

EXPLORING TRANSITIONS: ATHLETIC RETIREMENT ON DEPRESSIVE SYMPTOMS,
PSYCHOLOGICAL WELL-BEING, AND EXERCISE ADHERENCE IN FIRST-YEAR

UNIVERSITY STUDENTS

by

Caroline Loy

Bachelor of Science, 2023

Texas Christian University

Fort Worth, Texas

A Thesis

Submitted to the Faculty of

Harris College of Nursing and Health Sciences

Texas Christian University

in partial fulfillment of the requirements for the degree of

Master of Science

In

Kinesiology

(Sport and Exercise Psychology)

at

TEXAS CHRISTIAN UNIVERSITY

Fort Worth Texas



Summer 2025

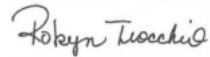
APPROVAL

EXPLORING TRANSITIONS: ATHLETIC RETIREMENT ON DEPRESSIVE SYMPTOMS,
PSYCHOLOGICAL WELL-BEING, AND EXERCISE ADHERENCE IN FIRST-YEAR
UNIVERSITY STUDENTS

by

Caroline Loy

Thesis approved:



Dr. Robyn Trocchio, PhD, CMPC, Major Professor



Dr. Phillip Esposito, PhD, Committee Member



Dr. Cathy Cox, PhD, Committee Member

Copyright by

Caroline Loy

2025

ACKNOWLEDGEMENTS

I would like to thank my mentor, Dr. Trocchio, for all the guidance and help she has provided to me over the course of my education at TCU. She has helped me throughout the entire process of this thesis, and I greatly appreciate her dedication to teaching me and her effort to make sure I was successful within the program. I would also like to thank Dr. Esposito for helping me analyze data and being a supportive committee member. Next, I would like to thank Dr. Cox for her support through allowing my research to be published within the TCU Psychology SONA system to help with recruitment, as well as a committee member for my thesis project.

I would also like to fully acknowledge and thank you for the support of the graduate and undergraduate students within the sport and exercise psychology lab. Haylei Scoggins, Rebekah Bakken, Sarah Junkersfeld, Lexi Rosenbrand, Troy Bucciero, Collin Moonan, and Julia Preston. Thank you for all the help with sending out the word of the research study across campus. I could not have been able to collect as many responses from participants without the help I received, and I greatly appreciated all the help.

Table of Contents

Acknowledgements.....	ii
List of Figures.....	vi
Abstract.....	vii
Chapter I: Introduction.....	1
Purpose of the Study.....	4
Study Significance.....	4
Chapter II: Review of Literature.....	6
Theoretical Frameworks.....	6
Transition Theory.....	7
Lifespan Perspective on Sport Transitions: Normative Vs. Non-Normative Transitions.....	13
Athletic Career Transition Model.....	14
Developmental Model on Transitioning out of Elite Sport.....	17
Theories on Athletic Identity.....	22
Athletic Identity.....	22
Mental and Behavioral Health Factors.....	26
Depression.....	27
Psychological Well-Being.....	29
Exercise Adherence.....	31
Conclusion.....	34
Research Questions and Hypotheses.....	34

Chapter III: Methods	36
Participants	36
Measurements.....	36
Demographics questionnaire	36
Athletic Identity Measurement Scale	36
Depressive symptoms	37
Psychological well-being	38
Exercise Adherence	38
Procedures	39
Data analysis	40
Chapter IV: Results.....	41
Descriptives.....	41
Correlational Analysis.....	45
Regression Analysis	45
Depression Symptoms	46
Psychological Well-being.....	46
Exercise Adherence	46
Chapter V: Discussion	51
Depressive Symptoms	48
Psychological Well-Being.....	51

Exercise Adherence	53
Limitations and Future Research.....	55
Conclusion.....	57
References.....	59

LIST OF TABLES

1.	Table 1: Participants' Demographic Characteristics.....	42
2.	Table 2: Participant Sport Background and Injury-Related Characteristics.....	42
3.	Table 3: Descriptive Data on Physical Activity, Mental Health, and Adjustments Post-Retirement from Sport.....	44
4.	Table 4: Correlation Analysis, Means, and Standard Deviations - AIMS with BDI-II, IPAQ-SF, and WHO-5.....	45
5.	Table 5: Regression Analyses Predicting Depressive Symptoms, Exercise Adherence, and Psychological Well-Being.....	46

ABSTRACT

EXPLORING TRANSITIONS: ATHLETIC RETIREMENT ON DEPRESSIVE SYMPTOMS, PSYCHOLOGICAL WELL-BEING, AND EXERCISE ADHERENCE IN FIRST-YEAR UNIVERSITY STUDENTS

by

Caroline Rose Loy

Master of Science, 2025 and Texas Christian University

Robyn Trocchio, PhD, CMPC

Retiring from high school athletics and beginning university marks a significant transition in an athlete's life (Ferrara et al., 2024). Previous literature has shown that athletic identity post-retirement affects first-year students' mental health and affective responses (de la Vega, 2021; Holding et al., 2018). The current study analyzed how athletic identity influences exercise adherence, psychological well-being, and depressive symptoms in 185 first-year university students who were former high school athletes. Participants completed the Athletic Identity Measurement Scale (AIMS; Brewer & Cornelius, 2001), Beck's Depression Inventory – II (BDI- II; Beck et al., 1996), World Health Organization Well-Being Index (WHO-5; Topp et al., 2015), and International Physical Activity Questionnaire – Short Form (IPAQ-SF; Craig et al., 2003) via Qualtrics. Results found that AIMS negative affect subscale was positively correlated with depressive symptoms ($r = .27, p < .001$). A negative correlation found with the AIMS negative affect subscale with psychological well-being ($r = -.32, p < .001$). A positive

correlation was found with exercise adherence with AIMS composite score ($r = .18, p = .007$), AIMS social identity subscale ($r = .25, p < .001$), and AIMS exclusivity subscale ($r = .15, p = .017$). Participants who reported higher levels of athletic identity were more likely to report higher levels of depression and exercise adherence, and lower levels of psychological well-being. However, less than 10% of the variance was found to be explained by athletic identity. This suggests that first-year university students who were former high school athletes may be predisposed to experience negative mental health and emotions due to the loss of their athletic identity as they also transition into a university.

CHAPTER I: INTRODUCTION

As athletes transition from high school to college, they face a myriad of changes and challenges. In the 2022-2023 academic school year in the United States (US), around 8 million high school students participated in competitive high school athletics; however, only an estimated 500,000 in 2022-2023 went on to compete at the collegiate level (Estimated probability of competing in college athletics, n.d.). Retirement from high school sports marks a critical period of athletic dropout that coincides with the dual transition of leaving behind athletic identity and entering university life - a shift that significantly affects 17- to 19-year-old student-athletes as they face increased academic demands, new living arrangements, social changes, and identity loss (Berman & Sperling, 1991; Brewer et al., 1993; Compas et al., 1986; Russell, 2016; Terrell et al., 2021; Stambulova, 1994, 2003; Wylleman & Reints, 2010; Zhou et al., 2023).

Identities are described as a conceptual way for individuals to define who they are and determine how they interact with the world. Athletic identity, in particular, reflects how athletes perceive themselves and engage with their environment through the lens of their sport involvement (Brewer et al., 1993; Wylleman & Lavallee, 2004). Athletes with a strong athletic identity predominantly see themselves as athletes, whereas those with a low athletic identity do not primarily identify themselves as athletes (Brewer et al., 1993; Defreese et al., 2021; Wylleman & Lavallee, 2004). While a strong athletic identity can enhance sport performance (Shander & Petrie, 2021), it may also contribute to negative outcomes during the transition out of sport, including increased depressive symptoms (Schlossberg, 1981), reduced psychological well-being (Taylor & Ogilvie, 1994), and lower exercise adherence (Shander & Petrie, 2021).

Depression is currently listed as one of the major causes of disability worldwide (American Psychiatric Association, 2013). One of the main concerns with retirement from sport is experiencing heightened depressive symptoms due to a loss and transition away from an athletic identity. Athletes with a stronger athletic identity with their athletic role who subsequently retire from sport tend to report higher levels of depression symptoms during the transition period (DeFreese et al., 2021; Russell et al., 2018). Both significant life transitions (e.g., new school environments) and sport retirement have been associated with negative affective responses, such as depression (DeFreese et al., 2021; Pierce, 2023). For first-year university students, simultaneously navigating the transition to college and retirement from sport may increase these adverse emotional outcomes.

Evaluating affective responses and mental health factors, such as depressive symptoms, provides a comprehensive understanding of how sport retirement influences the psychological well-being of athletes. Psychological well-being refers to an individual's ability to experience happiness, maintain physical health, and sustain a favorable perception of their quality of life (Dhanabhakym & Sarath, 2023; Holding et al., 2018; Mathews et al., 2021; Zvosec et al., 2023). For former high school athletes, psychological well-being is particularly influenced by the strength of their athletic identity and their interpretations of their time in sport and the transition out of it. During sport retirement, previous research has shown that former high school athletes report lower levels of psychological well-being when entering university (Holding et al., 2018; Mathews et al., 2021; Peirce, 2023; Russell et al., 2018). This decline in well-being is associated with the loss of athletic identity and the inability to engage in meaningful, subjective experiences once derived from sport participation, ultimately negatively affecting overall mental health (Peirce, 2023).

For athletes, engaging in physical activity and exercise allows athletes to feel connected and competent within their sport (Alvariñas-Villaverde et al., 2021). Exercise adherence serves two main functions for athletes; the first function aims to condition the body to meet the physical demands of the sport, and the second function centers around gaining overall health benefits of regular physical exercise. The current United States (U.S.) physical activity guidelines for adults are to obtain at least 150-300 minutes of moderate exercise intensity or 75-150 minutes of vigorous exercise intensity (U.S. Department of Health and Human Services & Burwell, 2018). However, a recent study found that only 20% female collegiate soccer players reported consistently engaging in regular physical exercise after their athletic retirement (DeFreese et al., 2021). For former athletes, maintaining exercise adherence may not only promote physical health but also serve as a critical psychological resource. Consistent exercise can help buffer against the emotional challenges associated with major life transitions, such as the loss of athletic identity, by improving psychological well-being and reducing symptoms of depression (DeFreese et al., 2021; Holding et al., 2018; Russell et al., 2018).

In addition to understanding the affective responses and mental health factors that influence sport retirement, it is also crucial to understand how athletes perceive their retirement experiences. More specifically, the formation of their athletic identity, experiences with performance successes, and then eventual perceptions of retirement from sport can significantly shape the experiences of first-year university students who have recently concluded their athletic careers (Shander & Petrie, 2021; Terrell et al., 2021; Zvosec et al., 2023). Previous research found that 57.3% of former collegiate athletes perceive their sport retirement negatively (Stokowski et al., 2019). This suggests that for many athletes, reflecting on their transition out of sport elicits predominant negative evaluations (Stambulova, 2003; Stokowski et al., 2019). While much of the existing literature has focused on collegiate, elite, and professional athletes (Shander

& Petrie, 2021; Stokowski et al., 2019; Russell et al., 2018, Zvosec et al., 2023), more recent research has begun to explore the experiences of former high school athletes transitioning into college (Helms, 2010; de la Vega, 2021).

Given that the majority of athletes conclude their competitive careers at the high school level, additional research is warranted to better understand this population (de la Vega, 2021; Ferrara, 2021; Ferrara et al., 2024; Helms, 2010; Helms & Moiseichik, 2018). If athletes at higher competitive levels experience negative perceptions about their sports retirement, it is reasonable to hypothesize that high school athletes also experience similar psychological challenges. These challenges may negatively impact their psychological well-being, exercise adherence, and depressive symptoms during the transition to university life. A clearer understanding of how athletic identity influences the retirement experience among high school athletes could inform the development of targeted interventions similar to those implemented at the collegiate level. Such efforts may assist universities in better supporting first-year students who are no longer competing in organized sport.

Purpose of the Study

The purpose of this study was to investigate how athletic identity influences depressive symptoms, psychological well-being, and exercise adherence among first-year university students who have retired from high school athletics.

Study Significance

The study allows researchers and universities to better understand how athletic identity can affect the sport retirement of former high school athletes as they transition into their first year at university, more specifically, their relationships with depressive symptoms, psychological well-being, and exercise adherence. If a student's overall affective response and mental health factors are negative, it can greatly impact their ability to succeed in their university pursuits.

Understanding the impact of athletic identity and sport retirement helps identify possible student populations who may be predisposed to experiencing barriers to adjusting to university life due to changes in self-identity from athletic retirement. Also, assessing the impact of athletes' affinity on their sport retirement from high school into the first year at a university could help create and implement interventions and resources to help make the transitions easier and more inclusive to students and their backgrounds.

CHAPTER II: REVIEW OF LITERATURE

Previous literature has primarily focused on the retirement of collegiate (Barrett et al., 2022; Shander & Petrie, 2021), professional (Stambulova, 2017; Wylleman & Reints, 2010), and elite (Brand et al., 2013; Holding et al., 2018) athletes and the affective responses they experience. Reviewing the literature provides a comprehensive understanding of how athletic identity can serve as a predictive factor for athletic retirement on mental and behavioral health factors, such as depressive symptoms, psychological well-being, and exercise adherence, in former high school athletes transitioning into college. Topics addressed include:

- (1) The relevant theories are addressing sport transitions models (i.e., normative and non-normative retirements) can affect former athletes' psychological well-being, depressive symptoms, and exercise adherence; the relevant theories addressing athletic identity;
- (2) psychological well-being, depressive symptoms, and exercise adherence in college students.

