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Self-identity is important in the transition into retirement from collegiate sports, and athletic identity is a major source of self-identity for athletes. Given that research reveals a positive relationship between athletic identity and physical activity, but other research argues that dissolving athletic identity is necessary for a smooth transition from college sports, it seems there is a paradox when it comes to athletic identity and continued engagement in physical activity after retirement. The purpose of this study was to examine the relationship of athletic identity to physical activity levels after college sport participation. Former Division I athletes from a southeastern university ( $n=59$ ) completed the Athletic Identity Measurement Scale (AIMS), the Athletic Identity Questionnaire (AIQ), the Godin Leisure Time Exercise Questionnaire, and several additional measures. Correlations and multiple regressions were used to analyze relationships between athletic identity and physical activity measures, and MANOVA was used to investigate gender differences. Both the AIMS ( $r = .360, p < .01$ ) and the AIQ ( $r = .529, p < .001$ ) measures of athletic identity were positively correlated with physical activity levels; but surprisingly, the AIQ and AIMS were not significantly related ( $r = .058$ ) to each other. The AIMS was related to the participants' self-ratings of athletic identity and to greater perceived difficulty with the transition into retirement. Contrary to previous research findings, there were no gender differences in athletic identity,  $F(2, 53) = .814, p = .449$ , or physical activity levels,  $F(1, 53) = .626, p = .432$ .

The results indicate that athletic identity is positively related to engagement in physical activity. However, the two most widely-used measures of athletic identity seem to be conceptually different and show differing relationships to physical activity and retirement difficulties. The AIMS, a sport-specific measure of athletic identity that emphasizes competitive athletics, was related to difficulties with transition, whereas the broader-based AIQ was a stronger predictor of physical activity. Participant responses to open-ended items about their athletic identity and physical activity engagement are also discussed.

THE RELATIONSHIP BETWEEN ATHLETIC IDENTITY  
AND PHYSICAL ACTIVITY LEVELS  
AFTER RETIREMENT FROM  
COLLEGIATE SPORTS

by

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To my infinitely supportive parents. Without their guidance, encouragement, and unwavering confidence, I would not have achieved this or any other significant milestone in my life.

APPROVAL PAGE

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## CHAPTER I

### INTRODUCTION

There are currently more than 400,000 student-athletes competing in sports sponsored by the National Collegiate Athletic Association (NCAA, 2010), and the number of retired student-athletes is exponentially more than that. Although the NCAA recognizes that retirement from sports after college is inevitable for most of its members, programs designed to prepare student-athletes for retirement from collegiate sports are lacking, and evidence-based research on this experience is also incomplete. Much of the research and programming that currently exist revolve around the construct of athletic identity and its relationship to career planning and the retirement process. To date, research and programs have not emphasized physical activity and health behaviors for student-athletes after they retire from their collegiate career.

The position statement on recommended physical activity for healthy adults released by the American College of Sports Medicine (ACSM) contends that physical activity is extremely important and provides many health-related and psychological benefits (Haskell, et al., 2007). This position statement asserts that current ACSM-recommended levels of physical activity include 20 minutes spent in vigorous physical activity on three or more days per week or 30 minutes spent performing moderate physical activity on five or more days of the week. A major concern for public health officials is that many Americans are not meeting these guidelines and are insufficiently

active. Given that athletes are often characterized as being physically active, the athlete population is usually not a focus of exercise adherence or physical activity promotion studies. In actuality, the athlete population may have unique health concerns, which would make maintaining lifelong physical activity levels of special importance for this subgroup. For instance, a review of athlete detraining studies has shown that former elite athletes may be more susceptible to inactivity-related increases in risks for certain types of chronic diseases such as diabetes and cardiovascular disease (Witkowski & Spangenburg, 2008). In their review of the topic, Witkowski and Spangenburg (2008) contend that cessation of regular exercise among former athletes leads to issues with insulin sensitivity, plasma lipids, and body composition, making it particularly important for athletes to continue to be active even after retirement from sports. The authors warn that athletes who stop physical activity upon retiring from sports will have the same or greater risk for chronic diseases compared to non-athletes who have been sedentary all of their lives. Therefore, based on these possible health concerns, the inclusion of the retired athlete population in studies that track and promote physical activity is imperative.

Although physical activity patterns of recently retired athletes have seldom been studied, it is certainly likely that the physical activity levels of athletes drop off after termination of their competitive careers. The possibility of former student-athletes not meeting ACSM recommendations for physical activity levels has rarely been considered. In order to gain a better understanding of this issue, it is necessary to acknowledge the conceptualization of athletic retirement as “a coping process with potentially positive or negative outcomes” (Stambulova, Alfermann, Statler, & Cote, 2009, p. 396). According

to Taylor and Ogilvie (1994), retirement from an athletic career is indeed a transitional process, and maintaining physical activity after retirement is a possible adjustment difficulty an athlete might experience through the transition process. Self-identity is perhaps the most important factor that can impact successful transition into retirement (Taylor & Ogilvie, 1994). Because athletic identity is a major source of self-identity for athletes, it would seem appropriate to focus on this variable's possible effects on adjustment difficulties, including continued physical activity.

Athletic identity, which is the extent to which a person identifies with the athletic role (Brewer, Van Raalte, & Linder, 1993), has been framed in varying ways within the literature. Brewer, Van Raalte, and Linder (1993) introduced the construct as being a competitive, sport-specific identity, whereas Anderson (2004) has more recently posited athletic identity as being rooted in exercise and physical activity involvement as well as sports. Research on athletic identity suggests that athletic identity, particularly when broadly defined as with Anderson's Athletic Identity Questionnaire (AIQ), is positively related to engagement in physical activity (Anderson, 2004; 2007). However, athletic identity as narrowly defined by Brewer, Van Raalte, and Linder's Athletic Identity Measurement Scale (AIMS) has also been linked to problematic issues in retirement, such as emotional difficulties and poor career transition (Lally, 2007; Lally & Kerry, 2005; Lavalley, Gordon, & Grove, 1997). Because of these issues, some have suggested (Lally, 2007; Lally & Kerry, 2005; Lavalley, Gordon, & Grove, 1997) that athletes will transition better if they abandon their athletic identity during retirement in order to avoid maladjustment. Indeed, research shows that the saliency of athletic identity does drop off

after retirement from sport (Houle, Brewer, & Kluck, 2010). The traditional, narrow definition of athletic identity (AIMS) may not be found to be positively related to the maintenance of physical activity outside of college athletics. On the other hand, an athletic identity that is more inclusive of broader physical activity (AIQ) should be positively related to engagement in exercise after retirement from collegiate sports because the identity is not contingent upon involvement in competitive sports. Therefore, having a salient but broader athletic identity (AIQ) may be related to former athletes engaging in physical activity at high levels after retirement from sport.

This complicated relationship between athletic identity and physical activity after retirement from collegiate athletics must be better understood in order to implement effective intervention strategies to help those athletes who experience distress as a result of transitioning into retirement. Ultimately, by examining the existing literature surrounding athletic identity and retirement, it may be possible to shed some light on how lifestyle physical activity patterns are affected by retiring from collegiate sports and how programs could be designed to help former student-athletes learn to maintain physical activity levels.

### **Purpose and Hypothesis**

Beyond the physical health benefits of continued exercise for retired athletes (Witkwocki & Spangenburg, 2008), sustained physical activity has also been shown to enhance quality of life, reduce stress, and improve mental health among active individuals (Atlantis, Chin-Moi, Kirby, & Fiatorone Singh, 2004). Physical activity has also been found to play a protective role against depression, specifically in former elite

athletes who are in middle or old age (Backmand, Kaprio, Kujala, & Sarna, 2003).

Therefore, promoting physical activity among retiring college athletes may have many long-term potential benefits for these athletes.

Because self-identity is a major factor that can have a positive or negative impact on successful transition into retirement, athletic identity is a key variable to examine. In this study, the construct of athletic identity is measured using both the AIQ and the AIMS surveys. Physical activity is considered synonymous with exercise and defined as “planned, structured, repetitive bodily movements that someone engages in for the purpose of improving or maintaining one or more components of physical fitness or health” (Buckworth & Dishman, 2002, p. 28). Physical activity is measured using the Godin Leisure-Time Exercise Questionnaire (Godin & Shephard, 1985).

The purpose of this study was to identify the relationship between athletic identity and physical activity levels among retired college athletes. The former athlete sample is derived from the population of recently retired student-athletes who have graduated within the past five years. This population of recently retired student-athletes has been more immediately impacted by their transition out of collegiate sports.

The main research question being investigated in this study is “How is athletic identity related to physical activity levels of retired college athletes?” A descriptive survey approach is used for data collection and correlational analysis is used to answer the research question. A positive relationship is hypothesized in that former student-athletes who score higher in athletic identity, specifically as measured by the AIQ, will

engage in more physical activity compared to former student-athletes with less salient athletic identities.

Additional ratings and open-ended questions are included to gather information about the athletes' perceptions of physical activity in order to clarify survey results.

Understanding the relationship between athletic identity and physical activity levels of retired athletes is important for advancing our knowledge base and guiding the development of effective programs to ensure that the current 400,000 NCAA student-athletes, along with the countless former and future collegiate athletes, successfully transition out of competitive college sports without abandoning physical activity and its many benefits.

## CHAPTER II

### REVIEW OF THE LITERATURE

Before examining the relationship between athletic identity and physical activity during athletic retirement, this literature review begins with a review of the scholarship on self-concept and moves to the specific aspect of athletic identity. Then, a model of the process of transitioning into athletic retirement is described, followed by issues related to identity crisis in retirement, and ending with a review of physical activity patterns.

#### **Self-Concept and the Construct of Athletic Identity**

Overall self-concept, or how a person views himself or herself, is multidimensional and comprised of the many different identities that individuals use as a way of defining themselves (Marsh, 1990). Shavelson, Hubner, and Stanton (1976) are credited with introducing a breakthrough model of self-concept that is both multifaceted and hierarchical in nature. According to this model, general self-concept is comprised of academic self concept as well as social self-concept, emotional self-concept, and physical self-concept. Each of these four subdomains can be broken down into further subareas. For example, this model supposes that physical ability and physical appearance both contribute to physical self-concept, which ultimately impacts one's general self-concept. Marsh (1990) argues that rather than viewing self-concept as a global construct, it is necessary to examine the multiple dimensions that contribute to self-concept. Marsh contends that the many dimensions of self-concept are more complex than the model set

forth by Shavelson and colleagues and need to be addressed further in research. How a person conceptualizes himself or herself as an athlete is one of these specific subareas contributing to physical self-concept that demands consideration in the research.

