and supportive of self-determined behavior strengthen one's ability to integrate autonomous motivations and behaviors into one's identity, while variables that are viewed as controlling impede the ability of the individual to act autonomously and integrate their motivations and behaviors into their sense of identity. In other words, self-determination theory provides

a model to understand individuals in terms of their personal behavioral goals, while also considering the limitations or obstacles imposed by one's environment.

Self-determination theory as a whole is comprised of four sub-theories: (1) cognitive evaluation theory (CET), (2) organismic integration theory (OIT), (3) causality orientations theory (COT), and (4) basic needs theory (BNT) (Brunet & Sabiston, 2011). These sub-theories have been developed inductively over several decades of research (Deci & Ryan, 2002). Each sub-theory has contributed to increased understanding regarding individuals' motivations for engaging in physical activity behavior.

Cognitive evaluation theory. Cognitive evaluation theory (CET) is considered to be the most fully developed and researched sub-theory under SDT (Deci & Ryan, 2000). It is concerned with how variables within one's environmental context either enhance or undermine one's intrinsic motivation toward a given activity (Markland, 1999). The first primary principal within CET is the distinction between intrinsically and extrinsically motivated behaviors. Intrinsically motivated behaviors are the prototypical self-determined activity and are described as actions "based on inherent satisfaction" (Deci & Ryan, 2002, p. 10). There are several benefits associated with an intrinsic behavioral motivation, particularly for physical activity engagement. For example, several researchers have found higher levels of autonomous behavior or self-determined exercise activity have been associated with greater participation, behavioral persistence, and enhanced psychological well-being (Kauussanv & McAuley, 1995; Markland, 1999; Wilson et al., 2002). Studies highlighting the desirability of intrinsic motivations have influenced sport psychologists to recommend implementing

interventions which foster intrinsic motivation variables and decrease extrinsic motivation variables (Biddle, 2001; Gagne´, Ryan, & Bargmann, 2003; Mageau & Vallerand, 2003).

However, one's intrinsic satisfaction for participating in an activity must be distinguished from one's ability or *competence* to successfully complete the behavior (Markland, 1999). Specifically, the construct of self-determination emphasizes an individual's perception of *choice* to engage in a particular behavior, while perceived competence emphasizes one's perception of an ability to effectively function in an environment. Therefore, as an example, it would be erroneous to make the automatic assumption that a Division I collegiate athlete experiences a high level of intrinsic motivation to participate in exercise after retirement simply because they have demonstrated a high level of competence in performing exercise behaviors through their sport while competing.

Extrinsic motivation, on the other hand, is considered to be the most controlled form of motivation, and usually involves behaviors that satisfy an external demand present in the individual's environmental context (Friederichs et al., 2015). These demands may be physically present, such as in the form of tangible rewards or punishments, or symbolically through emotional pressure from others (Moller, Buscemi, McFadden, Hedeker, & Spring, 2013). In general, extrinsic motivators have been found to be detrimental to long-term behavioral persistence. For example, Koestner, Otis, Powers, Pelletier, and Gagnon (2008) indicated individuals who felt controlled by an outside person reported experiencing higher levels of intrapersonal

conflict and decreased abilities to exert sustained effort compared to individuals who felt less controlled (Friederichs et al., 2015).

This information is particularly salient for individuals who participate in a competitive context, such as athletes, who may be more likely to operate within environmental contexts that present various extrinsic motivators. For example, several researchers have found competitive athletes demonstrated lower levels of intrinsic motivation and significantly higher levels of amotivation when compared to individuals who participate in sport for recreational purposes, (Fortier, Vallerand, Brie`re, & Provencher, 1995; Frederick & Ryan, 1995; Gillet & Rosnet, 2008; Ryan, Vallerand, & Deci, 1984; Vallerand, Deci, & Ryan, 1987). Similarly, Chantal, Guay, Dobreva-Martinova, and Vallerand (1996) have argued the pressures associated with participating in a highly competitive environment may lower an athlete's intrinsic motivation and self-determined behavior.

Another primary principle within the cognitive evaluation sub-theory emphasizes the extent to which individuals experience their social environment to be controlling or autonomy supportive (Friederichs et al., 2015). Any environmental context will contain variable which are perceived as controlling, autonomy supportive, or amotivating (Reeve & Deci, 1996). However, it is the combination and strength of these variables within the given environment that contributes to the individual's motivation and resulting behaviors. Additionally, Vallerand (1997) argued three dimensions within social contexts are relevant to an individual's development of self-determined behavioral functioning. These dimensions include autonomy support, structure, and involvement. Brunet and Sabiston (2011) reported these dimensions can

be fostered in individuals by increasing one's perception of being in an autonomy supportive environment. For example, when considering the experiences of a collegiate level athlete, a team's social environment or the interpersonal climate established by the coach plays a significant role in how the atmosphere is perceived and, consequently, how the athlete comes to view exercise regimens and competitions throughout the season (Reeve & Deci, 1996). While competitive environments will always present some level of pressure to achieve a desired external outcome (i.e., wins, a particular shooting or hitting percentage, etc.), the interpersonal climate established will impact whether the athlete feels controlled or whether their autonomy feels supported as they work to overcome extrinsic performance pressure. For example, Sheldon and Watson (2011) found varsity level collegiate athletes responded more to autonomy supportive coaching, which was found to be correlated with more intrinsic regulations when compared to club level or recreational athletes. Similarly, Wilson and Rodgers (2004) found perceived autonomy support from teammates was significantly associated with intrinsic regulations for women athletes participating in team-based events. While these findings indicate important information regarding the preference for autonomy supportive environments over controlling or amotivating environments for athletes competing at the collegiate level, it remains unclear how these variables impact behavioral motivations once individuals retire from competitive sport and are no longer active in these structured social environments.

While Petherwick and Weigand (2002) assert prior research has endorsed a strict dichotomy between intrinsic and extrinsic motivations, other researchers have argued motivations may evolve over time or within different social contexts (Kingston,

Horrocks, & Hanton, 2006). Specifically, several authors have argued when considering physical activity motivators, the conduciveness of autonomous and controlled environments vary depending on the reported reason for exercise engagement (Ingledew & Markland, 2008; Ingledew, Markland, & Medley, 1998; Markland & Ingledew, 1997). For example, prior research has found extrinsic or controlled motivations are significant predictors of behavioral intentions during early phases of physical activity initiation compared to later phases (Friederichs et al., 2015). Consequently, it could be argued athletes rely more on external pressures or expectations when first participating in a competitive sport; however, external motivation becomes more intrinsic as the athlete continues to progress in skill and commitment to their sport. Therefore, a retired collegiate athlete who has competed for several years would likely rely on intrinsic or self-determined motivations during collegiate competition and after retirement.

On the other hand, some authors have reported autonomous motivation is an important predictor for both the initial uptake and maintenance of strenuous physical activity, such as that seen during competitive sport performance compared to common lifestyle activity (Friederichs et al., 2015; Silva et al., 2010; Teixeira et al., 2012). For example, de Bruijn and Gardner (2011) found sensible and external motivations primarily drive daily physical activity engagement, while intrinsic motivations such as enjoyment or challenge drive participation in competitive sport. In other words, collegiate athletes would likely need to be self-determined in their behavior while initiating and maintaining a commitment to their sport.

Given these findings, there appears to be disagreement among researchers regarding the extent to which intrinsic motivation may impact the exercise habits of

retired athletes. As such, it seems prudent to examine the motivations of athletes who have transitioned from a competitive environment and must now engage predominately in "lifestyle" physical activity on a regular basis. In order to address this gap, the current study included an examination of retired athletes' motivation for engaging in exercise. Specifically, retired collegiate athletes completed a measure that assessed their motivation for exercise and scores from the measure were weighted and calculated in order to determine how intrinsic or extrinsic the participants' motivation for exercise were.

Organismic integration theory. Another sub-theory within the self-determination theory is organismic integration theory. According to Deci and Ryan (2002), the organismic integration sub-theory assumes individuals are "naturally inclined to integrate ongoing experiences" (p. 15). As such, it is assumed as an individual integrates personal experiences, they will begin to internalize a motivation which was initially external into one that is more autonomous and self-determined. More specifically, OIT theory emphasizes the process by which group values, cultural mores, and regulations become internalized and integrated into an individual's belief system or identity (Deci & Ryan, 2002).

Mulland, Markland, and Ingledew (1997) argued while there has been extensive support for the hypothesized influences of controlling or autonomy supportive factors on reported intrinsic and extrinsic motivation from the perspective of cognitive evaluation theory, other researchers have suggested the dichotomy proposed by CET may be misleading (Deci & Ryan, 1990). Instead, several researchers (Deci & Ryan, 1985, 1990; Deci, Vallerand, Pelletier, & Ryan, 1991) have established a continuum for

extrinsically motivated behaviors that are characterized by varying degrees of self-determination. These extrinsic motivations, referred to as *behavioral regulations*, differ in the degree to which they represent autonomous or self-determined behavior and can range from highly controlling to independently endorsed (Wilson et al., 2002). Put differently, while CET focuses on how individuals develop and maintain intrinsic motivation when presented with controlling or autonomy supportive variables in the environment, OIT explains the dynamics of extrinsic motivation and how an individual can develop and maintain feelings of autonomy (i.e., self-initiation) while engaging in extrinsically motivated behaviors.

While many researchers have argued extrinsic motivation relies solely on external variables and therefore cannot be characterized as self-determined or autonomous behavior (Deci & Ryan, 2002), several researchers have demonstrated behavior can be both extrinsically motivated and autonomous because of people's natural inclination to integrate experiences (Deci & Ryan, 2002). Specifically, the process of internalization is defined as one in which "people work to actively transform external regulation into self-regulation" (Deci & Ryan, 2002, p. 15). Given this definition, researchers have posited individuals have successfully internalized an initial external regulation once it has been integrated into one's overall identity.

During the internalization process, individuals may proceed through a continuum of increasingly autonomous behavioral regulations. For example, an individual who has participated in competitive sport at the collegiate level may have started playing at a young age due to high levels of external regulations such as family pressure, or for social reasons. However, with time, the individual may come to enjoy

the physical benefits of exercise and participation in sport; eventually garner inherent satisfaction in competing; and ultimately, come to identify as an athlete. Identification as an athlete and the internalization of the value of physical exercise could also be argued to impact one's perception of exercise and motivation to engage in physical activity after retiring from competitive sport. The regulations on the OIT continuum include previously discussed intrinsic motivations, four types of extrinsic motivations, and amotivation (Kingston, Horrocks, & Hanton, 2006). Furthermore, Wilson et al. (2002) indicate constructs along the continuum that are adjacent to one another are more strongly associated than constructs further apart.

Amotivation is characterized as a belief that behavioral outcomes are not dependent on individual behavior (Deci & Ryan, 1985). Amotivated beliefs may be fostered for several reasons, including a lack of value in a given behavior or feelings of incompetence after consistent behavioral failure or repeated negative feedback (Mulland, Markland, & Ingledew, 1997). Extrinsic motivation regulations include: (1) external regulation, (2) introjected regulation, (3) identified regulation, and (4) integrated regulation (Ingledew & Markland, 2008).

External regulation is considered the least autonomous form of extrinsic motivation and is based on a desire to obtain rewards or avoid punishments. While extrinsic motivation has been found to be associated with initial exercise adoption (Ingledew, Markland & Medley, 1998), intrinsic motivation has been associated with exercise progression and long-term maintenance (Wilson, Markey, & Markey, 2012).

Introjected regulation occurs when an external regulation has been internalized but is still not considered part of one's identity. Instead, behaviors characterized as

introjected are often motivated by desires to (a) avoid feeling guilt or shame if the behavior is not performed, or (b) to experience feelings of personal worth when the behavior is performed (Friederichs et al., 2015). As such, introjected regulation is argued to be composed of two distinct components, including the internalization of rules and the enforcement of behavior related to these rules (Deci & Ryan, 1990). This behavioral regulation has been found to be particularly relevant to the athlete population. Specifically, introjected regulation has been found to be significantly correlated with strenuous or obligatory exercise patterns. Despite being a powerful motivating force for engaging in physical activity, these exercise patterns suggest the presence of compulsory behavior that can lead to negative physical and psychological consequences (Matheson & Crawford-Wright, 2000). For example, Matheson and Crawford-Wright (2000) examined factors related to obligatory exercise, which was defined as "continuing exercise despite pain, interference with significant relationships or work, lack of time for other leisure pursuits, recognized obsession with the activity and other psychological problems" (p. 1). Results of the study found participants who reported engaging in obligatory exercise demonstrated higher levels of perfectionism, increased anxiety, and disordered eating behaviors (Wilson et al., 2012).

Identified regulation occurs when an individual views a behavior as personally important and consciously values the goal of the desired behavior (Friederichs et al., 2015). According to Wilson et al. (2002), identified regulation is the most prominent source of extrinsic motivation also related to consistent exercise behaviors.

The most autonomous form of extrinsically motivated behavior is *integrated regulation*. Integrated regulation occurs when a behavior is internalized and becomes

congruent with the values, goals, and needs within an individual's sense of identity. While integrated regulation shares many qualities with intrinsic motivation, it is still considered to be extrinsic because the behavior itself contributes to a desired external outcome rather than for pure enjoyment of a task (Rawsthorne & Elliot, 1999). As an example, the difference between an integrated regulation and intrinsic or internal motivation for an athlete would be engaging in practice and continued skill building because of internalizing a value for competition and excellence rather than pure enjoyment of the sport itself.

Understanding and identifying an individual's behavioral regulation type is important because one's level of internalization has been found to influence emotional and behavioral responses in a variety of domains, including the physical activity research literature (Guerin & Fortier, 2012). For example, Frederick-Recascino (2002) reported both intrinsic motivation and autonomous extrinsic motivations, such as identified and integrated regulations, have been associated with higher levels of achievement, greater behavioral persistence and effort, and greater overall well-being. As such, these regulations are particularly worthy of study for the current research population given the potentially internalized identification with the athlete role and the potential maintenance or evolution of these regulations after retirement from collegiate sport. Again, the current study sought to measure these constructs by including a measure of behavioral motivations for exercise that included all five behavioral regulations inherent within the cognitive evaluation sub-theory in order to examine retired collegiate athletes' level of autonomous motivation for exercise. Additionally, participants were also asked to indicate their current level of regular exercise. Utilizing

the motivational measure and collecting data regarding level of regular exercise in the study allowed for an examination of the relationship between behavioral motivation for exercise and reported level of engagement in the exercise behavior.

