

THE EFFECTS OF ATHLETIC IDENTITY AND PERCEPTIONS OF MASCULINITY
ON BODY IMAGE IN MALE COLLEGIATE WRESTLERS

A Thesis
by
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Abstract

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Background: The sport of wrestling is a weight-class sport, where performance and success within a certain class is largely dictated by bodyweight and individual skill in that weight class. A common practice in wrestling is weight cutting or utilizing various methods of rapid weight loss to maximize performance at lower weight classes. Many of these methods negatively affect body image (BI) and physical health, but the practice is still prevalent in contemporary wrestling. Current research has yet to determine the factors impacting BI, if any, in higher-level wrestling. Weight regulation is related to success in wrestling and Western standards of the ideal male body are largely emphasized in the sport of wrestling; however, no relationship has been researched among these factors and BI. The present study aimed to examine the relationships, if any, between athletic identity (AI) and perceptions of masculinity on BI in male collegiate wrestlers. **Methods:** Mixed-methods survey data were collected from actively competing, male NCAA Division I, II, and III wrestlers (n = 63). Participants were administered the 26-Item Eating Attitudes Test (EAT-26), the Multidimensional Body-Self Relations Questionnaire Short Form (MBSRQ-AS), the Athlete Identity Measurement Scale (AIMS), the Hoffman Gender Scale (HGS), and three open-ended response items surrounding masculinity and wrestling success.

Results: Quantitative data highlights a positive relationship between eating disorder (ED) risk and BI satisfaction in male wrestlers in the contexts of importance on appearance ($r = .361, p < .01$) and body weight vigilance ($r = .618, p < .01$). Additionally, a negative relationship between ED risk and BI satisfaction was found within the context of specific body areas ($r = -.328, p < .05$). Further, a quantitative relationship was found among gender self-acceptance and a lower overall importance placed on BI in male wrestlers ($r = .402, p < .01$). No quantitative relationship was found between AI and BI. Analysis of the open-ended responses indicates similarities in virtues and traits associated both with successful wrestlers and the traditional ideal male, namely mental and physical strength, toughness, and the ability to surpass limits. **Conclusions:** The data highlight a relationship in which inherently male traits may strengthen those same attributes of the wrestler identity and vice versa. The methods in which individuals attempt to exemplify those traits have effects on eating behaviors, body perception and, therefore, an effect on ED risk and BI satisfaction in male collegiate wrestlers. Further research should examine these specific relationships with a more sport-sensitive measure that can assess BI and ED risk in weight-sensitive sports, like wrestling. The information in this study can be used to inform the development of safer weight loss practices and specialized educational programs for ED risk for wrestlers. This study highlights a need for further qualitative analysis of this relationship in collegiate wrestling.

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Dedication

To Mom, Dad, Marshall, Gram, Nick, Zhen, Jay, Andy, and Olivia, my Star. Thank you all for everything.

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Introduction

The sport of wrestling is one of the oldest contested in history, its origins dating back to ancient Egypt and Greece and mentioned in historical works including the Bible and the Babylonian *Epic of Gilgamesh* (Beekman, 2006). Wrestling, first popularized as a method for young Greek men to train for combat, is a sport in which two individuals utilize grappling and throws to obtain a physical and technical advantage over each other (García, 2020). Naturally, the ability to mold the human body into the best physical version of itself aids greatly in said form of competition, as the more physically dominant athlete would stand the best chance of succeeding. This leads several wrestlers to engage in methods of rapid weight loss (RWL) in order to obtain a perceived mental and physical advantage (Petersson et al., 2013; Wroble & Moxley, 1998). Many of these methods, including binge eating/vomiting and excessive exercise, are commonly seen as unhealthy or detrimental to performance despite research showing a large portion of wrestlers engaging in these behaviors with little reported impact on performance (Artioli, Iglesias, et al., 2010; Khodae et al., 2015; Mendes et al., 2013). While performance may not be affected, athletes participating in RWL have described altered perceptions of their body image, indicating that these behaviors may have a more negative effect on the athlete's body image (Woods et al., 1988; Goltz et al., 2013).

An individual's body image (BI) entails the thoughts and emotions that one has with any aspect of their physical appearance or their appearance as a whole (Grogan, 2016). A person's BI is most often influenced by several external factors, including family, media, and peers (Tiggemann, 2012). If a person is more influenced by the belief that others negatively perceive their body or that their body is unlike those they are exposed to in modern media, they may experience BI dissatisfaction, a risk factor for mental health pathologies including

anxiety and depression (Grogan, 2016; Tiggemann, 2012). BI dissatisfaction refers to the negative thoughts and emotions that a person can have about any aspect of their bodies (Grogan, 2016; Ricciardelli & Yager, 2015). BI dissatisfaction has been reported in women attempting to attain a slender and fit body while men who experience BI dissatisfaction are known to strive for a more muscular and toned body (Bonafini & Pozzilli, 2010; Grogan, 2016; Holland & Tiggemann, 2016). Literature surrounding BI in sport and physical activity is varied. While BI satisfaction has been shown to influence physical activity and vice versa, participation in sports that acculturate a slender and athletic physique has resulted in BI dissatisfaction and continued participation in disordered eating and exercise behaviors in order to improve performance (Devrim et al., 2018; Fortes et al., 2013; Sabiston et al., 2019; Voelker et al., 2014). If the athlete adheres strongly to the culture of their sport and the behaviors necessary to do so, they will then identify with their sport and the athlete role to a greater extent (Ronkainen et al., 2016).

One's athlete identity (AI) is a piece of their overall self-identity oriented towards their perceived role as an athlete (Brewer et al., 1993). An individual's AI is developed from their athletic experiences, the importance of those experiences, and the degree to which the individual accepts the norms of their sport culture (Ronkainen et al., 2016). Generally, those with a strong sense of AI will more often interpret life events in terms of their effect on sport success (Brewer et al., 1993; Hughes & Leavey, 2012). If an athlete resonates with their AI to a greater extent than the conventional athlete, they may overconform to the standards of their sport to show their desire to succeed (Coker-Cranney, et al., 2018; Hughes & Coakley, 1991). Over-conforming athletes are more likely to both disregard their personal health for the sake of sport distinction and have trouble with injury during, retirement from, and

substance abuse after their athletic careers (Hughes & Coakley, 1991; Reifsteck et al., 2013; Brewer et al., 2010). Over-conforming athletes are also more likely to engage in excessive exercise and disordered eating behaviors, behaviors not only common in wrestling, but a widely held standard of the entire culture of the sport of wrestling (Coker-Cranney et al., 2018; Petersson et al., 2013).

Another piece of one's identity is their gender identity, which refers to the extent to which one agrees with and follows the gender roles imposed by their society (Wood & Eagly, 2008; Robbins & McGowan, 2016). Society largely conceptualizes gender as a binary, with individuals identifying as masculine or feminine based upon their assigned male or female sex at birth, respectively (Morrow & Messinger, 2006; Robbins & McGowan, 2016). These gender roles have a place in most aspects of life, including participation in sport and physical activity. As such, sports associated with the qualities of femininity are those that further emphasize those feminine qualities of grace, aesthetics, and concentration (Baker & Hotek, 2011). Likewise, sports that perpetuate and emphasize qualities socially determined to be masculine in nature, including strength, muscularity, physical contact, and dominance, are considered "masculine" sports (Baker & Hotek, 2011). Wrestling is a scarcely studied sport in the context of the wrestler's perceived masculine identity despite the sport's heavy focus on common masculine qualities like competing through pain and maintaining the best physical conditioning for success (Galli & Reel, 2009; Baker & Hotek, 2011; Petersson, et al., 2013). These qualities are commonly associated with the culture of wrestling and the formation of the successful wrestler identity (Baker & Hotek, 2011; Coker-Cranney et al., 2018), but the sport's unique focus on the body could have implications on perception of a wrestler's own BI if the wrestler adheres strongly to the "wrestler" identity. The purpose of

this study is to understand the effects of athlete identity and self-perceptions of masculinity on BI self-perceptions in male collegiate wrestlers.