*Physical Self-Perceptions.* Taking the previous research a step further by investigating the physical subdomain of self-concept, Fox and Corbin (1990) created a hierarchical model of physical self-perceptions that delineates the ways in which perceptions of physical abilities can relate to global self-esteem. Physical self-worth is a major contributor to overall self-esteem and self-concept. Physical self-worth is comprised of value judgments about the body and its ability, and there are several components that affect these judgments. According to Fox and Corbin, a person's feelings about his or her sport competence, body attractiveness, physical condition, and physical strength all contribute to physical self-worth. A person's physical self-efficacy in each of these areas affects how a person feels about each of the subcomponents. In other words, the extent to which people believe in their physical capabilities in each of these areas affects how people judge their overall physical self-worth and that judgment ultimately influences global self-esteem. Based on this model, identification with the athletic role has important implications for the subcomponents related to physical self-concept, specifically the areas of sport competence and physical condition. Athletic identity, therefore, plays an important role both in how one conceptualizes himself or herself as well as the personal value judgments one places on that self-concept.

*Athletic Identity.* Identity in a general sense can be defined as “meanings one attributes to oneself in a role” (Burke & Reitzes, 1981), and it is formed and maintained

through social processes. Through interaction with others who confirm and validate one's self-concept, individuals are able to establish identities. Beyond serving as a means of defining oneself, role identity also impacts the performance of behaviors consistent with a given identity. According to Burke and Reitzes (1981), an individual monitors his or her behavior based on whether or not the meaning of that behavior is in line with the meaning of his or her respective identity role. In the case of athletics for example, in order to be an athlete one must behave like an athlete. Greater identification with a role identity is predictive of greater frequency of engagement in behaviors consistent with that role (Callero, 1985). For an athlete, such behavior, among others, may include engagement in sport or exercise activities.

Athletic identity is a unique dimension of physical self-concept and is defined as the extent to which one identifies oneself with the athletic role (Brewer, Van Raalte, & Linder, 1993). Athletic identity can serve as both a schema and a social role. In other words, an athletic identity provides a framework for interpreting information and inspires behaviors consistent with that identity. It also serves a social role in that athletic identity is partly determined by other people's perceptions: if others see you as an athlete and praise you for that role then you internalize those perceptions and define yourself as an athlete. Because physical activity is a behavior that would be consistent with athletic identity and would most-likely be praised by others, having a strong athletic identity should increase physical activity behaviors among athletes.

*AIMS.* Brewer, Van Raalte, and Linder (1993) developed the original Athletic Identity Measurement Scale, which is a 10-item questionnaire that asks participants to

rate the extent to which they agree with statements that are descriptive of a strong athletic identity. Three subscales were identified in this measure, including social identity, exclusivity, and negative affectivity. Social identity refers to the strength with which athletes identify with the athletic role partly derived from social perceptions, exclusivity describes the extent to which one identifies with the athletic role at the exclusion of other life roles, and negative affectivity categorizes negative responses to not being able to participate in sporting activities important to one's athletic identity.

The AIMS is a reliable measure of athletic identity with an internal consistency of  $\alpha = .93$ . Its validity has been demonstrated by its correlation to Fox's (1987) similar measure, the Perceived Importance Profile,  $r = .83$ . The AIMS has been the most widely used measurement of athletic identity in existing research on the topic. The research has shown that greater involvement in athletics is indeed associated with a stronger athletic identity, and men tend to score higher on the AIMS than women (Brewer, Van Raalte, & Linder, 1993). Although there may be some positive consequences of identifying with the athletic role, such as engagement in exercise through sport participation, the emphasis in the literature is usually focused around the negative consequences of athletic identity. Specifically, the developers of the scale contend that having a strong and exclusive athletic identity is likely to result in emotional difficulties through retirement (Brewer, Van Raalte, & Linder, 1993).

*AIQ.* Building on the research set forth by Brewer, Van Raalte, and Linder (1993), Anderson (2004) took a less sport-specific viewpoint of the construct and defined athletic identity more broadly as being rooted in one's perception of the self as a

participant in sport, exercise, and physical activity, and this perception has multiple dimensions. To measure this form of athletic identity, Anderson developed the Athletic Identity Questionnaire (2004), which is a 21-item measure that includes four subscales: athletic appearance, importance of exercise/ sports/ physical activity, competence, and encouragement from others. In other words, a person's athletic appearance, how important the sport activity is to the person, and that person's belief that he or she has the competence to perform physical activities all impact one's personal athletic identity. Additionally, encouragement from others regarding one's athletic role also helps verify that person's identity as an athlete. Anderson suggests that a person's active efforts to maintain an athletic identity has important implications for exercise behavior; specifically, the importance the self places on sport activities has a strong correlation with engagement in exercise,  $r=.90$  (Anderson, 2004).

*Physical Activity Self-Definitions.* Early work by Kendzierski (1988; 1994) established the existence of an exerciser self-schema and found that individuals who identify as exercisers are more likely to plan for and engage in exercise-related behaviors compared to individuals who identify as nonexercisers or individuals who have no relevant exerciser identity. Building on this research, Kendzierski (1998; Kendzierski & Morganstein, 2009) addressed exercise-related identities even more broadly and proposed that people develop physical activity self-definitions based on perceived commitment and perceived abilities. Commitment to an activity is influenced by the extent to which one wants to engage in the activity and the extent to which one actually tries to engage in that activity. One's ability to do a physical activity can be influenced by fitness levels,

perceived body type, and a person's perception of being athletic. Social recognition has an indirect effect on one's self-definition of physical activity through its impact on how a person appraises his or her abilities. Using Kendzierski's model, it would seem appropriate to claim that having a strong athletic identity would be facilitative of engagement in physical activities because one would have both the commitment and the abilities to engage in such activities. In fact, researchers have found that a stronger exerciser identity, which is similar to Anderson's athletic identity, is related to greater participation in exercise activities (Anderson & Cychosz, 1995).

It is important to note the evolution of the athletic identity construct through the research over the past several years. The Athletic Identity Measurement Scale is a ten-item measurement that assesses athletic identity based on identification with sport participation. Anderson (2004) criticized the Athletic Identity Measurement Scale, claiming that it was narrow in focus and overemphasized the exclusivity of athletic identity. Consequently, Anderson's Athletic Identity Questionnaire and Kendzierski's Physical Activity Self-Definitions model have shifted towards a definition of an identity that is more broadly inclusive of exercise and other physical activities.

### **A Model of Athletic Career Termination**

In order to understand the influence of athletic identity on the retired athlete population, it is helpful to first understand the retirement process itself. According to Taylor and Ogilvie's (1994) model of adaptation to athletic retirement, the transition out of sports is a process, not an abrupt event. Thus, the authors propose a five-step conceptual model of athletic retirement (see Appendix A). In the first step, some factor

must cause the termination of one's athletic career. These factors can include age, deselection, injury, and free choice. While some athletes' goals and priorities may change after college leading them to freely choose to move on from sport, or an injury may end their career, it is likely that deselection would be the causal factor most relevant to collegiate athletes retiring from sport. The majority of college athletes exhaust their athletic eligibility in their early twenties, a prime age in which a decline in performance due to advancing age is not likely for most sports; however, very few athletes are talented enough to move on to the next level. For instance, it is estimated that only 1% of collegiate baseball and football players will have an opportunity to play at the professional level (Taylor & Ogilvie, 1994). Therefore, the physical inability to compete at the next level, or even the lack of any existing professional organizations within some sports, is a major reason that graduating collegiate athletes must terminate their competitive athletic career.

The second step of Taylor and Ogilvie's model describes the factors related to adaptation to retirement. These factors may include self and social identities as well as perceptions of control. Competitive athletes who are immersed in their sport experience can develop an identity that is based largely upon their athletic involvement. This athletic identity becomes the main source of ego-gratification for these athletes and it can be difficult for them to achieve similar gratification in other activities. Athletes with strong athletic identities often view retirement from sport as an irrecoverable loss, and the lack of perceived control related to this terminating event creates a threatening situation for those athletes whose athletic participation is deeply connected to their self-identity.

In the third step of this transitional model, Taylor and Ogilvie assert that an athlete's available resources, such as coping skills, social support, and preretirement planning, impact successful adaptation to retirement. For instance, cognitive restructuring and goal setting are coping skills suggested in this model that can help athletes reorient their identities and provide motivation in post-athletic career endeavors. One difficulty related to available resources for retiring athletes is that for many of these athletes, their social network up until the point of retirement has consisted of associations within the sport environment. Upon retirement, athletes are usually no longer part of the team or organization they were once so integrally involved with, so the athletes subsequently lose a large amount of social support they once relied upon. This loss of social support can negatively impact the retirement process. Therefore, Taylor and Ogilvie acknowledge the importance of institutional involvement in designing preretirement planning for athletes. This can include counseling services and informational workshops designed to help athletes prepare for their impending retirement.

The combination of steps 2 and 3, which include the factors related to retirement as well as available resources, results in the fourth step in Taylor and Ogilvie's model: the overall quality of adaptation to retirement. If athletes have the available resources to effectively cope with the difficulties related to retirement, then the result will be a healthy career termination. On the other hand, if athletes cannot effectively cope then the result is retirement crisis, which can include psychopathology, substance abuse, occupational problems, and family or social issues. Thus a fifth step must be implemented to deal with

this crisis. Taylor and Ogilvie suggest that the most important intervening task in the termination process is to help athletes maintain self-worth and establish a new self-identity not dependent upon sports. Although not explicitly mentioned as a possible retirement crisis outcome, a decline in healthy exercise after retirement could easily fit in with the other listed items. In fact, Taylor and Ogilvie allude to exercise counseling as an important part of planning for retirement. Therefore, although the focus of this model seems to be largely psychologically-based, physical outcomes like decreased participation in physical activity can be an important consequence of athletic retirement, and athletic identity may be one important factor related to that adaptation.