Causality orientations theory and basic needs theory. The final two sub-theories under self-determination theory are the causality orientations theory and the basic needs theory. The causality orientations theory addresses an individual's perceived locus of causality for a behavior. According to deCharms (1968), individuals perceive the locus of behavioral initiation to be either internal or external to the self. With external locus of causality, the individual perceives the regulation of behavior to be external to the self while internal locus of causality is perceived as being regulated within the self. In connecting the causality orientations theory with the organismic integration theory, Friederichs and colleagues (2015) argued individuals who demonstrate integrated, identified, or intrinsic regulations characterize a predominately internal locus of causality, while individuals who demonstrate an introjected or extrinsic regulations characterize an external locus of causality.

The basic needs theory builds upon the locus of causality in COT and argues internal locus of causality behaviors are organized around three fundamental needs. These needs provide the foundation for categorizing environmental variables as either nurturing or hindering to one's development and determine the quality of the motivation and functioning demonstrated by the individual (Deci & Ryan, 2002; Wilson et al., 2002). More specifically, Edmunds, Ntoumani, and Duda (2006) have posited individuals who perceive fulfillment of their fundamental needs demonstrate greater

levels of self-determined motivations and behaviors. These fundamental needs include autonomy, competence, and relatedness.

Autonomy is characterized as perceiving the source of a behavior to derive from an internal locus of causality and includes acting out of personal interests or integrated values (Deci & Ryan, 2002). Friederichs and colleagues (2015) argue autonomously motivated individuals display more positive emotions and greater levels of perceived competence compared to those who are less autonomously motivated.

Competence is defined as "feeling effective in one's ongoing interactions with the social environment and experiencing opportunities to exercise and express one's capacities" (Deci & Ryan, 2002, p. 7). However, it is important to note the construct of competence is not required to be an attained skill level or a specific capability. Instead, competence emphasizes an individual's perceived confidence in the ability to complete an action or effect change (Hagger & Chatzisarantis, 2007). Furthermore, the need for perceived competence may fundamentally change as an individual evolves from being a novice to experienced exerciser. For example, Vlachopoulos et al. (2011) found for novice exercisers, the needs for autonomy and relatedness were critical during the initial stages of exercise participation. However, for experienced exercisers, the need for perceived competence was the primary variable of importance reported by participants. These findings demonstrate autonomy and relatedness are important variables in the formation of an exercise identity, but perceived competence becomes increasingly important as the individual reaches advanced stages of development. These findings are particularly relevant to the current population under study: since retired collegiate athletes typically demonstrate a high level of exercise expertise, examination of

perceived competence and its impact on exercise motivation is worthy of further exploration.

Relatedness refers to the feeling of being connected to others and feeling a sense of belongingness to other individuals or a community as a whole (Baumeister & Leary, 1995). While Wilson et al. (2002) found the construct of relatedness demonstrated a weaker relationship to self-determined motives when compared to competence or autonomy, Markland and Tobin (2010) argued differences in perceived relatedness was correlated with introjected behavioral regulations, with individuals who reported lower levels of relatedness demonstrating greater levels of introjected motivations. As such, individuals who engage in exercise due to feelings of obligation and a desire to avoid guilt or shame may miss opportunities to feel connected to others or experience the personal and interpersonal feelings of self-efficacy or esteem that can result from engaging in physical activity.

Additionally, when considering all three fundamental needs, Wilson et al. (2002) found higher levels of perceived competence, autonomy, and relatedness were positively correlated with identified and intrinsic regulations compared to introjected and external regulations. These findings may be particularly relevant for the athlete population, especially individuals who participate in sports that are team-based and provides an environment where all three fundamental needs are potentially fulfilled. However, an area that warrants further examination is how these fundamental needs are fulfilled for athletes after they retire and engage in exercise behaviors independently.

Because some researchers (e.g., Deci & Ryan, 2002) have argued basic needs theory has received less attention than research in physiological factors impacting well-

being, the current study utilized a basic psychological needs in exercise scale (BPNES) as one of the criterion variables of the study. This scale incorporated questions for all three fundamental needs, competence, autonomy, and relatedness, and measured participant's perceived level of fulfillment for each need through individual exercise behaviors.

Role of financial incentive on exercise motivation. Another variable that warrants consideration when considering behavioral motivations and regulations for exercise is the role of financial incentives in collegiate sport. From the perspective of self-determination theory, financial incentives may be perceived as a controlling environmental variable, which may lead an athlete to feel unfulfilled in the need for autonomy support. Consequently, the athlete may experience a decrease in intrinsic motivation (Moller et al., 2013). These results have been demonstrated in several contexts in addition to competitive sport, including diet, physical activity, and weight management (Burns, Donovan, Ackermann, Finch, Rothman, & Jeffery, 2012; Paul-Ebhohimhen & Avenell, 2007). These effects have also been demonstrated when contingencies are in place as well as after the reward period has passed. For example, after conducting a meta-analysis of 128 studies examining the undermining effect of financial incentives, Deci and colleagues (1999) found groups who received performance-contingent rewards consistently reported lower levels of intrinsic motivation compared to a no-reward participant group during a follow-up period in which no financial incentive was distributed.

These findings are particularly important for the athlete population. As previously discussed, despite the potential benefits of intrinsic motivation for

performance and long--term maintenance of behavior, athletic organizations at both the collegiate and professional level extensively support the use of tangible rewards (i.e., scholarships) (Kingston, Horrocks, & Hanton, 2006).

Currently, approximately one-fifth of collegiate athletes receive some form of scholarship or financial incentive for performance (Richardson, 2009). Given the research base indicating individuals enjoy activities more when they excel in performance (i.e., fulfilled need for competence), one would assume scholarship athletes should demonstrate increased enjoyment of a sport compared to those who are not financially rewarded for their competent performance. However, Moller and colleagues (2013) argued student athletes who receive athletic scholarships reported less enjoyment of their sport when compared to non-scholarship teammates. Support for Moller et al.'s (2013) perspective was first established by Ryan (1977, 1980). Specifically, Ryan's (1977, 1980) research assessed the degree of intrinsic motivation for both scholarship and non-scholarship American men football players, and results indicated scholarship athletes reported lower levels of intrinsic motivations when compared to non-scholarship athletes. This is a particularly important finding to consider given that at both the collegiate and professional competition level, men athletes are more likely to receive higher levels of financial incentives, both in the form of full athletic scholarships and the likelihood of achieving greater financial incentive by entering a professional draft and competing at the professional level after collegiate competition.

The findings from Ryan's (1977, 1980) research were also replicated and extended in a series of studies by Amorose and Horn (2000, 2001). In contrast to initial

findings by Ryan (1977, 1980), these researchers found athletes who received full athletic scholarships reported a higher level of intrinsic motivation compared to non-scholarship athletes. Based on these discrepant findings, it is clear questions remain regarding the impact of scholarship funding on an athlete's motivation and regulation of exercise behaviors. It is also unknown what impact the receipt of an athletic scholarship has on the motivation and regulation of exercise behavior of an athlete after retirement from collegiate sport. As such, the current study included an examination of the relationship between collegiate scholarship status and behavioral motivations for exercise engagement among the retired athlete population.

Identity Theory

In addition to examining exercise motivations through the lens of self-determination theory, several researchers have indicated another perspective relevant to the exercise literature is identity theory (Anderson & Cychosz, 1994, 1995; Hagger & Chatzisarantis, 2009; Vlachopoulos, 2009; Wilson, Mack, & Grattan, 2008). Identity theorists indicate an individual's core identity is established once an individual has categorized herself/himself as occupying a specific role and integrated the meanings and expectations associated with the particular role (Vlachopoulos et al., 2015). According to identity theory, identity serves to regulate one's behavior, and the degree to which an individual has integrated a sense of self, the more likely one is to behave in ways that are congruent or "true" to the perception of self (Burke & Reitzes, 1981; Deci & Ryan, 2002; Stryker & Burke, 2000). For example, an individual who has internalized a particular identity and its associated roles is more likely to engage in behaviors consistent with that role and regulated by more autonomous rather than

controlled motivations (Reifsteck et al., 2013). The two role identities particularly relevant to the current research are athletic identity and exercise identity. However, social identity theory is also related to the development of individual identity roles within the context of the social environment and is discussed below.

Social identity theory. Vlachopoulos and colleagues (2011) defined social identity as "a person's knowledge that one belongs to a social category or group and concerns the perceived similarities between the self and other in-group members and perceived differences between the self and out-group members" (p. 266). From the perspective of social identity theory, identity formation involves a continuous dynamic between an individual and the social environment in the eventual adoption of specific values, roles and belief systems (Ryan & Deci, 2003; Stets & Burke, 2003). For example, as an athlete, an individual belongs to both their individual team and organization as well as to the group of people constituting the athletic culture as a whole. As a member of these groups, the individual adopts the values, roles, and beliefs relevant to the athlete culture, including a value for exercise, physical skill, and competitiveness. Additionally, once a social identity is activated, a variety of motives become relevant to an individual's interaction with the social context and the decision making process. These motives include a self-knowledge motive, a self-consistency motive, a self-efficacy motive, an uncertainty reduction motive, and a self-regulation motive (Vlachopoulos et al., 2015). To continue the example from above, once an individual's identity as an athlete is activated, the motives associated with the athlete role (i.e., value for physical fitness) become relevant. When athlete role motives are activated, the individual must make the decision to engage in behaviors congruent with

the activation of this social role in order to continue to feel like a member of the in-group. However, an area worthy of further examination is how the social identity statuses activated within the athlete population and athletic culture change or remain activated once the individual retires from collegiate sport. In the current study, this was examined by utilizing a measure that assesses for the participant's identification to the athlete role as well as a measure that assesses for the salience of the role of exercise to the participant's self-concept at their current stage of life after retirement from collegiate sport.

Athletic identity. The construct of athletic identity is defined as "the degree to which an individual identifies with the athlete role and looks to others for acknowledgement of that role" (Brewer et al., 1993, p. 237). In applying identity theory to the definition of athletic identity, the more an individual identifies with the athlete role, the more the individual will behave as an athlete. Consequently, having a strong athletic identity has been associated with consistent exercise engagement (Anderson 2004). Richardson (2009) also addressed several other benefits associated with a strong identification with the athlete role, including higher levels of self-esteem, positive body image, and greater rates of social networking skills.

However, other researchers have argued a strong and exclusive identification with the athlete role may have detrimental effects. For example, Lavallee, Gordon, and Grove (1997) argue that as involvement and commitment to competitive sport increases, individuals may demonstrate difficulty in developing a self-concept beyond that primary role. Similarly, Miller and Kerr (2003) defined athletic identity as an "over-identification" with the athlete role. Their research found student participants often

invested high levels of commitment to the athlete role at the expense of exploring other meaningful roles. Consequently, Richardson (2009) posited future research related to athletic identity should explore the construct utilizing dimensions consisting of "social identity," "exclusivity," and "negative affectivity" (p. 98). Additionally, given significant variance in physical activity has remained unaccounted for by the construct of athletic identity, Reifsteck et al. (2013) argued research should explore how other identity roles and variables may contribute to the physical activity literature, particularly among college graduates. Therefore, the current research examined the impact of both athletic identity and exercise identity statuses on motivations for physical exercise as well as psychological needs met through exercise and overall well-being.

Gender and athletic identity development. The role of organized sport and participation in athletics on the development of gender and athletic identity, particularly masculine identity for cisgender men has been frequently examined. Findings from these studies have indicated men tend to develop "positional" identities while women develop more "relational" identities (Messner, 1990). This "positional" identity is established at an early age based on interactions with important men role models (i.e., fathers, older brothers, uncles) and with societal institutions (i.e., organized sports) (Messner, 1990). Based on these interactions, boys are often socialized into a "gendered culture" which associates masculinity with competition, physical strength, and competent skill demonstration (Sabo, 1985). Adler, Kless, and Adler's (1992) and Thorne's (1993) research support this argument with findings that indicate girls perceive it to be socially unacceptable to be strong, physical, or athletically talented due to perceptions that these descriptions are characteristic of the definition of masculinity.

Gender socialization has the potential to create conditional self-worth that creates excess pressure for men to match or surpass the accomplishments of important role models and same-sex peers. When excessive pressure to match or surpass accomplishments occur, Messner (1990) argued men may lose enjoyment for the participation in sport due to lowered self-efficacy and self-esteem. However, despite the development of a "positional" identity, men have also been shown to maintain a need for closeness and feeling of unity with others. As such, Craib (1987) argued organized sports could be considered an "elective affinity" because it provides a safe place for men to seek non-intimate attachments through interactions with teammates in a context that simultaneously maintains distance and separation from others through competition with others. However, it would seem the need for an "elective affinity" would continue even after the men athlete retires from organized sport.

Messner (1990) also argued cisgender women individuals who demonstrate more "relational" identities may experience highly competitive environments as threats to relationship development and maintenance. Specifically, Williams (1988) indicated when compared to men, women do not enjoy the competing atmosphere created by team sports. Lee, Fredenburg, Belcher, and Cleveland (1999) supported Williams' (1988) position when arguing that by a young age, men tend to demonstrate a propensity for team sports while women demonstrate a preference for rhythmic activities. Lastly, Martinovic, Ilic, and Visnjic (2011) argued in general, women report lower levels of motivation for physical activity when compared to men. However, Clifton and Gill (1994) posited that differentiated interests in organized sport and type of physical activity participation are due to social influences and gender socialization.

Thus, one should not assume that because the athlete culture is dominated by men that women do not want to participate.