Specific Aims

- Determine if a wrestler's athlete identity (AI) impacts their body image self-perception (BI).
- Determine if a wrestler's perception of their masculinity impacts their perception of their body image (BI).

Hypotheses

- Wrestlers that report high scores on AIMS will report lower overall scores on MBSRQ-AS subscales.
- Wrestlers that report higher scores on HGS will report lower overall scores on MBSRQ-AS subscales.

Literature Review

Wrestling

History & Background

Wrestling is one of the oldest forms of sport in human history (aside from running sports), referenced in literature including the *Old Testament* and the *Epic of Gilgamesh* (United World Wrestling, 2020; Poliakoff, 1996; Beekman, 2006). It was later popularized as an essential combat training tool for young men in ancient Greece as well as a form of sport, wrestling naked and covered in olive oil and sand for protection (Poliakoff, 1996; Morton & O'Brien, 1989; Beekman, 2006). Wrestling is a combat sport in which two opponents grapple with one another, using a myriad of holds, throws, and takedowns to gain and maintain a superior position over the other. This advantage makes it easier to “pin” the opponent, forcing their shoulders to make contact with the mat for two seconds, ending the match in victory (García, 2020). The wrestler who threw or brought down their opponent first was declared the victor. Wrestling became prominent as a sport around the early 700s BCE and was introduced as the deciding event in the Ancient Olympic Games in 708 BCE. (García, 2020: United World Wrestling, 2020). Wrestling as it is known today was introduced as one of ten events in the first modern Olympic Games in Athens, Greece in 1896 (Young, 1987).

Greco-Roman wrestling, the first established “style” of modern wrestling, was developed from the most commonly used moves of the ancient Greek (and later, Roman) wrestlers (United World Wrestling, 2020). This style is characterized by upper body grappling and throws, where one opponent, by any number of ways, works to obtain an advantage and attempt to lift the other into the air and return them to the mat for points (Gable, 1998; International Federation of Associated Wrestling, 2008). Freestyle wrestling was first introduced in the 1908 Olympics in St. Louis, Missouri (United World Wrestling,

2020). Freestyle wrestling, in contrast to Greco-Roman wrestling, allows scoring below the hips, meaning that takedown moves focused on the lower body are considered scoring moves, another way to gain a match advantage (Gable, 1998; Poliakoff, 1996). The growing popularity of freestyle in the United States allowed both styles to be recognized as the only two internationally contested styles in wrestling, including the Olympics (United World Wrestling, 2020). This growing influence inspired the first intercollegiate wrestling tournament held in 1905, and the first NCAA-sanctioned wrestling tournament in 1928 (National Collegiate Athletic Association, 2014). Due to its heightened popularity in college-age and adult individuals, organized wrestling competitions with high school-age individuals began in 1920 (Poliakoff, 1996), leading to the creation of what is known as “folkstyle” wrestling, the only style of competition at the high school level. Folkstyle is a modification of collegiate wrestling, or scholastic wrestling, with various rule changes made to accommodate wrestlers high school-age and below (Poliakoff, 1996). Now, children as eight years old and younger can begin training and competing in any wrestling style of their choice (USA Wrestling, 2020).

Contemporary Competition

Uniform weight classes, established in the 1924 Olympics in Paris, France, were created to limit the risk of injury and ensure a close-to-even playing field for all athletes (Spey, 2018). These Olympics included six classes in Greco-Roman competition (bantamweight, featherweight, lightweight, middleweight, light heavyweight and heavyweight), and seven classes in freestyle competition (all aforementioned classes with addition of welterweight). Since that time, the weight ranges that comprise the classes have shifted and expanded to accommodate the varying levels of competition. In high school

wrestling, there are 14 weight classes, 10 weight classes in collegiate wrestling, and six weight classes for each Olympic discipline (Greco-Roman and Freestyle) disciplines. (National Federation of State High School Associations, 2020; National Collegiate Athletic Association, 2020; United World Wrestling, 2020). See Table 1 for an outline of each weight class at each level of competition.

Table 1

High School and Collegiate Wrestling Weight Classes

Wrestling Weight Classes			
High School (14)	Collegiate (10)	Olympics, Greco-Roman (6)	Olympics, Freestyle (6)
106 lb (91 - 106 lb)	125 lb (up to 125 lb)	60 kg (up to 60 kg)	57 kg (up to 57 kg)
113 lb (98 - 113 lb)	133 lb (125.1 - 133 lb)	67 kg (60.1kg - 67 kg)	65 kg (57.1 kg - 65 kg)
120 lb (113.1 - 120 lb)	141 lb (133.1 - 141 lb)	77 kg (67.1 kg - 77 kg)	74 kg (65.1 kg - 74 kg)
126 lb (120.1 - 126 lb)	149 lb (141.1 - 149 lb)	87 kg (77.1 kg - 87 kg)	86 kg (74.1 kg - 86 kg)
132 lb (126.1 - 132 lb)	157 lb (149.1 - 157 lb)	97 kg (87.1kg - 97kg)	97 kg (86.1 kg - 97 kg)
138 lb (132.1 - 138 lb)	165 lb (157.1 - 165 lb)	130 kg (97.1 kg - 130 kg)	125 kg (97.1 kg - 125 kg)
145 lb (138.1 - 145 lb)	174 lb (165.1 - 174 lb)		
152 lb (145.1 - 152 lb)	184 lb (174.1 - 184 lb)		
160 lb (152.1 - 160 lb)	197 lb (184.1 - 197 lb)		
170 lb (160.1 - 170 lb)	Heavyweight (183-285 lb)		
182 lb (170.1 - 182 lb)			
195 lb (182.1 - 195 lb)			
220 lb (195.1 - 220 lb)			
285 lb (220.1 - 285 lb)			

Weight classes ensure that wrestlers compete as equally as physically possible, with only their skill and physical ability determining the victor. A wrestler may see potential advantages to competing in a lower weight class if it means improving their performance, maximizing their physical potential, and becoming faster and stronger (Pettersson et al., 2013;

Wroble & Moxley, 1998). Many wrestlers elect to lose weight and drop to a lower weight class as quickly and as efficiently as possible, often participating in several rapid weight loss (RWL) techniques, often called “cutting weight”. Some of the most used weight cutting techniques include, but are not limited to, saunas, rubber suits, caloric restrictions, dehydration, increased aerobic exercise, binge eating and vomiting, and medication including diuretics and laxatives (Steen & Brownell, 1990; Franchini et al., 2012). Across a wrestling season, a wrestler will engage in RWL through these techniques, compete at the desired weight class, promptly binge eat and drink, then repeat the process prior to the next match (Steen & McKinney, 1986).