Taylor and Ogilvie's athletic career transition model is limited, particularly in serving as a framework for empirical research. The model was developed largely for use by practitioners, and evidence-based research is still needed to validate the steps set forth by the model. However, the model helps make the case for athletic identity being an important factor for retired student-athletes that is related to many variables during retirement, which may include engagement in physical activity.

### **Identity Crisis in Retirement**

Based on the literature on athletic identity, having a strong athletic identity should be indicative of regular engagement in physical activity (Anderson, 2004; Kendzierski, 1998). However, retirement from an athletic career presents a possible identity crisis as described in Taylor and Ogilvie's (1994) model. Much of the research suggests that in order to prevent major identity crises from occurring, athletes must begin to disengage from their athletic identity in order to cope with retirement (Lally, 2007; Lally & Kerry,

2005; Lavalley, Gordon, & Grove, 1997). An important consideration is the idea that self-concept is a multidimensional construct (Marsh, 1990), and athletic identity is just one possible dimension that could contribute to one's self-concept. Student-athletes may not have had enough time or life experiences to develop multiple salient identities and may rely more on their athletic identity as a way of defining themselves. Therefore, a greater reliance on athletic identity may lead to greater dysfunctional consequences when student-athletes are threatened with the loss of that identity through retirement.

Lavalley, Gordon, and Grove (1997) found that athletes with high levels of athletic identity have more severe emotional difficulties when retiring from sport. During interviews with former elite athletes, one athlete described his personal difficulty with the retirement experience: "I had to adjust to a totally different lifestyle, where suddenly I was like everyone else. Only it is like beginning all over again, with a new job, new lifestyle, and new circle of friends. I felt as though I lost my self-identity" (Lavelley, Gordon, & Grove, 1997, p. 139). In a related study (Grove, Lavalley, & Gordon, 1997), not only was a strong athletic identity related to retirement difficulties, but elite athletes who scored higher in athletic identity also needed a longer amount of time to cope with retirement. It is important to note that retirement tends to be most emotionally difficult in situations where retirement is not within the control of the athlete (Webb, Nasco, Riley, & Headrick, 1998). These situations can include career-ending injuries or the inability to compete at the next level. The latter of the two is a very common reason the majority of college athletes are forced to retire because they cannot move up to professional ranks.

To further explore this relationship between athletic identity and coping with

retirement among college athletes, Lally (2007) conducted in-depth interviews with three male and three female student-athletes at the beginning of their last season of competition, one month after the conclusion of their final season, and one year following retirement. The athletes in the study strongly committed themselves to their athletic identity during their college careers. These athletes recognized the salient role that athletics played in their lives and they expected retirement to disrupt their identities. Because of this, they engaged in coping strategies that included abandoning their identity as an athlete and fostering other identities in order to prevent a major identity crisis upon retirement. Lally concluded that athletes should take proactive steps to dissolve their athletic identity before retirement occurs in order to cope effectively. Lally and Kerry (2005) suggest that student-athletes need to begin this dissolving process as they enter the last two years of college so that they can engage in more mature career planning and focus on non-sport options after graduation.

### **Athletic Identity and Continuing Physical Activity**

Given the research evidence that athletic identity is related to increased physical activity (Anderson, 2004; Brewer, Van Raalte, & Linder, 1993) but that dissolving athletic identity is necessary for a smooth transition from sports (Lally, 2007; Lally & Kerry, 2005; Lavalley, Gordon, & Grove, 1997), it seems as though there is a paradox when it comes to continued engagement in physical activity after retirement. As mentioned previously, the measurements used to assess athletic identity conceptualize the construct from somewhat different perspectives. Research that has pointed to the problems related to athletic identity during transition out of sports has typically involved

the Athletic Identity Measurement Scale (Brewer, Van Raalte, & Linder, 1993), which defines athletic identity in a very limited way contingent on competitive sport participation. The existing research that points to athletic identity's positive relationship with healthy engagement in exercise is based upon Anderson's (2004) newer Athletic Identity Questionnaire, which has a broader exercise and physical activity focus that is not limited to participation in competitive sports. To illustrate these conceptual differences one may compare the questions that comprise each questionnaire. For instance, the AIMS includes statements such as "Sport is the only important thing in my life" and "I feel bad about myself when I do poorly in sport." The AIQ, on the other hand, includes descriptions like "I could participate in several types of physical activity if I wanted to" and "I don't let things get in the way of my exercise/sport activity." From these examples, one can see that the AIMS has a more competitive sport focus that clearly has negative implications when those sport-specific needs cannot be met. The AIQ, on the other hand, has a less limiting description of athletic identity by including broader physical activity participation that extends beyond sports.

The traditional, narrow definition of athletic identity (AIMS) may be related to problems when transitioning into retirement due to its limiting definition of an identity based on a specific sport, which is likely to be lost through retirement. On the other hand, an athletic identity that is more inclusive of broader physical activity (AIQ) should be positively related to engagement in exercise after retirement from collegiate sports because the identity is not contingent upon involvement in competitive sports. Therefore, having a salient but broader athletic identity (AIQ) may be related to former athletes

engaging in physical activity at high levels after retirement from sport. The next logical direction for research would be to examine physical activity levels after college sport participation and its complex relationship to athletic identity.

*Physical Activity in Related Populations.* At this point in time, valid data on physical activity levels in recently retired former college athletes have not been documented; however, Strawbridge (2001) did examine the current physical activity patterns of older women who competed in intercollegiate athletics in the 1960s and 1970s. The majority of the women stated that the opportunity to play the sport they participated in college was nonexistent; however, most reported that they remained physically active and that they did it for fitness and health reasons rather than for competition.

Although this study has positive implications for the ability of athletes to persist in being physically active later in life, these findings cannot be generalized to athletes in the modern day. This group of women comprises a very different cohort from athletes today. These women were pioneers in the field of female athletics and were among the first of their gender to play college sports. The social and political implications of having to fight for their right to even play their chosen sport in the first place may in itself influence their choice to remain physically active as they aged. Additionally, the culture of college sports decades ago was much different than the atmosphere that characterizes current college athletics. In order to obtain an accurate picture of how current athletes face challenges to physical activity after retirement, research needs to look at more recent student-athlete alumni. In order to stay true to the concept of retirement being a process,

it is necessary to focus on former athletes who retired very recently and who have been more immediately impacted by the transition.

While this sort of research on recently retired athletes has not been conducted, studies have examined recent college graduates who were not student-athletes. Calfas, Sallis, Lovato, and Campbell (1994) looked at 194 college upperclassmen and 204 recent graduates from a southern California university. They found that one third of students and alumni were presently inactive. Similar activity levels were reported among students and alumni; however, almost half of the alumni reported being less active now compared to when they were in college. Overall, subjects in both groups perceived that they were becoming less active as increasing time passed.

Another study by Sparling and Snow (2002) included college alumni who had graduated within the past two to ten years from a southern metropolitan university. After asking the participants to recall their physical activity patterns in the past seven days, the researchers found that 32.7% engaged in vigorous exercise on three or more days, 6% were involved in moderate activity on five or more days, and 21% lifted weights on three or more days of the week. When asked to recall their physical activity patterns from when they were in college, 43.1% of the participants said they were regular exercisers in college, 39.5% were irregular exercisers, and 17.4% were non exercisers. Overall, 44% of the participants reported being less active now than they were in college, 33% reported their activity levels to be “about the same,” and 23% felt they were more active now than in college. Persistence of activity behaviors was related to how active individuals were while in college: 84.7% of those who reported being regular exercisers in college were as

active or more active now while 81.3% of those who did not participate in exercise during college reported being about the same or even less active now. These findings point to the notion that some people, especially those who had developed regular activity patterns in college, continued to maintain some level of activity after graduation, while many other individuals had a clear drop in amount of time spent engaged in physical activity. It is difficult to make comparisons from these results to athletes though because most of the general college population is not similarly active as collegiate athletes and the structure of that exercise is different as well. Again, there is a need for studies geared specifically toward athletes to determine their physical activity patterns after retirement from collegiate sports.

*Reduced Physical Activity Levels Among Retired College Athletes.* Patterns of reduced physical activity after college graduation have been shown in research with the general population of college graduates. Although there is limited empirical research that can point to similar reductions in physical activity among college athlete alumni, a drop in physical activity may be particularly relevant for former student-athletes who would have difficulty maintaining the high amount of physical activity they engaged in during their college sports career. Such a decline in physical activity has been shown to have negative health implications among former athletes (Witkowski & Spangenburg, 2008).

Recent research by Houle, Brewer, and Kluck (2010) indicates that athletic identity increases throughout the adolescent years and then begins to decline after retirement from sport. If athletic identity is facilitative of engagement in physical activity as previously suggested (Anderson, 2004), this decrease in saliency of athletic identity

could have implications for a possible decline in physical activity after the conclusion of collegiate sport participation. In fact, Stephan, Torregrosa, and Sanchez (2007) found that retirement from elite sport resulted in weight gain, loss of muscle mass, and degradation of physical competencies, which contributed to decreased physical self-worth and ultimately led to a loss in the athletes' global self-esteem.

### **Summary**

While athletes may have varying experiences related to continued participation in physical activity, this apparent drop in physical activity levels and related consequences that seem to occur for at least some athletes may be due to several factors related to their identification with the athletic role. Some of these factors include how athletes envision the purpose of exercise and the priority that exercise takes within an individual athlete's life. Each of these factors can be impacted by the saliency of an individual's athletic identity and could influence one's choice to engage in exercise. If negative implications exist for both the physical and emotional health of former athletes who are involved in low levels of activity, investigating factors related to physical activity engagement such as athletic identity is an important step in addressing the issue.

At this time, there is a need for well-designed research studies to actually validate physical activity experiences of student-athletes during and after the retirement transition and how those experiences might relate to athletic identity. Utilizing evidence-based research to provide support for these claims and recognition of this issue will enable us to better understand the variables and processes related to this phenomenon.

Ultimately, collegiate athletic careers have a relatively short shelf-life. Student-

athletes who have played sports the majority of their lives up until the termination of their collegiate career have understandably developed a strong identification with their athletic role. Retiring from collegiate sports is a threat to their well-established identity and has many consequences, one of which could be a dramatic drop in physical activity levels post-collegiate sports participation. The issues arising with such a transition may have real consequences for health and well-being. Understanding the relationship between athletic identity and physical activity levels in retirement is important for advancing our knowledge base and guiding the development of effective programs.