Theoretical Frameworks

Various theories attempt to explain different life transitions and how they can affect individuals' psychological stress and emotional well-being throughout the lifespan. The Transition Theory claims that an individual's ability to cope through life transitions is impacted by experiences of transition and the stress response as a result (Schlossberg, 1981). A sport-specific transition theory, the Conceptual Model of Athletic Retirement explains how athletic retirement is a process and how athletes must go through a stage-based step system to achieve a result of healthy athletic retirement (Taylor & Ogilvie, 1994). The Athletic Career Transition Model was created to explain the transitional process out of sport, and the interactions that affect

the transition (Stambulova, 1993; 2000; 2003; 2009). Additionally, the Lifespan Perspective on Sport Transition aims to explain how an athlete's career development and ability to cope with challenges influence their transitions out of sport, distinguishing these transitions as normative or non-normative (Siekanska & Blecharz, 2020; Stambulova, 1994; Wylleman & Lavallee, 2004; Wylleman & Reints, 2010). Finally, the Developmental Model on Transitions Out of Sport was developed to explain the different types of transitions an athlete may experience during their athletic career and frame them through the lens of the lifespan perspective (Wylleman & Lavallee, 2004). The following sections will provide a more detailed explanation of each theory.

Transition Theory

Transition Theory aims to explain how individuals cope with transitions and changes in their lives (Schlossberg, 1981). Transition theory developed from Crisis Theory, which seeks to explain why the disruption of individual equilibrium for problem-solving skills results from a stressful situation. A crisis is a brief period where an individual cannot solve a problem as they could previously and must find new ways to solve it. More specifically, a crisis or crisis moment can include situations where an individual may not have the current skills to solve problems that occur and is placed into a position to adapt to find new coping skills to solve their problem (Taylor & Ogilvie, 1994; Schlossberg, 1981; Stambulova, 2017). Transitions through life represent crisis moments when an individual's consistent patterns are disrupted by a sudden change of no longer engaging in previous habitual daily occurrences. Crisis can occur during transitions induces perceived feelings of discomfort, fear, and anxiety. Various transitions, such as retiring from sport, can influence how adults view themselves, particularly in terms of their identities. The degree to which adults can cope with transitions and changes in their lives is a

result of their ability to adapt. Adapting is the process of integrating the overall transition characteristics into their daily structure (Schlossberg, 1981).

When defining and assessing an individual transition, the emphasis is placed on how this transition interacts with the individual's lifestyle, current situation, and stage of life (Schlossberg, 1981; Zhao et al., 2023). An individual's lifestyle consists of how they interact and behave within the world around them. An individual's life stage depends on the developmental levels of childhood, adolescence, or adulthood. Major life transitions do not typically begin to occur until adolescence and adulthood. The three main factors that influence transitions are the perception of the transitions, the environment pre- and post-transition characteristics, and the characteristics of the transition. Perceptions of the transition are the individuals' interactions and evaluations with the characteristics of the transition. These characteristics are defined as the sources, effects, timing, onset, duration, degree of stress, and the role changes associated with the transition. They are further examined by assessing environmental changes that occur before and after the transition. There are two outcomes to transition, which include: (1) adaptation to change or (2) failure to adapt to change. The interactions of the three factors of transition play a vital role in the individual's overall outcome.

Stress responses can occur during transitions between life circumstances (Schlossberg, 1981). Most stress responses that are a result of transitions stem from one of three categories of events: (1) an absence or change of life events, (2) failure of events expected, and (3) distribution of events that were formerly labeled as stressful. Life events can be divided into either high-probability events or improbable events. High-probability events are experiences that commonly occur in many adults, such as entering college (Russell et al., 2018; Schlossberg, 1981; Terrell et al., 2021; Zhao et al., 2023). Failure of events that were expected can also occur, including a high school athlete who expects to play college athletics, and they do not end up playing on the

collegiate level. An example of unmet expectations could be a high school athlete who wishes to compete in collegiate athletics but gets injured and is no longer able to pursue that goal.

Mitigation is a process in which an individual minimizes the severity and stress of the situation and, in response, engages in disrupting events. Situations that require stress mitigation can be seen in sport participation. Specifically, it can be seen when athletes have career-ending injuries and choose to reframe their assumptions, of no longer being able to play sports competitively and engage in sport in other ways than competition (Shander & Petrie, 2021). When an individual experiences a transition like retirement from sport, the characteristic of the transition varies between individuals. Role changes could include no longer being a part of a competitive team, the loss of occupation from sport, or gaining the opportunity to engage in sport in a way that does not include being an athlete. The affective responses could range from positive responses like an increase in positive feelings and gratitude for a person's sport or negative feelings like depression because they are no longer competing in the sport anymore (Russell et al., 2018). Sources of transition are dependent on whether the individual chose to retire from sport (internal) or if they did not make the college team (external). An individual could have begun gradually scheduling their sport retirement process on their timeline (on-time), or their retirement could have been sudden and unplanned due to injury (off-timing). The duration of sport retirement is indicative of sport retirement planning. The longevity of an individual's transition out of sport depends on their level of preparedness before retirement. The degree of stress that could be perceived by individuals varies, as retiring from sport could represent major life-altering events like loss of occupation or loss of a social hobby with peers.

Pre- and post-transition characteristics provide critical insight into the environmental factors that support individuals during transitional processes (Schlossberg, 1981). Three main transition characteristics of pre- and post-transition are interpersonal support systems,

institutional support, and the physical setting. Interpersonal support systems are the coping strategies and behaviors that an individual has with an affiliated group of either friends, family, or neighbors. Institutional support is official agencies that an individual can call for help, or like religious groups, welfare groups, occupational groups, and community groups. The physical setting of occupation, school, and living arrangements can play a part in adaptation during a transition and managing stress. From the perspective of sport retirement, the ability for an individual to have interpersonal support systems of coping strategies with an affiliated group does change pre- and post-retirement.

Before retirement, an athlete has their affiliated group with their fellow teammates and coaching staff, while post-retirement, the athlete no longer has those teammates and coaching staff as a support system and must find affiliation from other sources. The institutional support for athletes before retirement could be found within their team, sport organization, or school. Additionally, interpersonal social support and the ability to utilize these supports during post-retirement may not look the same as in other investments needed to aid in transition. The physical setting is also important for sport retirement transitions, as the setting for engaging in sport as an athlete will look different post-retirement; however, the effects of an individual's living arrangement and workplace can help facilitate during transitions to either aid in psychological well-being or create more stress.

The characteristics associated with pre- and post-transition phases are influential, as their utilization and relevance may differ substantially between the two phases. This is particularly evident in sport retirement, as the athlete's social environment, institutional support, and overall contextual climate often undergo significant changes upon retirement. This is due to an athlete no longer being a part of an athletic organization/team and cannot use the previous resources that

could aid with their transition. Resources could include sport retirement planning, counseling services, and social support.

The characteristics of the individual who is experiencing the transition also play a major part in the ability to adapt and cope (Schlossberg, 1981). Specific characteristics include psychosocial competence, sex, age or life stage, health status, race-ethnicity, socioeconomic status, value orientation, and previous experience with the transition. Psychosocial competence comprises three personality components of self-attitudes (i.e., self-evaluation, locus of self-control, sense of responsibility), world attitudes (i.e., levels of optimism/trust), and behavioral attitudes (i.e., coping orientation). Sex, age, or life stage, health status, race-ethnicity, and socioeconomic status are key aspects of self-identity and self-evaluation, which influence how individuals perceive themselves during a transition. Value orientation is an individual's level of belief in their ability to adapt and cope with the transition. When an athlete goes through sports retirement, their characteristics play a key role in their ability to adapt. Psychosocial competence plays the role of directing the athlete as it dictates how they view themselves, how they view the world, and their behaviors through the transition. An athlete, during their retirement, will self-evaluate no longer being an athlete. Their internal locus of control and sense of responsibility will also affect how a former athlete believes that they have control and responsibility over how their life moves forward after their sport transition. How an athlete chooses to identify or define themselves also impacts their ability to cope with the sport transition. Some factors like socioeconomic status, age, state of health, and race/ethnicity can negatively or positively affect the resources an athlete can use during their sport transition (Roche et al., 2022; Schlossberg, 1981). Examples include not being able to afford transitional career counseling or retirement with an injury, and their health is a barrier to transitioning. The athlete's value orientation of

their transition out of sport sets the retirement process's trajectory based on how they believe they can transition well or not.

Individuals experience transitions based on their interactions with the environment, psychosocial attitude, and perceptions of their coping abilities (Schlossberg, 1981). An athlete can uniquely interpret their transition to perceive it as positive or negative. Depending on athletes' interpretation of the sport transition, if categorized as negative, it could potentially lead to a crisis episode (Schlossberg, 1981). How an individual manages the transition determines whether they can successfully adapt to the change or struggle to adapt. Successful adaptation is described as the process by which an individual shifts from being preoccupied with the transition event itself to incorporating it into their daily life. An individual who is preoccupied with their transition allows the idea of the transition to take possession of all their thoughts and actions. An athlete anticipating retirement at the end of the season may become preoccupied with the transition, allowing thoughts of retirement to dominate their cognition and behavior prior to its occurrence. In contrast, a more integrated approach enables the individual to gradually incorporate the transition into daily life, allowing it to become part of their routine without overwhelming their thoughts or actions. Building off the previous example, an athlete preparing to retire at the end of the season may come to accept the transition by integrating it into their sense of self instead of becoming preoccupied with being labeled as the "retired athlete."

The quality of adaptations depends on the resources or deficiencies present both before and after the event. Other major factors influencing the quality of the adaptation process include the individual experiencing overall psychological well-being, health, sense of competency, and interpersonal support system networks. An example of high-quality transition could be seen through an athlete retiring who has experienced a healthy transition out of sport by participating with an integrated social support system (e.g., friends, family, coaches, etc.), has engaged in pre-

retirement planning such as finding an occupation, advanced school, etc., and is physically and psychologically healthy (Taylor & Ogilvie, 1994; Schlossberg, 1981; Siekanska & Blecharz, 2020; Stambulova, 1994; Stambulova, 2003).

Lifespan Perspective on Sport Transitions: Normative Vs. Non-Normative Transitions

A Lifespan Perspective on Sport Transitions (Wylleman & Reints, 2010) aims to categorize the transitions outlined within Transition Theory (Schlossberg, 1981) within a sport retirement context. More specifically, the perspective seeks to explain how an athlete's career development impacts their transition out of sport and categorizes them as normative or non-normative (Wylleman & Reints, 2010). Normative transition is an expected, predictable, and voluntary process prepared for through athletic development, while non-normative transition is an unexpected, involuntary event that an athlete does not naturally prepare for. (Stambulova, 2003; Wylleman & Lavallee, 2004; Wylleman & Reints, 2010). Normative transitions are defined as transitions within an athlete's career that are deemed to be expected or follow a natural sport athletic development (Wylleman & Reints, 2010). Forms of normative transitions from sport include autonomous/planned retirement or moving up into higher levels of competition (Siekanska & Blecharz, 2020; Stambulova, 1994).

The opposite of a normative transition out of sport is a non-normative transition (Wylleman & Reints, 2010). Forms of non-normative transitions include injury, de-selection, illness, lack of financial resources, or an unanticipated retirement from sport (Siekanska & Blecharz, 2020; Stambulova, 1994). Non-normative transitions can be indicators of athletic crisis-transitions (Stambulova, 2003). Crisis-transitions out of sport can leave lasting negative impacts on athletes' self-esteem, ability to cope with stress, and experience considerable amounts of emotional/psychological distress (Stambulova, 2003). Depending on the severity level of the

non-normative transitions, an athlete may need to seek psychotherapeutic or clinical interventions to cope with the sport transition (Stambulova, 2003).

Throughout an athlete's development, they can learn coping strategies that not only enhance their performance but also assist with their transition out of sport. The athlete's ability to cope with the challenges of their sport determines whether they successfully transition into a higher level of development or face a crisis transition (Siekanska & Blecharz, 2020; Stambulova, 1994; Wylleman & Reints, 2010). A crisis transition can impede an athlete's progress towards development transition, requiring them to find new coping skills in order to navigate a successful transition (Stambulova, 2003).

Athletic Career Transition Model

Similar to the Model of Athletic Retirement, the Athletic Career Transition Model was created to explain the transitional process out of sport and the interactions that affect the transition (Stambulova, 1993; 2000; 2003; 2009). The main interactions within this model are how to cope and interact with the demands of the transition and affect the internal perspective of the athlete (person-related) and their external resources (environmental resources or barriers). Two defined transition pathways depend on the athlete's ability to cope. The first is a successful transition and is a product of effective coping strategies to meet its demands. The second crisis transition is a result of ineffective coping strategies that did not meet the transition's demands. The type of transition, whether it is experienced as successful or unsuccessful, can significantly influence an athlete to either continue participating in the sport or adjust to retirement. Within the model, three interventions were developed: crisis prevention, crisis coping, and negative-consequence coping. These interventions are designed to support athletes experiencing an unsuccessful transition by helping them cope more effectively or facilitating a shift toward a

more successful transition. In the current study, the focus will be on athletic career transitions as they relate to high school athletes' transition out of sport.

The model begins with the athlete identifying the transition demands or challenges (Stambulova, 2003). Identifying the specific transition demands encountered by an athlete is the necessary first step in initiating the transition process. The transition demands serve as an obstacle the athlete can attempt to overcome; for example, retired high school athletes entering their first year of a university have transitional demands of retiring from sport and beginning a new life experience (Ferrara, 2021; Pierce, 2023; Russell et al., 2018). The athlete experiences a developmental conflict between their current athletic self-concept high school athlete, and their aspirational identity of no longer being an athlete (Ferrara, 2021; Pierce, 2023; Russell et al., 2018; Stambulova, 2003). In preparing to transition to the next level of competition, the athlete needs to develop an accurate understanding of their present athletic profile, including skill level and psychological characteristics, and to envision their desired future (Stambulova, 2003). This developmental conflict initiates the need for the athlete to identify available resources and adopt appropriate coping strategies to facilitate the transition.