Research examining RWL participation in combat sports, albeit sparse, suggests that RWL has little impact on sport performance (Artioli, Iglesias, et al., 2010; Khodaei et al., 2015; Mendes et al., 2013; Reljic et al., 2016). One factor determining if an athlete is engaging in RWL is if they compete at below 5% of their pre-season weight (Oppliger et al., 1991), commonly known as their estimated minimum wrestling weight (MWW). For instance, in high school starting wrestlers (excluding heavyweight wrestlers), Wroble and Moxley (1998) found that 33% of the wrestlers (N = 53) interviewed competed below their MWW and had higher success rates than their counterparts who wrestled above MWW.

Constant participation in RWL methods can be physically unhealthy. Most of the weight lost when one cuts weight comes from loss of body water, causing rapid dehydration. While rapid dehydration is shown to not have a substantial effect on peak strength (Lambert & Jones, 2010; Montain et al., 1985), it can cause decreased plasma volume, which can increase heart rate, deplete electrolytes, and lead to an increased susceptibility for heat injury and muscle cramps (Rankin, 2002). In 1996, the American College of Sports Medicine issued

a position statement regarding RWL in wrestlers and urging coaches and athletes to monitor and maintain safe exercise and dietary habits while in competition, thereby ensuring the wellbeing of the athletes (Oppliger et al., 1996). In 1997, three wrestlers passed away participating in non-stop, highly intense exercise which resulted in severe hyperthermia (Center for Disease Control, 1998). These wrestlers were believed to be cutting weight (Center for Disease Control, 1998). Only after these incidents did the NCAA institute a rule change, prohibiting the use of any and all modalities of RWL (National Collegiate Athletic Association, 1998). Since this rule change, no record exists of wrestlers having passed away as a direct result of cutting weight and practices have been decreasing (Oppliger et al., 2006).

Current weight cutting trends and sport culture in wrestling.

Weight cutting in wrestling, and combat sports in general, is a central standard of the sport culture and an unspoken expectation in order to achieve success (Pettersson et al., 2013). Across high school, collegiate, and international wrestlers, Research has shown that between 40% and 90% of wrestlers across all age and competition levels engage in one or a combination of RWL behaviors, but trends are diminishing (Khodaei et al, 2015). The true prevalence of RWL among these athletes is likely unknown as data are self-reported, leaving open the possibility of an inaccurate result; however, anecdotal evidence and limited research suggests that the weight classes on either end of the range (lightest weights and heaviest weights) participate in RWL behaviors the most (Wroble & Moxley, 1998; Artioli, Gualano, et al., 2010).

When cutting weight, wrestlers believe they gain a mental advantage over their opponent, presenting themselves as stronger and physically larger than their opponent

(Petersson et al., 2013). Additionally, wrestlers feel a sense of belonging when cutting weight. Young athletes are known to idolize the elite in their respective sports and see them as symbols of the sport culture itself (Biskup & Pfister, 1999; Reale et al., 2017). The same can be assumed for younger wrestlers viewing elite-level wrestlers exercising hard and cutting weight, under the belief that doing so is necessary to achieve elite level performance (Petersson, et al., 2013). Woods et al. (1988) found that high school wrestlers exhibit higher tendencies of dietary restriction, using binge eating and vomiting as ways to control weight. These same wrestlers reported distorted estimates of body weight and size, indicating that an athlete's body image (BI) can be affected because of these behaviors (Woods et al., 1988; Goltz et al., 2013). Others have further proposed that those in the lower weight classes should be considered the most "at risk" for BI disturbances as they were the most likely to participate in weight cutting (Thiel et al., 1993; Wroble & Moxley, 1998; Artioli, Gualano, et al., 2010).

Body Image

An individual's body image (BI) involves their perception of and feelings toward but not limited to their height, weight, body shape, and physical imperfections like their freckles, acne, and hair (National Eating Disorders Association, 2018; Gorgan, 2016). One's ideal BI is their perception of those features compared to their best possible physical form (Martin, 2010). One's ideal BI is often influenced by a number of sociocultural factors and can vary depending on time period, one's region of origin, family culture, peer group at the time, opinions regarding the opposite sex, and access to the media (Littleton & Ollendick, 2003; Stanford & McCabe, 2002; Myers & Biocca, 1992). An individual's BI becomes non-ideal

when they perceive any one or few aspects of their BI with subjective unhappiness, known as BI dissatisfaction (Lawler & Nixon, 2011; Ricciardelli & Yager, 2015).

Body Image Dissatisfaction

BI dissatisfaction is widely defined as the negative thoughts and emotions surrounding the aspects of one's body image (Grogan, 2016; Ricciardelli & Yager, 2015). BI dissatisfaction, like their BI, can be influenced by family, peers, and media and is often rooted in the perception of one's body as below the standards placed by those groups (Grogan, 2016; Tiggemann, 2012). Unrealistic BI standards have entrenched themselves into modern society, influencing changes in body image self-perceptions. Media depictions of the ideal female BI have emphasized a slender body, small waist, and symmetrical facial features, further popularized by the rise of celebrities, model culture, and social media connecting beauty to success (Bonafini & Pozzilli, 2010; Grogan, 2016; Holland & Tiggemann, 2016). Social media has recently become a topic of interest in the realm of BI dissatisfaction, where those who engage in social media networks, especially those that emphasize photographs of oneself, are more likely to engage in disordered eating and experience BI dissatisfaction (Holland & Tiggemann, 2016). The increasing focus in contemporary Western media on the objectification and sexualization of the female body has led to the "acculturation" of women to internalize a viewer's perspective of them as their primary view of their physical appearance (Fredrickson & Roberts, 1997). This "self-objectification" can negatively influence a woman's self-perception with the potential to cause anxiety and shame if they believe their appearance is not appreciated by those viewing them (Fredrickson & Roberts, 1997; Aubrey, 2006). Continued exposure of young women to such media leads to body dissatisfaction, or discontent with the body's current physical

appearance (Grogan, 2016). Mond et al (2013) found that body dissatisfaction negatively impacts a woman's quality of life, namely affecting mental health and some aspects of both physical and psychosocial functioning.

The ideal male BI, initially popularized by Greek mythology and sculptures that depict a hyper-muscular, chiseled physique with smooth, rugged features akin to the gods and warriors of their literature, has remained constant over time (Galli & Reel, 2009; Grogan, 2016). Such features are still being popularized and idealized, a goal for young males to attain. Recent research on physically active males (and women) has shown that an increased focus on one's physique, or their self-perceptions of their body's form, structure, fat content, and muscle tone, can both "influence and impede physical activity" (Hart et al., 1989; Sabiston et al., 2014). This preoccupation with one's physique can lead to social physique anxiety, or the perception that others are negatively evaluating their physique (Hart et al., 1989; Sabiston et al., 2014). Research analyzing the effects of male BI self-perception on quality of life shows that male self-perceptions of their bodies compared to those represented in media and fitness-emphasized advertisements lead to body dissatisfaction (Grogan, 2016). Further, BI dissatisfaction has been linked to anxiety and depression in otherwise healthy males, indicating a mental health risk resulting from BI dissatisfaction (Barnes et al., 2020).

Body Image in Sport

A recent BI review by Sabiston and colleagues (2019) determined that general participation in sport and physical activity was more commonly associated with BI satisfaction, that those with a more BI dissatisfaction are likely to avoid sporting activities. It is noteworthy that the sports included in this review, like football and soccer, are not considered "aesthetic" sports (Sabiston et al., 2019). Additionally, literature surrounding BI

concerns in sport is commonly found in sports where a sporting physique and physical aesthetic are not only emphasized, but an expectation of the sport culture. For example, research with figure skaters and other aesthetically inclined sports (including gymnastics diving) indicate that BI dissatisfaction, when intense physical training is used to lose weight for better performance, can become a risk factor for riskier eating behaviors (Voelker et al., 2014; Fortes et al., 2013).