## CHAPTER III

### METHODS

Because the focus of this study is on the relationship between athletic identity and physical activity levels, a descriptive survey method using correlation analyses is relevant. The goal of this research is to identify and describe the relationship between athletic identity and physical activity levels of former college athletes. It is expected that former athletes who have a stronger athletic identity currently engage in greater amounts of physical activity.

#### **Participants**

Division I programs provide the greatest number of scholarships to student-athletes and are recognized as the most competitive of the three major NCAA divisions, so issues related to athletic identity may be particularly relevant to these individuals. Therefore, the targeted population for this study is former student-athletes who competed at a Division I university. In collaboration with the university athletics department, participants were drawn from one southeastern university that participates at the Division I level. Contact information for the former student-athletes for selection procedure was obtained from athletic department records with permission from departmental officials. Data from 59 recently retired male and female student-athletes who graduated from college within the past five years are included in this study. Descriptive information on the sample is provided in the Results section.

## Measures

Athletic identity and physical activity levels were the main constructs measured in this study. Athletic identity, which is defined as the extent to which one identifies oneself with the athletic role (Brewer, Van Raalte, & Linder, 1993), was measured using the AIMS (Brewer, Van Raalte, & Linder, 1993) and the AIQ (Anderson, 2004). Because the AIMS is the original and most widely used measure of athletic identity, it was included in the study. However, the AIQ is the more current and relevant measure of athletic identity and will be used to address the research question. Physical activity levels were measured using the Godin Leisure-Time Exercise Questionnaire (Godin).

*AIMS.* The AIMS, developed by Brewer, Van Raalte, and Linder (1993), was used as one measure of athletic identity. The AIMS questionnaire consists of ten items rated on a 7 point Likert scale (1= strongly disagree, 7= strongly agree) and is a classic, more sport-specific measure of athletic identity in comparison to Anderson's AIQ. A higher total score for this measurement is interpreted as a stronger athletic identity. The AIMS has been shown to be a valid, reliable, and consistent measure of athletic identity:  $\alpha = .93$  for internal consistency and  $r = .89$  for test-retest reliability. Validity has been previously demonstrated in the literature by correlating the AIMS to Fox's (1987) Perceived Importance Profile,  $r = .83$  (Brewer, Van Raalte, & Linder, 1993; Martin, Mushett, & Eklund, 1994).

*AIQ.* The AIQ is a 21-item multidimensional measure that assesses athletic identity based on a broader understanding of athletic identity and evaluates four factors: athletic appearance, importance of exercise/ sports/ physical activity, competence, and

encouragement from others. Each item is rated on a 5-point Likert scale ranging from 1 (not at all descriptive of me) to 5 (very descriptive of me). The total score for the AIQ, which is calculated by summing responses for all 21 questions, indicates the strength of athletic identity, with increasingly higher scores indicating a stronger identification with the athletic role. Validity for this questionnaire has been demonstrated based on its correlation to physical activity, ranging from  $r=.56-.90$  for the four subscales. The questionnaire has also been shown to be internally consistent, with alpha coefficients ranging from  $.68-.89$  for the four scales (Anderson, 2004; 2007).

*Godin.* The Godin Leisure-Time Exercise Questionnaire (Godin) was used to determine physical activity levels. This measurement is based on self-reported weekly frequencies of strenuous, moderate, and light activities. The Godin provides an approximate MET value for weekly physical activity using the following equation:  $(\text{frequency of strenuous activity/wk} \times 9) + (\text{frequency of moderate activity/wk} \times 5) + (\text{frequency of light activity/wk} \times 3)$ . A higher numerical value for this score indicates higher physical activity levels. Previous validation and reliability studies have supported the use of this questionnaire (Jacobs et al., 1993; Godin & Shepherd, 1985). Validity has been assessed by correlating scores on the questionnaire to  $\text{VO}_2$  max performance,  $r=.38$  for strenuous and  $.24$  for total score (Godin & Shepherd, 1985). The Godin was found to have a test-retest reliability of  $r=.74$  (Godin & Shepherd, 1985).

*Stage of Exercise.* In addition to the GLTEQ, a stage of exercise measure developed by Marcus and colleagues (1992) was used to assess exercise levels of former athletes based on their intention to exercise and their exercise behavior. The measure is

widely used to assess stage of exercise (precontemplation, contemplation, preparation, action, and maintenance) and provides an added, broader measure of physical activity levels. With this stage measure, a lower stage number (Stage 1) represents more regular engagement in physical activity

*Demographics.* Demographic measures were also included in the survey. The participants were asked to provide background information including gender, age, race, occupation, sport(s) played in college, current sport participation, and amount of time that has passed since their last collegiate competition. These demographics were used to provide relevant information about the sample participating in this study.

*Additional Measures.* Participants were also asked to provide self-ratings of their current athletic identity as well as their previous athletic identity during college and their difficulty with transitioning out of collegiate sports. Using a 5-point Likert scale ranging from 1 (not at all) to 5 (completely), participants were asked: *How much do you currently identify yourself as an athlete?* and *How much did you identify yourself as an athlete in college?* Using a 5-point Likert scale ranging from 1 (very easy) to 5 (very difficult), participants were also asked: *Think about the time when you were finishing your college athletic career. How difficult was it for you to no longer be a college athlete?*

Several open-ended response questions were also included at the end of the survey to gain insight from the participants' own perspectives. These questions asked the former athletes to define athletic identity and explain how their identity as an athlete might relate to their engagement in physical activity. Questions also inquired about how

the athletes perceived their physical activity has changed since retirement from collegiate sport, and what factors they identify as either promoting or interfering with their engagement in physical activity. See Appendix B for all measures included in this study.

### **Procedures**

The protocol followed in this study was first piloted among 13 former Division I field hockey players prior to the current study. Following this pilot study and upon approval from the university Institutional Review Board and from the athletic director of the university athletic department, email contact information for student athletes who had recently graduated was requested from the athletic department. Then, an email containing a hyperlink for the informed consent (See Appendix C) and survey was sent out through the athletic department's alumni/booster club to the 210 former student-athletes whose email contact information was available. Using the provided link, the AIQ, the AIMS, the Godin, demographics, and the added questions were administered electronically through the Qualtrics online survey software. Voluntary consent was provided at the website. The participants were provided with directions on how to complete the questionnaires and participants submitted their answers electronically on the website. Two follow-up emails were sent out by an athletic department staff member to encourage those who had not yet participated in the study to complete the questionnaires. After four weeks and a cessation of survey responses, the online survey was closed in order to proceed with data analysis. Of the 210 individuals whom the survey was originally sent to, 97 were returned as invalid email addresses. Out of the remaining 113 who were successfully contacted, 68 responded to the survey for a 60% response rate. Of

the 68 who responded to the survey, 9 were excluded from data analysis due to not completing various measures on the survey, resulting in 59 total participants.

*Data Analysis.* The raw data for the AIQ, the AIMS, and the Godin measures were reduced into meaningful scores by following all relevant calculations and reverse scoring and summing items to calculate subscale scores and total scores. Then, descriptive statistics were calculated for each of these measures as well as for demographic information. To address the main research question, total scores from the athletic identity and physical activity measures were analyzed using Pearson's correlations and multiple regression analyses to determine the strength and direction of the relationship between athletic identity and physical activity. Specifically, the AIQ total and the AIMS total were correlated with the Godin total to address the main research question. The four AIQ subscales were also correlated with the Godin total as an exploratory analysis. Additionally, MANOVA were used to investigate gender differences on the AIQ, AIMS, and Godin measures.

To analyze the open-ended responses, individual participant responses were first listed and then grouped into similar categories in order to identify emerging themes. Frequency tables were created to show the frequency of occurrences of the different responses. Two additional coders coded a portion of the responses to verify reliability of response coding in order to help foster the trustworthiness of the research. Ultimately, the information extracted from the open-ended responses was used to help clarify the statistical results and allow a richer understanding of the relationship between athletic identity and physical activity after transitioning out of collegiate sport participation. This

information may also help point directions for future research to be conducted in this area of study that is currently lacking empirical research.

## CHAPTER IV

### RESULTS

The purpose of this study was to determine the relationship between athletic identity and physical activity levels among former college athletes. Pearson's correlations and multiple regression analyses were used to analyze relationships between the two athletic identity measures, AIQ and AIMS, and the Godin physical activity measure to address the main research question. MANOVA were used as an exploratory analysis to investigate gender differences. Responses to open-ended questions on athletic identity and physical activity were also compiled and presented.

#### **Descriptive Information for Sample**

Of the 59 participants whose data were included in this study, 24 were male and 34 were female, with one individual not declaring his/her gender. The majority of the sample was comprised of Caucasian (78%) and African American (18%) individuals, with an average age of 25.30 (SD=2.05) years old. The amount of time since they retired from collegiate athletics ranged from 6 months to 5 years (5.1% less than six months, 6.8%, less than one year, 22.0% two years, 20.3% three years, 22.0% four years, 23.7% five years), with 90% of them obtaining a bachelor's degree and the other 10% having earned a master's degree during that time. The former athletes in this particular sample represented a range of collegiate sports, including soccer, basketball, baseball, volleyball, golf, tennis, wrestling, cross country/track, softball, cheerleading, and dance. Of the

participants, 51% reported that they currently play in a community, recreational, or club league, 12% reported that they were involved with their sport professionally, and 37% reported that they no longer participate in the sport they played in college.

### **Descriptive Information on Athletic Identity and Physical Activity Measures**

The primary variables in this study were athletic identity and physical activity. Athletic identity was measured with two established measures: the AIMS and the AIQ, which both have demonstrated reliability and validity. Reliability was examined with the current sample and results of the analyses showed that both the AIMS ( $\alpha = .805$ ) and the AIQ ( $\alpha = .907$ ) were reliable measures, with all positive item-total correlations, indicating that all items contribute to the total reliability. Therefore, all items were used to calculate the total scores for the AIMS and the AIQ for the primary analysis. In addition, subscales for the AIQ were reported as part of exploratory analysis. Table 1 provides descriptive information for all athletic identity and physical activity measures.

The Godin Leisure-Time Exercise Questionnaire is the primary physical activity measure in the current study. The Godin yields separate physical activity scores in METs for strenuous, moderate, and light physical activity, which are then summed for the total score. Descriptive information on the Godin and its subscales are provided in Table 1.