Once transition demands are identified, an athlete assesses the dynamic balance between transition resources and barriers. To attempt to overcome the transition barriers, the athlete must utilize their internal and external resources while employing appropriate coping strategies (Stambulova, 2003). Athlete resources are categorized into two domains: internal resources, such as sport-specific skills, sport-related knowledge, and personality traits; and external resources, including social or interpersonal support and financial means to continue participation in sport. Transition barriers refer to obstacles that hinder the utilization or effectiveness of these resources, thereby compromising the athlete's ability to cope successfully. For example, insufficient sport-specific skills or limited social support are considered transition barriers. When

these barriers disrupt the balance between available resources and the demands of the transition, they may impede the athlete's capacity to adapt effectively.

After an athlete is able to understand the balance between their transition resources and barriers, the next step is implementing coping strategies. Coping is defined as the directional self-improvement of the athlete to adjust to the transitional demands they are facing within their sport (Stambulova, 2003). The athlete's ability to cope is shaped by the balance between available resources and encountered barriers. Effective coping occurs when the athlete's resources are sufficient to overcome the barriers and meet transition demands, while ineffective coping occurs when resources are insufficient and result in an unsuccessful transition. In cases of ineffective coping, athletes may use targeted coping interventions or accept the unsuccessful transition.

Depending on how successful an athlete's coping strategies are, they will assess if there is a need for interventions. Psychological crisis-coping interventions are utilized to help athletes gain effective coping strategies to overcome their transition demands within their sport. There are a few factors that play into why an athlete was unable to cope with their transition demands (i.e., lack of skill development, lack of resources). Psychological crisis-coping helps an athlete gain the coping resources to overcome the demands. Examples of psychological crisis-coping include mental skill training such as goal setting, creating a social support system, and imagery techniques. The use of these techniques is utilized when it is identified that an athlete is in crisis and deemed necessary that the aid from these techniques can assist with the transition. If an athlete can use the psychological crisis-coping interventions and meet their transition demands, they can move into effective coping. Although there is a delay in the transition from ineffective coping to effective coping, it is deemed as positive because the athlete was eventually able to achieve their transitional demands. Interventions serve a dual purpose for athletes experiencing

ineffective coping. Helping athletes overcome their transitional demands and meet athletic normative transitions is helpful. However, implementing psychological crisis-coping interventions helps an athlete cope psychologically and mitigate the negative consequences experienced with the distress that could arise from the crisis-transition out of sport.

When an athlete is unable to effectively cope with their athletic transition, even with the assistance of psychological crisis-coping interventions, they would move to the “Costs” for Failure to Cope with the Transition (Stambulova, 2003). Crisis-transitions within are categorized as non-normative transitions out of sport, as they involve unexpected emotional, psychological, and physical challenges that cannot be anticipated or planned for in advance. Crisis symptoms are used to identify when an athlete is experiencing a crisis; the model outlines specific behaviors, feelings, and/or cognitions for practitioners to administer interventions (Stambulova, 2003). Examples of crisis-symptoms include a decrease in self-esteem, chronic emotional discomfort (i.e., depression, guilt, fear, anxiety, doubts, aggression), an increase in sensitivities to failures, psychological barriers, and disoriented decision-making/behavior. The symptoms are direct results of ineffective coping with the transitional demands and the lack of coping resources to help the athlete. Commonly, psychological crisis-coping or clinical psychotherapy are utilized as interventions to aid athletes in dealing with their crisis symptoms during their athletic transitions. Transitions out of sport have reported that athletes felt these types of transitions to be traumatic, negative, and a situation that requires additional support to cope (Stambulova, 2003).

Developmental Model on Transitioning out of Elite Sport

The Developmental Model on Transitions out Elite Sport was developed to explain the different transitions an athlete may experience during their athletic career (Wylleman & Lavallee, 2004). The model adopts a developmental and holistic approach to understanding athletic transitions by considering not only the athletic context but also the athlete’s broader

developmental domains, including psychological, academic, social, legal, financial, and vocational factors. The current study will focus on adolescence and young adult development within the model of transitioning out of elite sport.

Transitions within and out of sport are generalized to be a process rather than a singular event (Wylleman & Lavallee, 2004). The transition prompts significant changes in an athlete's daily life and disrupts their established self-perception. As stated earlier, sport transitions are categorized as either normative, predictable, voluntary, and follow a set schedule, or non-normative, unpredictable, and do not follow a set schedule. Throughout the athletic lifespan, athletes may experience both types of transitions, like moving up in sport competitions (normative) or dealing with career career-ending injury (non-normative).

A major form of normative transition for athletes is the transitions between athletic competition or development levels. Athletic development and progression are traditionally categorized by age and skill level, organizational characteristics of the sport, and athletic proficiency (Wylleman & Lavallee, 2004). The first type of transition is age and skill level; a major example would be athletes progressing from junior level to senior level of competition. At each age and skill level, athletes' attrition rates will tend to increase, affecting those who advance to the next level of competition and those who do not. The second type of transition is the organizational characteristics of competitive sports. Within the U.S, the organization of sports is dependent on the educational system. Athletes will compete based on their educational ranking in either middle school, high school, or collegiate athletics. Similar to the transitions across age and skill levels, each successive stage within the organization competition structure is associated with an increasing attrition rate at higher levels of competition. The third type of transition is athletic proficiency with normative progression in skill development. Three specific stages are identified: (1) initiation stage, (2) development stage, and (3) mastery/perfection stage.

The initiation stage marks the beginning of the athletes' careers by introducing them to organized sports. The average age of athletes within the stage is up to 14 years old. Athletes are first labeled as talented in this initiation stage, which occurs when the athletes transition out of the initiation stage and into the development stage, and become specialized in their skills. The average age of athletes within the developmental stage is 15 years old. The mastery/perfection stage occurs when the athlete transitions out of the developmental stage by achieving the highest level of athletic proficiency within their sport. The average age in the mastery stage is around 18 years old. The average ages of athletic proficiency are average across different sports and cultures and may differ depending on the focus of transitions.

Simultaneously, athletes transition in psychological development with transitions of the athletic context. An athlete's psychological development follows across their lifespan. The major stages of life that focus on psychological development within sport participation are adolescence and adulthood. The adolescence stage of development centers around achieving new psychological maturation through self-identity. Key factors that affect self-identity while participating in sport include societal expectations related to gender roles, perceptions of physical appearance, emotional independence from parents, and mature relationships (Rice, 1993; Wylleman & Lavallee, 2004). Athletes can develop a strong sense of self-identity with athletic identity through participation during their adolescent years. Athletes who choose to compete in sport in their adulthood will continue to develop psychosocially with their athletic identity as they did in adolescence (Brewer et al., 1993; Wylleman & Lavallee, 2004).

Athletes during their adolescent years begin to construct their self-identity separate from their parents' using commitments, like sport participation, as a means of exploring and defining their personal values and future aspirations (Brewer et al., 1993; Wylleman & Lavallee, 2004). Depending on the magnitude of their athletic identity, athletes may decide whether to continue in

sport or transition out. Identity foreclosure refers to the process by which an individual fully adopts the roles and responsibilities of being an athlete without exploring other potential identities outside of sport (Brewer et al., 1993). Athletes with a strong athletic identity who also experience identity foreclosure may face challenges in coping with the psychological demands of transitioning out of sport. The importance of developing self-identity during adolescence is crucial for shaping lifestyle and identity within the broader psychosocial context. The self-identity and athlete forms significantly influence their ability to navigate a successful transition out of sport. Athletes with higher levels of athletic identity and identity foreclosure are more likely to struggle with coping skills and lack the social support necessary for a successful transition out of sport (Brewer et al., 1993; Wylleman & Lavallee, 2004).

Formatively, the goals of social development are similar to those of self-identity in that they change at different stages of life (Wylleman & Lavallee, 2004). Adolescents learn how to grow in relationships with adults and peers and through emotional independence. Adults try to maintain a safe and stable environment for others, either in their workplace, family, or other social relationships (Wylleman & Lavallee, 2004). Through an athlete's psychosocial development, they learn to understand where they stand within their relationships with others within and out of sport. The role of relationships and social support can affect an athlete positively through a buffer against stress and anxiety (Shander & Petrie, 2021; Zvosec et al., 2023). An athlete's athletic development also plays a role in shaping their social network. The higher the competition levels are, the more an athlete relies on their social relationships with teammates, coaches, and support staff, with less engagement from friends and family. The primary sources of social engagement that influence athletes are their coaches and parents. Parents serve a significant role for the athlete throughout the entire athletic lifespan. An athlete's perceived parental involvement can highly influence their athletic development progression. In

adolescent years, parents switch from an active role to an advocate role with their athletes by supporting them through the challenges. During young adulthood, parents give more space and autonomy for their athletes to allow for decisions like sport retirement or continuation of competition.

Additionally, coaches play a vital role in athlete development. The quality of the athlete-coach relationship influences an athlete's transition within sport development and out of sport. Coaches who give feedback to athletes were more likely to help athletes successfully transition into the next desired athletic stage (Wylleman & Lavallee, 2004). A low-quality coach-athlete relationship could negatively affect an athlete, and may face higher rates of burnout, anxiety, and be less likely to progress to the next desired athletic stage or prematurely retire from sport (Wylleman & Lavallee, 2004).

A majority of adolescent and young adult athletes undergo both athletic and educational development simultaneously (Wylleman & Lavallee, 2004). Most transitions in academic and athletic development begin in secondary education or high school education and may progress through the collegiate levels. Transitioning into high school, adolescent athletes are developing through physical attributes, emotional development, and psychological development. Participation in high school athletics is a pivotal time, as athletes decide to continue with sport at the collegiate level or transition out of sport. The NCAA reported that the likelihood of high school athletes continuing their athletic career on the collegiate level is less than 1% of high school athletes who will progress to collegiate athletics (Estimated probability of competing in college athletics, n.d.). These statistics reveal a large population of athletes who will retire from sport after high school. Those who choose to attend a university will experience a dual transition, moving out of sport and into university life. The secondary education stage is a pivotal time for high school athletes, as the majority face the decision to retire from sports before entering

college. The decision to retire from sport could be one of the major transitions within the athlete's life that changes their self-identity, possibly negatively affects their overall mental health, and their affective response when entering into university (Russell et al., 2018; Wylleman & Lavallee, 2004).

Theories on Athletic Identity

Several theories explore how personality and athletic identity influence athletic retirement. Athletic identity refers to the degree to which an individual identifies with being an athlete and embraces the roles and responsibilities (Brewer et al., 1993; Russell et al., 2018; Wylleman & Lavallee, 2004). As stated earlier, athletic identity exists on a continuum, ranging from high to low levels of identification with the athlete role. Athletic identity suggests that an individual's self-concept is influenced by their athletic experience and engagement within sport. The degree to which one identifies with their athletic role can have either positive or negative outcomes both during and after their athletic career (Brewer et al., 1993; Wylleman & Lavallee, 2004).

Athletic Identity

Athletic identity allows individuals to construct themselves both personally and socially within an athletic framework (Stambulova, 2017; Wylleman & Lavallee, 2004). The identities individuals adopt influence their self-esteem, self-concept, and self-worth, which then dictate their behaviors. Self-concept represents an individual's mental and cognitive representation of self-knowledge and self-image (Négele et al, 2020). This concept allows them to evaluate their self-esteem, how accepting they are of their identity and personality, and self-worth, how one evaluates the value of these attributes and personality (Négele et al, 2020; Wylleman & Lavallee, 2004) The strength of an individual's athletic identity, whether high or low, can positively or negatively impact their self-concept (Brewer et al., 1993).

High athletic identity is associated with a positive impact on one's sport performance, as individuals with strong athletic identity tend to have a high affinity for their beliefs and self-concept within the sport context (Brewer et al., 1993). Athletes with a strong athletic identity are more likely to engage in both sport and exercise to improve their skills, placing greater value on improving their abilities within sport. As a result, they are more likely to maintain consistent involvement in sport. Additionally, individuals with a strong athletic identity tend to engage in high levels of exercise, either through sport participation or individual physical activity, which can lead to improvements in physical health and physiological performance. This increased engagement in exercise and sport participation positively impacts overall sport performance while enhancing self-esteem (i.e., how accepting they are of their identity and personality), self-worth (i.e., how one evaluates the value of these attributes and personality), and self-concept (i.e., an individual's mental and cognitive representation of self-knowledge and self-image; Négele et al, 2020; Wylleman & Lavallee, 2004).

Having a high athletic identity can also be associated with negative implications (Brewer et al., 1993; DeFreese et al., 2021; Wylleman & Lavallee, 2004). Specifically, the negative effects that can occur with athletic retirement. Athletes with a strong athletic identity often create a self-concept in which their self-esteem and self-evaluation are closely related to their ability to participate within their sport (Brewer et al., 1993; Russell et al., 2018; Wylleman & Lavallee, 2004; DeFreese et al., 2021). When an athlete transitions from sport, those with a high athletic identity are less likely to explore other careers or activity options due to their heavy involvement in sport. Once the athlete has transitioned out of sport, their self-concept may change, and they may no longer be able to define themselves through their athletic identity. As a result, potentially leading the athlete to experience negative effects can manifest as psychological distress and emotional disturbances like depression and emotional dysregulation (Russell et al., 2018). The

inability to associate with one's athletic identity through sport participation can result in negative impacts on psychological and emotional health, with a decrease in self-worth and self-concept (Brewer et al., 1993; Wylleman & Lavallee, 2004).