It is also unclear whether the findings indicated above are relevant to women who participate in competitive sport, particularly at the elite level. For several years, thorough research on collegiate level women athletes was unavailable due to their constituting a small percentage of the college athlete population. Specifically, prior to the passage of Title IX in 1972, women did not have equal opportunities to participate in athletic competition or receive financial benefits (i.e., scholarships) when compared to men student athletes (Whisenant, 2003). The passage of Title IX, which required schools to offer equal opportunities, including athletic scholarships to both men and women athletes created a significant difference in the number of opportunities for women to participate in collegiate sport and receive athletic scholarships (Murray, 2002). For example, in 1971, there were only 30,000 women athletes competing at the collegiate level, and only two percent of those athletes received athletic scholarships, compared to 193,232 women athletes as of 2011 (Lockhart, Black, & Vincent, 2012).

However, despite the exponential increase in participation, several researchers have found men athletes continually demonstrate higher levels of athletic identity when compared to women athletes. For example, Murray (2003) examined reported athletic identity of Division II athletes and found men reported higher levels of athletic identity and interest in athletic competition when compared to women athletes. Similarly, while Sturm, Feltz, and Gilson (2011) found reported athletic identity levels were similar when comparing Division I and Division III student athletes, a significant difference was demonstrated between men and women athletes, with men demonstrating higher

athletic identity. Based on these findings, it is possible a higher reported athletic identity is associated with a greater commitment to the athlete role and associated with more motivated regulation behaviors for physical activity engagement.

When considering the consistent significant differences found between men and women athletes, Murray (2003) argued an individual's motivation for participating in collegiate sport may contribute to the identification with the athlete role. For example, women athletes who may not perceive a professional athletic career to be a realistic option may value collegiate competition more because of the possibility of receiving financial assistance for academic pursuits. As such, exclusive identity with the athlete role would be reduced when compared to athletes who view collegiate sport as an avenue for further training and a future professional athletic career. Additionally, when considering psychological need fulfillment, women athletes may value collegiate sport participation for fulfilling autonomy and relatedness needs rather than solely fulfilling needs for competence. However, while these constructs have been studied with collegiate athletes, little research has examined the impact of athletic identity and gender on collegiate athletes who have retired from sport. As such, this study included an examination of the relationship between gender and reported identification to the athlete and exercise roles as well as behavioral motivations for exercise among retired collegiate athletes.

Socioeconomic status, race/ethnicity, and athletic identity development. In addition to the impact of gender on athletic identity development and maintenance, it is also important to consider the impacts of race and economic status on the identification with the athlete role. While Messner (1990) indicated an early attraction to sport

activities are similarly experienced by individuals who are of higher or lower economic status, there are identifiable differences which help explain the tendency for individuals from lower socioeconomic environments to develop greater levels of commitment to an athletic identity and a sport career. These effects have been found to be particularly strong for men individuals. For example, the "future orientation" developed by men raised in higher status environments are consistent with a middle class context that encourages educational achievements over athletic accomplishments (Messner, 1990). More specifically, individuals from middle class backgrounds receive their primary motivations from immediate family members who provide greater security and more options for the individual to explore and pursue success with other identities. In contrast, individuals from lower status environments receive primary motivations from the extended family members and one's broader community (Messner, 1990). Within the broader social context, unequal opportunities for educational and economic pursuits may narrow one's perceptions of "real-life" opportunities. Consequently, the more limited the options or the more insecure one's family or environmental situation, the more likely one is to make an early commitment to an athletic career or foreclose on an exclusive identification with the athlete role.

While many of these arguments focus solely on the impact of race and economic status for men individuals, other researchers have found the impact of race on athletic identity to be invariant to gender. For example, Harrison, Sailes, Rotich, and Bumper (2011) found when compared to both men and women Caucasian student athletes, African American student athletes reported higher levels of athletic identity. As such, it is plausible there may be important differences in the retirement and transition

experiences of Caucasian collegiate athletes when compared to collegiate athletes who are either a racial minority or come from a marginalized socioeconomic status.

Exercise identity. An additional identity role which accounts for the variance in physical activity engagement is the construct of exercise identity. Although the construct of athletic identity is complex, there are qualitative differences between athletic identity and exercise identity (Reifsteck et al., 2013). Specifically, athletic identity is primarily grounded in the context of competitive sport. As such, a strong athletic identity, which is often the primary source of self-identity for athletes, may be related to increased participation in specific types or intensities of physical activity similar to competitive sport training (Reifsteck et al., 2013). However, Ryan, Williams, Patrick, and Deci (2009) argue people are often less motivated to participate in general exercise behavior when compared to competitive sport. As such, it is the characteristics of an exercise identity that play a more important role in maintaining consistent physical activity behavior. Consequently, Reifsteck (2014) argued assisting an athlete in transitioning from a narrow or sport-specific athletic identity to a broader exercise identity could serve as a critical step in promoting long-term physical activity behavior. Research examining ways to assist in the transition to consistent life-style activity seems particularly critical for collegiate athletes retiring from sport. The current study utilized a measure that assessed for the salience of the exercise role to the participant's overall self-concept and included an examination of the relationship between reported exercise identity and behavioral motivations for exercise among the retired collegiate athlete population.

Sport retirement and loss of identity. One experience all athletes have at some point in their career is retirement from sport and a transition out of the competitive environment. Although the qualitative research dedicated to the topic of athletic identity is scarce (Richardson, 2009), one area that has received adequate focus is the retirement experiences of professional and elite level athletes. Specifically, Lavallee et al. (1997) indicated a body of research regarding athletes' retirement from competitive sport has emerged and a primary focus of the retirement literature has emphasized adjustment difficulties associated with the termination of an athletic career.

Throughout the retirement literature, several themes have emerged which help characterize the retirement experience. For example, several researchers have established a common experience of emotional loss associated with being separated from important support system members such as coaches and teammates (Astle, 1986; Murphy, 1995; Werthner & Orlick, 1986). Additionally, athletes are also confronted with issues related to the loss of athletic identity and fundamental changes in self-concept (Brewer et al., 1993; Harvey, 1996; Pearson & Petitpas, 1990). Likewise, Wolff and Lester (1989) have indicated the retirement process "could be compared to the dying process since, by retiring, athletes lose their personal identity which is dependent upon their careers" (p. 1043). Based on this definition, it seems reasonable to assume the strength of an individuals' identification with the athlete role may significantly contribute to an athlete's ability to successfully adjust after the termination of his/her career.

As indicated when discussing athletic identity, research conducted by Brewer et al. (1993) concluded that athletes who do not pursue other activities in addition to their

sport participation are at risk of having a self-identity composed exclusively of their athlete role. Consequently, Lavallee et al. (1997) found when assessing for adjustment to retirement after sport, participants who reported a high athletic identity at the time of retirement experienced higher rates of emotional adjustment difficulties compared to participants whose reported athletic identity was lower at the time of retirement. Additionally, the researchers found athletic identity was "strongly correlated to both the degree of psychological adjustment needed and the time taken to make the adjustment" (p. 199). Nonetheless, Lavallee and Robinson (2007) determined athletic retirement distress could be minimized with both gradual withdrawals from sport and pre-retirement planning. Likewise, Richardson (2009) found common themes for athletes whose adjustment to retirement was not as difficult. These themes included a withdrawal of athletic identity prior to sport retirement and a readiness to pursue new careers. However, a particularly important gap in Richardson's (2009) research is the lack of consideration placed on the athlete's reason for retirement. Specifically, although the author found benefits to pre-retirement planning and gradual withdrawal from sport, these scenarios are not always likely. For example, in the case of a career ending injury, an athlete does not have the opportunity to engage in these beneficial coping strategies. In order to address the gap in the literature involving career ending injury, participants in this study were asked to indicate the reason for their retirement from collegiate sport.

Exercise after retirement. Another potential adjustment difficulty for an athlete retiring from competitive sport is the maintenance of physical activity. Reifsteck et al. (2013) posited that because athletic identity is a core aspect of an athlete's self-concept,

examining the role of athletic identity in the transition process for maintaining physical activity is appropriate. Although it seems logical former student-athletes would value physical health and, consequently, would engage in consistent physical activity even after sport retirement, the empirical literature suggests otherwise (Reifsteck et al., 2013). In fact, Sorenson, Romano, Azen, Schroeder, and Salem (2014) found former student-athlete alumni failed to maintain healthy levels of physical activity participation after retiring from sport and were no more active than non-athlete college alumni. Likewise, Reifsteck et al. (2013) found former student-athletes were actually more likely than non-student-athletes to report a decrease in physical activity after college despite having a higher proportion of former athlete participants indicate being in the maintenance phase of exercise.

To account for these findings, a few theories have been proposed. First, Adler and Adler (1991) have posited the primary goal of collegiate level training is to improve skill and prepare for success during competition. Therefore, a decline in participation after sport retirement could be seen as a loss of motivational factors. Specifically, the athlete may feel they no longer have anything to "work toward" once the goal of competition success is removed. As such, the construct of athletic identity appears to be particularly relevant when considering this theory. For example, as indicated in the discussions above, athletic identity is specifically grounded in the context of competitive sport and has been found to decrease after sport retirement (Houle, Brewer, & Kluck, 2010). So, when the competitive aspect of sport is removed and the athlete must transition to a more persistent exercise identity which emphasizes life style exercise behaviors, a great sense of loss in one's identity status may be experienced.

When the loss of competitive sport is experienced, the retired athlete may come to associate exercise behaviors in general with the loss of their athletic identity and consequently, may ultimately avoid exercise behaviors all together. Another, more recent theory by Theberge (2007) argued competitive athletes engage in physical activity primarily for athletic success rather than to maintain or improve one's health.

However, regardless of the reason, a decline in consistent physical activity is important because it has been shown to have negative health complications for former athletes (Witkowski & Spangenburg, 2008). Specifically, Reifsteck et al. (2013) warned that athletes who completely stop physical activity after sport retirement have equal or greater risk for chronic diseases when compared to non-athletes who have been sedentary for a lifetime. For example, Witkowski and Spangenburg (2008) found former elite level athletes were more susceptible to inactivity-related increases in risks for diseases such as diabetes, cardiovascular disease, insulin sensitivity, increased plasma lipids, and poor body composition. The potential for any of these risk factors certainly highlights the need to examine exercise motivation and engagement experiences as well as the athletic and exercise identity statuses of retired collegiate athletes.

Summary and Rationale for the Current Study

Within the extensive health and exercise research literature, several physical and psychological benefits of consistent engagement in exercise have been established (Haskell et al., 2007). Nevertheless, a majority of the population in the U.S. remains insufficiently active and reports difficulties sustaining consistent exercise engagement (Brunet & Sabiston, 2011). Given the benefits associated with consistent physical

activity, researchers have thoroughly explored factors that facilitate adequate exercise behaviors, including the variables of motivation, identity statuses, and the role of financial incentives. However, a majority of previous studies have explored the exercise experiences of individuals who are inactive or inconsistently active (Biddle, 2001; Boiche at al., 2008; Brunet & Sabiston, 2011; Burns et al., 2012; Cardinal & Cardinal, 1999). Additionally, these studies fail to address the motivations for and exercise behaviors of individuals who engage in consistent physical activity, including competitive athletes. For studies that do explore the athlete population, primary emphasis has been placed on the current or recent retirement experiences of professional or elite level (i.e., Olympic level) athletes (Amorose & Horn, 2001; Ryan 1977, 1980). In fact, there has been minimal attention paid to the experiences of collegiate level athletes after retirement. Consequently, research exploring the impact of motivation variables, identity statuses, and financial incentives for this population is warranted.

It has been established that motivation plays an important role in both starting and maintaining an exercise routine (Bauman et al., 2012; Duncan et al., 2010), and motivators for exercise have repeatedly been argued to fall on a continuum between being completely driven by external factors or pressures to completely autonomous and self-determined (Deci & Ryan, 2000). Motivators within the self-determination continuum can come from several internal and/or external sources within one's environment and can be either nurturing or impeding to the value one ultimately places on exercise behavior (Deci & Ryan, 2008).

An established source of internal motivation includes one's identity statuses and the identity roles inherent within those statuses. According to identity theory, once an identity status has been established, an individual will behave in ways congruent with the roles associated with the status (Stryker & Burke, 2000; Vlachopoulos et al., 2015). As such, an individual who has established an identity as an athlete and/or exerciser will arguably behave in ways congruent with those identity roles. However, research findings have indicated qualitative differences between behaviors congruent with an athletic identity and behaviors congruent with an exercise identity. Specifically, identification with the athlete role has been associated with more engagement in behaviors akin to competitive sport when compared to "lifestyle" exercise behavior patterns associated with an exercise identity status (Ryan et al., 2009; Reifsteck et al., 2013). As such, it is important to examine the exercise experiences of retired collegiate athletes who may arguably demonstrate qualitative changes in identification to the athlete and/or exercise role after retirement from collegiate competition. While Lavallee and colleagues (1997) have indicated the loss of an athletic identity after sport retirement can have detrimental impacts on physical and psychological functioning for the individual, there have been no studies to the researcher's knowledge that examines retired athlete's identifications to both the athlete and exercise identity role in one study. Furthermore, there are no studies to the researcher's knowledge that examine the impact of retirement length on participants' reported athlete and/or exercise identity statuses. Based on findings by Miller and Iris (2002) indicating one's motivation for an activity can change throughout one's life or in different environmental context, it is important to examine the exercise motivations and behaviors of retired collegiate athletes while also

exploring any differences that may exist as the length of retirement from sport increases.

External sources of motivation can come in a variety of forms; a common extrinsic motivator for collegiate athletes is financial incentives in the form of athletic scholarships. Financial incentives in general have been found to contribute to a lowered intrinsic value and lower levels of consistent engagement in behaviors such as diet, physical activity, and weight management (Burns et al., 2012; Moller et al., 2013). However, research examining the impact of financial incentives on motivation has indicated mixed results, and it remains unclear whether athletes who receive scholarships demonstrate lower levels of intrinsic motivation or consistent exercise behavior outside of sport when compared to non-scholarship teammates (Ryan, 1977, 1980; Amorose & Horn, 2001; Moller et al., 2013). Furthermore, there have been no studies conducted that examine the long-term impact of athletic scholarships on motivation for exercise after the athlete has retired from competitive sport. Also, given findings that participation in competitive sport does not predict consistent exercise behavior after sport retirement (Stephan & Bilard, 2003), it seems important to examine what, if any, role the impact of scholarship receipt may have on the exercise experiences and overall well-being of retired collegiate athletes.