In addition to the primary measures (AIMS, AIQ, Godin), participants completed a stage of exercise measure and rated their transition difficulty as well as 1-item ratings of their current athletic identity and their athletic identity during their college athletic career. Descriptive information on these measures is also included in Table 1.

Table 1

*Descriptive Statistics for Measures*

	Mean	SD	N
AIMS Total	43.45	9.88	57
AIQ Total	82.67	11.81	59
Godin Total	46.39	25.42	56
AIQ Subscales			
AIQ Appearance	25.74	4.80	59
AIQ Importance	20.16	5.46	59
AIQ Competency	20.98	2.48	59
AIQ Encouragement	15.77	2.54	59
Godin Subscales			
Strenuous METS	23.38	18.17	56
Moderate METS	14.19	9.75	56
Light METS	8.81	8.60	56
Additional Measures			
Stage of Exercise	1.68	1.10	57
Transition Difficulty	3.65	1.14	57
Current AI	3.47	.90	57
Previous AI	4.54	.56	57

### **Athletic Identity and Physical Activity Relationships**

The primary research question was to determine the relationship between athletic identity, as measured by the AIQ, and physical activity, as measured by the Godin questionnaire. Results of correlation analyses indicated that the total score for the Athletic Identity Questionnaire was positively related to the total score for the Godin questionnaire ( $r = .529, p < .001$ ). The Athletic Identity Measurement Scale, a second measure of athletic identity, was also related to the Godin total ( $r = .360, p < .001$ ). To determine the relative strength of the AIQ and AIMS in predicting physical activity (Godin), multiple regression analyses were used. Using a stepwise analysis, the AIQ was entered first as a significant predictor. On step 2, the AIMS also entered as a significant predictor with a multiple R of .623,  $F(2,53) = 16.81, p < .001$ . As Table 2 shows, in the multiple regression, the AIQ was a stronger predictor of physical activity ( $\beta = .510$ ) but the AIMS ( $\beta = .330$ ) also contributed significantly. To further explore the relationships, subscales for the AIQ were also correlated to the Godin. As Table 3 shows, the encouragement, importance ( $r = .494, p < .001$ ), and appearance ( $r = .359, p = .007$ ) subscales were positively and significantly related to physical activity ( $r = .502, p < .001$ ). The competence subscale of the AIQ was positively, but not significantly related to the Godin total ( $r = .233, p = .085$ ).

To further examine the relationship between athletic identity and physical activity levels, the AIQ and the AIMS were correlated with the stage of exercise measure. The stage of exercise measure was correlated with the Godin total ( $r = -.461, p < .001$ ) and with the AIQ total ( $r = -.578, p < .001$ ). The negative correlations between the stage and the

AIQ total and between the stage and the Godin total indicates that higher athletic identity and higher physical activity levels are related to an individual reporting a more committed and regularly active stage of exercise. In contrast, the AIMS was not related to the stage of exercise change measure ( $r=-.034$ ,  $p=.802$ ). Additionally, the AIQ and the AIMS were not significantly related to each other ( $r=.058$ ,  $p=.666$ ). None of the AIQ subscales, including appearance ( $r=-.193$ ,  $p=.150$ ), importance ( $r=.189$ ,  $p=.160$ ), competence ( $r=.005$ ,  $p=.971$ ), and encouragement ( $r=.231$ ,  $p=.083$ ), were significantly related to the AIMS. Table 2 displays results from the multiple regression analysis, and Table 3 shows correlations among the AIQ, AIMS, Godin, and stage of exercise measures. Table 4 shows AIQ subscale correlations with the Godin and AIMS.

Table 2  
*Multiple Regression Analyses Predicting Physical Activity from AIQ and AIMS*

Predictor	R	R <sup>2</sup>	$\Delta R^2$	B
Step 1	.529	.280	.280**	
AIQ				.529**
Step 2	.623	.388	.109**	
AIQ				.510**
AIMS				.330**

\*\*Significant at the .01 level

Table 3

*AIQ, AIMS, Godin, Stage of Exercise Correlations*

	AIMS Total	Godin Total	Stage of Exercise
AIQ Total	.058	.529**	-.578**
AIMS Total	-	.360**	-.034
Godin Total	-	-	-.461**

\*\*Significant at .01 level (2-tailed)

Table 4

*AIQ Subscale Correlations*

	Godin Total	AIMS Total
AIQ Appearance	.359 **	-.193
AIQ Importance	.494 **	.189
AIQ Competence	.233	.005
AIQ Encouragement	.502 **	.231

\*\*Significant at .01 level (2-tailed)

**Athletic Identity Measures and Transition Relationships**

As well as completing the AIMS and the AIQ, participants self-rated their current athletic identity and their previous athletic identity while in college. The AIMS was significantly related to current athletic identity self-ratings ( $r=.530$ ,  $p<.001$ ) but not to previous ratings of athletic identity ( $r=.114$ ,  $p=.399$ ). The AIQ was not significantly

related to either current ( $r=.200$ ,  $p=.135$ ) or previous ( $r=-.138$ ,  $p=.304$ ) self-ratings of athletic identity. The participants' self-ratings of their previous and current athletic identity were not significantly correlated ( $r=.149$ ,  $p=.268$ ). Current ratings of athletic identity ( $M=3.47$ ,  $SD=.91$ ) were significantly lower than the participants' ratings of their athletic identity during college ( $M=4.54$ ,  $SD=.57$ ),  $t(56)= 8.10$ ,  $p<.001$ .

In considering the relationship of athletic identity to self-ratings of difficulty with transitioning out of collegiate sport, the AIMS was positively correlated with having a more difficult transition ( $r=.394$ ,  $p=.002$ ). Higher self-ratings of previous athletic identity were also related to greater transition difficulty ( $r=.464$ ,  $p<.001$ ). However, neither the AIQ ( $r=.128$ ,  $p=.342$ ) or the current self-ratings of athletic identity ( $r=.163$ ,  $p=.225$ ) were significantly related to transition difficulty. Table 5 shows correlations among athletic identity measures and transition difficulty.

### **Gender Comparisons**

Participant numbers allowed for comparisons between male and female former athletes. Three multivariate analyses of variance (MANOVA) were run, one with the AIQ and AIMS total scores, one with the Godin total METS and one with the four AIQ sub-scales as dependent measures. The MANOVA on the AIQ and AIMS revealed no significant gender difference for the two athletic identity measures,  $F(2, 53)= .814$ ,  $p=.449$ . The gender main effect for physical activity, as measured by the Godin, was not significant,  $F(1, 53)= .626$ ,  $p= .432$ . The MANOVA examining the four AIQ subscales revealed a multivariate gender main effect,  $F(3, 53) = 2.62$ ,  $p= .045$ . Table 6 shows means and univariate F values for each; the univariate gender difference was statistically

significant only for competence.

Table 5

*Athletic Identity Correlations*

	AIMS Total	Previous AI	Current AI	Transition Diff
AIQ Total	.058	-.138	.200	.128
AIMS Total	-	.114	.530**	.394**
Previous AI	.114	-	.149	.464**
Current AI	-	-	-	.163

\*\*Significant at .01 level (2-tailed)

Although there were no significant gender differences overall in athletic identity or physical activity levels, athletic identity may show differing relationships to physical activity when data are correlated separately by gender. After running separate correlation analyses for male and female athletes, results indicated that positive correlations between AIQ total scores and Godin total scores were significant for both male athletes ( $r=.518$ ,  $p=.016$ ) and female athletes ( $r=.513$ ,  $p<.001$ ); however, the AIMS total score was significantly related to Godin total scores for female athletes ( $r=.402$ ,  $p=.019$ ) but not for male athletes ( $r=.166$ ,  $p=.473$ ). Additionally, multiple regression analyses were used to determine the relative strength of the AIQ and AIMS in predicting physical activity (Godin) for each gender, with the AIQ entering first as a significant predictor for both men and women. For women, Table 7 reveals that on step 2, the AIMS also entered as a significant predictor with a multiple R of .623,  $F(2,31) = 9.27$ ,  $p=.001$ . In the multiple

regression, the AIQ ( $\beta=.466$ ) was a stronger predictor of physical activity for women, but the AIMS also contributed significantly ( $\beta=.337$ ). For men, Table 8 reveals that only the AIQ was entered as a significant predictor of physical activity  $F(1,19)=6.95, p=.016$ .

Table 6

*Gender Means for AIQ, AIMS, and Godin*

Measure	Men		Women		F values
	M	SD	M	SD	
Godin Total	50.38	24.96	44.79	25.71	.432
AIMS Total	45.50	8.65	42.94	9.60	.316
AIQ Total	84.00	10.26	82.08	12.89	.625
AIQ Appearance	26.20	4.81	25.50	4.90	.298
AIQ Importance	20.70	4.35	19.91	6.20	.293
AIQ Competence	21.87	1.89	20.41	2.69	5.225*
AIQ Encouragement	15.20	2.58	16.26	2.45	2.494

\*Significant at the .05 level.

Table 7

*Multiple Regression Analyses Predicting Physical Activity from AIQ and AIMS for Women*

Predictor	R	R <sup>2</sup>	ΔR <sup>2</sup>	B
Step 1	.513	.263	.263**	
AIQ				.513**
Step 2	.612	.374	.111**	
AIQ				.466**
AIMS				.337**

\*\*Significant at the .01 level

Table 8

*Multiple Regression Analyses Predicting Physical Activity from AIQ and AIMS for Men*

Predictor	R	R <sup>2</sup>	ΔR <sup>2</sup>	B
Step 1	.518	.268	.268*	
AIQ				.518*

\*Significant at the .05 level

**Open-Ended Responses**

Participants answered five open-ended items regarding physical activity and athletic identity (See Appendix D for detailed response tables for each item). As described in the method, all individual responses were listed and then grouped into similar categories in order to identify emerging themes.

*Definition of Athletic Identity.* First, participants were asked to define athletic identity. Of the 47 participants who responded to the question, many (34%) indicated that athletic identity involved an individual's own perceptions about being an athlete as well as the extent to which others validate those perceptions (11%). Several themes emerged as being central to athletic identity, including participating in and excelling at various sports (34%), being physically fit (17%), and having a strong devotion to training for athletics (15%). For example, one participant indicated that having an athletic identity means that a person is "passionate about their physical fitness" while another participant added that having an athletic identity is shown through behaviors: "always around the gym, several daily workouts, center the entire day around workouts and training." A typical athlete was described by respondents as being competitive, determined, dedicated, confident, self-disciplined, and other characteristics often associated with success. Some participants also indicated that athletic identity was related to team involvement (13%). In addition to athletic identity occurring in the domain of sports, participants (13%) also agreed that such an identity carries into other aspects of life: "It's the role you play on your athletic team and how that role bleeds over into your everyday life when you're not necessarily involved in your sport of choice."