Athletes throughout their athletic career can develop their self-identity through exploration of their affinity to their sport (Petitpas, 1978; Russell, 2018; Wylleman & Lavallee, 2004). Due to the lack of self-identity exploration during their childhood and adolescence life stages, an athlete's ability to cope with the major life transition can increase in negative affective responses like symptoms of depression and anxiety (Russell et al., 2018). The degree of difficulty an athlete can experience during their transitions out of sport can vary based on the levels of athletic identity and identity foreclosure (Wylleman & Lavallee, 2004). It is important for identity formation during adolescence to develop identities outside of that in relation to athletics (Russell et al., 2018; Wylleman & Lavallee, 2004). Developmentally, adolescents are learning how to navigate social and emotional functioning with increased autonomy from their parents. During this period, they also begin to develop coping strategies that help aid in transitions within their lifetime. An athlete who maintains a multi-dimensional self-identity can positively influence them to successfully transition out of sport. The multi-dimensional self-identity structure helps to aid in an athlete's psychological development through diverse coping strategies and the ability to rely on other identities to buffer the effects of transition out of sport (Wylleman & Lavallee, 2004).

Athletic identity acts as a core component of an individual's sense of self and self-concept (Brewer et al., 1993; Wylleman & Lavallee, 2004). While a strong athletic identity can have positive influences, including predicting high exercise behaviors and enhanced sport performance, it also has potential drawbacks. Those with a high athletic identity may experience

negative impacts on their self-esteem and self-evaluation when they are facing sport retirement (Russell et al., 2018; Wylleman & Lavallee, 2004).

The measurement of athletic identity is measured through the self-reported survey called the Athletic Identity Measurement Scale (AIMS; Brewer & Cornelius, 2001). This is a widely used scale to measure athletic identity. The AIMS scale measures the overall composite score of athletic identity of an athlete. It is comprised of seven items that are scored on a Likert-type scale; scores will range from 1 (*strongly disagree*) to 7 (*strongly agree*). Three sub-scales within the AIMS measure three psychosocial dimensions of social identity (i.e., degree of an individual views themselves as occupying the role of an athlete), exclusivity (i.e., the degree to which an individual's self-worth is established through participating in the athletic role), and negative affect (i.e., the degree to which an individual experiences negative emotion from unwanted sporting outcomes).

Research recently has focused on the dual transition of how athletic identity also affects the transition of high school sport retirement and the transition into first year at college (de la Vega, 2021; Ferrara, 2021; Ferrara et al., 2024; Helms, 2010; Helms & Moiseichik, 2018; Russell, 2016; 2018). Some of the major areas, but not limited to, emphasize how athletic identity can affect psychological well-being, exercise adherence, and depression. More specifically, Brand et al. (2022) found that former high school athletes in college with high athletic identity reported higher levels of depression symptoms than current collegiate athletes. Additionally, the researchers further explained that the increased levels of depression could stem from the reasons behind the athlete's reasons for sport retirement, whether it was due to deselection into collegiate sport or a personal choice to retire, which in the end impacted their mental health status. Similar findings were found by Ferrara (2021), with former high school athletes transitioning into university reporting average or lower levels of exercise adherence, and

this may have been influenced by their athletic identity and previous exercise attitudes during sport. Interestingly, Pierce (2023) found that there was no difference in psychological well-being between former high school athletes in comparison to current collegiate athletes and further explained that individual differences in levels of athletic identity could be impacting the athletes' perceived psychological well-being.

Current research with athletic identity focuses athletic retirement, more specifically on how the degree of athletic identity affiliation affects retired high school athletes entering university, and how it affects various affective response or mental factors as they transition into university (de la Vega, 2021; Ferrara, 2021; Ferrara et al., 2024; Helms, 2010; Helms & Moiseichik, 2018; Russell, 2016; 2018). In particular, the mental factors affected by athletic identity through athletic transitions include depressive symptoms, psychological well-being, and exercise adherence. Previous research has cited that post sport retirement, athletes with high levels of athletic identity report higher levels of depression symptoms, lower levels of psychological well-being, and lower levels of exercise adherence (de la Vega, 2021; Ferrara, 2021; Ferrara et al., 2024; Helms, 2010; Helms & Moiseichik, 2018; Russell, 2016; 2018).

Mental and Behavioral Health Factors

Expanding upon how an individual's athletic identity shapes their self-concept, it also affects mental health after athletic retirement. Previous research has shown that athletic identity can affect an athlete's mental health factors and affective response (de la Vega, 2021; Ferrara, 2021; Ferrara et al., 2024; Helms, 2010; Helms & Moiseichik, 2018; Russell, 2016; Shander & Petrie, 2021). Mental health factors are elements that contribute to an individual's overall mental health status. Affective responses are a part of the mental health factors and serve as indicators for mental health status. The levels of intensity of affective responses range from high to low. Depending on the affective response levels, it can indicate positive or negative mental health

factors or status (Alsubaie et al., 2019; American Psychiatric Association, 2013; Dhanabhakym & Sarath, 2023; Hernandez et al., 2018; Russell et al., 2018; Terell et al., 2021; U.S. Department of Health and Human Services & Burwell, 2018). Examples of affective responses that impact mental health factors that predominantly affect athletic retirement are depression, psychological well-being, and exercise adherence.

Depression

Depression is a mental illness that is characterized by symptoms of feelings of sadness, and/or loss of interest in activities that one previously found enjoyable (American Psychiatric Association, 2013). These symptoms can range from acute (less than two weeks) to chronic (two weeks or longer) to be diagnosed with depression. Depression can occur as a response to a major life transition. Depending on the intensity of the depression levels, an individual can be negatively impacted to engage in their daily life due to a lack of motivation and dysregulation of mood (Phelan et al., 2024). The prevalence of depression has increased over the previous decade in all stages of life (Phelan et al., 2024). Specifically, 34.2% (Phelan et al., 2024) of university students surveyed have reported feeling chronic levels of depression, and only around 20% (Regehr et al., 2013) of university students seek diagnosis and treatment.

One of the common ways to measure depression is by a self-reported survey called Beck's Depression Inventory – II (BDI-II; Beck et al., 1996). The inventory consists of 21 inventory questions that aim to measure the severity of depression symptoms among adults and adolescents. Answers to the inventory questions are interpreted based upon the participants' experience over the previous two weeks. The inventory questions can be scored by summing together each of the items. Each inventory item is rated on a scale from 0 to 3. The lowest possible score would be 0, and the highest possible score would be 63. Based upon the summation of the inventory questions, the BDI-II categorizes scores into different levels of

depression. Minimal depression/no depression consists of scores between 0-13, mild depression consists of scores between 14-19, moderate depression consists of scores between 20-28, and severe depression consists of scores between 29-63.

Current research that utilizes the measurement of depression scores aims to see how athletic transitions out of sport are affecting the affective responses of former athletes' post-retirement (de la Vega, 2021; Ferrara, 2021; Ferrara et al., 2024; Helms, 2010; Helms & Moiseichik, 2018). The affective responses include changes in depression levels over time after major life transitions like sport retirement and entering into university (Helms & Moiseichik, 2018; Phelan et al., 2024). Previous research has shown that one of the main contributors to the increase in depressive symptoms for athletic retirement is identity loss of athletic identity (Helms, 2010). Additionally, research has found one of the main factors for increase in depressive symptoms for students who are transitioning into their first year to university is the dealing with major life transition from moving away from home and learning to adjust to a new lifestyle (Phelan et al., 2024) However, minimal research is focused on the dual transition of former high school athlete entering a university and assessing their depressive symptoms (Helms, 2010; Lubker., 2006; Russell et al., 2018).

Two significant life transitions occur for former high school athletes. The first life transition consists of the high school athletes retiring from their sport. Retirement from sport can cause an athlete to experience a perceived athletic identity loss. When a former athlete is no longer able to perform the tasks associated with their athletic identity, they feel as if they have lost of core piece of their identity. As a result, a loss of athletic identity can cause an increase in depressive symptoms in former athletes (Brewer et al., 1993; Roche et al., 2022; Russell et al., 2018). The second life transition occurs when entering the first year at a university. This may include moving away from parents or guardians and losing prior social support systems. These

disruptions can contribute to increased vulnerability to depression among students (Alsubaie et al., 2019; Terell et al., 2021). For former athletes, dual transitions can cause an increased risk of experiencing high levels of depression due to the two major life events occurring simultaneously (Alsubaie et al., 2019; Roche et al., 2022; Russell et al., 2018; Terell et al., 2021).

Athletes who report higher levels of athletic identity are more likely to report greater levels of depression (Shander & Petrie, 2021). The higher levels of depression can occur due to an athlete engaging in identity foreclosure or not exploring identities outside of being an athlete (Brewer et al., 1993; Shander & Petrie, 2021; Stambulova, 2003). Athletes who are unable to cope and adapt post-sport retirement due to identity foreclosure experience what is called a crisis-transition out of sport (Stambulova, 2003). Psychological distress, often used interchangeably with depression, is a symptom that can result from an athlete's transition out of sport and can be a hallmark factor contributing to a crisis-transition. (Shander & Petrie, 2021). Such crisis-transition may stem from ineffective coping with transition demands and a lack the developmental coping resources (Stambulova, 2003; Stambulova, 2009; Stambulova & Wylleman, 2014).

Psychological Well-Being

Similar to depression symptoms, psychological well-being is a mental health factor that affects the overall mental health of individuals. Psychological well-being is the effectiveness of experiencing happiness, physical health, positive mental outlook, and overall high quality of life (Dhanabhakym & Sarath, 2023; Zvosec et al., 2023). This current study will not focus on the differences between the two dimensions of psychological well-being in former high school athletes but will focus on the level of psychological well-being as it pertains to the continuum. However, understanding how psychological well-being is defined and categorized helps to build a strong foundation for mental health factors.

One of the common ways to measure psychological well-being can be measured a self-reported survey called the World Health Organization Well-being Index - 5 (WHO-5; Topp et al., 2015). The participants are asked to answer the questionnaire based on how they have felt over the previous two weeks. The inventory consists of five inventory questions that are scored on a scale of 0-5. The highest score can be 25, and the lowest score would be 0. The higher the score, the higher the feelings of positive psychological well-being. The lower score indicates low levels of psychological well-being. Current research that utilizes psychological well-being scales examining how psychological well-being is affected by athletic transitions out of sport (Holding et al., 2018; Mathews et al., 2021; Peirce, 2023; Russell et al., 2018).

Higher psychological well-being indicates an individual is effective in experiencing happiness, has a positive mental outlook on life, is experiencing good physical health, and has an overall high quality of life. Findings of higher psychological well-being and positive individual experiences in previous literature indicate, high sense of positive emotions, purpose, and self-actualization (Holding et al., 2018; Mathews et al., 2021). On the other hand, a low level of psychological well-being indicates that an individual is experiencing difficulty in experiencing positive affective states, such as happiness and an optimistic outlook on life. Consequently, with low levels of psychological well-being, an individual is more susceptible to feeling negative psychological states like depression, anxiety, and an overall negative effect. Research on psychological well-being can be seen within athletic retirement transition in high school, collegiate, and professional (Holding et al., 2018; Mathews et al., 2021; Peirce, 2023; Russell et al., 2018).

Athletes can experience psychological well-being both during sport participation and following their sport participation. During sport participation, the athlete's evaluation of their psychological well-being is up to their judgment of their sport experiences. There is limited

research on understanding psychological well-being within high school athletes; however, Nolte et al. (2016) found that high school athletes who had higher levels of psychological well-being were more likely to have improved satisfaction and confidence and thus could help them achieve future achievements within sport. On the other hand, Nolte et al. (2016) also found that high school athletes who reported lower levels of psychological well-being reported low levels of enjoyment and confidence in sport and, as a result, were more likely to engage in negative affective responses to cope, like substance abuse or avoidance techniques. Depending on the quality of their experiences during sport, it can influence an athlete's psychological well-being during retirement. Similar to research on psychological well-being during high school athletics, there is also minimal research into psychological well-being for former high school athletes. However, Peirce (2023) did find that retired high school athletes experienced a decrease in psychological well-being during their transition out of sport and entering their first year at university. Multiple factors were taken into consideration to understand how transitions out of sport can affect an athlete. A main factor could be due to that the athlete needed to adapt to a new life stage (Holding et al., 2018; Mathews et al., 2021; Peirce, 2023; Russell et al., 2018). Though there is minimal research on the psychological well-being of retired high school athletes, it is important to explore how psychological well-being can be impacted by athletic identity as former athletes transition into their first year in college.

Exercise Adherence

Exercise adherence is considered a behavior that is influenced by mental health factors and various affective responses an individual may have experienced (Ferrara, 2021; Ferrara et al., 2024; Helms & Moiseichik, 2018; Reifsteck et al., 2013; Reifsteck et al., 2016). Exercise is defined as the intentional, planned physical activity that improves health-related benefits (U.S. Department of Health and Human Services & Burwell, 2018). The recommended physical

activity guidelines within the United States (U.S.) for adults are to obtain at least 150-300 min of moderate exercise intensity or 75-150 min of vigorous exercise intensity (U.S. Department of Health and Human Services & Burwell, 2018). The total min of exercise per week is defined as the combination of moderate and vigorous activity, or (MVPA). Exercise guidelines can be specified further down into categories of muscular strength training and aerobic training. Muscular strength training is recommended to engage in two days out of the week, and aerobics to spread throughout the entire week. Individuals who do not meet the guidelines for exercise adherence are labeled as sedentary or low active and engage in insufficient physical activity (Malm et al., 2019; U.S. Department of Health and Human Services & Burwell, 2018).