Based on the studies reviewed above, it is evident several gaps in the current literature remain, several of which the present study was designed to address. Specifically, the purpose of the current study was to explore (a) retired collegiate athlete's continued identification with the athlete role, (b) retired collegiate athlete's perceived exercise identity, (c) retired collegiate athlete's reported motivations for

continued exercise, and (d) the impact of exercise on fulfilling basic psychological needs and general psychological well-being. Additionally, the following hypotheses, based on the literature were offered:

Hypothesis 1: It was predicted that athletic identity scores and exercise identity scores would predict significant variance in reported psychological need fulfillment and overall quality of life scores.

Hypothesis 2: It was predicted that scores on the behavioral self-determination and motivation in exercise measure would predict additional significant variance in scores on basic psychological need fulfillment and overall quality of life scores for retired collegiate athletes, after controlling for athletic and exercise identity scores.

Hypothesis 3: It was predicted retired athletes who received more than 50% of their academic funding from athletic scholarships would report significantly different athletic identity scores, exercise identity scores, behavioral motivation scores, psychological need fulfillment scores, and overall quality of life scores when compared to retired athletes who received less than 50% or no athletic scholarships.

Hypothesis 4: It was predicted retired athletes who had been retired from collegiate sport for a longer period of time would demonstrate significantly different scores on athletic identity scores, exercise identity scores, behavioral motivation scores, psychological need fulfillment scores and overall quality of life scores when compared to retired athletes who had been retired from collegiate sport for a shorter period of time.

Hypothesis 5: It was predicted there would be significant group differences found between groups of differing demographic variables, including gender, race/ethnicity, and NCAA level of competition on reported athletic identity scores, exercise identity scores, behavioral motivation scores, psychological need fulfillment scores and overall quality of life scores.

Chapter 3: Methodology

Participants

One hundred and eighty-one retired student-athletes signed up to complete the study. However, 38 participants were removed due to one of three reasons: (1) significant proportion of missing data, (2) collegiate participation at the junior college level or for a non-NCAA sponsored institution, or (3) no competition at the collegiate level. This left a total of 143 retired collegiate athletes (108 women-identified; 35 men-identified) who completed the study and were retained for analysis. Participants ranged in age from 22 to 70 years old (M = 30.5, SD = 8.14). Sixty-eight (47.6%) participants reported competing at the Division I level, 34 (23.7%) reported competing at the Division II level and 41 (28.7%) reported competing at the Division III level while in college. Participants also answered questions regarding their race, sexual orientation, student and/or employment status, the number of seasons completed as a competition athlete in an NCAA sponsored sport and the role they served while competing (i.e., starter, regular substitute, or rarely played), the sport competed in, and whether the participant received over 50% of their financial support from athletic scholarships while in college.

At the end of the demographic questionnaire, participants were provided with an operational definition of "regular exercise" and were asked to indicate whether their exercise patterns met the criteria. Regular exercise in this study was defined as "any moderate or vigorous physical activity (e.g., brisk walking, aerobics, basketball, bicycling, dance, jogging, swimming, soccer, etc.) performed 3-5 times a week for 20-60 minutes per session. After indicating whether their exercise patterns met the

definitional criteria, participants were presented with two questions that asked for a description of ways the participant was continually involved in their competition sport from college as well as other competitive sports individuals currently participated in. Regarding continued involvement in their collegiate sport, several participants indicated participating in intramural or other recreational leagues, while others indicated remaining involved through coaching, or teaching lessons to their children. Regarding other competitive sport involvement after retirement from collegiate sport, several participants indicated competing in races such as 5k runs, half-marathons, and marathons. Other participants indicated participating in cross fit training both at the recreational and competitive levels. See Table 1 (Appendix B) for descriptive statistics on the demographic variables included in the current study.

Instrumentation

Demographics. An author-generated demographic questionnaire (see Appendix C) was created to gather descriptive information about the participants in the study. The questionnaire contained questions related to participants' age, gender, race/ethnicity, sexual orientation, student and/or employment status, the number of seasons completed as a competition athlete in an NCAA sponsored sport and the role they served while competing (i.e., starter, regular substitute, or rarely played), the sport competed in, whether the participant received over 50% of their financial support from athletic scholarships while in college, how long the participant has been retired from collegiate sport, their reason for retirement from collegiate competition, whether the participant continues to be involved in their competition sport through other avenues (i.e.,

recreation or club leagues), and the number of times per week on average the participant engages in moderate to strenuous exercise behavior.

Behavioral regulation. The Behavioral Regulation in Exercise Questionnaire-2 (BREQ-2) is a 19-item scale designed to assess levels of behavioral self-determination in relation to exercise behaviors (See Appendix D). It is one of the most widely used measures in exercise psychology research for the behavioral regulation continuum as conceptualized by the organismic integration theory (OIT). Mulland et al. (1997) initially developed the BREQ to quantify the motivational continuum of exercise by examining responses of community sport center attendees. Initial scale development utilized confirmatory factor analysis and developed a four-factor measurement invariant across gender and consistent with self-determination theory (Wilson et al., 2002). However, Markland and Tobin (2004) argued researchers could benefit from assessing amotivation in addition to the original four regulations in order to develop a more complete understanding of motivation for exercise. As such, the BREQ-2 accounts for participant levels of amotivation, external regulation, introjected regulation, identified regulation, and intrinsic motivation. Using the stem "why do you exercise?" participants respond to various motivations by rating items on a 5-point Likert-type scale, ranging from *0= not true for me* to *4 = very true for me*. Scoring for the measure is completed by calculating the mean score of each subscale in order to determine how much of each regulation the participant endorses. After calculating the mean score of each subscale, subscale scores are weighted and summed in order to derive a single score for the measure. This score is known as the Relative Autonomy Index (RAI) (Markland, 2014). Higher, positive RAI scores indicate more self-determined exercise motivations and

behaviors while lower, negative RAI scores indicate more controlled exercise motivations and behaviors. Analyses from several research samples demonstrate factorial invariance across gender (Mullan et al., 1997) and internal consistency values for each of the types of regulation (amotivation .83; external regulation .79; introjected regulation .80; identified regulation .73; and intrinsic motivation .86) provide support for the psychometric integrity of the scale (Markland & Tobin, 2004). For the current study, the Cronbach alpha coefficients for each subscale were: amotivation .88; external regulation .76; introjected regulation .84; identified regulation .81; and intrinsic regulation .87. The Cronbach alpha coefficient for the total scale in the present study was .78.

Exercise identity. The Exercise Identity Scale (EIS) is a 9-item scale used to assess the reported salience of exercise as an integral component of one's self-concept (See Appendix E). Participants are asked to consider each question within the context of their personal exercise experiences (e.g., "The following questions concern your personal beliefs about exercise. Please indicate the degree to which you agree or disagree with each statement when thinking about your exercise participation."). Each question is rated on a 7-point Likert-type scale, ranging from *1= strongly disagree* to *7 = strongly agree*. Previous studies have supported the internal consistency reliability with Cronbach's alphas = .82 to .95 (Anderson, Cychosz, & Franke, 2001; Cardinal & Cardinal, 1997). Criterion validity of the scale has also been supported by findings that "exercisers" have been shown to score approximately 1 standard deviation higher than "non-exercisers" (Anderson et al., 2001). The Cronbach's alpha coefficient was .92 in the present study. Participants' total scores was used in the data analysis.

Athletic identity. The Athletic Identity Measurement Scale (AIMS) is a 10-item scale designed to assess the degree to which an individual identifies with the athlete role and is the most widely used scale for measuring athletic identity (See Appendix F). It was designed by Brewer et al. (1993) due to a perceived lack of "an extant instrument with item content reflecting both strength and exclusivity of identification with the athlete role" (p. 242). Items are designed to be a "face valid representation of the social, cognitive, and affective dimensions of athletic identity" (p. 242). Each question is rated on a 7-point Likert-type scale, ranging from *1= strongly disagree* to *7 = strongly agree.* Higher scores reflect stronger identification with the athlete role. Based on three initial studies with approximately 900 participants, the AIMS scale was determined to have strong reliability and validity evidence (Anderson, 2004). Additionally, the scale has been found to be a positive predictor of physical activity, particularly for college athlete alumni. The relationship between athletic identity and physical activity was found to be stronger for former athletes than non-athletes (Reifsteck et al., 2013). The internal consistency (.93) and the test-retest reliability (.89) provide support for the psychometric integrity of the scale. The Cronbach's alpha coefficient was .83 in the present study. Participants' total scores on the AIMS was used in the data analysis.

Psychological needs in exercise. The Basic Psychological Needs in Exercise Scale (BPNES) is a 12-item measure that assesses for reported perceptions of the extent to which psychological needs for autonomy, competence, and relatedness are satisfied by engaging in exercise, with four items devoted to each subscale (Deci & Ryan, 2000) (See Appendix G). Items are rated on a 5-point Likert scale ranging from *1= I don't agree at all* to *5 = I completely agree*. Internal consistency values for each basic need

(Autonomy .84, Competence .86, and Relatedness .92) have been demonstrated with participants who engage in physical activity. Similarly, Hingle and Havenar (2008) reported triathlete participants demonstrated significantly higher mean value scores for all three constructs of autonomy, competence, and relatedness when compared to private gym members. These results demonstrated the BPNES is a valid instrument for measuring basic psychological needs relevant to self-determination theory with an athlete population. Additionally, cross-cultural comparisons with Greek, Spanish, Portuguese, and Turkish participants indicated validity at the latent variance/covariance level and the latent/observed mean level for all constructs of autonomy, competence, and relatedness (Vlachopoulos, Asci, Cid, Ersoz, Gonzalez-Cutre, Moreno-Murcia et al., 2013). For this study, the BPNES total score was used in data analysis. The Cronbach's alpha coefficient was .90 in the present study.

Quality of life. The World Health Organization Quality of Life-BREF (WHOQOL-BREF) is a 26-item scale that measures four domains said to contribute to overall quality of life: (1) psychological well-being, (2) physical well-being, (3) social well-being, and (4) environmental well-being (Theuns, Hofmans, Mazaheri, Van Acker, & Bernheim, 2010) (See Appendix H). It was developed as a shortened version of the WHOQOL-100 for use in situations where time is restricted or to lessen the burden for the respondent (Skevington, Lotfy, & O'Connell, 2004). It is also commonly used for academic research, clinical evaluations, and cross-cultural comparisons (Hsiao, Wu, & Yao, 2014). The scale contains one item from each of the 24 QOL facets included in the original WHOQOL-100 version, plus an additional two items from a general QOL facet and a general health facet. Each item is rated on a 5-point Likert scale and items vary

with regard to “how much”, “how completely”, “how often”, “how good”, or “how satisfied” the participant felt during the previous two-week time span. The scale’s psychometric properties were established through a cross-sectional study using over 11,800 adult participants from 23 different countries (Skevington et al., 2004). Items for the current scale were selected from the WHOQOL-100 based on their ability to: (1) explain a significant portion of variance to one of the four parent domains, (2) correlate with the overall WHOQOL model, and (3) demonstrate appropriate discriminant validity between items (Skevington et al., 2004). Specifically, the scale demonstrates good convergent validity given findings that all items demonstrated a significant contribution to the WHOQOL-BREF and discriminant validity was best demonstrated within the physical domain (Skevington et al., 2004). Acceptable internal validity values for each domain have been established (physical health .82; psychological well-being .81; environmental .80; and social relationships .68) and evidence of test-retest reliability for the WHOQOL-BREF has also been demonstrated (WHOQOL Group, 1998). However, previous studies have also indicated the four domain scores are moderately to highly correlated (Skevington et al., 2004; Yao 2005), and differentiating the four domains within the scale may not be necessary. Consequently, participants’ total scores were used in data analysis. The Cronbach’s alpha coefficients for each domain of the measure were: physical health .72; psychological well-being .84; environmental .70; and social relationships .62. The Cronbach’s alpha coefficient for the total measure was .90.

Procedure

Following approval from the Institutional Review Board, participants were recruited through the social networking site Facebook, sport psychology listservs, and through emails to retired collegiate athletes and current NCAA head coaches. Participants were told the study was about examining the impact of a retired athlete's athletic identity and exercise identity on motivations for continued exercise, fulfillment of psychological needs, and overall psychological well-being. All surveys and questionnaires were posted online through Qualtrics, a secure data-collection website. Data collection through this medium was considered to be adequate given findings that online survey instruments have been validated as equal to traditional paper and pencil methods while allowing for larger and more diverse samples (Gosling et al., 2004). Participants accessed the online survey by clicking the link provided on the Facebook webpage, or in the email sent to participants. Before beginning the study, all participants provided informed consent. After agreeing to participate, participants were asked to complete the survey, which included the demographic questionnaire, the AIMS (Brewer & Cornelius, 2001), the EIS (Anderson & Cychosz, 1994), the BREQ-2 (Markland & Tobin, 2004), the BPNES (Vlachopoulos & Michailidou, 2006), and the WHOQOL-BREF (World Health Organization, 1997). The survey took an average of 12 minutes to complete. After completion of the study, participants were redirected to a separate Qualtrics webpage, where they had the opportunity to enter their email address into a drawing for one of four $25 Amazon electronic gift cards. Participants' email addresses were not attached to their survey responses in order to ensure complete anonymity.

Analysis

The current study was conducted as a hierarchical multiple regression design. Hierarchical multiple regression was an appropriate design because the researcher was interested in exploring the separate and collective contributions of athletic identity, exercise identity, and behavioral regulation scores on the variation of basic psychological need fulfillment scores and quality of life scores (Heppner, Wampold, & Kivlighan, 2008). Specifically, hierarchical multiple regression design allowed for the examination of the unique contribution of a retired athletes' behavioral regulation and motivation for physical activity (as indicated by the participants' RAI scores) to the overall model while controlling for the contributions of the other two predictor variables of athletic identity (as indicated by the participants' AIMS scores) and exercise identity (as indicated by the participants' EIS scores).