*Athletic Identity and Physical Activity.* Participants were also asked to describe the ways in which their identity as athletes might impact their participation in physical activity. The majority of the 49 participants who responded to the question agreed that their athletic identity promoted their engagement in physical activity. Some participants (8%) indicated that physical activity was an integrated part of their identity. For

example, one participant remarked, “As an athlete, it is unacceptable for me to allow myself to slip into bad shape or to become unfit. I don’t think of it in terms of “athlete” or “non-athlete,” it’s more along the lines of just being integrated into my personality and character.” Another participant added that “It’s like if I lose [my physical appearance], then I lose part of who I am.” Participants also stated that identifying as an athlete led them to be more active in order to maintain fitness (33%), in part because they wanted to appear athletic to others: “If people perceive me as an athletic person, I do not want to look out of shape.” On the other hand, for those for whom athletics no longer played such an important role in their lives, physical activity became less of a priority: as one participant stated, “I like to stay active...but I have more important things to do.”

*Change in Physical Activity.* Eighty-three percent of the participants indicated that they were less active now than during college. When asked why their physical activity had changed since college, the most common reasons provided by the 51 participants who responded to the question included job-related responsibilities (47%) and lack of time (31%) as well as physical activity no longer being a requirement (22%). One participant explained, “Since I am no longer competing and not on a team I do not have to make the commitment to work out every day,” while another added, “I am not working towards a set goal. I am not competing. I do not HAVE to exercise every single day.” Because the participants were no longer competing at the collegiate level, a lack of motivation to remain active often ensued: as one participant commented, “We used to run to win races. Running to stay in shape isn’t as great a motivator.”

*Physical Activity Factors.* Finally, participants were asked to cite factors that promoted or interfered with physical activity. The majority of the 49 participants who responded to the question reported that they were active in order to gain health benefits (41%), stay fit (29%), maintain physical appearance (18%) and manage weight (16%). According to the 52 participants who responded to the question, factors that interfered with their engagement in exercise included job responsibilities (56%), pursuit of other interests (38%), a lack of time (27%), lack of resources (25%), obligations to spouses and children (19%), and prevailing injuries (13%).

## CHAPTER V

### DISCUSSION

The main research question investigated in this study is “How is athletic identity related to physical activity levels of retired college athletes?” As was hypothesized, higher athletic identity was related to higher physical activity levels. While the scores on both the Athletic Identity Questionnaire (AIQ) and the Athletic Identity Measurement Scale (AIMS) showed a positive relationship with physical activity engagement, the AIQ specifically was a stronger predictor of physical activity for both men and women. Interestingly, the AIQ was unrelated to self-reported transitional difficulty, while higher AIMS scores were related to greater difficulty with the transition out of college sports. Overall, the participants expressed having a moderately difficult transition out of sports ( $M=3.65$ ), although approximately 64% of the participants reported experiencing a “difficult” or “very difficult transition.” As has been previously discussed, the AIMS assesses athletic identity using a limiting definition of an identity based on participation in a specific competitive sport, which is likely to be lost through retirement. The AIQ may be more strongly related to engagement in exercise after retirement from collegiate sports and unrelated to transitional difficulties because the identity is not contingent upon involvement in competitive sports, but instead is inclusive of broader physical activity. Therefore, the relationship of athletic identity to both the difficulty experienced with transitioning into retirement as well as engagement in physical activity after retirement

may depend on whether athletic identity is measured narrowly or broadly.

Indeed, there do seem to be conceptual differences between the AIQ and the AIMS. While they both claim to be measures of athletic identity, they were uncorrelated to each other. If they were measuring the same construct, one would expect there to be a positive relationship between the two measures, which was not found in this study. Additionally, the multiple regression analyses showed that while the AIQ was a stronger predictor, the AIMS also contributed significantly to the prediction of physical activity. Given that the two measures are not correlated with one another, this suggests that the AIQ is the stronger predictor, but that the AIMS adds additional information and, perhaps, the two measures are measuring different aspects of athletic identity. The difference between the measures might explain the ability of both to contribute to the explained variance in physical activity.

In general, there has been little research on the validity and reliability of the two athletic identity measures. In the original validation research on the AIQ, the measure was not validated based on other identity measures; in fact, its validation was based on its relation to physical activity. Although validated based on the Perceived Importance Profile, the AIMS has also not been rigorously tested as to the extent which it actually measures athletic identity. It may be that these two measures are based on different conceptualizations of athletic identity and are actually measuring two different constructs of athletic identity. The AIMS seems to conceptualize “athlete” as a participant in a specific sport, e.g., “basketball player.” The AIQ, on the other hand, seems to define an “athlete” as an “athletic person” who is involved with athletic activities. The differences

in what these two questionnaires actually measure has implications for differing relationships to outcomes related to sport transition.

Further illuminating the issues related to accurately measuring athletic identity, the AIQ and AIMS also had varying relationships to the participants' single-item self-reports of their current and previous athletic identity. The AIQ was not significantly related to the participants' perceptions of their current athletic identity or the extent to which they felt they previously identified as an athlete while in college. It would seem that the AIMS might be more closely related to the participants' understanding of athletic identity in that the AIMS was positively correlated to the participants' current self-ratings of athletic identity. However, neither the AIMS nor the participants' current self-ratings were related to the extent to which the participants felt they identified as athletes in college.

Overall, the participants more strongly identified as athletes while in college ( $M=4.54$ ) than they do currently ( $M=3.47$ ), indicating that athletic identity does decrease after retirement from sports, which is in line with findings from previous research (Houle, Brewer, & Kluck, 2010). In fact, 97% of the participants reported identifying as an athlete either "completely" or "quite a lot" during college, while only 30% reported identifying that strongly in their current lives. Thus, there appears to be a clear change in athletic identification after retirement from sports, which also seems to parallel an evident decline in physical activity after retirement: 83% of the former athletes indicated that they were less active now than during college. Furthermore, 25% of the athletes reported being currently inactive, with another 10% only having become active again in the past 6

months. Therefore, over a third of these individuals, who formerly participated in the rigorous physical activity demands of Division 1 collegiate athletics, are currently inactive or have been so at one point in the past year. If, as Witkowski and Spangenburg (2008) suggest, cessation of regular exercise among former athletes leads to metabolic issues, changes in body composition, and increased susceptibility to certain types of chronic diseases such as diabetes and cardiovascular disease, then a substantial portion of the current sample may be at risk for these health concerns.

An interesting note about the data regarding athletic identity and physical activity levels among former college athletes is that gender differences do not seem to exist. In the current study, men and women were equally likely to identify as athletes and participate in physical activity. This is in stark contrast to much of the previous literature which has indicated that men usually identify more strongly as athletes (Brewer, Van Raalte, & Linder, 1993) and women tend to be less active than men (Caspersen, Pereira, & Curran, 2000). Perhaps among athletes who have competed at an elite level, such as those who comprise this particular sample, the gender differences in athletic identity and physical activity do not exist. This is consistent with Brooks' (2010) finding that among black females who were former Division I track and field athletes, the women's identity as athletes was more salient than gender identity in the context of physical activity.

While there were no significant gender differences in athletic identity and physical activity found in this study, there were some interesting patterns in the AIQ subscales. When examining the four AIQ subscales, men had slightly higher scores on the appearance, importance, and competency subscales, whereas women had slightly

higher scores on the encouragement subscale. These findings suggest that female athletes may more likely incorporate encouragement from others in their development of athletic identity. In other words, the reinforcement women receive for athletics may play a more important role in supporting their self-definitions as athletes. For female athletes, this finding is consistent with Brewer, Van Raalte, and Linder's (1993) contention that athletic identity serves as a social role and is partly determined by other people's perceptions. Again, gender differences were not very strong, but a larger sample size could better elucidate which factors are more important for determining athletic identity among male and female athletes.

Other potential gender differences may exist in the relationship of athletic identity to physical activity. After running multiple regression analyses for male and female athletes, results indicated the AIQ was a significant predictor of physical activity for both male athletes and for female athletes. Interestingly, the AIMS was a significant predictor of physical activity for female athletes only. These findings suggest that perhaps the relationship between athletic identity and physical activity may be different by gender and depending on how athletic identity is measured (AIQ vs. AIMS). These potential gender differences could be followed up in further research with larger samples.

Overall, the quantitative data collected in this study provide good support for the positive relationship between athletic identity and physical activity. Responses to the open-ended items of the survey further supported this relationship. Many of the participants explicitly reported that identifying as an athlete promoted their involvement in physical activity. As one participant stated, "I would say because I was an athlete that

maintaining high physical activity levels is important to me.” Some of the participants engaged in physical activity in order to maintain an athletic appearance to others as well as to fulfill their own expectations of being an athlete; for example, “Identifying myself as an athlete made myself work harder to keep an athletic appearance and to keep up the athletic persona.” As previous identity research has suggested (Burkes & Reitzes, 1981; Callero, 1985), participants described athletic identity as a self-schema, or a set of self-beliefs that inspire consistent behaviors: One participant reported engaging in physical activity because, “the years of being an athlete just basically shaped how I feel about personal fitness and the kind of body/shape I want for myself.” This fits well with Kendzierski’s (1990; 1994) findings that individuals with an exerciser schemata process information differently from others, use more self-descriptive words related to exercise, and are more likely to engage in exercise behaviors. Overall, in the current study with former athletes, the participants felt that athletic identity, which they described as being rooted in their self-perceptions, others’ perceptions, and previous participation in sports, positively influenced their decision to remain active.