One way to measure exercise adherence is by the International Physical Activity Questionnaire-Short Form (IPAQ-SF; Craig et al., 2003), a self-report questionnaire. The IPAQ-SF is divided into four categories of recording physical activity measures (Vigorous, Moderate, Sitting, and Walking physical activity). Participants are asked to think about all of the physical activities they performed over the previous 7 days, in the number of days, hours, and minutes each category was performed. For example, participants could write that they performed 2 days of the week, 1 hour and 20 min of moderate physical activity. Current research using exercise adherence inventories focuses on the continuation rates of physical activity and exercise adherence in retired athletes (Ferrara, 2021; Ferrara et al., 2024; Helms & Moiseichik, 2018; Reifsteck et al., 2013; Reifsteck et al., 2016).

Research shows that there is a dose-response relationship between the amount of exercise dosage correlated to the overall health changes within the body. The higher the doses of exercise, the more positive health benefits can be experienced. The positive health benefits of exercise include decreased risk for chronic diseases (i.e., metabolic and cardiovascular diseases), decreased levels of depression, emotional distress, and stress levels (Daniels et al., 2024; Malm

et al., 2019; Nolan et al., 2011). Exercise can be used as a prescription for individuals suffering from depression or low psychological well-being to increase the effectiveness of medication or therapy sessions (Malm et al., 2019; Nolan et al., 2011). Similarly, exercise can also be utilized as a tool for students who are transitioning from high school to their first year at university. Major life transitions, such as entering college, can increase psychological and emotional stress. Exercise can enhance the improvement in learning how to handle stress, strengthen coping mechanisms, and improve self-esteem and social relationships (Malm et al., 2019). Similarly, low doses of exercise result in low health benefits experienced. Different forms of exercise can help individuals find what makes exercise enjoyable for them to engage in.

A common form of exercise for children, adolescents, and young adults is through sport participation. Playing a sport from childhood through young adulthood helps motivate athletes to engage in exercise in an organized and fun way while gaining health benefits. However, as athletes begin to retire from sport in adolescent and young adult stages of life, former athletes report that they decrease in the amount of exercise they engage in (Ferrara, 202; Plateau et al., 2017; Shander & Petrie, 2021). Similar findings are seen with first-year university students, with 50-54% of students surveyed reporting physical inactivity (Daniels et al., 2024). Previous research suggests that after athletic retirement, former athletes do not engage in as much physical activity or exercise as they used to in their sport. The lack of physical activity is more comparable to that of individuals who were never athletes (Ferrara, 2021; Plateau et al., 2017; Shander & Petrie, 2021). Shander and Petrie's (2021) results found that retired collegiate female athletes reported engaging in less exercise post their sport retirement; however, most of the participants were meeting the weekly physical activity guidelines for MVPA. Similarly, Plateau et al. (2021) found that former collegiate athletes were meeting weekly physical activity guidelines for MVPA; however, participants reported that they felt dissatisfied with their current

exercise routine as it was hard to manage with the new life transition out of college. The overall exercise adherence for non-former athlete university students also sees a decrease in exercise adherence between high school and university (Daniels et al., 2024; Nelson et al., 2007). Research from Ferrara (2021) also supports the findings that former high school athletes are exercising on average as much as non-former athletes. However, there were large variations in exercise adherence reported by both former high school athletes and non-athletes, which highlights the limitations of taking in self-reported data of exercise with participants' inaccuracy or self-report bias (Ferrara, 2021).

Conclusion

The transitions out of sport represent a multifaceted process that can influence an athlete's depression levels, psychological well-being, and exercise adherence following retirement. The main factors influencing this transition include athletic identity and the type of retirement, whether normative or non-normative. Previous literature suggests that higher athletic identity levels and non-normative transitions are associated with negative effects on their depression, psychological well-being, and decreased exercise adherence. Also, one of the first major life transitions for adolescents is moving from high school to college. Former athletes undergoing both transitions, from sport retirement and transitioning into college, may be at an elevated risk for increased negative emotional responses. Future research should explore the combined effects of these dual transitions on depression symptoms, psychological well-being, and exercise adherence.

Research Questions and Hypotheses

1. What is the bivariate relationship between athlete identity (as measured by the AIMS) and depressive symptoms, exercise adherence, and psychological well-being?

- a. It is hypothesized that the AIMS and subscales (negative affect, social identity, and exclusivity) will be positively correlated with lower levels of depressive symptomatology and higher levels of exercise adherence and psychological well-being.
2. Explore the multivariate predictive relationship of athletic identity and depressive symptoms, exercise adherence, and psychological well-being?

CHAPTER III: METHOD

Participants

Participants were 226 first-year college students (females = 138, males = 47, M age = 18.55 years, $SD = 115$) who were former high school athletes and had retired from competitive sports. Participants were primarily drawn from a university in the south-central U.S. using the SONA system, email, word of mouth and flyers. However, only 185 were included within the final analysis, as outliers were removed if the reported weekly equal to or greater than 960 min of combined moderate and vigorous physical activity for one week. To be eligible, participants had to currently be a first-year college student, be 18-20 years old, read and speak English, and have previously played competitive high school sports and no longer compete. The former high school athletes represented 23 sports (e.g., cheerleading/competitive spirit squad, tennis, & volleyball), identified as 115 (59.3 %) White, 38 (19.6%) Hispanic or Latinx, 17 (8.8%) Black, 5 (2.6%) Asian, 8 (4.1%) multiracial, or 2 (1%) other.

Measurements

Demographics questionnaire

The demographic information included general demographic questions (i.e. sex, gender, age (years), race/ethnicity, type of high school attended, current living situation, type of sport, primary sport, years in primary sport, retirement time, playing status, level of sport, injuries, number of injuries, injury decisions, retirement reasons, retirement physical activity, mental health, sport retirement preparedness, preparedness of university, retirement adjustment).

Athletic Identity Measurement Scale

To assess the degree of athletic identity and athlete roles of retirement, the Athletic Identity Measurement Scale (AIMS) was utilized (Brewer & Cornelius, 2001). Participants

answered the questionnaire based upon their perception since their transition out of sport (Brewer et al., 1993; Rongen et al., 2021). The AIMS inventory comprises the main scale for evaluating athletic identity. Additionally, AIMS evaluates three psychosocial dimension subscales to athletic identity of social identity (i.e., the degree to which an individual view themselves as occupying the role of an athlete), exclusivity (i.e., the degree to which an individual's self-worth is established through participating in the athletic role), and negative affect (i.e., the degree to which an individual experiences negative emotion from unwanted sporting outcomes). The inventory consists of 7 items. The scoring of the inventory lies on a Likert-type scale, ranging from scores of 1 (*strongly disagree*) to 7 (*strongly agree*). The scores ranged from the lowest score of 7 to the highest score of 49 for the composite. Each of the was used to analyze athletic identity. However, the subscales were analyzed based upon the items that relate to the specific psychosocial dimensions, which include social identity (i.e., Items 1-3), exclusivity (i.e., Items 4-5), and negative affect (i.e. 6-7). In the current study, the AIMS demonstrated a high reliability coefficient ($\alpha = .817$). Additionally, the AIMS subscales showed a reliability of social identity ($\alpha = .732$), exclusivity ($\alpha = .883$), and negative affect ($\alpha = .712$). These scores are comparable to previous research citing similar reliability coefficients (Mitchell et al., 2021).

Depressive Symptoms

To assess depressive symptoms, Beck's Depression Inventory – II was utilized (Beck et al., 1996). Participants answered the questionnaire based on their perception since their transition out of sport. The inventory consists of 21 items. The scoring on the scale goes from 0 to 3, with each score having varying statements for the participant to choose from. The scoring ranges from the lowest possible score of 0 to and highest possible score of 63. When interpreting the scores, there are cut offs that categorize the scores (1) 1-10 “these ups and downs are considered

normal” (2) 11-16 “mild mood disturbances” (3) 17-20 “borderline clinical depression” (4) 21-30 “moderate depression” (5) 31-40 “severe depression” (6) over 40 “extreme depression.” An example item is “I am not particularly discouraged about the future” (score of 0) and “the future is hopeless, and things cannot improve” (score of 3). The BDI-II demonstrated ($\alpha = .865$) reliability with the study. The reliability is similar to previous research ($\alpha = .92$; García-Batista et al., 2018).

Psychological Well-Being

The World Health Organization Well-Being Index (WHO-5) was used to assess the psychological well-being of the participants (Omani-Samani et al., 2019). The WHO-5 consists of five questions scored on a Likert-type scale of 1 (*strongly disagree*) to 7 (*strongly agree*). One example of the WHO-5 is “I have felt active and vigorous today.” Scores were calculated by summing individual item responses, yielding a total score ranging from 0 to 25. This total was multiplied by four to produce a final score ranging from 0 to 100. Scores exceeding 50 indicate higher levels of psychological well-being, whereas scores below 50 reflect diminished psychological well-being, and the participant may seek further evaluation. The WHO-5 demonstrates high reliability ($\alpha = .833$) within the current study. The reliability scores are comparable to previous research ($\alpha = .90-.96$; Omani-Samani et al., 2019; Lee & Cho, 2023).

Exercise Adherence

The international physical activity questionnaire – short form (IPAQ-SF) was used to assess overall current exercise routine and adherence of the participants (Oliveira et al., 2023). The IPAQ-SF consists of seven items that will ask the participant to recall and record their exercise behavior over the past seven days. Examples of the items are “during the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?” and “how much time did you usually spend doing vigorous physical activities on

one of those days?”. The continuous score is expressed through the number of min performing moderate and vigorous exercise per week. The categorical scores were summed up for the day, and minutes were recorded for exercise behavior. Moderate exercise was defined as engaging in 3 or more days of vigorous activity of at least 20 minutes, or 5 or more days of moderate intensity activity. Vigorous exercise was defined as the intensity activity of at least 3 days or 7 or more days of a combination of moderate or vigorous intensity. The IPAQ-SF demonstrates a high reliability coefficient of ($\alpha = 0.74$; Sember et al., 2020).

Procedure

Before any data collection, Institutional Review Board (IRB) approval was obtained. Recruitment efforts consisted of creating a promotional flier with a QR code and link for students to scan. The promotional flyer was posted around the first-year students' residential halls, academic buildings, and dining halls on the university campus. As part of the recruitment process, the investigators also presented introductory courses across campus to promote the study and distribute flyers. Additionally, the flyer was emailed to first-year students. Finally, recruitment was also conducted through word-of-mouth.

To participate in the study, the participant either entered or clicked on a link to the survey or scanned a QR code directing them to the study administered through Qualtrics. The survey began with informed consent. If the participant provided consent, then they are directed to complete the inclusionary and exclusionary criteria questions. Those who answer “no” to any of these questions are unable to participate in the study. If the participants met the inclusion criteria, they were directed to complete the demographic questionnaire, AIMS scale, BDI-II, WHO-5, IPAQ-SHF, and open-ended questions. After the completion of the survey, participants were informed not to disclose the study to other individuals who might participate in the study and thanked for their time. In total, the questionnaires took approximately 30 min.

Data analysis

Statistical analysis of the data was performed using IBM SPSS Statistics software, version 29. All demographic information was analyzed by descriptive statistics. The Shapiro-Wilk normality test was performed to assess whether the distribution of the correlation coefficients is normal. From this, normality for the data used in the correlation analysis was assumed. To answer the first research question, Pearson correlation tests were run to determine the bivariate relationship between the AIMS subscales, AIMS composite score, and each outcome variable (i.e., depressive symptoms, psychological well-being, and exercise adherence. Regression analyses were tested for normality of residuals using Q-Q plot and the Shapiro-Wilk normality test. From this, the Q-Q plot showed little deviations of the residuals from the theoretical distribution line, and the Shapiro-Wilks normality test revealed significant results for each of the three separate regressions with $p < .001$. Additionally, a Variance Inflation Factor (VIF) was used to assess multicollinearity (Myers, 1990). A VIF score of greater than 10 was used to determine if the assumption was violated. Next, using only the AIMS items that demonstrated a significant bivariate relationship with each outcome, three separate linear regressions were conducted.

CHAPTER IV: RESULTS

Descriptives

Participant characteristics are reported in Table 1. Additionally, demographic questions assessed background information on the participants' sport history, perceptions of their transition out of sport, injury history, and perceptions of their transition into their first year at university (see Tables 2 and 3). The majority of participants' sports history included playing team sports ($n = 92$), with the predominant primary sports being cheerleading/competitive spirit squad ($n = 22$), tennis ($n = 21$), and volleyball ($n = 20$), see Table 1. The athletic career length ranged from 1-18 years, and the average length was 6.89 years ($SD = 4.03$). The time since retirement ranged from 1-24 months, with the average time since sport retirement being 6.11 months ($SD = 2.59$ months). Over half of the participants ($n = 104$) reported experiencing at least one injury, see Table 2. Participants then reported how many injuries they had during their sport career, which ranged from one to over 10 injuries. Among those, the majority ($n = 82$) reported sustaining between one to three injuries. The impact of injuries on sport participation ranged from no impact to reduced participation to complete cessation. Most of the participants reported that their injury had no impact on their participation ($n = 50$). Participants identified a range of reasons for sport retirement, including injury, failure to make a collegiate team, aging out of their sport, voluntary retirement (free choice), physical limitations, financial constraints, and other personal reasons. Regarding participants' perceptions of their transition out of sport, the majority cited "free choice to retire" as their primary reason ($n = 105$). The perceived impact of retirement on physical activity varied, with responses indicating increased activity, decreased activity, or no change. Most participants reported being "less active than before" following retirement ($n = 132$). When asked about the impact of retirement on mental health, participants reported either positive, negative, or no impact. A total of 74 participants reported a 'Negative Impact' on their mental

health. Perceptions on preparedness for retirement were assessed with response options ranging from “fully prepared with a clear plan” to “still adjusting and not fully prepared”. Most participants described the transition as ‘easy, but it took some time to adjust’ ($n = 70$), and 84 participants “prepared, but unsure about aspects” of adjusting to their first year at university.