Due to the use of two criterion variables, two separate hierarchical multiple regressions were conducted using the same three predictor variables for each criterion variable. The three predictor variables for the current study were participants' scores on the (1) Athletic Identity Measurement Scale (AIMS), (2) Exercise Identity Scale (EIS), (3) and Relative Autonomy Index (RAI) calculated from participants' responses on the BREQ-2. The two criterion variables were participants' ratings on the (1) BPNES and the (2) WHOQOL-BREF.

Additionally, due to previous research findings of significant differences reported between men and women athletes on measures of exercise and athletic identity, the researcher conducted a series of independent t-tests to examine whether there were significant differences between men and women identified participants on all predictor

and criterion variables in the study. Lastly, a series of one-way ANOVAs were conducted to examine whether there were significant differences present between participants by NCAA level, scholarship status, and length of retirement from collegiate sport. These group comparisons were conducted based on previous research findings suggesting that receiving financial rewards for athletic participation or performance may negatively impact an athlete's level of intrinsic or integrated motivated behavior (Amorose & Horn, 2001). One-way ANOVA analyses to examine group differences based on race and sexual orientation were not possible given the large discrepancy in participant identifications for the current sample. Post-hoc tests were conducted for all analyses and an alpha of $p = .05$ was used to determine significance. Based on a G*Power analysis accounting for the three predictor variables and two criterion variables, it was determined a minimum of 138 participants were required in order to obtain adequate power and effect size.

Chapter 4: Results

Preliminary Analyses

Preliminary analyses were performed on the data to ensure there were no violations of the assumptions of normality, linearity, and homoscedasticity, which are reported below. Pearson correlations were conducted to examine the relationships among the predictor and criterion variables. Results revealed a significant, positive correlation between athletic identity (as measured by the AIMS) and psychological needs met through exercise (as measured by the BPNES), $r = .17$, $n = 143$, $p < .05$, with higher scores on identification with the athlete role associated with more psychological needs being met through exercise.

The relationship between athlete's identification with the athlete role (as measured by the AIMS) and reported overall quality of life (as measured by the WHOQOL-BREF) was also examined. Results indicated a significant, negative correlation between the two variables, $r = -.25$, $n = 143$, $p < .01$, with higher scores on identification with the athlete role associated with a lower overall quality of life.

A significant, positive correlation between participants' reported identification with the exercise role (as measured by the EIS) and psychological needs met through exercise (as measured by the BPNES) was indicated, $r = .42$, $n = 143$, $p < .001$, with higher scores on identification with the exercise role associated with more psychological needs being met through exercise. A non- significant positive correlation between exercise identity (as measured by the EIS) and overall quality of life (as measured by the WHOQOL-BREF) was indicated, $r = .04$, $n = 143$, $p = .66$.

Furthermore, a significant, positive correlation was indicated between the retired athlete's reported level of autonomy in exercise motivation and behavior (as measured by the RAI derived from the BREQ-2) and psychological needs met through exercise (as measured by the BPNES), $r = .46$, $n = 143$, $p < .001$, with higher scores on perceived autonomy in exercise associated with more psychological needs being met through exercise. In addition, a significant, positive correlation between the participant's perceived autonomy in exercise behavior (as measured by the RAI derived from the BREQ-2) and overall quality of life (as measured by the WHOQOL-BREF) was also indicated, $r = .36$, $n = 143$, $p < .001$, with higher scores on perceived autonomy associated with a greater overall quality of life. See Table 2 (Appendix B) for additional correlation results between predictor variables and significant demographic variables.

An independent-sample t-test was conducted to compare the basic psychological needs in exercise scores for men and women. There was no significant difference in scores for men ($M = 42.20$, $SD = 9.18$) and women ($M = 44.68$, $SD = 8.17$); $t\ (141) = -1.51$, $p = .13$). Similarly, when comparing the self-reported quality of life scores for men and women, there was no significant difference in scores for men ($M = 105.91$, $SD = 14.21$) and women ($M = 105.33$, $SD = 10.53$); $t\ (141) = .259$, $p = .80$).

Independent samples t-tests were also conducted to compare the scores of each predictor variable for men and women. There were no significant differences in scores found for either the AIMS (men: $M = 40.51$, $SD = 10.52$; women: $M = 41.69$, $SD = 9.54$) or the RAI (men: $M = 11.80$, $SD = 5.04$; women: $M = 11.01$, $SD = 4.54$).

However, there was a statistically significant difference found in EIS scores for women (M = 47.42, SD = 9.51) compared to men (M = 42.69, SD = 12.68); t (141) = -2.35, $p < .05$). The magnitude of the differences in the means (mean difference = -4.73, 95% *CI*: -8.81 to -.75) was small (eta squared = .038).

In addition, a series of one-way ANOVAs were conducted to explore the impact of participants' NCAA level of competition, reported scholarship status, and retirement length on reported psychological needs met through exercise and overall quality of life. Regarding NCAA level on psychological needs met through exercise, as measured by the BPNES, participants were divided into three groups (Group 1: NCAA Division I; Group 2: NCAA Division II; Group 3: NCAA Division III). There was no statistically significant difference in BPNES scores for the three competition levels: F (2, 140) = .997, p = .37. There was also no statistically significant difference in WHOQOL-BREF scores for the three competition levels: F (2, 140) = .44, p = .65.

A series of ANOVAs were also conducted to compare the scores of each predictor variable for NCAA level. There were no significant differences in scores found for either the AIMS, F (2, 140) = .651, p = .52, or the RAI, F (2, 140) = 1.25, p = .23. However, there was a statistically significant difference found in EIS scores for the three competition levels: F (2, 140) = 3.13, $p < .05$. The effect size, calculated using eta squared, was .043, a small effect size. Post-hoc comparisons using the Tukey HSD test indicated the mean score for Group 1 (M = 46.13, SD = 9.67) was significantly different from Group 2 (M = 43.09, SD = 12.65) and Group 3 (M = 49.10, SD = 9.38). Specifically, the mean scores indicated participants who had competed at the NCAA Division I level reported a significantly higher identification

with the exercise role than participants who competed at both Division II and Division III levels. Participants who competed in Division II or Division III levels did not significantly differ from each other in regard to identification with the athlete role.

For scholarship status, participants were divided into three groups according to their reported amount of scholarship received while competing as a collegiate athlete (Group 1: > 50% Scholarship; Group 2: < 50% Scholarship; Group 3: No scholarship). There was no statistically significant difference in BPNES scores for the three levels: F (2, 140) = .08, p = .93. In addition, there was no statistically significant difference in WHOQOL-BREF scores for the three levels: F (2, 140) = .42, p = .66. There were also no significant differences in scores found for any of the predictor variables, including the AIMS, F (2, 140) = 2.25, p = .11; the RAI, F (2, 140) = .694, p = .50; or the EIS, F (2, 140) = .475, p = .62.

For length of retirement, participants were divided into five groups according to their reported length of time since participants' retirement from collegiate competition (Group 1: 6-12 months; Group 2: 1-2 years; Group 3: 3-5 years; Group 4: 6-9 years; Group 5: 10+ years). The Levene statistic for the test of homogeneity of variances for the one-way ANOVAs comparing the BPNES, RAI, and EIS scores were significant, indicating the variances were not equal between participants in each group for these individual measures. Consequently, due to the lack of normality and unequal sample sizes between groups, the Brown-Forsythe test statistic was utilized for the comparisons of BPNES, RAI, and EIS scores. There was no statistically significant difference in BPNES scores for the five levels: F (4, 58.9) = .39, p = .80.

When comparing the differences in scores on the WHOQOL-BREF and AIMS measures between the five levels, the Levene statistic for the test of homogeneity of variances for this one-way ANOVA was non-significant, indicating equality of variances between participants in each group for these scales. There was no statistically significant difference in WHOQOL-BREF scores for the five levels: F (4, 138) = 1.62, p = .17. There were also no significant differences in scores found for any of the predictor variables, including the AIMS, F (4, 138) = 1.80, p = .13; the RAI, F (4, 40.59) = .841, p = .51; or the EIS, F (4, 86.25) = .775, p =.54.

Primary Analyses

Hierarchical multiple regression was used to examine whether behavioral regulation and motivation (BREQ-2) predicted basic psychological needs met through exercise (BPNES), after controlling for the influence of age, reported level of regular exercise, and self-reported athletic (AIMS) and exercise identity (EIS). However, in contrast to standard multiple regression analysis where variables are entered into the model simultaneously, hierarchical regression was utilized due to a need for a theoretically based decision on the order in which predictors were added to the analysis. Specifically, after correlation results revealed a statistically significant relationship between the demographic variables of age and reported level of regular exercise for both predictor and criterion variables, these demographic variables were entered into the model during Step 1 and explained 6.1% of the variance in psychological needs met through exercise. The identity variables of athletic identity (AIMS) and exercise identity (EIS) were entered into the model during Step 2 based on the notion that an individual's identity statuses are considered to be more

internalized and stable over time when compared to motivational regulations that may fluctuate over time or in different environmental contexts. After being entered into the model at Step 2, scores from the Athletic Identity Measurement Scale (AIMS) and the Exercise Identity Scale (EIS) explained 18.7% of the variance. This means participant's reported athletic and exercise identity explained an additional 12.6% of the variance in psychological needs met through exercise, after controlling for age and reported level of regular exercise, *R* squared change = .12, *F* change (2,128) = 9.93, $p < .001$. Lastly, participants' motivational regulation for exercise were entered into Step 3 of the model in order to examine the predictability of motivation for exercise on criterion variables after controlling for both significant demographic variables and identity statuses. After entry of the Relative Autonomy Index (RAI) scores derived from the BREQ-2 at Step 3, the total variance explained by the model as a whole was 27%, *F* (5,127) = 9.36, $p < .001$. The RAI explained an additional 8.2% of the variance in psychological needs met through exercise, after controlling for age, reported level of regular exercise, athletic identity and exercise identity, *R* squared change = .08, *F* change (1, 127) = 14.27, $p < .001$. In the final model, only two measures made a statistically significant contribution to the model. In order of importance, they were the RAI ($\beta = .63$, $p < .001$) and the EIS ($\beta = .16$, $p = .05$) (See Table 3).

Hierarchical multiple regression was also used to assess the ability of a behavioral regulation and motivation measure (BREQ-2) to predict overall quality of life (World Health Organization Quality of Life-BREF scale; WHOQL-BREF), after controlling for the influence of age, reported level of regular exercise, and self-reported

athletic (AIMS) and exercise identity (EIS). Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The same theoretical reasoning regarding the order of variable entry was used in the second hierarchical regression. Participant's age and reported level of regular exercise were entered into Step 1, explaining 8.2% of the variance in quality of life. Scores from the (AIMS) and the (EIS) were entered at Step 2, explaining 13.3% of the variance. Participants' reported athletic and exercise identity explained an additional 5.1% of the variance in quality of life, after controlling for age and reported level of regular exercise, *R* squared change = .05, *F* change (2,128) = 3.75, $p < .05$. After entry of the Relative Autonomy Index (RAI) derived from the BREQ-2 at Step 3, the total variance explained by the model as a whole was 23%, *F* (5,127) = 7.54, $p < .001$. The RAI explained an additional 9.6% of the variance in QOL, after controlling for age, reported level of regular exercise, athletic identity and exercise identity, *R* squared change = .10, *F* change (1, 127) = 15.82, $p < .001$. In the final model, only two measures made a statistically significant contribution to the model. In order of importance, they are the RAI ($\beta = .38$, $p < .001$), and the AIMS ($\beta = -.20$, $p < .05$) (See Table 4).

Chapter 5: Discussion

The current research aimed to fill gaps in the literature by (a) examining the impact of retired collegiate athletes' respective identifications with the athlete and exercise roles on reported exercise motivations, and (b) examining the impact of all three variables on perceived psychological needs met through exercise and overall quality of life. Additionally, the current study included an examination of variables not previously researched with the retired collegiate athlete population, including scholarship status during collegiate competition, and length of retirement from collegiate sport. Participants completed a questionnaire containing measures which explored attitudes related to identification with both athlete and exercise roles, motivations for exercise behaviors, perceived psychological needs met through exercise and overall quality of life.

The results partially supported the first hypothesis, which predicted higher identifications with the athlete and exercise roles would predict significant variance in both perceived psychological needs met through exercise and overall quality of life. Although both variables together explained a significant portion of the variance in scores on the BPNES measure, only identification with the exercise role significantly contributed to perceived psychological needs met through exercise. Specifically, higher identification with the exercise role was associated with greater rates of psychological needs met through exercise. Similarly, both variables together explained a significant portion of the variance in scores on the WHOQOL-BREF measure; however, only identification with the athlete role significantly contributed to perceived quality of life.

Specifically, higher identification with the athlete role was associated with lower scores on the quality of life measure.

Results supported the second hypothesis, which predicted behavioral regulation motivation scores would predict significant variance in both perceived psychological needs met through exercise and overall quality of life after controlling for athletic identity scores and exercise identity scores. Specifically, self-determined motivations for exercise (as indicated by higher RAI scores) were associated with greater rates of psychological needs met through exercise and higher overall quality of life. The third hypothesis, which predicted retired athletes who received over half of their funding from athletic scholarships during collegiate competition would demonstrate significantly different scores on all predictor and criterion variables when compared to participants who received less than half of their funding or no athletic scholarship was not supported.

The fourth and fifth hypotheses, which predicted significant differences in scores on all predictor and criterion variables between groups on variables such as gender, NCAA level, and length of retirement were partially supported. In particular, there was a significant difference found between men and women on the exercise identity measure in that women participants reported significantly higher identification to the exercise role compared to men participants. Additionally, there was a significant difference found between participants based on reported NCAA level of competition in that participants who reported competing at the NCAA Division I level indicated significantly higher scores on the exercise identity measure compared to participants who competed at either the Division II or Division III level.