For individuals who had become less active since college, several factors were cited, including job responsibilities, lack of time, lack of motivation, and physical activity no longer being a requirement as it had been in college. While work and time conflicts are common barriers for the larger population, this change in motivation to be active is an intriguing factor. Several participants reported feeling unmotivated and lazy about engaging in physical activity, but the reason for this low motivation was not always directly cited. One possibility is that because physical activity was an integrated part of

the training required to participate in their sport at the Division I level, now that this requirement had been alleviated, the participants were less motivated to be active. One participant commented, “[My physical activity] has changed because I no longer have someone forcing me to be in a certain physical shape,” and another added that physical activity had changed “because I’m not forced to work out 6 times a week and I don’t have that team environment. There isn’t anyone else pushing me, which I had become accustomed to for many years.” Yet another participant stated, “Since I am no longer competing and am not on a team I do not have to make the commitment to work out every day,” and another explained, “You don’t have your coach, teammates, trainers pushing you to get in there every moment you are required to do so.” No longer feeling accountable for their activity, many of the former athletes had lost their motivation to stay active.

As these participants have alluded to, an athlete who participated in a big-time college sport would probably be used to having trainers planning workouts for them, coaches pushing them to adhere to those workouts, and teammates serving as social support to encourage continued participation in those workouts. When an athlete retires from this environment, suddenly the trainers, the coaches, and the teammates disappear. There are no longer people designing workouts for them, and the motivation and support from others to adhere to workouts may also vanish. This drop in motivation when extrinsic rewards disappear has been supported in previous literature on self-determination theory, introduced by Deci and Ryan (1985). One component of this theory maintains that individuals are by nature intrinsically motivated, but the controlling

aspect of external rewards can undermine autonomy and intrinsic motivation. For example, Ryan (1977) found that collegiate athletes on scholarship reported less intrinsic motivation than nonscholarship athletes. It appears that the former athletes in the current study were extrinsically motivated by coaches, trainers, and teammates in their sports during college in a way that they might have perceived to be controlling (i.e., physical activity became a requirement). Based on self-determination theory, external reinforcement and requirements from others undermined the athletes' autonomy and led them to be less intrinsically motivated to participate in physical activity. In the absence of these external rewards and requirements in retirement, the former athletes were less motivated to be active.

One other contributing factor to changing activity levels after retirement from sport seems to be a change in the purpose of those activities. One participant stated: "winning a championship is no longer a goal," and another added that "running to stay in shape isn't as great a motivator." Another participant said that "because I am not practicing or working out for a sport 4 hours a day [my physical activity has changed]." Given these statements, it appears that during their career, many highly competitive athletes use exercise as a means to an end, using exercise training as an avenue for improving their ability to play their chosen sport. Once they retire from that sport, athletes may find it difficult to engage in those same types of physical activity because it no longer serves its original purpose; in other words, they may struggle to see exercise as an end goal itself. In this case, such a strong identification with the athletic role, especially one that is focused on a specific sport, can hinder engagement in possible types

of lifestyle physical activity because it does not fit with the athlete mentality that exercise simply serves as a means to achieving some other sport-related goal. This relates well with the finding that the AIMS, which is very sport-specific, was not as strongly related to physical activity as the AIQ, which is broader in nature. Future interventions that promote physical activity engagement among former athletes might help athletes focus on other positive benefits of physical activity besides enhancing sport performance.

Taken together, the findings of this study suggest that athletic identity is positively related to engagement in physical activity, although this relationship is complex in nature and can be influenced by how an individual identifies as an athlete and what measures are used to assess athletic identity. In her construction of the AIQ, Anderson (2004) argues that the AIMS has focused too narrowly on the exclusivity aspect of athletic identity, which is the degree to which athletes define themselves based on athletics to the exclusion of other possible sources of identity. The results of this study suggest that a more encompassing definition of athletic identity that includes exercise and physical activity is more strongly related to continued exercise engagement after retirement from a specific sport.

### **Limitations and Future Directions**

Future research might further explore this complex relationship between athletic identity and physical activity. There are clear conceptual differences in how different researchers have defined athletic identity, and additional research is needed to clarify these differences and perhaps develop new ways of measuring athletic identity in both current and former athletes. Additional exploration of the influence of athletic identity on

physical activity among former athletes is also warranted. Ideally, a longitudinal study that follows current collegiate athletes during their college career and into their retirement will better demonstrate how physical activity and athletic identity actually change through the retirement process and how one factor may be related to the other. A combination of interviews, focus groups, and survey data collected before, during, and after retirement will further illuminate possible relationships.

A clear limitation of this research is that its descriptive survey design makes it impossible to draw conclusions about any causal relationship between athletic identity and physical activity levels. A positive relationship between athletic identity and physical activity appears to exist, but the factors underlying this relationship are not fully explained. Retirement from sport is a complex process involving many personal and environmental factors (Taylor & Ogilvie, 1994). It may be that athletic identity impacts physical activity engagement. It is also possible that a third factor influences both athletic identity and physical activity during retirement. It may well be the case that multiple factors, including athletic identity, interact in complex ways to influence physical activity at the time of retirement and after.

The sample included in this study is also a limitation. While a strong response rate (60%) was obtained from the individuals who were actually contacted, many potential participants were not included because current contact information was not available. Including former athletes in research studies poses a recruitment challenge in that oftentimes institutions are not aware of where these former athletes have gone since retiring from sport. Many programs, as was discovered in this study, do not keep up-to-

date contact information for former athletes, which makes recruiting these individuals a creative challenge. Nevertheless, important results were obtained in this study, and it is likely that greater participant numbers would help strengthen reliability of the results. The sample was also limited to former athletes from one specific Division I NCAA institution and findings may not be representative of the wider population of former college athletes. It would be beneficial for future research to include participants from various NCAA institutions to obtain results that are more representative of former Division I athletes.

While there are limitations to this current research, this study is one of the first to quantify athletic identity and physical activity levels of former college athletes. Little is known about how this relationship is manifested during retirement. In order to design effective programs to help retiring college athletes foster healthy identities and physical activity levels, it is necessary to document the experiences of former athletes. This survey approach is a first step toward understanding this complex relationship, and the inclusion of additional qualitative data adds to this understanding. Given the high visibility of college sports and the large number of college athletes, understanding the issues related to retirement from sport, including continued engagement in healthy physical activity, is important. Researchers are charged with the task of discovering ways to encourage healthy lifestyles and participation in lifelong physical activity among the 400,000 NCAA student-athletes who participate in college sports each year, all of whom will eventually retire from college sports and face their own set of post-retirement challenges.

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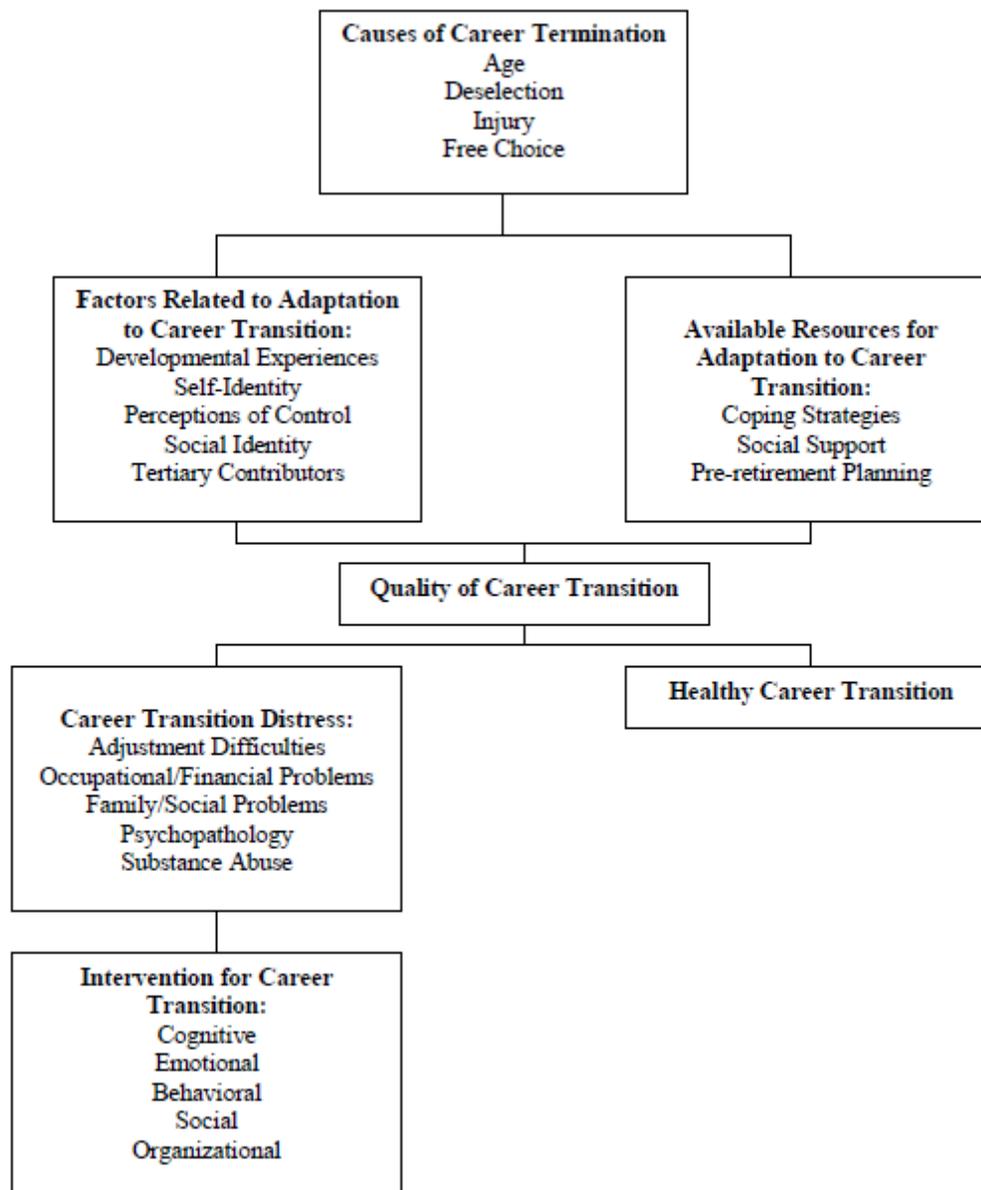
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## APPENDIX A

## CONCEPTUAL MODEL OF ADAPTATION TO CAREER TRANSITION



## APPENDIX B

## MEASURES

## Athletic Identity Questionnaire

In this section of this survey, you will be asked to rate a series of statements about your personal self-perceptions related to sport and exercise. Please rate the extent to which you agree or disagree with each statement as it pertains to how you would currently describe yourself.