Table 1

Participant Demographic Characteristics

Variable		N	Percentage
Age (Years)	18	85	43.8
	19	98	50.5
	20	2	1
Gender	Male	47	24.2
	Female	138	71.1
Race/Ethnicity	Asian	5	2.6
	Black	17	8.8
	Hispanic or Latino	38	19.6
	White	115	59.3
	Multiracial	8	4.1
	Other	2	1
High School Attended	Public School	114	58.8
	Private	61	31.4
	Charter	5	2.6
	Homeschool	2	1.0
	Other	9	1.5
Current Living Situation	On-Campus Housing	171	88.1
	Off-Campus Housing	8	4.1
	With Family	6	3.1

Table 2

Participant Sport Background and Injury-Related Characteristics

Variable		N	Percentage
Type of Sport	Individual Sport	31	16
	Team Sport	92	47.4
	Both	62	32
Primary Sport	Baseball	2	1
	Basketball	13	6.7
	Cheerleading/Spirit Squad	22	11.3
	Cross Country	7	3.6
	Dance Team	18	9.3

	Equestrian	1	.5
	Field Hockey	1	.5
	Football	12	6.2
	Golf	7	3.6
	Gymnastics	3	1.5
	Lacrosse	8	4.1
	Soccer	15	7.7
	Softball	4	2.8
	Swimming/Diving	10	5.2
	Tennis	21	10.8
	Track and Field	8	4.1
	Volleyball	20	10.3
	Water Polo	2	1
	Wrestling	1	.5
	Other	10	5.2
Years In Primary Sport	1-3	40	20.6
	4-6	65	33.5
	7-9	27	13.9
	10-12	29	14.9
	13-16	24	12.3
Retirement Time	1-6 months	39	25.3
	7-12 months	94	48.5
	13-24 months	51	26.2
Playing Status	Starter	133	68.6
	Second String	32	16.5
	Third String	5	2.6
	Injury Reserve	1	.5
	Other	14	7.2
Level of Sport	Club	66	34
	Recreational	9	4.6
	District Team	5	2.6
	State Team	2	1
	National Team	10	5.2
	Elite	9	4.6
	Other	8	4.1
Injuries	Yes	104	53.6
	No	81	41.8
Number of Injuries	1-3	82	42.3
	4-9	21	10.8
	More than 10	1	.5
Injury Decisions	Yes, I stopped playing entirely	12	6.2
	Yes, I reduced my participation	38	19.6

Retirement Reasons	No, it did not impact my participation	50	25.8
	Other	4	2.1
	Injury	17	8.8
	Did not make a collegiate team	24	12.4
	Aged out	24	12.4
	Free choice to retire	105	54.1
	Inability to compete at elite levels	3	1.5
	Financially unable to participate	1	.5
Other	11	5.7	

Table 3

Descriptive Data on Physical Activity, Mental Health, and Adjustment Post-Retirement from Sport

		N	Percentage
Retirement Physical Activity	More active than before	14	7.2
	Less active than before	132	68
	Activity levels have stayed the same	39	20.1
Retirement Mental Health	Positive	56	28.9
	Negative	74	38.1
	No Impact	55	28.4
Sport Retirement Preparedness	Fully prepared with a clear plan	46	23.7
	Prepared, no specific plan	58	29.9
	Somewhat prepared, difficult to adjust	48	24.7
	Not at all prepared, struggled with the transition	15	7.7
	Did not anticipate transition	12	6.2
	Still adjusting	6	3.1
Preparedness for University	Fully prepared, clear expectations	17	8.8
	Prepared, but unsure about aspects	84	43.3
	Somewhat prepared, faced challenges	67	34.5
	Not prepared, difficult transition	16	8.2
Retirement Adjustment	Caught off guard	1	.5
	Very easy, adapted quickly	32	16.5
	Easy, took time to adjust	70	36.1
	Neutral, some challenges, but adapted	53	27.3
	Difficult, struggled with various aspects	25	12.9
	Very difficult, still struggling to adjust	5	2.6

Correlational Analysis

To address the first research question, Pearson product-moment correlations were conducted to examine the relationships between the three subscales of AIMS (social identity, exclusivity, negative affect), the composite AIMS score, and measures of depressive symptoms, exercise adherence, and psychological well-being. These results are presented in Table 4. Five statistically significant correlations were identified across the AIMS composite and subscale scores. The negative affect subscale showed a positive correlation with BDI-II ($r = .27, p < .001$) and a negative correlation with the WHO-5 ($r = -.32, p < .001$). Meaning that as negative affect increased in score, depression symptoms also increased in score. Conversely, negative affect increased in score, psychological well-being decreased in score, representing a negative relationship. Additionally, the IPAQ-SF was had a positive correlation with social identity ($r = .25, p < .001$), AIMS composite ($r = .18, p = .007$), and exclusivity ($r = .15, p = .017$). The positive correlation indicated that as the scores on the AIMS composite, social identity, and exclusivity increased in score, exercise adherence also increased.

Table 4

Correlation Analysis, Means, and Standard Deviation – AIMS with BDI - II, IPAQ, and WHO-5

Variable	BDI-II	IPAQ-SF	WHO-5	<i>M</i>	<i>SD</i>
AIMS Composite	.078	.180*	-.051	27.5	7.86
AIMS Social Identity	-.140	.258**	.136	12.65	4.05
AIMS Exclusivity	.131	.155*	-.011	5.07	3.04
AIMS Negative Affect	.270**	-.035	-.317**	9.78	2.91
<i>M</i>	33.42	436.64	15.55		
<i>SD</i>	10.42	238.86	4.46		

* = significant at $p < .05$

** = significant at $p < .01$

Regression Analysis

Multiple regression analyses were conducted, using only the variables with significant correlations, to examine how AIMS composite score and subscales (social identity, exclusivity,

and negative affectivity) predicted depressive symptoms, psychological well-being, and exercise adherence among first-year university students. Three simple linear regressions were run for depressive symptoms, psychological well-being and exercise adherence. See Table 5.

Depression Symptoms

The regression model for the depressive symptoms was statistically significant, $F(1,18) = 14.42, p < .001$, with an Adjusted $R^2 = .068$, indicating that 6.8% of the variance in depression symptoms was explained by the AIMS negative affect subscale. The AIMS negative affect subscale was a significant positive predictor ($\beta = .96, p < .001$), meaning that higher negative affect was associated with higher levels of depression.

Psychological Well-being

The regression model for psychological well-being was statistically significant, $F(1, 183) = 20.43, p < .001$, with an Adjusted $R^2 = .096$, indicating that 9.6% of the variance of psychological well-being was explained by the AIMS negative affect subscale. The AIMS negative affect subscale was a significant negative predictor ($\beta = -.48, p < .001$), meaning that higher negative affect was associated with lower levels of psychological well-being.

Exercise Adherence

The regression model was statistically significant, $F(3, 181) = 6.13, p < .001$, with an Adjusted $R^2 = .076$, indicating that 7.6% of the variance in exercise adherence was explained by the AIMS composite score and subscales. Among the predictors, the AIMS social identity subscale ($\beta = 31.16, p < .001$) was found to be a positive and significant predictor, meaning that higher social identity was associated with higher exercise adherence. The AIMS composite score ($\beta = -.46, p < .05$) and AIMS exclusivity subscale ($\beta = 19.03, p = .059$) were not statistically significant predictors for exercise adherence and therefore, no meaningful associations could be established.

Table 5

Regression Analyses Predicting Depressive Symptoms, Exercise Adherence, and Psychological Well-Being

Predictor	Adjusted R^2	ΔR^2	ΔF	B	SE B	β
BDI-II						
AIMS Negative Affect***	.068	.073	14.427	.969	.255	.270
WHO-5						
AIMS Negative Affect***	.096	.100	20.435	-.486	.108	.317
IPAQ-SF						
AIMS Composite*	.076	.091	6.047	-13.969	6.430	-.460
AIMS Social Identity***				31.162	9.164	.528
AIMS Exclusivity				19.032	10.023	.242

* = significant at $p < .05$

*** = significant at $p < .001$

CHAPTER V: DISCUSSION

To expand the research on high school athletic retirement, the current study investigated how athletic retirement influenced exercise adherence, psychological well-being, and depressive symptoms among first-year university students. The first hypothesis proposed that athletic identity, as measured by the AIMS, would be positively correlated with lower levels of depressive symptomatology and higher levels of exercise and psychological well-being. The findings of the study partially support the first hypothesis. The AIMS composite score, exclusivity, and social identity subscales were positively associated with exercise adherence. Scores on the AIMS negative affect were positively associated with depressive symptoms and negatively associated with both exercise adherence and psychological well-being. The second research question explored the multivariate predictive relationship between the AIMS composite score and three subscales with depressive symptoms, psychological well-being, and exercise adherence using multiple regression analysis. From the regression analysis. Specifically, the negative affect subscale was a significant predictor for both depression symptoms and psychological well-being, while AIMS composite and social identity were found to be significant predictors for exercise adherence. Given the limited research specifically focused on high school athletes, the following sections will discuss each of the variables examined in the present study, depressive symptoms, psychological well-being, and exercise adherence depressive symptoms, in the context of athletic retirement among first-year university students, with comparisons drawn to existing research on collegiate and elite/professional athletes.

Depressive Symptoms

Based on the BDI-II inventory, the average depression symptoms experienced by the participants meet the criteria for severe depression ($M = 33.42$, $SD = 10.42$). Based on these scores, it is recommended to seek mental health services (Warmenhoven et al., 2012). The large

standard deviation suggests considerable variability in participants' reported depressive symptoms. These high depressive symptoms reported by participants do spark concern about their overall mental health.

Additionally, most participants reported that their athletic retirement had a “negative impact” ($n = 74$) on their overall mental health. Participants within this study are currently undergoing two major life transitions of retiring from sport and entering into university. Research on both athletic retirement and entering university reports high levels of depression (de la Vega, 2021; Ferrara, 2021; Ferrara et al., 2024). Elevated levels of depression experienced by first-year students may be attributed to significant life transitions, such as leaving home and adjusting to the demands of university life (Phelan et al., 2024; Regehr et al., 2013). Additionally, these high levels of perceived identity loss may reflect the shift in how former athletes engage with their athletic identity after transitioning out of sport (Brewer et al., 1993; Roche et al., 2022; Russell et al., 2018).

Results showed that depressive symptoms had a significant positive correlation with negative affect. Meaning that as depressive symptoms increased, negative affect also increased. This significant positive correlation may be attributed to the emotional overlap between depressive symptoms and negative affect, as both involve heightened experiences of distress, sadness, and irritability (O’Hara et al., 2014; Zautra et al., 2005). Individuals exhibiting more depressive symptoms are likely to experience more frequent and intense negative emotional states, which may account for the observed correlation. Former athletes who are experiencing high levels of depression from athletic identity foreclosure can be indicative of experiencing crisis-transition out of sport (Stambulova, 2003). Crisis-transition out of sport occurs when former athletes are unable to cope or have ineffective coping skills to aid them with a successful transition (Stambulova, 2003). Interestingly, the majority of participants in the study reported

their perceived sport retirement preparedness to be “prepared, but no specific plan” ($n = 58$). Pre-retirement planning has been implemented as a psychological crisis-coping strategy to support athletes during the transition out of sport and to help minimize negative emotional responses, such as depression (Grove et al., 1997; Stambulova, 2003). The lack of planning for athletic retirement could also help explain the positive correlations between depressive symptoms and negative affect. Additionally, participants reported similar preparedness for university, with the majority “felt prepared, but unsure about aspects” ($n = 84$). The combination of feeling prepared for university but feeling a lack of certainty about aspects of transitioning could also contribute to the relationship between depressive symptoms and overall negative affect. Similar to athletic retirement, the transition into university can serve as the first transition within a young adult's life and has been associated with increases in depressive symptoms and negative affect for both non-athletes and former athletes (Phelan et al., 2024; Regehr et al., 2013). Future research should examine the coping skills retired athletes are using and assess their effectiveness.

Within the study, only 6.8% of the changes in depressive symptoms were explained by the negative affect subscale. Previous research has found that the negative affect subscale is a significant predictive factor for depressive symptoms; however, similar results are found with accounting for a small portion of the variance (Giannone et al., 2017). Additionally, Zimet et al. (2022) suggest that other factors, such as the reason for the retirement, positive or negative impact of retirement, along athletic identity. Of the participants, most answered that their primary reason for retirement was “free choice.” Deciding to end one's sport career of their own free will allows the athlete the autonomy to decide how their athletic transition process out of sport (Taylor & Ogilvie, 1994). Athletes who have the free choice to retire from sport can make decisions that they believe will aid them in transition and may have a higher likelihood of having

a more positive retirement (Ferrara, 2021; Pierce, 2023; Russell et al., 2018). Interestingly, the participants within this study reported high levels of depression but expressed that they retired of their own free choice. Previous literature has cited that not all depressive symptoms reported by athletes can be attributed to athletic identity alone but could also be attributed to current situations like transitioning into the first year at university and adapting to university life (Alsubaie et al., 2019; Terell et al., 2021).