Integration with Existing Literature

There were several reasons provided in the literature to support the finding from the current study that participant's athletic identity and exercise identity would significantly predict one's psychological need fulfillment through exercise and one's perceived overall quality of life. First, Richardson (2009) found a strong athletic identity was associated with higher self-esteem, positive body image, and greater social networking skills, qualities associated with overall psychological wellness. In the current study, participants' identification with the athlete role alone did not significantly predict psychological need fulfillment through exercise; however, a significant positive relationship was found between participants' reported athletic identity and scores on the psychological needs being met through exercise measure (BPNES), indicating a connection between the two. This connection makes sense given that several participants in the current study reported they continued to participate in organized exercise activities of some kind (i.e., cross fit, 5k runs, intramural leagues). Thus, the maintenance of these avenues for physical activity may serve the dual role of helping retired collegiate athletes stay connected to their identification as an "athlete" and providing an environment that allows the individual to feel autonomous in their decision to participate, connected to others in participation, and competent in their completion of the activities.

In contrast, findings by Lavallee, Gordon, and Grove (1997) as well as Miller and Kerr (2003) established that higher identification with the athlete role may create difficulty in developing a self-concept beyond that role and often to the expense of other identity statuses. This appeared to be supported in the current study given higher

identification with the athlete role was found to be significantly associated with a lower reported quality of life. This finding echoes previous research that warns against the foreclosure of sole identification with the athlete role, and demonstrates the broad impact over-identification with the athlete role may have on overall quality of life for retired athletes.

Regarding the impact of exercise identity on motivations for exercise and engagement in exercise behavior, the current study corroborated Reifsteck's (2014) findings, which indicated exercise identity plays an important role in maintaining consistent exercise behavior. Specifically, findings from the current study indicated higher identification with the exercise role was significantly correlated with participant reports of regular exercise behavior. Additionally, higher exercise identity scores significantly predicted greater psychological needs being met through exercise.

Previous studies also support the current study's finding that a retired athlete's level of autonomy in exercise decision-making and behavior would significantly predict psychological need fulfillment through exercise and perceived overall quality of life. Specifically, by utilizing the Relative Autonomy Index (RAI), the researcher was able to calculate one score for participants to determine the reported level of self-determined motivation for exercise. As expected, results revealed that self-determined motivations were associated with greater rates of regular exercise and higher perceived quality of life. This is consistent with previous research indicating that autonomous motivation is associated with greater behavioral participation and persistence as well as enhanced psychological well-being (Frederick-Recascino, 2002; Kauussanv & McAuley, 1995; Markland, 1999; Wilson, 2002; Wilson, Markey, & Markey, 2012).

Other studies have examined the relationships between behavioral regulations and need fulfillment of the basic psychological needs of autonomy, competence and relatedness. For example, Wilson et al. (2002) found higher levels of competence, autonomy, and relatedness were positively correlated with identified and integrated behavioral regulations. Additionally, Friederichs et al. (2015) found internalized, identified, and integrated behavioral regulations were associated with a perceived internal locus of control. Similarly, results of the current study reflected these previous findings in that greater self-determined motivations for exercise were significantly associated with higher reported psychological needs met through exercise.

As mentioned previously, several researchers have argued for a more thorough examination of the impact of scholarship status on degree of identification with the athlete and exercise roles, behavioral motivations, psychological need fulfillment and overall quality of life. Some studies have pointed to the potentially negative impact of financial rewards on intrinsic motivation. For example, Ryan (1977, 1980) as well as Moller et al. (2013) found when compared to non-scholarship teammates, players who received athletic scholarships reported lower levels of intrinsic motivation and lower overall enjoyment of their sport. Additionally, a meta-analysis conducted by Deci et al. (1999) found individuals who received performance-contingent financial rewards reported significantly lower levels of intrinsic motivation once the financial incentive was removed compared to individuals who never received financial rewards. The results of the current investigation did not support previous research findings in this area. However, this discrepant finding may have been due to the fact that previous studies utilized samples of athletes who were still competing at the collegiate level. Given the

population of interest for the current investigation was retired collegiate athletes, it is possible that once one retires from sport, the impact of financial incentives (i.e., scholarship) may have less of an impact on behavioral motivations or enjoyment than when the participant was actively competing. Additionally, previous studies have explored the impact of financial incentives on motivations and enjoyment of the sport the athlete was a participant in. In contrast, the current investigation examined motivations to engage in generalized exercise behaviors. Consequently, it is possible the impact of scholarship funding on motivations for regular physical exercise may be qualitatively different from the impact of financial incentives on motivation for competitive sport. To illustrate, if an athlete receives a scholarship, it is understood that the scholarship is contingent upon competent performance in one specific competitive sport or skill area. As such, the added pressure associated with the need to perform in the specialized area in order to maintain the scholarship may easily contribute to a decreased enjoyment of the athlete's sport. However, when considering generalized exercise behavior, the athlete's behavior is not being limited to a specific skill or sport, which may allow for more flexibility and different options to explore for enjoyment should the individual become tired of engaging in one activity.

Results of the current study also differed from previous research with respect to the relationships between demographic variables and predictor and criterion variables. For example, while several researchers (Murray, 2003; Sturm, Feltz, & Gilson, 2011) found men reported significantly higher levels of identification with the athlete role compared to women, this was not the case in the current study. However, it is possible

the large discrepancy in the participant ratio with regard to gender could have contributed to the non-significant finding.

Regarding the impact of scholarship status, previous studies examined participants' athletic identity during current collegiate competition. As such, it is possible retiring from sport and gradually distancing oneself from competitive sport participation results in the decrease in the identification with the athlete role, regardless of gender identification.

Another way in which the current study differs from previous research in this area is the finding of a significant difference between men and women participants on scores measuring exercise identity. Although Martinovic, Ilic, and Visnjic (2011) found women tend to report lower levels of motivation for general physical activity when compared to men, the current study found women reported significantly higher levels of identification with the exercise role when compared to men. The significant finding for women in the current study may relate to Murray's (2003) argument that one's motivation for participating in sport or exercise may contribute to how strongly one identifies with the athlete or exercise role. In particular, due to the significant differences in financial incentives and career possibilities for women in professional sports compared to men, it is possible women athletes' motivations for participating in competitive sport or exercise in general are qualitatively different from men athletes' motivations for participation. For example, it may be that women athletes invest more of their identity into a general exercise role. Consequently, this may also help explain why there were no significant differences found between men and women on athletic identity scores after retirement. The fact that not one participant reported competing at

the professional level prior to retirement may help account for the lack of a gender difference in the current study. Future research should continue to explore the potential interaction between gender, career opportunities, and athletic identity by specifically seeking participants who did compete at the professional level prior to retirement.

It is interesting, however, that women participants reported significantly higher exercise identity scores after retirement. Again, it could be argued this finding reflects qualitative differences in women's motivations for participation in exercise or organized sport when compared to the motivations of men due to the knowledge at the outset that participation will not likely lead to professional competition or reward.

Lastly, when examining the impact of NCAA level on reported identification with the exercise role, significant and unique findings were noted. Sturm, Feltz, and Gilson (2011) found there was no significant difference in reported athletic identity between athletes who competed at the Division I and Division III levels. Findings in the current investigation also demonstrate no significant differences in athletic identity between NCAA division levels. However, significant differences were found between division level and exercise identity scores in the current study. Specifically, retired athletes who competed at the Division I level reported significantly higher identification with the exercise role when compared to retired athletes who participated at the Division II and Division III levels. Intuitively, this finding seems surprising given the assumption that individuals competing at the Division I level would be required to invest more time and energy into their role as an athlete and become more specialized sport-specific skill execution when compared to Division II or Division III athletes. It could, however, also be argued that in order to be accepted into and compete at the

highest level of competition within the NCAA, the salience and value of exercise to one's overall self-concept and identity would also need to operate at a high level.

Obviously, due to the qualitative differences between athletic identity and exercise identity articulated throughout the current study, a direct link cannot be drawn between the current research findings and previous findings by Sturm, Feltz, and Gilson (2011). However, the findings for the current study of significant between group differences for exercise identity scores based on NCAA level is a unique contribution to the current literature and worthy of further examination in future studies. Specifically, given the current research findings, future studies should employ a qualitative examination of exercise identity with participants competing at different NCAA levels of competition. By utilizing a qualitative approach, researchers would be able to simultaneously examine the nuanced differences between athletic identity and exercise identity, while also examining how differing competitive levels impact the athlete's perception and value of generalized exercise behaviors.

Implications for Current Theory and Future Research

Self-determination theory, which emphasizes the degree to which the qualitative nature of one's behavior is autonomous or controlled by external factors has been extensively studied throughout several domains, including the health and exercise literature (Ryan & Deci, 2000). However, the current study aimed to broaden the research literature on self-determination theory and fill several gaps in the existing exercise motivation literature. First, previous studies have utilized self-determination theory to explore motivations for initiating and sustaining long-term physical activity behaviors by focusing on populations who are either (1) inactive or inconsistently active

at best (Biddle, 2001; Boiche, Sarrazin, Groucet, Pelletier, & Chanal, 2008; Brunet & Sabiston, 2011; Burns, Donovan, Ackermann, Finch, Rothmen, & Jeffery, 2012; Cardinal & Cardinal, 1999), or (2) current competitive athletes at the collegiate or elite level (Adler & Adler, 1991; Amorose & Horn, 2000, 2001; Brewer et al.,1993). As such, there remained a large gap in the literature examining individuals who had participated in organized and competitive sport and who now, after retirement, were engaging in daily physical activity behaviors. Therefore, the primary aim of the current study was to broaden the literature by examining the impact of athletic identity, exercise identity and exercise motivations on psychological needs met through exercise and overall quality of life using a sample of retired athletes who competed at the NCAA collegiate level.

Furthermore, minimal attention has been focused on the potential distinctions between athletic identity and exercise identity and how these identifications may evolve after retirement. Rather, a majority of previous studies examined either athletic identity or exercise identity, as opposed to including both. Thus, the current study broadened the literature by examining participants' reported identifications with both the athlete and exercise role, and found participants do perceive differences between the two identity statuses as demonstrated by their differing scores and differential impact on criterion variables. Nevertheless, future research would benefit from further examination of the qualitative differences between athletic and exercise identity statuses as well as the characteristics that embody the transition from a predominantly athletic identity to a predominantly exercise identity. To this end, researchers could conduct a cross-sectional examination of self-reported athletic and exercise identifications using

participants from specified periods of time after retirement in order to explore differences in reported scores between groups. Another option would be to conduct a longitudinal study in which retired athletes are assessed over time for reported identification with the athlete and exercise roles at different time intervals. The addition of qualitative interviews would also allow participants to process experiences and changes in perceptions or identifications over time.

Lastly, while the impact of financial incentives on motivations for exercise have been documented (Amorose & Horn, 2000, 2001; Deci et al., 1999; Moller et al., 2013; Ryan, 1977, 1980), these studies only examined the impact of financial reward during the time period of competition. As such, the current study broadened the literature by examining the impact of financial incentive (i.e., scholarship) on one's identification with the athlete and exercise roles as well as motivations for exercise after retirement from collegiate competition. Although no significant differences related to financial incentive status were found in this study, it still seems important for future research to examine the long-term impact of financial incentives on continued exercise behaviors after retirement, particularly when the exercise behaviors shift from being sport specific to more generalized in nature.

Strengths of the Study

As previously noted, in previous studies examining motivations for exercise, the majority of the participants have been individuals who either have never identified as athletes (Biddle, 2001; Boiche, Sarrazin, Groucet, Pelletier, & Chanal, 2008; Brunet & Sabiston, 2011; Burns, Donovan, Ackermann, Finch, Rothmen, & Jeffery, 2012; Cardinal & Cardinal, 1999) or who currently identify as athletes (Adler & Adler, 1991;

Amorose & Horn, 2000, 2001; Brewer et al., 1993). In an effort to broaden the extant literature in this area, the current study utilized a sample of retired collegiate athletes. Furthermore, the current study included examination of both athletic and exercise identity statuses and recruited participants from all NCAA division levels. An examination of the impact of financial incentives on exercise motivation and identity statuses after retirement from competitive sport was also investigated, an area where few other researchers have ventured. Thus, the unique population, competitive diversity of the sample, and the novelty of exploring the impact of financial incentives after retirement from competition contribute uniquely to the self-determination and exercise motivation literature.

Limitations of the Study

There are, of course, several notable limitations to this research. First, because data was collected online, the researcher had little control over the data collection process. For example, based on the anonymous nature of responses, it was not possible to control whether the same participants participated numerous times or determine if participants accurately filled out demographic information (i.e., age, gender, race/ethnicity, NCAA level, scholarship status, regular exercise, etc.). Obviously, these are some of the risks inherent in utilizing online self-report measures for research.

The most significant limitation of the current study was related to sample diversity (e.g., race/ethnicity, gender identity, and sexual orientation). Also, information on SES and immigration/generational status was not collected. Given the majority of the current sample was White (87.4%), women (75.5%), and heterosexual (91.6%), this likely restricted the possible range of responses and make generalizing the results to

individuals from marginalized populations impossible. This is particularly concerning when considering the significant underrepresentation of African-American participants in this study. While the percentage of African-American representation in the NCAA ranges between 37% and 45% in the three sports of largest representation (men's and women's basketball and men's football); African-American participants represented only 3.5% of the current sample. This is certainly a significant limitation when considering the study's findings within a social justice context. Particularly, when considering applied implications and practice recommendations, it is important for the information to be relevant and sensitive to the cultural groups impacted by the findings. This argument is highly relevant when considering the need to serve individuals who constitute a large portion of the three main sports within the NCAA.

Also, the current study did not include questions related to current socioeconomic status or socioeconomic status while in college. These variables may be helpful in exploring how class status impacts perceptions of financial incentives as well as motivations for exercise or identification with the athlete and exercise roles. Another variable that warrants further examination in future research is a retired athlete's generational status. While generational status was not included in the current study, a few participants indicated dual citizenship or international student statuses during the time of competition. Given potential differences between individualistic and collectivistic cultures regarding behavioral motivations and identity statuses, generational status and cultural assimilation constructs should receive attention in future research.