1= Strongly disagree 2= Somewhat disagree 3= Neither agree nor disagree  
4= Somewhat agree 5= Strongly agree

I think I look athletic, like a person who exercises.	1	2	3	4	5
I schedule time to exercise.	1	2	3	4	5
My body looks in shape.	1	2	3	4	5
I could participate in several types of physical activity if I wanted to.	1	2	3	4	5
It's obvious to others that I'm flabby and out of shape.	1	2	3	4	5
I get a lot of reinforcement from others regarding my physical activity.	1	2	3	4	5
I would be very irritated if something prevented me from participating in a session of exercise I had planned to do.	1	2	3	4	5
I'm confident of my athletic skills.	1	2	3	4	5
My family/closest friends are enthusiastic about any effort/progress I make concerning exercise/sport.	1	2	3	4	5
I look like I never work out.	1	2	3	4	5
I don't let things get in the way of my exercise/sport	1	2	3	4	5

activity.					
I use several specific strategies to help me maintain regular exercise.	1	2	3	4	5
After illness or injury, I begin exercising again as soon as possible.	1	2	3	4	5
I plan specific alternate times, places, and/or types of exercise to use if I miss an exercise session.	1	2	3	4	5
I simply don't have much athletic ability.	1	2	3	4	5
I look like a person who is physically fit.	1	2	3	4	5
In most physical activities, I feel I can become skilled with enough effort and practice.	1	2	3	4	5
My family/friends are very willing to accommodate my involvement in exercise/sport.	1	2	3	4	5
I'm not very good at athletic activities.	1	2	3	4	5
I receive encouragement from others for exercising.	1	2	3	4	5
My body looks well proportioned.	1	2	3	4	5

### Athletic Identity Measurement Scale

Similar to the last section, in this section of the survey, you will be asked to rate a few statements as they relate to your personal self-perceptions about being an athlete and playing your chosen sport. Please rate the extent to which you agree or disagree with each statement below based on how you would currently describe yourself.

	Strongly Disagree						Strongly Agree
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

### Godin Questionnaire

In this section, we would like to ask you about your current physical activity and exercise habits that you perform regularly, at least once a week. Please answer as accurately as possible.

- 1. During a typical 7-Day period (a week), how many times on the average do you do the following kinds of exercise for more than 15 minutes during your free time (write in each box the appropriate number).**

Times/week    Minutes/session

STRENUOUS EXERCISE (HEART BEATS RAPIDLY): \_\_\_\_\_  
 e.g.- running, jogging, elliptical, hockey, football, soccer, racquetball, basketball, cross country skiing, martial arts, roller skating, vigorous swimming, vigorous long distance bicycling

STRENUOUS EXERCISE (HEART BEATS RAPIDLY): \_\_\_\_\_  
 e.g.- running, jogging, elliptical, hockey, football, soccer, racquetball, basketball, cross country skiing, martial arts, roller skating, vigorous swimming, vigorous long distance bicycling

MILD EXERCISE(MINIMAL EFFORT): \_\_\_\_\_  
 e.g.-yoga, fishing, bowling, golf, easy walking

- 2.) Please list specific physical activities that you participate in regularly.**

### Stage of Exercise

“Regular exercise” is any moderate or vigorous physical activity (e.g., brisk walking, aerobics, basketball, bicycling, dance, jogging, swimming, soccer) performed 3-5 times a week for at least 30 minutes. According to the definition, do you exercise regularly?

Check the one that applies to you:

- Yes, I have been exercising regularly for MORE than six months.
- Yes, I have been exercising regularly for LESS than six 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 six months.
- No, and I do not intend to start exercising regularly in the next six months.

### Open-Ended Questions

In this section, we would like to ask you a few questions about your involvement in sport and physical activity and how your experiences have changed since concluding your collegiate athletic career. In your reflections, please include any information you think is relevant.

Think about the time when you were finishing your college athletic career. How difficult was it for you to no longer be a college athlete?

Very Easy    Easy    Neutral    Difficult    Very Difficult

- 

How much do you currently identify yourself as an athlete?

Not at all    Not much    Somewhat    Quite a lot    Completely

- 

How much did you identify yourself as an athlete during college?

Not at all    Not much    Somewhat    Quite a lot    Completely

-

How would you define athletic identity?

How does your identity as an athlete affect your physical activity levels?

How has your physical activity changed since the conclusion of your collegiate athletic career?

- Less now than during my participation in collegiate sports.
- About the same.
- More now than during my participation in collegiate sports.

If your physical activity has changed since the conclusion of your collegiate athletic career, why has it changed?

What factors promote your current engagement in physical activity?

What factors prevent or interfere with your current engagement in physical activity?

## Demographics

To begin with, we would like to ask you a few demographic questions. Remember, responses will not be traced back to you individually, but your answers to these questions will provide us with general background information.

How old are you?

What is your gender?

- Male
- Female

What race/ethnicity are you?

- White/Caucasian
- African American
- Native American
- Asian/Pacific Islander
- Hispanic/Latina/o
- Other

What is the highest level of education you have completed?

- High School Diploma
- Associate Degree
- Baccalaureate Degree
- Graduate Degree
- Other

Are you currently employed?

- Yes
- No

If you are employed, what is your current occupation?

Are you currently a student?

- Yes
- No

What sport did you play in college?

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

- Less than 6 months
- Less than 12 months
- 1 year
- 2 years
- 3 years
- 4 years
- 5 years or more

In college were you mostly a...

- Starter
- Regular sub
- Rarely played

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
- I no longer play this sport

What other ways do you continue to be involved in this sport (e.g., coaching, administration, officiating, etc)?

What types of sports do you currently compete in regularly?

APPENDIX C  
CONSENT FORM

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT: LONG FORM

Project Title: Relationship of Athletic Identity and Physical Activity Post-Retirement from Collegiate Sports

Project Director: Diane L. Gill and Erin J. Reifsteck

What is the study about?

This is a research project. The purpose of this study is to examine former collegiate athletes' perceptions about sport participation as well as physical activity engagement through retirement.

Why are you asking me?

You are being asked to participate in this study due to your collegiate experience as a former Division I athlete who played for the University of North Carolina at Greensboro and who has recently completed athletic eligibility within the past few years.

What will you ask me to do if I agree to be in the study?

In this study, you will be asked to complete several questionnaires related to your athletic experience. These surveys will be administered electronically by clicking on a provided link that will allow you to access the questionnaires. You can access these surveys from any computer that has internet access. Total participation should last approximately 20-30 minutes to complete the surveys.

Is there any audio/video recording?

There is no audio or video recording involved in this study.

What are the dangers to me?

The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants. You may feel uncomfortable sharing information over the internet, but the surveys are confidential and will not be traced back to you.

If you have any concerns about your rights, how you are being treated or if you have questions, want more information or have suggestions, please contact Eric Allen in the Office of Research Compliance at UNCG at (336) 256-1482. Questions, concerns or complaints about this project or benefits or risks associated with being in this study can

be answered by Erin J. Reifsteck or Diane L. Gill who may be contacted at (336) 334-4683 or via email at [ejreifst@uncg.edu](mailto:ejreifst@uncg.edu) or [dlgill@uncg.edu](mailto:dlgill@uncg.edu).

Are there any benefits to me for taking part in this research study?

There are no direct benefits to participants.

Are there any benefits to society as a result of me taking part in this research?

Data collected in this study may provide information that could be used for the development of life skills programs for future student-athletes.

Will I get paid for being in the study? Will it cost me anything?

There are no costs to you or payments made for participating in this study.

How will you keep my information confidential?

All Information obtained in this study is strictly confidential unless disclosure is required by law. You will not put your name or any identifying information on any surveys, and no participants will be identified individually in any reports. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.

What if I want to leave the study?

You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state.

What about new information/changes in the study?

If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:

By checking the box below, you are agreeing that you read this consent form and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. You are agreeing that you are 18 years of age or older and are agreeing to participate in this study described to you by Erin Reifsteck.

I have read and understood this consent form and am voluntarily participating in this study.

## APPENDIX D

## PARTICIPANT RESPONSES TO OPEN-ENDED ITEMS

Table 9

*Definition of Athletic Identity*

Response Category	N
Self-perceptions of being an athlete	16
Others' perceptions of being an athlete	5
Impacts other aspects of life	6
Team involvement	6
Characteristics associated with success	6
Physically fit	8
Devotion to training	7
Participating in and being good at sports	16
Don't Know	2
Uncodable	3

N=47

Table 10

*How Athletic Identity Impacts Physical Activity*

Response Category	N
Others have expectations of you as an athlete	3
Maintain appearance to others	5
More physically active	19
Maintain fitness	16
Competitiveness	4
Less physically active now that no longer a college athlete	7
Increased motivation/effort	10
High expectations for self	3
Physical activity is part of self-schema	4
Enjoy sports	3
Aware of health benefits	5
Regret inactivity	1
Physical activity is important	2
Impacts physical activity	6
Doesn't impact physical activity	1
Don't know	1

N=49

Table 11

*Why Physical Activity Has Changed*

Response Category	N
Job	24
Education	4
Time	16
Lack of Motivation	8
Change in goals/purpose	7
Family	6
Other responsibilities	2
No longer a requirement	11
Injury/physical limitations	6
Change in structure of activity	7
Self-determined	3
More enjoyable	4
Less competition	2
Lifestyle change	2
Lack of social support	6
Financial constraints	2
Fewer opportunities	4
Negative emotions about activity	2
Less fit	1
Uncodable	1

N=51

Table 12

*Factors Promoting Physical Activity*

Response Category	N
Health	20
Managing weight	8
Staying fit	14
Improve body image	2
Feel stronger	1
Maintain physical appearance	9
More energy	1
Stress Reliever	1
Enjoyment of activity	6
Adventure	1
Competitiveness	2
Personal Drive	2
Feel good	6
Social support	5
Location	1
Being a role model for others	6
Still participate in sports	2
Job	4
History of being active	4
Improvement	2
Form of transportation	1
Uncodable	1

N=49

Table 13

*Factors Interfering with Physical Activity*

Response Category	N
Job	29
School	5
Time	14
Family	10
Injury/pain	7
Other activities	20
Lack of motivation	6
Lack of resources	8
Lack of social support	4
Lack of energy	5
Daily life	3
Stress	1
Used to exercise too much	1
Nothing	1

N=52