Psychological Well-Being

Based on the WHO-5 scores, the average psychological well-being score was ($M = 15.55$ with a large standard deviation ($SD = 4.46$). The measured psychological well-being falls within the moderate range; however, the score is close to the cut-off point of 13, indicating poor mental health. These results are not surprising considering participants are also reporting high levels of depressive symptoms. Psychological well-being was found to have a significant negative correlation with negative affect. Participants within the study reported that their sport retirement had a “negative impact” on their mental health ($n = 74$) and could be a contributing factor for the correlation between the low psychological well-being and high negative affect. Of the participants, most answered that their primary reason for retirement was “free choice.” Deciding to end one's sport career of their own free will allows the athlete the autonomy to decide how their athletic transition process out of sport (Taylor & Ogilvie, 1994). Athletes who have the free choice to retire from sport as they can make decisions that they believe will aid them transition and may have a higher likelihood of having a more positive retirement (Ferrara, 2021; Pierce, 2023; Russell et al., 2018). However, previous research has noted that even though athletes may have the free choice to retire, it can be met with mixed outcomes (Holding et al., 2018). Normative and non-normative transitions out of sport both go through athletic identity disruption. Leading to increases in feelings of psychological distress during the adjustment of

self-identity and self-concept (Holding et al., 2018).

Even though the majority of participants indicated it was there to end their athletic career, it could be that they are still experiencing negative and low psychological well-being as it relates to athletic identity. The loss of identity and the negative feelings associated with the transition could contribute to the negative correlation between negative affect and psychological well-being. Previous literature also cites that not all changes in psychological well-being and negative affect can be attributed to changes in athletic identity but can be attributed to situational factors like transitioning into the first year in university (Holding et al., 2018; Mathews et al., 2021; Peirce, 2023; Russell et al., 2018). Peirce (2023) elaborates that entering university increases overall stress and lowers psychological well-being due to a myriad of changes occurring within a few months. More specifically, first-year students are leaving home for the first time, losing support systems, and taking on more academic responsibility.

The regression analysis showed that 9.6% of the variance in psychological well-being was explained by the negative affect subscale. Previous research with higher levels of competition, like professional athletes, also found similar results to those in the present study with retired high school athletes. Specifically, psychological well-being is negatively correlated with negative affect (Holding et al., 2018; Mathews et al., 2021; Peirce, 2023; Roberts et al., 2023; Russell et al., 2018; Zimet et al., 2023). Holding et al. (2018) found that the amount of time since sport retirement can be a factor negatively affecting psychological well-being, especially for recently retired professional and elite athletes. More specifically, Holding and colleagues (2018) noted it may take 2 to 3.5 years to see the full effects on psychological well-being post sport retirement or return to baseline levels before sport retirement. This has been cited due to the majority of retired athletes reporting fluctuating levels of psychological well-being during the first few years of post-sport retirement. The majority of participants in the

current study have retired from sport for 7-12 months, which supports the notion from Holding et al. (2018) that recent athletic retirement does affect psychological well-being. Previous literature has cited inconsistent findings on the influence of the amount of time spent after sport retirement on psychological well-being. Interestingly, Pierce (2023) found that there were no differences in psychological well-being between former high school athletes and non-athletes transitioning into their first year of university. It could be within the current, both the short time since sport retirement and transition into university could be the confounding factors that are limiting the explained variance of the predictive measurement of the regression.

Exercise Adherence

In addition to understanding how athletic identity affects mental health factors like depressive symptoms and psychological well-being, it is also important to understand the behavioral response of exercise adherence. More specifically, exercise adherence was found to have significant positive correlations with AIMS composite score, social identity, and exclusivity subscales. Meaning that as an athlete reported higher levels of athletic identity, they also reported higher levels of exercise adherence. The average amount of moderate to vigorous exercise participants reported was 436.64 min a week ($SD = 238.86$). It is important to note that the large standard deviation of reported exercise adherence of participants is above the average levels of physical activity recommended by the U.S guidelines. The large standard deviation does suggest a possible limitation of participants' ability to understand the survey and accurately record their exercise adherence. The participants in this study are reporting nearly two times as much exercise weekly as the average recommendation (U.S. Department of Health and Human Services & Burwell, 2018). Interestingly, these results showed the participants' perceptions of their exercise adherence levels post-sport retirement, and the majority felt they were 'less active than before' ($n = 132$). Notably, one of the more interesting results from the study was the high

reported exercise adherence. This high number could be due to self-report bias with participants overestimating there for a preferable answer to researchers or did not fully understand how to answer the questionnaire correctly (Peirce, 2023). However, this does raise an interesting idea that these former athletes with high levels of athletic identity might be using their previously learned exercise habits through sport as a possible coping mechanism to deal with the stress of transitioning into their first year at university.

Though this current study did not investigate stress management strategies of former high school athletes, it did measure the impacts of athletic identity on mental health factors and behavioral responses. Previous research has cited that exercise aids in stress management and improves symptoms of depression and low levels of psychological well-being (Guo et al., 2020; Malm et al., 2019; Plateau et al., 2017). Plateau et al (2017) investigated retired female collegiate athletes and found that while most participants reported changes in their exercise routines following retirement, they continued to use exercise as a means to maintain competitiveness and feel connected to their former sport. Additionally, the participants identified key motivations for post-retirement exercise, including enhancing self-worth, improving self-concept, and supporting mood and mental health. These findings underscore the psychological and emotional value of continued exercise engagement following athletic retirement. Ferrara (2021) found that the use of self-reported questionnaires for exercise adherence can have large variations in exercise time per week with former high school athletes.

In addition to exercise adherence reports, most participants reported engaging in team sports ($n = 92$) as their primary sport type. When engaging in a team sport, athletes are given the opportunity to practice, condition, and compete alongside one another for a common goal. With this, athletes are able to identify with the social identity of being an athlete along with their teammates. Over time, an athlete can find a strong sense of identity of being a part of a team

sport due to the social aspect of working with one another and engaging in a common experience. Within the results of the study, a strong positive correlation was found between social identity and exercise adherence. The strong positive correlation found could be explained by the participants' engagement in team sports and developing a high social identity while also engaging in a shared experience of sport and exercise with one another. Previous research has cited similar ideas that engagement in exercise adherence post-sport retirement can be due to wanting to feel connected to the previous social identity of being an athlete (Plateau et al., 2017).

Regression analyses indicated that only 7.6% of the variance in exercise adherence was explained by AIMS composite score, social identity, and exclusivity. Meaning that the impact relationship between AIMS composite, social identity, and exclusivity was not the main factor that impacted exercise adherence for the participants. Within this, social identity was indicated to be a significant predictor of exercise adherence. These findings were aligned with Reifsteck (2011), that athletic identity served as a positive predictive factor for overall exercise adherence post athletic retirement. This suggests that athletes with high commitment and high athletic identity positively influence the increase in exercise adherence. Previous studies have found that the length of time in sport and time since sport retirement can have a positive effect on former athletes' exercise adherence and serve as predictive factors influencing the explained variance (Erpič et al., 2003). In the present study, participants length of time in sport of 3-6 years, and retired between 6-12 months ago. Although the participants' athletic lifespan is relatively short, prior research on high school athlete retirement has reported similar findings, with former athletes maintaining exercise adherence as a positive health behavior aimed at promoting long-term health (Ferrera et al., 2021).

Limitations and Future Research

Limitations existed within this study that warrant discussion. The sample size was small,

which does not allow generalizable results to represent the entire population of former high school athletes transitioning into their first year at university. Furthermore, within this specific study, there was an unequal distribution of participants' demographics, such as gender, race/ethnicity, type of sport, and length of participation within sport. A greater representation across the U.S. is needed to gain a full understanding of how the dual transition out of high school athletics and into the first year at university. Future research should consider sex differences, length of time participating in sport, and different types of sport. Additionally, the data were collected through self-report, which may introduce response bias. Participants may have provided answers they perceived to be socially desirable or aligned with researchers' expectations, rather than accurately reflecting their actual experiences or perceptions related to their athletic transition out of sport and into university (Peirce, 2023; Shander & Petrie, 2021). The data collected was purely quantitative. However, there are features within the data that could have benefited from qualitative data. More specifically, allowing participants to explain how their athletic identity affected their mental health factors and affective response. Future studies should consider integrating a mixed-methods approach to add context to the experiences of the athletes during their dual transition out of being a high school athlete and entering their first year at university.

In addition to the limitations of the structure of the questionnaire, the timing of the study could also be a limitation due to data collection taking place during the spring semester of the participants' first year at university. Data collection specifically took place halfway through the spring semester and could have fallen during an academically rigorous time with midterms. With this, it is unclear if the self-reported data with mental health factors and affective response were representative of athletic identity or from the stress of university (de la Vega, 2021; Ferrara, 2021; Pierce, 2023; Russell et al., 2018). Future research should aim to administer the study

within both the fall and spring semesters of participants' first year. This will help to differentiate any unknown confounding variables that could skew the data. Additionally, assessing both in the fall and spring semesters would allow for pre–post comparisons and facilitate the examination of transitional effects over time, rather than relying on a single time point during the first year.

Conclusion

The present study examined how athletic identity influences depression symptoms, psychological well-being, and exercise adherence, more specifically within the context of dual transitions of retirement from high school sports and entering the first year at a university. Findings provided insight into the influence of athletic identity and the significant positive and negative correlations on the measures for mental health factors and affective responses. The majority of research has focused on the sport retirement of professional, collegiate, and elite athletes. However, within recent years, there has been a shift in research that has highlighted the dual transition from high school athletics to the first year at university. Similar findings to this present study were found with, former high school athletes reporting higher levels of athletic identity were more likely during their retirement process to report higher levels of depression and exercise adherence, and lower levels of psychological well-being due to change in self-identity and self-concept (de la Vega, 2021; Ferrara, 2021; Ferrara et al., 2024). Additionally, the present study explored the multivariate predictability of athletic identity. The results found that very little variance was explained through the regression prediction model of athletic identity as the key predictor for depression, psychological well-being, and exercise adherence. The findings overall exhibit that athletic identity can affect mental health factors and behavioral responses; however, it is not the sole factor. External factors like challenging aspects of transition into university could influence more than athletic identity alone.

The practical implications of the study can be useful for universities. More specifically,

for gaining a better understanding of a specific population of their first-year students who may be predisposed to struggling with their mental health and affective responses due to their dual transition out of sport and into university life. Additionally, gaining knowledge on how first-year students are currently reporting high levels of depression symptoms, low psychological well-being, and high amounts of exercise adherence will help universities intervene if they believe students are in crisis and need clinical assistance. More research is needed in higher education to create interventions to help first-year students and former high school athletes transition into university. More specifically, to aid by teaching coping skills that help to decrease depressive symptoms and increase exercise adherence.

REFERENCES

- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders (5th ed.)*. <https://doi.org/10.1176/appi.books.9780890425596>
- Alsubaie, M. M., Stain, H. J., Webster, L. A., & Wadman, R. (2019). The role of sources of social support on depression and quality of life for university students. *International Journal of Adolescence and Youth, 24*(4), 484–496. <https://doi.org/10.1080/02673843.2019.1568887>
- Alvariñas-Villaverde, M., Ory, E. G., Toja-Reboredo, B., & Valeiro, M. G. (2021). Sport practice with friends and perceived physical competence as predictors of physical activity in adolescents. *Journal of Human Sport and Exercise, 18*(1), 1-13. <https://doi.org/10.14198/jhse.2023.181.05>
- Barrett, S., Petrie, T., Voelker, D., & Jackson, R. (2022). The body satisfaction and psychological well-being of retired women athletes: A long-term qualitative analysis of bodies in motion. *Body Image, 43*, 143–153. <https://doi-org.ezproxy.tcu.edu/10.1016/j.bodyim.2022.08.009>
- Beck, A. T., Steer, R. A., & Brown, G. (1996). Beck Depression Inventory–II (BDI-II). *APA PsycTests*. <https://doi.org/10.1037/t00742-000>
- Berman, W. H., & Sperling, M. B. (1991). Parental attachment and emotional distress in the transition to college. *Journal of Youth and Adolescence, 20*(4), 427-440. <https://doi.org/10.1007/BF01537184>
- Brand, R., Wolff, W., & Hoyer, J. (2013). Psychological symptoms and chronic mood in representative samples of elite student-athletes, deselected student-athletes, and

- comparison students. *School Mental Health*, 5, 166-174. <https://doi.org/10.1007/s12310-012-9095-8>
- Brewer, B., & Cornelius, A. (2001). Norms and factorial invariance of the Athletic Identity Measurement Scale. *Academic Athletic Journal*, 15(2), 103-113. <https://doi.org/10.3390/ejihpe12090097>
- Brewer, B. W., Van Raalte, J. L., & Linder, D. E. (1993). Athletic Identity Measurement Scale (AIMS). *APA PsycTests*. <https://doi.org/10.1037/t15488-000>
- Compas, B. E., Wagner, B. M., Slavlin, L. A., & Vannatta, K. (1986). A prospective study of life events, social support, and psychological symptomatology during the transition from high school to college. *American Journal of Community Psychology*, 14(3), 241-257. <https://doi.org/10.1007/BF00911173>
- Craig, C. L., Marshall, A., Sjostrom, M., Bauman, A., Booth, M., Ainsworth, B., Pratt, M., Ekelund, U., Yngve, A., Sallis, J., & Oja, P.(2003). International physical activity questionnaire: 12-country reliability and validity. *Medicine and Science in Sports and Exercise*, 35(8), 1381-1395. <https://doi.org/10.1249/01.MSS.0000078924.61453>.
- Daniels, B. T., & Howie, E. K. (2024). Relationships between physical fitness, health behaviors, and occupational outcomes in students, faculty, and staff of an American university. *Journal of American College Health*, 72(7), 2196–2203. <https://doi-org.ezproxy.tcu.edu/10.1080/07448481.2022.2107874>
- Dhanabhakyaam, M., & Sarath, M. (2023). Psychological wellbeing: A systematic literature review. *International Journal of Advanced Research in Science, Communication and Technology*, 3(1), 603-607. <https://doi.org/10.48175/IJARST-8345>