For female athletes, this is largely due to the female BI standard to be thin and fit, further emphasized by the “female athlete triad”, a widely researched framework for specific interconnected mental and physical health pathologies related to female athletes (disordered eating, menstrual dysfunction, and low bone density) (Nazem & Ackerman, 2012). For male athletes, these behaviors are facilitated by the desire for muscularity, resulting in the common practice of excessive exercise and focus on nutrition in the hopes of performing successfully in competition (Power et al., 2020; Currie, 2010). In aesthetically emphasized sports like bodybuilding, excessive exercise and a focus on nutrition is part of the sport culture but is known to lead to BI dissatisfaction and continued disordered exercise behaviors (Devrim et al., 2018). It is common knowledge that most research on BI is focused on women. However, little to nothing is known about the specific BI concerns of male combat sports athletes, and more specifically wrestlers, as well as those who engage in RWL behaviors for performance in these sports, stated earlier as influencing BI self-perceptions.

Athlete Identity

AI & Sport Culture

An individual's self-identity, or how they view themselves in the context of their role in society, is commonly described as multidimensional (Shavelson & Bolus, 1982). This means that one's self-concept, simply their inward perceptions of themselves, can be categorized based on relevant aspects of their lives (social, academic, physical, emotional, etc.) (Shavelson & Bolus, 1982). This means that an individual can exhibit and feel more salient with any number of identities within their self-concept than others (Shavelson & Bolus, 1982; Marsh, 1990). An individual's athlete identity (AI) entails the sport-related aspects of their self-concept and the degree to which "[that] individual identifies with the athlete role." (Brewer et al., 1993). Lamont-Mills and Christensen (2006) determined that AI is not limited to those in professional or organized sport settings, indicating that anyone participating in sport at leisure may exhibit qualities of an athletic identity. An individual's AI is constructed from their athletic experiences, the level of importance they place on those experiences, and the degree of influence (both positive and negative) the athlete's present sport culture has on their AI development (Ronkainen et al., 2016). It has been theorized that those that more strongly associate AI with their self-concept have a higher tendency of interpreting events or engaging in behaviors in terms of their implications on their sport ability and athletic longevity (Brewer et al., 1993; Hughes & Leavey, 2012).

Athlete Overconformity to AI

In order to maintain their AI and achieve sport success, athletes are expected to conform to the norms of the sport culture by pushing boundaries beyond the conventional athlete (Coakley, 2015; Coker-Cranney, et al., 2018). Some athletes can deviantly

overconform to these norms and are known to prioritize sport success over physical health to prove higher personal and social status as an athlete (Hughes & Coakley, 1991). Research on the impacts of AI overconformity on athletes suggests that their behaviors ‘vary in degree, not in kind’ (Hughes & Coakley, 1991, p. 316), meaning that normal athlete behaviors are amplified to extremes but are similar among over-conforming athletes. Literature surrounding AI shows that those with a much stronger athletic identity may be presented with challenges following their athletic careers (Coker-Cranney et al., 2018). These topics include retirement from or transition out of sport (Reifsteck et al., 2013; Grove et al., 1997; Lavallee et al., 1997), injury or burnout (Raedecke 1997; Brewer et al., 2010; Sparkes & Smith, 2002), or alcohol, drug, and other substance use and addiction during and after sport participation (Lisha & Sussman, 2010; Martens et al., 2006; Miller, 2008; Hughes & Coakley, 1991). Disordered eating and exercise behaviors are commonly studied among athletes over-conforming to their AI. For example, runners with a stronger AI and participating in disordered exercise were more likely to do so with the intent to control or lose weight in order to attain the ideal running body, reaffirm their identity as an athlete and runner, and achieve sport success as a result (Gapin & Petruzzello, 2011; Turton et al., 2017).

In wrestling, maintaining a strong body, cutting weight, and engaging in disordered eating and exercise behaviors is a part of being a “wrestler” (Petersson et al., 2013; (see, *Weight Cutting and Sport Culture in Wrestling*)). Such a practice is thought to be the norm when considering the AI of wrestlers and athletes in other weight-dependent combat sports (Coker-Cranney et al., 2018; Petersson et al., 2013). Further, overconformity to the “wrestler” AI was analyzed in a qualitative study with wrestlers who felt that one could “never go too far” when striving for distinction in the sport (Coker-Cranney et al., 2018).

This means that wrestlers with a particularly strong wrestler identity may knowingly participate in excessive weight cutting behaviors to prove their commitment to that role and the desire for that distinction at the detriment of their physical and mental health.

Gender Identity & Masculinity

Gender Identity

Gender identity refers to one's own perception of their gender and whether it aligns with or differs from their assigned sex at birth (Morrow & Messinger, 2006; Stets & Burke, 2000; Wood & Eagly, 2008). Largely a societal construct, one's gender identity is often predicated upon the shared gender standards of their society, known as the society's gender roles (Wood & Eagly, 2008; Robbins & McGowan, 2016). That is, what is defined as "masculine" or "feminine" in behavior is based on the socially determined definitions of masculinity and femininity, respectively (Stets & Burke, 2000). These gender roles have normally entailed women more so than men assuming the passive, domestic, caretaker roles, and men more so than women in dominant, leadership, or productive roles (Wood & Eagly, 2008; Robbins & McGowan, 2016). These roles are generally assigned to individuals based on their assigned sex at birth, creating the gender binary based on the two sexes (Robbins & McGowan, 2016). An individual's gender identity, in terms of these gender norms, is influenced both by what is culturally typical and socially ideal, namely, the perpetuation of the mentioned gender roles (Wood & Eagly, 2008). Sport participation is largely influenced by what is socially perceived as masculine or feminine (Metheny, 1965; Plaza et al., 2017). In many cultural contexts, sports that involve heavy lifting, forceful contact, or combat (ex. football, wrestling, most team sports) are perceived as masculine, and sports emphasizing

gracefulness, aesthetics, and concentration (ex. gymnastics, figure skating, dancing) are perceived as feminine (Plaza et al., 2017).

Masculinity & Gender Identity in Sport

Masculinity has been quite loosely defined in the literature as being synonymous with “maleness” (Spence, 1985, 1999) or the qualities of being male; however, an individual’s definition of their masculinity may vary depending on their cultural identity, ethnic background, or geographical background (Kimmel, 2000). The Westernized masculine standard, otherwise known as “hegemonic masculinity”, emphasizes the virtues of honor, power, pride, and superiority in the social hierarchy (Connell & Messerschmidt, 2005). Over time, hegemonic masculinity has become the singular perspective of male human nature that implanted itself into every aspect of human life, influencing and creating social behaviors and moral standards upheld today (Mosse, 1996, Connell & Messerschmidt, 2005). This is often what comes to mind in regard to modern masculinity, especially when considering media representation of masculinity. When individuals, especially younger populations, see successful male figures represented in the media, including professional athletes, superheroes, and politicians, those figures become role models with hypermasculine traits (a chiseled physique, unmatched success in competition, and success in romantic relationships) that paint the picture of how a man should think, look, and act (Neale, 1983).