Conclusion

Despite repeated findings that establish physical and psychological benefits associated with consistent engagement in exercise (Haskell et al., 2007), a majority of the population in the U.S. remains insufficiently active and reports difficulties sustaining consistent exercise engagement (Brunet & Sabiston, 2011). In efforts to promote initiation and maintenance of physical activity, researchers have thoroughly explored factors that facilitate adequate exercise behaviors, including the variables of motivation, identity statuses, and the role of financial incentives. However, unlike a majority of studies that examine the experiences of current athletes or individuals who are predominately inactive, a population whose experiences have been significantly overlooked are those of retired collegiate athletes. The results of the current study found significant, positive relationships between both athletic identity and exercise identity on psychological need fulfillment and a significant negative relationship between athletic identity and quality of life. A significant, positive relationship between retired athlete's motivation for exercise and both psychological need fulfillment and quality of life were also found. Women athletes were found to have significantly higher exercise identity scores compared to men, and participants who had competed at the Division I level reported significantly higher exercise identity compared to Division II and Division III athletes. Lastly, retired athlete's motivation for exercise and exercise identity were found to significantly contribute to reported psychological need fulfillment while the retired athlete's motivation for exercise and athletic identity significantly contributed to perceived quality of life.

There are several important implications that can be drawn given the findings of the current study, particularly when it comes to the training of mental health professionals and the implementation of clinical strategies when working with retired student-athletes. First, the finding that higher levels of self-determined behavior predicted higher psychological need fulfillment and quality of life, supports the importance of instilling a value for exercise at an early age that goes beyond external rewards, pressures, or incentives. Furthermore, consistent with previous research, this finding continues to highlight the need for competitive environments to be structured in a way that is autonomy supportive, while also meeting the needs for competence and relatedness (Wilson et al., 2002). Ultimately, providing such an environment while competing will help generalize these benefits for the individual once they transition out of organized sport and into every day exercise routines. As such, sport psychologists and other mental health providers working with student athletes or sport teams should consider incorporating autonomy supportive strategies throughout the athlete's collegiate experience. For example, rather than providing a rigid structure with strictly assigned exercise routines and schedules, coaches and trainers could help athletes develop more autonomy and ownership over their training routines by providing several training options to choose from that will ultimately accomplish the same desired outcome or training goal.

Additionally, the finding that greater identification with the exercise role predicted higher psychological need fulfillment while greater identification with the athlete role predicted a lower quality of life supports the need for parents, coaches, and mental health providers to encourage athletes to invest in other aspects of their identity

while participating in an organized, competitive sport. Starting the process of investing in other identity statuses early in life may help the athlete feel more well-rounded during competition and contribute to a more stabilized sense of self as the individual prepares to leave the sport. Mental health providers working with student-athletes may also work to broaden the athlete's perspective regarding their values, skills, and identity development in ways that are more conducive to additional roles and identifications. These are steps that can be taken proactively as the athlete begins to approach the end of their competitive eligibility, rather than waiting to assist in transition only after retirement has taken place.

Continued research should be conducted to explore variables or factors that characterize the qualitative transition from a predominantly athletic identity to a predominantly exercise identity with the retired athlete population. Future research should also include a more varied sample in terms of gender identification, race/ethnicity, and sexual orientation, as the current study lacked sufficient representation from these marginalized populations to attempt to examine possible group differences in athletic and exercise identity or motivation for exercise. Finally, given the loss of identity after retirement from sport, as well as the potential loss of support networks or structured environments for exercise, more research examining potential protective factors for prevention of amotivation for exercise and loss of exercise or athletic identity is needed.

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Appendix A: List of Tables

Table 1

Descriptive Statistics for Sample Demographics: Categorical Variables

		Frequency	Percent
Race/Ethnicity			
	White	125	87.4
	Latino(a)/Hispanic	7	4.9
	African American	5	3.5
	African	1	0.7
	Native American	2	1.4
	Multiracial	1	0.7
	"Other"*	2	1.4
Total		143	100
Sexual Orientation			
	Heterosexual	131	91.6
	Lesbian	9	6.3
	Bisexual	3	2.1
	Did not disclose	1	.06
Total		143	100
Education			
	High School Diploma	2	1.4
	Bachelor's Degree	64	44.8
	Master's Degree	53	37.1
	Doctorate Degree	18	12.6
	Professional Degree	5	3.5
	"Other"	1	0.7
Total		143	100
Student Status			
	Not a student	114	79.7
	Current Full-Time	24	16.8
	Current Half-Time	5	3.5
Total		143	100
Employment Status			
	Employed	129	90.2
	Not Employed	12	8.4
	Did not disclose	2	1.3
Total		143	100
Sport			
	Softball	33	23.1
	Soccer	17	11.9
	Rowing/Crew	15	10.5
	Cross Country/Track and Field	14	9.8

	Basketball	13	9.1
	Volleyball	10	7.0
	Football	7	4.9
	Tennis	7	4.9
	Swimming	7	4.9
	Golf	4	2.8
	Baseball	3	2.1
	Ice Hockey	3	2.0
	Diving	2	1.4
	Gymnastics	2	1.4
	Figure Skating	1	.06
	Field Hockey	1	.06
	Bowling	1	.06
	Multisport	3	2.0
Total		143	100
NCAA Level			
	Division I	68	47.6
	Division II	34	23.8
	Division III	41	28.7
Total		143	100
Number of Competition Seasons			
	1 Season	7	4.9
	2 Seasons	11	7.7
	3 Seasons	16	11.2
	4 Seasons	98	68.5
	5 Seasons	11	7.7
Total		143	100
Competition Role			
	Starter	113	79.0
	Regular Substitute	21	14.7
	Rarely Played	8	5.6
	Did Not Disclose	1	.06
Total		143	100
Reason for Retirement			
	Completed Eligibility	111	77.6
	Personal Decision	28	19.6
	Career-ending injury	4	2.8
Total		143	100
Length of Retirement			
	> 1 Year	4	2.8
	1-2 Years	11	7.7
	3-5 Years	40	28.0
	6-9 Years	50	35.0
	10+ Years	37	25.9
	Did not Disclose	1	.06

Total		143	100
Scholarship Status			
	>50% Scholarship	78	54.5
	<50% Scholarship	19	13.3
	No Scholarship	46	32.2
Total		143	100
Regular Exercise Status			
	Regular >6 months	102	71.3
	Regular <6 months	16	11.2
	Intent to start ≥ 30 days	15	10.5
	Intent to start ≥ 6 months	8	5.6
	No intent to start	2	1.4
Total		143	100
Current Injury Status			
	No	113	79.0
	Yes	30	21.0
Total		143	100

Note. n = 143; Other*= 1 participant self-identified as East Indian and 1 participant self-identified as Austrian American.

Table 2

Intercorrelations Among Variables of Interest

	1	2	3	4	5	6	7
AIMS	1						
EIS	.34**	1					
RAI	.02	.51**	1				
BPNES	.17*	.42**	.46**	1			
WHOQOL	-.25**	.04	.36**	.48**	1		
Age	-.27**	-.12	.12	.02	.20*	1	
Regular Exercise	-.01	.47**	.33**	.25**	.20*	.02	1

**$p < .01$ (2-tailed).

* $p < .05$ (2-tailed).

Note: AIMS = Athletic Identity Inventory Scale; EIS = Exercise Identity Scale; RAI= Relative Autonomy Index calculated as sum of weighted scores of all subscales on the BREQ-2; BPNES = Basic Psychological Needs in Exercise Scale; WHOQOL= World Health Organization Quality of Life-BREF; Age = participant reported age; Regular Exercise = participant reported frequency of regular and moderate exercise > 3 times per week.

Table 3

Hierarchical Multiple Regression Analyses for Variables Predicting Basic Psychological Need Scale Scores in Retired Collegiate Athletes (N= 143)

Independent Variable	Step	R^2	ΔR^2	F Change	*df*	*B*	*SE B*	*β*
Age	1	.06	.06	4.22**	(2,130)	.02	.09	.02
Regular Level of Exercise	1					5.47	1.89	.25**
Athletic Identity Measurement Scale	2	.19	.13	9.93**	(2,128)	.05	.08	.06
Exercise Identity Scale	2					.30	.08	.38**
Relative Autonomy Index	3	.27	.08	14.27**	(1, 127)	.63	.17	.35**

*$p \leq .05$. **$p \leq .01$.

Note. Age = reported age of participant. Regular Level of Exercise = reported level of regular exercise, defined as "any moderate or vigorous physical activity (e.g., brisk walking, aerobics, basketball, bicycling, dance, jogging, swimming, soccer, etc.) performed 3-5 times a week for 20-60 minutes per session". Athletic Identity Measurement Scale; higher scores indicate greater identification with the athlete role. Exercise Identity Scale; higher scores indicate greater salience of exercise as an integral component of one's self-concept. Relative Autonomy Index; Higher scores indicate more self-determined motivations for exercise and behavior.

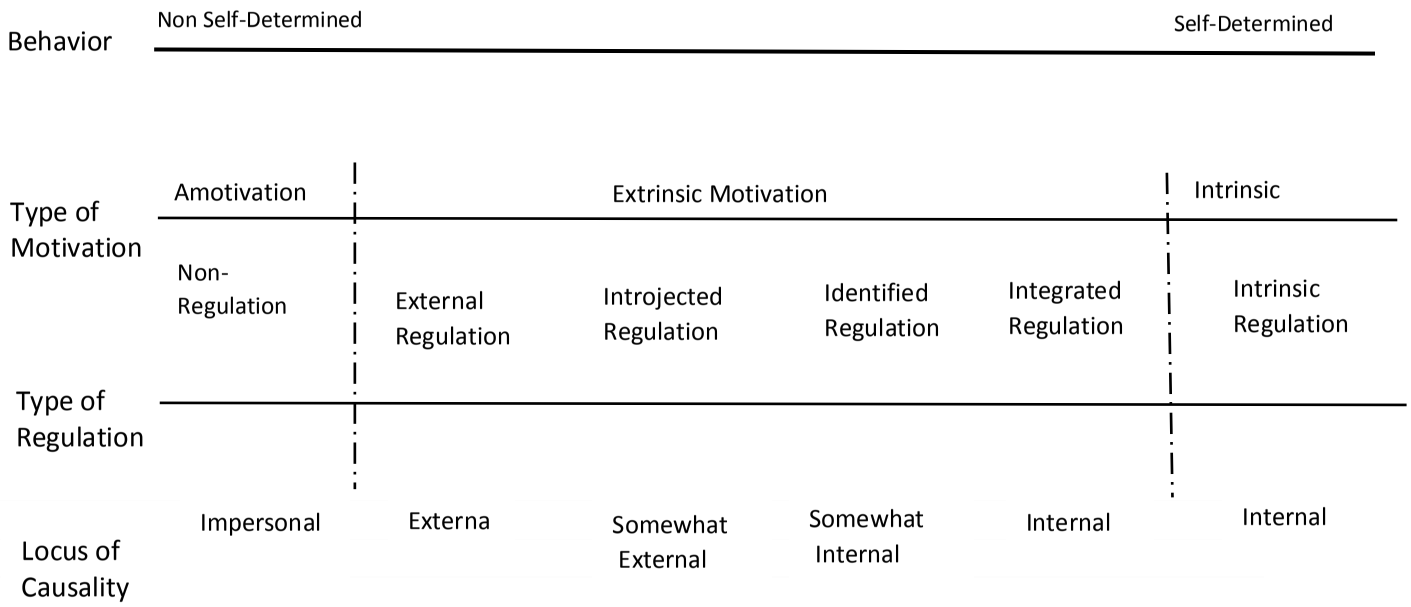
Table 4

Hierarchical Multiple Regression Analyses for Variables World Health Organization Quality of Life-BREF Scale Scores in Retired Collegiate Athletes (N= 143)

Independent Variable	Step	R^2	ΔR^2	F Change	*df*	*B*	*SE B*	*β*
Age	1	.08	.08	5.80**	(2,130)	.29	.12	.20**
Regular Level of Exercise	1					6.09	2.53	.20**
Athletic Identity Measurement Scale	2	.13	.05	3.75*	(2,128)	-.29	.11	-.25**
Exercise Identity Scale	2					.06	.11	.05
Relative Autonomy Index	3	.23	.10	15.82**	(1, 127)	.92	.23	.37**

*$p \leq .05$. **$p \leq .01$.

Note. Age = reported age of participant. Regular Level of Exercise = reported level of regular exercise, defined as "any moderate or vigorous physical activity (e.g., brisk walking, aerobics, basketball, bicycling, dance, jogging, swimming, soccer, etc.) performed 3-5 times a week for 20-60 minutes per session". Athletic Identity Measurement Scale; higher scores indicate greater identification with the athlete role. Exercise Identity Scale; higher scores indicate greater salience of exercise as an integral component of one's self-concept. Relative Autonomy Index; Higher scores indicate more self-determined motivations for exercise and behavior.



Deci, E. L., & Gagné, M. (2005). Self-determination theory and work motivation. *Journal of Organizational*

Appendix B: Figure 1

Appendix C: Demographic Questionnaire

1) Were you a college athlete at a NCAA Division I, II, or III institution?

___Yes, I competed at a NCAA Division I, II, or III institution

___No, but I competed at a National Association of Intercollegiate Athletics (NAIA) institution

___No, but I competed at a National Junior College Athletic Association (NJCAA) institution

___No, I did not compete as a college athlete

2) What NCAA Division level did you compete in?
___ NCAA Division I
___ NCAA Division II
___ NCAA Division III
3) What is your age? _____
4) What gender do you identify with?

___Men

___Women

___ Transgender

___Please Specify:

5) What sexual orientation do you most identify with?
___ Heterosexual (Straight)
___ Gay
___ Lesbian
___ Bisexual
___ Asexual
___ Pansexual
___ Other (Please specify)
6) What race/ethnicity do you identify with?

___White/Caucasian

___African American

___African

___Latino(a)/Hispanic

___Asian American

___Asian/Pacific Islander

___Native American

___ Multiracial/Multiethnic

___ Please Specify:

7) What is the highest level of education you have completed?