- DeFreese, J. D., Weight, E., DeCicco, J., Nedimyer, A., Kerr, Z., Carneiro, K., Mihalik, J., & Chandran, A. (2021). Transition experiences of former collegiate women's soccer athletes. *Journal of Intercollegiate Sport*, 14(2). <https://doi.org/10.17161/jis.v14i2.14523>
- de la Vega, L. P. (2021). The impact of early athletic retirement on underrepresented students' transition into college. [*Unpublished Doctoral dissertation*]. California State University, Northridge.
- Erpič, Saša & Wylleman, Paul & Zupančič, Maja. (2004). The effect of athletic and non-athletic factors on the sports career termination process. *Psychology of Sport and Exercise*, 5, 45-59. [https://doi.org/10.1016/S1469-0292\(02\)00046-8](https://doi.org/10.1016/S1469-0292(02)00046-8).
- Ferrara, P. M., Crouter, S. E., Zakrajsek, R. A., Angelle, P. S., & Strohacker, K. (2022). Exploring temporal changes in exercise behavior, perceived fitness, and identity in former high school athletes. *Medicine and Science in Sports and Exercise*, 54(9S). <https://doi.org/10.1249/01.mss.0000876544.40385.2b>
- Ferrara, P. M., Zakrajsek, R. A., Eckenrod, M. R., Beaumont, C. T., & Strohacker, K. (2024). Former NCAA Division I athletes' perceptions of intervention components to improve post-sport physical activity. *Journal of Applied Sport Psychology*, 36(5), 765–783. <https://doi-org.ezproxy.tcu.edu/10.1080/10413200.2024.2311405>
- García-Batista, Z. E., Guerra-Peña, K., Cano-Vindel, A., Herrera-Martínez, S. X., & Medrano, L. A. (2018). Validity and reliability of the Beck Depression Inventory (BDI-II) in general and hospital population of Dominican Republic. *PloS One*, 13(6), e0199750. <https://doi.org/10.1371/journal.pone.0199750>
- Giannone, Z. A., Haney, C. J., Kealy, D., & Ogrodniczuk, J. S. (2017). Athletic identity and psychiatric symptoms following retirement from varsity sports. *International Journal of Social Psychiatry*, 63(7), 598–601. <https://doi.org/10.1177/0020764017724184>

- Guo, S., Liu, F., Shen, J., Wei, M., & Yang, Y. (2020). Comparative efficacy of seven exercise interventions for symptoms of depression in college students: A network of meta-analysis. *Medicine (Baltimore)*, *99*(47), e23058–e23058. <https://doi.org/10.1097/MD.00000000000023058>
- Hernandez, R., Bassett, S. M., Boughton, S. W., Schuette, S. A., Shiu, E. W., & Moskowitz, J. T. (2018). Psychological well-being and physical health: Associations, mechanisms, and future directions. *Emotion review: Journal of the International Society for Research on Emotion*, *10*(1), 18–29. <https://doi.org/10.1177/1754073917697824>
- Helms, K. E. (2010). Campus recreation program involvement, athletic identity, transitional loss and life satisfaction in former high school athletes. [Doctoral dissertation, University of Arkansas] *Graduate Theses and Dissertations*. <https://scholarworks.uark.edu/etd/60>
- Helms, K., & Moiseichik, M. (2018). Collegiate recreational sports participation as an adjustment aid for former high school athletes experiencing athlete role exit. *Recreational Sports Journal*, *42*(2), 160-173. <https://doi.org/1123/rsj.2017-0017>.
- Holding, A., Fortin, J., Carpentier, J., Hope, N., & Koestner, R. (2018). Letting go of gold: Examining the role of autonomy in elite athletes' disengagement from their athletic careers and well-being in retirement. *Journal of Clinical Sport Psychology*, *14*(1), 88–108. <https://doi.org/10.1123/jcsp.2018-0029>
- Horn, D. B., O'Neill, J. R., Pfeiffer, K. A., Dowda, M., & Pate, R. R. (2008). Predictors of physical activity in the transition after high school among young women. *Journal of Physical Activity and Health*, *5* (2), 275-285. <https://doi.org/10.1123/jpah.5.2.275>
- Lavallee, D. (2005). The effect of a life development intervention on sports career transition adjustment. *The Sport Psychologist*, *19*(2), 193–202. <https://doi.org/10.1123/tsp.19.2.193>

- Lee, Y. H., & Cho, H. (2023). The moderating role of coping strategies in athletic coaches' psychological well-being in response to negative emotions. *International Journal of Sports Science & Coaching*, 18(4), 975–985.
<https://doi.org/10.1177/17479541231153488>
- Lubker, J. R. (2006). College adjustment experiences of first -year students: Retired athletes, non-athletes, and current varsity athletes (Publication No. 3225376.) [Doctoral dissertation, University of West Virginia]. *ProQuest Dissertations & Theses*.
<https://doi.org/10.33915/etd.3446>
- Malm, C., Jakobsson, J., & Isaksson, A. (2019). Physical activity and sports—real health benefits: A review with insight into the public health of Sweden. *Sports*, 7(5), 127.
<https://doi.org/10.3390/sports7050127>
- Mathews, A. M., Berger, B. G., Darby, L. A., Owen, D. R., & Tobar, D. A. (2021). Athletic identity, career maturity, and subjective well-being of NCAA division I and III football players. *Journal of Sport Behavior*, 44(3), 321–338.
- Négele, Z., Pápai, J., Tróznai, Z., Nyakas, C., & Tóth, L. (2020). The relationship between self-concept and level of physical performance in Hungarian adolescent athletes. *Cognition, Brain, Behavior: An Interdisciplinary Journal*, 24(4), 295–313. <https://doi-org.ezproxy.tcu.edu/10.24193/cbb.2020.24.16>
- Nelson, T. F., Gortmaker, S. L., Subramanian, S. V., & Wechsler, H. (2007). Vigorous physical activity among college students in the United States. *Journal of Physical Activity and Health*, 4(4), 496-509. <https://doi.org/10.1123/jpah.4.4.496>
- O'Hara, R. E., Armeli, S., Boynton, M. H., & Tennen, H. (2014). Emotional stress-reactivity and positive affect among college students: The role of depression history. *Emotion*, 14(1), 193–202. <https://doi-org.ezproxy.tcu.edu/10.1037/a0034217>

- Pierce, B. (2023). Stress and flourishing during first year college transition: A comparison of former high school athletes, recreational athletes, and non-Athletes (Publication No. 1230.) [Master's Thesis, Western Washington University]. *ProQuest Dissertations & Theses*. <https://cedar.wwu.edu/wwuet/1230>
- Plateau, C. R., Petrie, T. A., & Papa Thomas, A. (2017). Exercise attitudes and behaviors among retired female collegiate athletes. *Psychology of Sport and Exercise, 29*, 111–115. <https://doi.org/10.1016/j.psychsport.2017.01.001>
- Phelan, J. M., Rosenkranz, R. R., Logan, C., Haub, M. D., Mailey, E. L., Ezzati, A., & Rosenkranz, S. K. (2024). The association of overall dietary quality on stress, anxiety, depression, and academic performance in college students: A systematic review. *Journal of American College Health, 73*(3), 977–988. <https://doi.org/10.1080/07448481.2024>.
- Regehr, C., Glancy, D., & Pitts, A. (2013). Interventions to reduce stress in university students: A review and meta-analysis. *Journal of Affective Disorders, 148*(1), 1–11. <https://doi-org.ezproxy.tcu.edu/10.1016/j.jad.2012.11.026>
- Reifsteck, E. J. (2011). The relationship between athletic identity and physical activity levels after retirement from collegiate sports (Publication No. 1494188.) [Master's Thesis, The University of North Carolina at Greensboro]. *ProQuest Dissertations & Theses Global*.
- Reifsteck, E., Gill, D., & Labban, J. (2016). “Athletes” and “exercisers”: Understanding identity, motivation, and physical activity participation in former college athletes. *Sport, Exercise, and Performance Psychology, 5*(1), 25-38. <https://doi.org/10.1037/spy0000046>
- Roberts, K., Kuhlman, K., Byrd, M., & Hunt, T. (2023). The influence of athletic identity on mental health symptoms during retirement from sport. *Journal of Sport Rehabilitation, 32*(5), 630–634. <https://doi.org/10.1123/jsr.2022-0362>

- Roche, A. I., Holdefer, P. J., & Thomas, E. B. (2022). College student mental health: Understanding changes in psychological symptoms in the context of the COVID-19 pandemic in the United States. *Current Psychology, 43*(14), 13041–13050.
<https://doi.org/10.1007/s12144-022-03193-w>
- Russell, A. M. (2016). Athletic identity, coping, and perceptions of stress among students transitioning to college and out of competitive sport. [Unpublished Master's Thesis, The University of Houston]. <http://hdl.handle.net/10657/2766>
- Russell, A., Cottingham, M., Barry, A., Lee, D., & Walsh, D. (2018). Students transitioning to college and out of competitive sport. *Journal of Applied Sport Management, 10*(4), 34-52. <https://doi.org/10.18666/JASM-2018-V10-I4-9117>
- Schlossberg, N. K. (1981). A model for analyzing human adaptation to transition. *The Counseling Psychologist, 9*(2), 2–18. <https://doi.org/10.1177/001100008100900202>
- Shander, K., & Petrie, T. (2021). Transitioning from sport: Life satisfaction, depressive symptomatology, and body satisfaction among retired female collegiate athletes. *Psychology of Sport and Exercise, 57*, 102045.
<https://doi.org/10.1016/j.psychsport.2021.102045>
- Stambulova, N. (2017). Crisis-transitions in athletes: Current emphasis on cognitive contextual factors. *Current Opinion in Psychology, 16*, 62-66.
<https://doi.org/10.1016/j.copsyc.2017.04.013>
- Stambulova N.B. (1994). Developmental sports career investigations in Russia: a post-perestroika analysis. *Sport Psychologist, 8* (3), 221–237.
<https://doi.org/10.1123/tsp.8.3.221>

- Stokowski, S., Paule-Koba, A., & Kaunert, C. (2019). Former college athletes' perceptions of adapting to transition. *Journal of Issues in Intercollegiate Athletics*, 12(1), 403-426. <https://scholarcommons.sc.edu/jiia/vol12/iss1/13>
- Taylor, J., & Ogilvie, B. C. (1994). A conceptual model of adaptation to retirement among athletes. *Journal of Applied Sport Psychology*, 6(1), 1-20. <https://doi.org/10.1080/10413209408406462>
- Terrell, A., Houltberg, B., Brown, S., Falco, R., & Schnitker, S. (2021). Humanitarian athletic participation and identity work. *Frontiers in Sports and Active Living*, 3, 1-14. <https://doi.org/10.3389/fspor.2021.669547>
- Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 well-being index: a systematic review of the literature. *Psychotherapy and Psychosomatics*, 84(3), 167–176. <https://doi.org/10.1159/000376585>
- U.S. Department of Health and Human Services, & Burwell, S. M. (2018). Physical activity guidelines for Americans. In *U.S. Department of Agriculture, Executive Summary*. https://health.gov/sites/default/files/2019-10/PAG_ExecutiveSummary.pdf
- Warmenhoven, F., van Rijswijk, E., Engels, Y., Kan, C., Prins, J., van Weel, C., & Vissers, K. (2012). The Beck Depression Inventory (BDI-II) and a single screening question as screening tools for depressive disorder in Dutch advanced cancer patients. Supportive care in cancer: *Official Journal of the Multinational Association of Supportive Care in Cancer*, 20(2), 319–324. <https://doi.org/10.1007/s00520-010-1082-8>
- Wylleman, P., Alfermann, D., & Lavallee, D. (2004). Career transitions in sport. *Psychology of Sport and Exercise*, 5(1), 3–5. [https://doi.org/10.1016/S1469-0292\(02\)00048-1](https://doi.org/10.1016/S1469-0292(02)00048-1)
- Wylleman, P., & Lavallee, D. (2004). Developmental Sport and Exercise Psychology: A Lifespan Perspective; A developmental perspective on transitions faced by athletes. In

- Weiss, M (Ed.), *Developmental Sport and Exercise Psychology: A Lifespan Perspective* (507-527).
- Wylleman, P., & Reints, A. (2010). A lifespan perspective on the career of talented and elite athletes: Perspectives on high-intensity sports. *Scandinavian Journal of Medicine & Science in Sports*, 20(2), 88-94. <https://doi.org/10.1111/j.1600-0838.2010.01194.x>
- Zautra, A. J., Affleck, G. G., Tennen, H., Reich, J. W., & Davis, M. C. (2005). Dynamic approaches to emotions and stress in everyday life: Bolger and Zuckerman reloaded with positive as well as negative affects. *Journal of Personality*, 73(6), 1511–1538. <https://doi-org.ezproxy.tcu.edu/10.1111/j.0022-3506.2005.00357.x>
- Zimet, D., McDuff, D., Iannone, V. N., & Moser, R. P. (2024). Elite athletes' subjective wellbeing trajectories throughout the retirement transition: an analysis using Ruthven's (2022) transition model. *International Review of Psychiatry*, 36(3), 272–283. <https://doi.org/10.1080/09540261.2024.2365417>
- Zhao, S., Zhang, Y., Yu, C., Zhang, H., Xie, M., Chen, P., & Lin, D. (2023). Trajectories of perceived stress among students in transition to college: Mindset antecedents and adjustment outcomes. *Journal of Youth and Adolescence*, 52(9), 1873–1886. <https://doi.org/10.1007/s10964-023-01788-5>
- Zvosec, C., Baer, N., Hughes, M., Oja, B., Kim, M., Dahlin, S., & Howell, S. (2023). The career transitions of high-profile student-athletes: Identity, role engulfment, and psychological well-being. *Journal of Athlete Development and Experience*, 5(1). <https://doi.org/10.25035/jade.05.01.04>