Over time, success in sport has become a hallmark of the masculine identity, providing an enjoyable way for young males to build character, establish themselves socially, and assert dominance physically and mentally (Whitson, 1990), building what would become a large part of the modern masculine identity. In Western culture, the competitive nature and physicality of sport has been known to promote machismo, like hegemonic masculinity

wherein a male exhibits certain amplified masculine qualities: heterosexuality, aggression, and love of competition (Paulsen, 1999). Using the body as a tool for dominance and enduring through the pain of competition amplifies the more socially attractive mental and physical qualities for which male athletes strive so intensely (Galli & Reel, 2009). As mentioned, in Ancient Greece, young males would wrestle and compete in other feats of athletic prowess as combat training, simulating combat scenarios and utilizing combat skills while minimizing the risk of injury or death (Beekman, 2006). Many depictions of success in sport around that time show the muscular physiques and behavioral features we see today in the general representation of men in sport. Behaviors largely considered masculine, namely hiding emotion, embodying strength through pain, and remaining calm under pressure, are highly prevalent in contemporary scholastic wrestling (Baker & Hotek, 2011). Therefore, it can be assumed that the extent to which a wrestler subscribes to these body-focused behaviors can be associated with and can affect the construction of that wrestler's athletic identity as well as their masculine identity.

Methods

Participants

Participants consisted of NCAA Division-I, II, and III wrestlers currently on the roster for a university team, age 18 or older. As such, inclusion criteria were male-assigned and male-identifying, college wrestler, actively competing with the university team. All weight classes were included in the overall analysis. Exclusion criteria included wrestlers currently competing in high school and wrestlers that identified as female. This study aimed to understand the unknown presence of BI issues in the population of wrestlers as a whole; therefore, wrestlers with a clinical diagnosis for anorexia nervosa, bulimia nervosa, depression, anxiety, and their related disorders as well as those currently taking medication to alter their weight were excluded from this study. Inclusion of data from individuals with these diagnoses would have positively influenced the overall results and will be screened prior to the start of the survey.

Recruitment & Data Collection

Approval for the present study was granted by the Institutional Review Board of Appalachian State University prior to the release of the survey. Participants were recruited via email to college and university wrestling head coaches of all levels and social media outreach via Facebook and Instagram postings. Emails of head wrestling coaches were obtained publicly via their university's wrestling website. Flyers were created and included a description of the study, criteria for participant eligibility, and contact information for research personnel. Said flyers were included in recruitment emails as well as social media postings. Follow-up emails with head coaches were sent approximately two weeks following the first. Phone calls to head coaches were made approximately three weeks following the

initial sending of the survey. Participants chosen for this study completed an informed consent and were asked to answer basic demographic information (age, race/ethnicity, current university, and grade level) as well as information on their wrestling careers and experiences (years wrestled, styles wrestled, weight classes wrestled). Then, they participated in an online anonymous survey consisting of questions from the 26-item Eating Attitudes Test, (EAT-26), Multidimensional Body Self-Relations Appearance Scales Questionnaire (MBSRQ-AS), the Athlete Identity Measurement Scale (AIMS), and the Hoffman Gender Scale (HGS).

Measures

Eating Attitudes Test, 26-item

The Eating Attitudes Test, 26-item (EAT-26) is a 26-item Likert-type questionnaire, designed to assess disordered eating symptomatology and eating disorder risk for its participants. The EAT-26 is a shorter version of the EAT-40 (Garner & Garfinkel, 1979). The EAT-26 utilizes a 6-point Likert-type scale, with participants answering “always”, “usually”, “often”, “sometimes”, “rarely”, and “never”. To meet criteria for eating disorder risk, participants needed to score a 20 or above on the EAT-26, after which the survey recommends clinical consultation for early identification of possible eating disorders (Garner & Garfinkel, 1979). Prior to the primary 26 items, demographic and anthropometric information is taken from the participant to assess age and BMI compared to results from the questionnaire. Following the primary 26-items, the EAT-26 asks five behavioral questions surrounding weight loss practices. An answer of “yes” to any of the five behavioral questions would indicate an eating disorder risk and a recommendation to see a clinician (Garner & Garfinkel, 1979). Those that score slightly below 20 are considered moderately at risk and

should still be examined, as denial of symptoms is common in quantitatively assessing ED risk (Garner & Garfinkel, 1979) (See Appendix A).

Multidimensional Body-Self Relations Questionnaire, Appearance Scales (MBSRQ-AS)

The Multidimensional Body Self-Relations Appearance Scales Questionnaire (MBSRQ-AS) is a 34-item Likert-type questionnaire, designed to assess the facets of and attitudes toward an individual's BI construct (Cash, 2018). The MBSRQ-AS includes two of the original seven factor subscales included in the full 69-item Multidimensional Body Self-Relations Appearance Scales Questionnaire (MBSRQ), Appearance Evaluation and Appearance Orientation, and the three additional subscales included in the MBSRQ: Overweight Preoccupation, Self-Classified Weight, and the Body Areas Satisfaction Scale (Cash, 2018). Each of these scales (see Table 2) are collectively designed to analyze the personal attitudes, perceptions, and preoccupations an individual may have towards their BI and weight (Cash, 2018). The MBSRQ-AS utilizes a Likert-type scale, with participants entering responses ranging from “definitely disagree/unsatisfied” to “definitely agree/satisfied” for each question under each factor subscale. Internal consistency and test-retest reliability for each of the MBSRQ-AS subscales for males were measured at $\alpha = .88$, $r = .81$ for Appearance Evaluation, $\alpha = .88$, $r = .89$ for Appearance Orientation, $\alpha = .77$, $r = .86$ for Body Areas Satisfaction, $\alpha = .73$, $r = .79$ for Overweight Preoccupation, and $\alpha = .70$, $r = .86$ for Self-Classified Weight (See Appendix B).

Table 2

MBSRQ-AS Subscale Interpretations

Subscale	Interpretations
<i>Appearance Evaluation</i>	Feelings of physical attractiveness or unattractiveness; satisfaction or dissatisfaction with one's looks. High scorers feel mostly positive and satisfied with their appearance; low scorers have a general unhappiness with their physical appearance.
<i>Appearance Orientation</i>	Extent of investment in one's appearance. High scorers place more importance on how they look, pay attention to their appearance, and engage in extensive grooming behaviors. Low scorers are apathetic about their appearance; their looks are not especially important, and they do not expend much effort to "look good".
<i>Body Areas Satisfaction Scale</i>	Like the Appearance Evaluation subscale, except that the BASS taps satisfaction with discrete aspects of one's appearance. High composite scorers are generally content with most areas of their body. Low scorers are unhappy with the size or appearance of several areas.
<i>Overweight Preoccupation</i>	This scale assesses a construct reflecting fat anxiety, weight vigilance, dieting, and eating restraint.
<i>Self-Classified Weight</i>	This scale reflects how one perceives and labels one's weight, from very underweight to very overweight.

Athlete Identity Measurement Scale (AIMS)

The Athlete Identity Measurement Scale (AIMS) is a 10-item questionnaire that assesses the degree to which an individual identifies with qualities of the athlete role (Brewer et al., 1993). The wordings of the items will be altered slightly to evaluate the participant's identification to the specific "wrestler" role. For example, item 3 will be changed from "Most of my friends are athletes," to "Most of my friends are wrestlers." Each item is answered on a 7-point Likert-type scale, with participants entering responses "strongly disagree" ("1") and "strongly agree" ("7"). Those reporting higher scores identify more strongly with the athlete role than those reporting lower scores (Brewer et al., 1993). Internal consistency and test-

retest reliability for the AIMS was observed at $\alpha = .93$ and $r = .89$, respectively (See Appendix C).