___ High School Diploma/HSED

___ Associate's Degree

___ Bachelor's Degree

___ Master's Degree

___ Doctorate Degree

___Professional Degree (e.g., law, dental)

___Other (Specify) _____

8) Are you currently employed?

___Yes

___No

9) What is your current occupation? _____

10) Are you currently a student?

___Yes, I am currently a full-time student

___Yes, I am currently a half-time student

___ No, I am not a student at this time

11) What sport(s) did you compete in as a collegiate athlete? Please select all that apply.

___ Baseball
___ Basketball
___ Cross Country/Track&Field
___ Football
___Golf

___Gymnastics
___Rowing/Crew
___Soccer
___Softball
___Tennis
___Volleyball
___Wrestling
___Other (Please Specify):

12) Were you a member of an individual or team-based sport?
___ Individual
___ Team
___ Both (I competed in both individual and team-based events)

13) How long has it been since your last official collegiate competition?

___Less than 6 months

___6-12 months

___1-2 years

___3-5 years

___6-9 years

___10 years or more

14) While competing, what was your primary competition role?

___ I was a starter on my team

___ I was regularly subbed in during games

___ I rarely had the chance to play during games

15) How many competition seasons did you participate as a collegiate athlete?
___ Less than 1 season
___ 1 season
___ 2 seasons
___ 3 seasons
___ 4 seasons
___ 5 seasons

16) Which of the following best describes your reason for retirement from collegiate sport? Please check all that apply.
___ My eligibility as a collegiate athlete expired (e.g. played all four (or five years)

___I made the decision to retire from sport before my eligibility expired
___ I experienced a career-ending injury
___ I retired from collegiate sport to enter a professional sport draft

17) Did you receive more than 50% of needed financial funds (e.g. scholarship money) while competing as a collegiate athlete?
___ Yes, I received a Full, 75%, or 50% athletic scholarship while competing
___ I received some athletic scholarship funds while competing, but the amount was less than 50%
___ I did not receive any athletic scholarship funds while competing

18) In which of the following ways do you still play the sport you played in college (Check all that apply)?

___Community/recreational league

___Club league

___Professional

___ Other (Please Specify):

___I no longer play this sport

19) In what other ways do you continue to be involved in your competition sport (e.g., coaching, administration, officiating, etc.)? Please list all that apply:
_____

20) What competitive sports do you currently participate in regularly (if any)? Please enter N/A if you do not currently participate in any competitive sports.
_____

21) "Regular exercise" is defined as any moderate or vigorous physical activity (e.g., brisk walking, aerobics, basketball, bicycling, dance, jogging, swimming, soccer, etc.) performed 3-5 times a week for 20-60 minutes per session. According to the definition, do you exercise regularly? Check the one that applies most accurately to you:

___Yes, I have been exercising regularly for MORE than 6 months.

___Yes, I have been exercising regularly for LESS than 6 months.

___No, but I intend to start exercising regularly in the next 30 days

___No, but I intend to start exercising regularly in the next 6 months.

___ No, and I do not intend to start exercising regularly in the next 6 months.

22) Do you have an injury or physical condition that limits or prevents your participation in physical activity?

___No

___Yes (Please Specify):

Appendix D: Behavioral Regulation in Exercise Questionnaire-2

(Markland & Tobin, 2004)

Why do you engage in exercise?

Instructions: We are interested in the reasons underlying peoples' decisions to engage, or not engage in physical exercise. Using the scale below, please indicate to what extent each of the following items is true for you. Please note that there are no right or wrong answers and no trick questions. We simply want to know how you personally feel about exercise.

Not true for me		**Sometimes true for me**		**Very true for me**
1	**2**	**3**	**4**	**5**

1) I exercise because other people say I should.

1 2 3 4 5

2) I feel guilty when I don't exercise.

1 2 3 4 5

3) I value the benefits of exercise.

1 2 3 4 5

4) I exercise because it's fun.

1 2 3 4 5

5) I don't see why I should have to exercise.

1 2 3 4 5

6) I take part in exercise because my friends/family/partner say I should.

1 2 3 4 5

7) I feel ashamed when I miss an exercise session.

1 2 3 4 5

8) It’s important to me to exercise regularly.

1 2 3 4 5

9) I can’t see why I should bother exercising.

1 2 3 4 5

10) I enjoy my exercise sessions.

1 2 3 4 5

11) I exercise because others will not be pleased with me if I don’t.

1 2 3 4 5

12) I don’t see the point in exercising.

1 2 3 4 5

13) I feel like a failure when I haven’t exercised in a while.

1 2 3 4 5

14) I think it is important to make the effort to exercise regularly.

1 2 3 4 5

15) I find exercise a pleasurable activity.

1 2 3 4 5

16) I feel under pressure from my friends/family to exercise.

1 2 3 4 5

17) I get restless if I don’t exercise regularly.

1 2 3 4 5

18) I get pleasure and satisfaction from participating in exercise.

1 2 3 4 5

19) I think exercising is a waste of time.

1 2 3 4 5

Appendix E: Exercise Identity Scale

(Anderson & Cychosz, 1994)

Instructions: Please rate the extent to which you agree or disagree with each statement below based on how you would currently describe yourself. Please respond to each statement as truthfully as you can.

Strongly disagree			**Agree**			**Strongly agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

1) I consider myself an exerciser.

1 2 3 4 5 6 7

2) When I describe myself to others, I usually include my involvement in exercise.

1 2 3 4 5 6 7

3.) I have numerous goals related to exercising.

1 2 3 4 5 6 7

4.) I need to exercise to feel good about myself.

1 2 3 4 5 6 7

5.) Others see me as someone who exercises regularly.

1 2 3 4 5 6 7

6.) For me, being an exerciser means more than just exercising.

1 2 3 4 5 6 7

7.) I would feel a real loss if I were forced to give up exercising.

1 2 3 4 5 6 7

8.) Exercise is something I think about often.

1 2 3 4 5 6 7

9.) Physical exercise is central factor to my self-concept.

1 2 3 4 5 6 7

Appendix F: Athletic Identity Measurement Scale

(Brewer, Van Raalte, & Linder, 1993; Brewer & Cornelius, 2001)

Instructions: Please indicate your level of agreement with each of the following statements using the following scale: 1) strongly disagree, 2) disagree, 3) moderately disagree, 4) neutral, 5) moderately agree, 6) agree, or 7) strongly agree. Please respond to each statement as truthfully as you can.

1. I consider myself an athlete.

1 2 3 4 5 6 7

2. I have many goals related to sport.

1 2 3 4 5 6 7

3. Most of my friends are athletes.

1 2 3 4 5 6 7

4. Sport is the most important part of my life.

1 2 3 4 5 6 7

5. I spend more time thinking about sport than anything else.

1 2 3 4 5 6 7

6. I need to participate in sport to feel good about myself.

1 2 3 4 5 6 7

7. Other people see me mainly as an athlete.

1 2 3 4 5 6 7

8. I feel bad about myself when I do poorly in sport.

1 2 3 4 5 6 7

9. Sport is the only important thing in my life.

1 2 3 4 5 6 7

10. I would be very depressed if I were injured and could not compete in sport.

1 2 3 4 5 6 7

Appendix G: Basic Psychological Needs in Exercise Scale

(Vlachopoulos & Michailidou, 2006)

Instructions: The following sentences refer to your overall experiences in exercise as opposed to any particular situation. Using the 1-5 scale: 1) I don't agree at all, 2) I agree a little bit, 3) I somewhat agree, 4) I agree a lot, or 5) I completely agree, please indicate the extent to which you agree with these statements by indicating one number for each statement.

1) I feel comfortable with the people I exercise with.

1 2 3 4 5

2) I feel I have made a lot of progress in relation to the goal I want to achieve.

1 2 3 4 5

3) The way I exercise is in agreement with my choices and interests.

1 2 3 4 5

4) I feel I perform successfully the activities of my exercise program.

1 2 3 4 5

5) My relationships with the people I exercise with are very friendly.

1 2 3 4 5

6) I feel that the way I exercise is the way I want to.

1 2 3 4 5

7) I feel exercise is an activity which I do very well.

1 2 3 4 5

8) I feel I have excellent communication with the people I exercise with.

1 2 3 4 5

9) I feel that the way I exercise is a true expression of who I am.

1 2 3 4 5

10) I am able to meet the requirements of my exercise program.

1 2 3 4 5

11) My relationships with the people I exercise with are close.

1 2 3 4 5

12) I feel that I have the opportunity to make choices with regard to the way I exercise.

1 2 3 4 5

Appendix H: World Health Organization Quality of Life-BREF

(World Health Organization, 1997)

Instructions: This questionnaire asks how you feel about your quality of life, health, or other areas of your life. Please answer all of the questions. If you are unsure about which response to give to a question, please choose the one that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures, and concerns. We ask that you think about your life in the last two weeks.

How would you rate your quality of life?

Very poor	**Poor**	**Neither poor nor good**	**Good**	**Very Good**
1	2	3	4	5

How satisfied are you with your health?

Very dissatisfied	**Dissatisfied**	**Neither satisfied nor dissatisfied**	**Satisfied**	**Very Satisfied**
1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last two weeks.

To what extent do you feel that physical pain prevents you from doing what you need to do?

Not at all amount	**A little**	**A moderate amount**	**Very much**	**An extreme**
1	2	3	4	5

How much do you need any medical treatment to function in your daily life?

Not at all amount	**A little**	**A moderate amount**	**Very much**	**An extreme**
1	2	3	4	5

How much do you enjoy life?

Not at all amount	**A little**	**A moderate amount**	**Very much**	**An extreme**

1	2	3	4	5

To what extent do you feel your life to be meaningful?

Not at all	**A little**	**A moderate amount**	**Very much**	**An extreme amount**
1	2	3	4	5

How well are you able to concentrate?

Not at all	**Slightly**	**A moderate amount**	**Very much**	**Extremely**
1	2	3	4	5

How safe do you feel in your daily life?

Not at all	**Slightly**	**A moderate amount**	**Very much**	**Extremely**
1	2	3	4	5

How healthy is your physical environment?

Not at all	**Slightly**	**A moderate amount**	**Very much**	**Extremely**
1	2	3	4	5

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks.

Do you have enough energy for everyday life?

Not at all	**A little**	**Moderately**	**Mostly**	**Completely**
1	2	3	4	5

Are you able to accept your bodily appearance?

Not at all	**A little**	**Moderately**	**Mostly**	**Completely**
1	2	3	4	5

Have you enough money to meet your needs?

Not at all	**A little**	**Moderately**	**Mostly**	**Completely**

1	2	3	4	5

How available to you is the information that you need in your day-to-day life?

Not at all	**A little**	**Moderately**	**Mostly**	**Completely**
1	2	3	4	5

To what extent do you have the opportunity for leisure activities?

Not at all	**A little**	**Moderately**	**Mostly**	**Completely**
1	2	3	4	5

How well are you able to get around?

Not at all	**A little**	**Moderately**	**Mostly**	**Completely**
1	2	3	4	5

The following questions ask you to say how good or satisfied you have felt about various aspects of your life over the last two weeks.

How satisfied are you with your sleep?

Very dissatisfied	**Dissatisfied**	**Neither satisfied nor dissatisfied**	**Satisfied**	**Very Satisfied**
1	2	3	4	5

How satisfied are you with your ability to perform your daily living activities?

Very dissatisfied	**Dissatisfied**	**Neither satisfied nor dissatisfied**	**Satisfied**	**Very Satisfied**
1	2	3	4	5

How satisfied are you with your capacity for work?

Very dissatisfied	**Dissatisfied**	**Neither satisfied nor dissatisfied**	**Satisfied**	**Very Satisfied**
1	2	3	4	5

How satisfied are you with yourself?

Very dissatisfied	**Dissatisfied**	**Neither satisfied nor dissatisfied**	**Satisfied**	**Very Satisfied**
1	2	3	4	5

How satisfied are you with your personal relationships?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

How satisfied are you with your sex life?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

How satisfied are you with the support you get from your friends?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

How satisfied are you with the conditions of your living space?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

How satisfied are you with your access to health services?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

How satisfied are you with your mode of transportation?

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
1	2	3	4	5

The following question refers to how often you have felt or experienced certain things in the last two weeks.

How often do you have negative feelings, such as blue mood, despair, anxiety, depression?

Never	Seldom	Quite often	Very often	Always
1	2	3	4	5

Appendix I: Institutional Review Board Approval Letter

The UNIVERSITY of OKLAHOMA

Institutional Review Board for the Protection of Human Subjects
Approval of Initial Submission – Exempt from IRB Review – AP01

Date: April 05, 2016 **IRB#:** 6733

Principal Investigator: Lauren C Craig **Approval Date:** 04/04/2016

Exempt Category: 2

Study Title: An Examination of Athletic Identity and Exercise Regulation Motivation After Sport Retirement

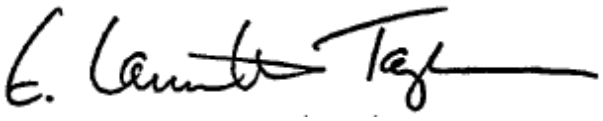
On behalf of the Institutional Review Board (IRB), I have reviewed the above-referenced research study and determined that it meets the criteria for exemption from IRB review. To view the documents approved for this submission, open this study from the *My Studies* option, go to *Submission History*, go to *Completed Submissions* tab and then click the *Details* icon.

As principal investigator of this research study, you are responsible to:

- □× Conduct the research study in a manner consistent with the requirements of the IRB and federal regulations 45 CFR 46.
- □× Request approval from the IRB prior to implementing any/all modifications as changes could affect the exempt status determination.
- □× Maintain accurate and complete study records for evaluation by the HRPP Quality Improvement Program and, if applicable, inspection by regulatory agencies and/or the study sponsor.
- □× Notify the IRB at the completion of the project.

If you have questions about this notification or using iRIS, contact the IRB @ 405-325-8110 or irb@ou.edu.

Cordially,



E. Laurette Taylor, Ph.D.
Chair, Institutional Review Board