Hoffman Gender Scale (HGS)

The Hoffman Gender Scale (HGS) is a two-factor, 14-item questionnaire that assesses an individual's gender self-confidence by assessing one's gender self-definition (how strongly they identify with their masculinity or femininity) and gender self-acceptance (how comfortable an individual is with their gender) (Hoffman et al., 2000). Scores range from 1 to 6, with higher scores (4-6) indicating stronger levels of the above constructs. Participants complete Form A of the HGS if they identify as female, and Form B is to be completed by those that identify as male. Both forms of the HGS are the same, with only the terms "feminine/femininity" and "masculine/masculinity" reworded within the items (Hoffman et al., 2000). The HGS utilizes a 6-point Likert-type scale, with participants responding, "strongly disagree", "disagree", "somewhat agree", "tend to agree", "agree", and "strongly agree". Reliability for the HGS for males was found to be $\alpha = .93$ and $\alpha = .80$ for the "Self-Definition" and "Self-Acceptance" subscales, respectively. (See Appendix D)

Open-ended questions

Following completion of all three measures, participants were asked open-ended questions designed to manifest an in-depth qualitative response not otherwise elicited in the above measures. The open-ended questions were informed by the above measures and modified to fit the context of the sport of wrestling, focusing on the culture of the sport of wrestling and their self-perceptions of their own athlete identity and masculinity. If the participant wished to opt out of one or more of the questions, they were allowed to forgo them without penalty. (See Appendix E). Because the survey contained questions regarding

topics that could be a trigger for participants, a link to the National Suicide Hotline, Mental Health First Aid, and other resources were included with each question, accessible at the completion (See Appendix F).

Data Analysis

Descriptive and quantitative data were analyzed via IBM's SPSS 26 statistics software (IBM corporation, 2020). Means were compared by way of independent samples t-tests and one-way ANOVAs to analyze differences in BI according to scholarship status and NCAA Division, respectively. Correlational analyses were conducted to determine the strength of the relationships, if any, between the AIMS and the MBSRQ-AS and the HGS and the MBSRQ-AS. Linear stepwise regression analyses were performed to assess the predictability of positive scores on the AIMS and HGS with higher scores on the MBSRQ-AS, revealing possible relationships between AI and perceptions of masculinity with disordered BI, respectively. Themes from open-ended questions were determined through thematic analysis of the responses via a qualitative descriptive method (Creswell, 2013). Responses were initially categorized by similarity of response, with a new category created each time a response differed from an existing category (Sandelowski & Borroso, 2007). Each group of responses was categorized and reviewed for consensus by another member of the research group. Any discrepancies were examined by additional members of the group until a consensus was made. The number of responses within each category were tallied and are presented in descending order (Creswell, 2013).

Results

Participant Demographics

Seventy-six male collegiate wrestlers accessed and opened the survey via text link or QR code. For responses to be considered in the overall analysis, participants needed to provide all demographic information and complete at least the first measure in the survey, the EAT-26. This allowed for all complete responses regarding ED risk to be considered, providing information on the prevalence of ED risk in our sample. Twelve survey responses were removed as they had not been completed as far as the EAT-26. One response was then removed as the participant had reported competing for an NAIA or junior college wrestling program, outside of the NCAA. Filtering for incomplete responses and those who had answered yes to at least one of the screening questions left sixty-three male collegiate wrestlers, aged 18-25 (20.5 ± 1.4), who were included in the overall analysis. Incomplete survey responses were included in the analysis based on what was completed in the response. For example, if a participant did not fully complete the AIMS but did fully complete the HGS, they were excluded from the analysis of AIMS scores but included in the HGS score analysis. A post-hoc power analysis was performed with the present sample to assess achieved power. A power of .99 was observed with an alpha of .05 and a moderate effect size of .30. Wrestlers were recruited via email and phone call to each college and university head wrestling coach in NCAA Divisions I, II, and III ($n = 262$). Each coach was sent an introductory email and two follow-up emails, flyer and survey link included. A total of 21 coaches responded to at least one form of recruitment, who were then instructed to pass on the survey link to their team. Additionally, the survey was shared on social media outlets including Facebook and Instagram. All wrestlers are currently enrolled in and currently

competing for an NCAA Division I (n = 11), II (n = 29), or III (n = 23) wrestling program. Of our participants, approximately 73% (n = 46) had been awarded a scholarship in some amount to wrestle at their college or university. Specific demographics of the participants, including age, race, and grade level, are found in Table 3.

Table 3

Participant Characteristics and Frequencies

	<i>Percentages (n=63)</i>
<i>Age (years), M ± SD</i>	20.54 ± 1.49
<i>Number of Years Wrestled, M ± SD</i>	11.87 ± 3.55
<i>Race</i>	
<i>White (Caucasian)</i>	45 (76.2%)
<i>Black or African American</i>	7 (11.1%)
<i>Hispanic or Latino</i>	5 (7.9%)
<i>Asian</i>	2 (3.2%)
<i>Native Hawaiian or Pacific Islander</i>	1 (1.6%)
<i>Scholarship Status</i>	
<i>Yes</i>	46 (73.0%)
<i>No</i>	17 (27.0%)
<i>Grade level (including redshirt status)</i>	
<i>Freshman</i>	14 (22.2%)
<i>Sophomore</i>	15 (23.8%)
<i>Junior</i>	21 (30.1%)
<i>Senior</i>	15 (23.8%)
<i>NCAA Division</i>	
<i>Division I</i>	11 (17.5%)
<i>Division II</i>	29 (46.0%)
<i>Division III</i>	23 (36.5%)

MBSRQ-AS

One-sample t-tests indicate that participants completing the MBSRQ-AS reported lower scores than the observed population mean on the *Appearance Orientation* subscale

($3.15 \pm .59$; $t(57) = -5.81, p < .01$), within normal scores compared to the observed population mean on the *Weight Self-Classification* subscale ($3.01 \pm .46$; $t(58) = .943, p = .350$), and higher scores than the observed population mean on the *Appearance Evaluation* subscale ($3.91 \pm .56$; $t(57) = 5.68, p < .01$), *Body Areas Satisfaction Scale* ($3.77 \pm .66$; $t(57) = 3.17, p < .01$), and *Overweight Preoccupation* subscale ($2.88 \pm .88$; $t(56) = 3.52, p < .01$). An independent samples t-test showed no significant differences among MBSRQ-AS subscale scores between individuals who had been awarded a partial or full scholarship (*Appearance Orientation*: 3.12 ± 5.79 ; *Appearance Evaluation*: $3.94 \pm .52$; *Body Areas Satisfaction Scale*: $3.84 \pm .63$; *Overweight Preoccupation*: $2.87 \pm .86$; *Weight Self-Classification*: $2.98 \pm .48$), and those who had not (*Appearance Orientation*: $3.23 \pm .65, t(56) = -.606, p = .566$; *Appearance Evaluation*: $3.80 \pm .69, t(56) = .864, p = .607$; *Body Areas Satisfaction Scale*: $3.58 \pm .71, t(56) = 1.351, p = .443$; *Overweight Preoccupation*: $2.92 \pm 1.00, t(55) = -1.91, p = .209$; *Weight Self-Classification*: $3.13 \pm .40, t(57) = -1.128, p = .867$). One-way ANOVA also showed no significant differences among participants in different NCAA divisions for all subscales (*Appearance Orientation*: $F(2, 55) = .716, p = .493$; *Appearance Evaluation*: $F(2, 55) = 2.493, p = .092$; *Body Areas Satisfaction Scale*: $F(2, 55) = .891, p = .416$; *Overweight Preoccupation*: $F(2, 54) = 1.484, p = .236$; and *Weight Self-Classification*: $F(2, 56) = .528, p = .592$). Relationships among MBSRQ-AS subscale scores and scores on the EAT-26, AIMS, and HGS are presented below.

EAT-26

Mean score for the entire sample via the EAT-26 was 14.7, lower than the score needed to meet criteria for an ED. An analysis of scores on the EAT-26 that were equal to or

greater than 20 revealed that 22% ($n = 14$) of wrestlers met criteria for problematic or disordered eating behaviors (14.8 ± 12.6). Participant characteristics of these wrestlers and those at moderate risk for ED (scored 15-19) are found in Table 4. Independent samples t-test showed no significant differences among EAT-26 scores between individuals who had been awarded a partial or full scholarship (12.8 ± 10.1) and those who had not (19.7 ± 15.5 ; $t(61) = -2.05, p = .142$). One-way ANOVA also showed no significant differences among participants in different NCAA divisions $F(2, 60) = 1.15, p = .322$). Correlational analysis of the MBSRQ-AS showed a significant positive correlation with scores on the *Appearance Orientation* scale ($r = .361, p < .01$) and *Overweight Preoccupation* scale ($r = .618, p < .01$), and a significant negative correlation with scores on the *Body Areas Satisfaction Scale* ($r = -.328, p < .05$) (see Table 4). A stepwise linear regression was then performed to predict scores on said MBSRQ-AS subscales with scores on the EAT-26 (*Appearance Orientation*: ($F(1,56) = 8.405, p < .01$), $r^2 = .131$; *Overweight Preoccupation*: ($F(1, 56) = 33.954, p < 0.01$), $r^2 = .382$; *Body Areas Satisfaction Scale*: ($F(1, 57) = 6.750, p < .05$), $r^2 = .108$) indicating that the EAT-26, while significantly correlated with scores on the above MBSRQ-subscales, provides little explanation for the variance in scores. Based on these relationships, the research team decided to perform a correlational analysis of the EAT-26 and the AIMS to assess AI and its impact on disordered eating behaviors. No significant relationship was found between these two factors ($r = .181, p = .171$). The complete responses of our participants at risk for an ED along those with an EAT-26 score between 15 and 19 ($n = 10$), considered at moderate risk for an ED due to the possibility of symptom denial, are included in Appendices G-L.

Table 4

Participant Characteristics and Mean Scores of Those at Risk for an ED

	Percentage of scores 20 or Above (n = 14)	Percentage of scores Between 15 and 19 (n = 10)
Age (years), M ± SD	20.50 ± 1.35	19.30 ± .823
Number of Years Wrestled, M ± SD	12.43 ± 3.52	9.2 ± 4.16
Race		
White (Caucasian)	11 (78.6%)	8 (80%)
Hispanic or Latino	2 (14.3%)	1 (10%)
Black or African American	1 (7.1%)	1 (10%)
Scholarship Status		
Yes	7 (50.0%)	8 (80%)
No	7 (50.0%)	2 (20%)
Grade level (including redshirt status)		
Freshman	3 (21.4%)	4 (40%)
Sophomore	6 (42.9%)	5 (50%)
Junior	3 (21.4%)	1 (10%)
Senior	2 (14.3%)	0 (0%)
NCAA Division		
Division I	3 (21.4%)	0 (0%)
Division II	4 (28.6%)	5 (50%)
Division III	7 (50.0%)	5 (50%)
EAT-26 Score, M ± SD	32.57 ± 12.18	17.1 ± 1.37
MBSRQ-AS Scores, M ± SD		
<i>Appearance Orientation</i>	3.63 ± .49	3.06 ± .53
<i>Appearance Evaluation</i>	3.79 ± .62	3.92 ± .44
<i>Body Areas Satisfaction Scale</i>	3.34 ± .70	3.68 ± .40
<i>Overweight Preoccupation</i>	3.83 ± .61	3.17 ± .75
<i>Self-Classified Weight</i>	3.04 ± .48	3.10 ± .57
AIMS Score, M ± SD	53.31 ± 9.46	49.80 ± 14.19
HGS Scores, M ± SD		
<i>Gender Self-Acceptance</i>	34.69 ± 4.73	39.25 ± 2.19
<i>Gender Self-Definition</i>	29.77 ± 6.23	29.88 ± 10.27

Table 5

Correlations (R values), MBSRQ-AS & EAT-26

	EAT-26	MBSRQ-AS, <i>Appearance Evaluation</i>	MBSRQ-AS, <i>Appearance Orientation</i>	MBSRQ- AS, <i>BASS</i>	MBSRQ-AS, <i>Overweight Preoccupation</i>	MBSRQ - AS, <i>Self-Classified Weight</i>
EAT-26	1.000					
MBSRQ-AS, <i>Appearance Evaluation</i>	.096	1.000				
MBSRQ-AS, <i>Appearance Orientation</i>	.361**	.103	1.000			
MBSRQ-AS, <i>BASS</i>	-.328*	.286*	-.160	1.000		
MBSRQ-AS, <i>Overweight Preoccupation</i>	.618**	-.170	.0591**	-.319*	1.000	
MBSRQ-AS, <i>Self-Classified Weight</i>	-.117	-.156	-.007	.089	-.046	1.000

** . Correlation is significant at the .01 level (two-tailed).

* . Correlation is significant at the .05 level (two-tailed).

AIMS

Scores on the AIMS range from 10 (low AI) to 70 (high AI). Participants that completed the AIMS reported a range of scores from 26 to 58 (50.3 ± 10.9). An independent samples t-test showed no significant differences among AIMS scores between individuals who had been awarded a partial or full scholarship (51.3 ± 9.8), and those who had not (47.4 ± 13.6 , $t(57) = 1.19$, $p = .053$). One-way ANOVA showed no significant differences among participants in different NCAA divisions ($F(2, 56) = 1.042$, $p = .359$). Scores indicated a nonsignificant relationship between the AIMS and all subscales of the MBSRQ-AS: *Appearance Orientation* ($r = .181$, $p = .174$), *Appearance Evaluation* ($r = -.064$, $p = .631$), *Body Areas Satisfaction Scale* ($r = -.079$, $p = .556$), *Overweight Preoccupation* ($r = .148$, $p = .273$), and *Weight Self-Classification* ($r = -.156$, $p = .239$).

HGS

Resulting scores on both HGS subscales are as follows: *gender self-acceptance* ($5.32 \pm .66$), *gender self-definition* (4.19 ± 1.19). An independent samples t-test showed no significant differences among scores for both HGS subscales between individuals who had been awarded a partial or full scholarship (*gender self-acceptance*: $5.39 \pm .60$, *gender self-definition*: 4.17 ± 1.24) and those who had not (*gender self-acceptance*: $5.09 \pm .78$; $t(54) = .063$, *gender self-definition*: 4.26 ± 1.03 ; $t(54) = -.221$, $p = .543$). One-way ANOVA showed no significant differences among participants in different NCAA divisions (*gender self-acceptance*: $F(2, 53) = 1.870$, $p = .164$; *gender self-definition*: $F(2, 53) = .477$, $p = .623$). Results indicate a significant correlation between *gender self-acceptance* and *Appearance Evaluation* scores on the HGS and MBSRQ-AS, respectively ($r = .402$, $p < .01$). No significant correlations were found between *gender self-acceptance* and the other MBSRQ-AS subscales (*Appearance Orientation* [$r = -.186$, $p = .171$], *Body Areas Satisfaction Scale* [$r = .261$, $p = .054$], *Overweight Preoccupation* [$r = -.159$, $p = .245$], and *Weight Self-Classification* [$r = .043$, $p = .752$]) or *gender self-definition* and other MBSRQ-AS subscales (*Appearance Orientation* [$r = .051$, $p = .708$], *Appearance Evaluation* [$r = -.094$, $p = .489$], *Body Areas Satisfaction Scale* [$r = -.024$, $p = .864$], *Overweight Preoccupation* [$r = .096$, $p = .484$], and *Weight Self-Classification* [$r = .029$, $p = .174$]).

Open-ended responses

Themes for each open-ended question were derived from the short answer responses provided by the participants. For participants, *masculinity* was defined by the traditional behaviors, activities, and appearance of a man. Participants indicated that being a

“*wrestler*” primarily meant exhibiting dedication, hard work, and discipline above all else, as well as mental and physical toughness and the ability to push physical limits. Methods of success in wrestling for participants included engaging in extra practices or workouts, discipline in exercise, diet, and weight cutting, and having the mindset and focus necessary to succeed in wrestling. Specific and descriptive quotations were included to highlight the findings for each theme. An overview of all resulting themes for each question can be found in Tables 6-8. Percent frequency of the responses may not equal 100% as participant responses may have been appropriate to include in more than one theme.

What do you mean by masculinity?

Traditional male gender roles and behavioral traits. When asked for their self-definitions of masculinity, thirty-six participants (57%) described traditionally known behavioral traits of a male person, including independence, self-confidence, bravery, and aggression. Frequently said among respondents as “being a man”, responses included “working hard[,] self-reliant[,] honorable[,] gentleman-like” and “acting in a manner that is not feminine”. Other responses in this theme surrounded traditional male gender roles, including being the familial provider and protector, being an image of dominance and mental fortitude, and the gender associated with “getting things done.” One wrestler defined masculinity as:

Being a man in every [sense] of the word! Providing for your family, doing the hard things and [taking the] hard road that other[s] would not take. Getting things done even if you have to be the bad guy because it needs to be done. Loving your family unconditionally and supporting them through thick and thin.

Physical male attributes. Largely mentioned in participants' definitions of masculinity are the physical features and gender-traditional activities of a male person. Responses ranged from being "muscular, manly, bearded...can survive in the wild" to "doing man-like things like working hard, being outside, hunting, [and] fishing". In this theme, masculinity is also seen as taking on the qualities of physical dominance and a steadfast leader for those who need it: "[to] put yourself on the line to help other people...and to look out for those who are physically not as inclined as others."

Table 6

Qualitative Themes and Frequencies, "What do you mean by masculinity?"

Theme	Core Idea	Frequency (%)
Male gender roles & behavioral traits	Responses include traditional gender roles and behavioral traits of the male person, including being the familial protector and provider as well as being strong, confident, and independent.	43 (87.8%)
Male physical attributes	Responses include general physical attributes (muscle form, size, facial features) and activities (hunting, being a leader) of the male person, also known as "being a man".	38 (77.6%)

In your own words, what do you believe it means to be a "wrestler"? What qualities are most associated with a "wrestler"?

Wrestling takes discipline and strength. Participants reported similarly among one another in terms of what they defined as a "wrestler". Thirty-six respondents (57%) defined wrestlers as hardworking, extremely disciplined, and dedicated to the sport and all it requires to succeed. One wrestler mentioned, "To be a wrestler, first off wrestling should be your life. Someone who wrestles on and off is not a wrestler, wrestling is a sport where you should want to get better and perfect your craft every single day." Others within this theme described wrestling as "hard-nosed", requiring "grit", "tenacity", and "a willingness to work

hard”. Within this theme, twenty-one (33%) respondents specifically mentioned having the mental and physical strength necessary for success in the sport, that wrestlers should have “...incredible mental toughness...Able to undergo extreme physical and mental pain and fatigue while always moving forward...”

Wrestlers exceed physical limits. The ability to push past pain, failure, and physical and mental limits is a commonly mentioned trait among respondents describing a true wrestler. One participant further specified wrestlers as, “...a different breed,” “always go[ing] the extra mile to succeed because in this sport it is the only way to be successful.” Similar responses indicate that being a wrestler means less about attending the scheduled practices and competitions, more so the extra practices, workouts, and discipline necessary to push oneself and others go the extra mile. This was commonly referred to as “grinding”.

Table 7

Qualitative Themes and Frequencies, “In your own words, what do you believe it means to be a “wrestler”? What qualities are most associated with a ‘wrestler’?”

Theme	Core Idea	Frequency (%)
Hard work, dedication, and discipline	Responses include being determined, disciplined, and strong-willed enough to put in the effort to succeed.	36 (70.6%)
Mental & physical toughness	Qualities in this theme included being tough, gritty, and even hard-headed enough to overcome adversity.	21 (41.2%)
Surpassing limits	Wrestlers mentioned working through pain and physical and mental limits to succeed at the sport.	20 (39.2%)
Ability to wrestle	Definitions of “wrestler” included using the experiences and lessons learned from the sport to influence life conduct and future competition.	7 (13.7%)
Aggression, negative traits	Negative traits aside from aggressive included crazy, intense, stubborn, and associated with cutting weight.	6 (11.8%)

What specific methods have you used to achieve success during in-season competition?

For this question, twenty-eight (44%) wrestlers reported attributing their success to their hard work and perseverance: attending extra practices, “focusing on wrestling technique, and getting extra workouts to improve physical ability and confidence.”

Participants described putting in the effort and discipline that others may not to truly learn that sport. One wrestler stated that in addition to extra practices, he found himself “changing [his] lifestyle and tailor[ing] it toward wrestling [and] working out in the offseason”. The next most reported method of success among wrestlers (n = 16, 25%) is closely monitoring both weight and food intake, indicating the importance of remaining “consistent”,

“disciplined”, and constantly “conscious of what’s going into my body”. Wrestlers also mentioned methods of increased exercise frequency and weight cutting as ways to succeed. One wrestler self-reported that they “practice[d] over my body’s limits, made myself throw up and starve myself”, while another mentioned “constantly working either for school or wrestling and only stopping to sleep”. Wrestlers also mentioned the necessity of a focused mindset capable of remaining strong after failure and visualizing success.

Table 8

Qualitative Themes and Frequencies, “What specific methods have you used to achieve success during in-season competition?”

Theme	Core Idea	Frequency (%)
Hard work & perseverance	Participants in this theme also noted the importance of attending extra practice putting more time into learning the sport.	28 (57.1%)
Increased focus on diet, extra conditioning	Methods of success in this theme centered around weight cutting and hypervigilance regarding diet and exercise.	16 (32.7%)
Focus & consistency	Maintaining a focused mindset and consistency in all aspects of training were mentioned.	14 (28.6%)
Performance analysis	Responses included looking over competition footage and discussing technique with coaches.	11 (22.4%)
Recovery	Few wrestlers reported the importance of sound recovery methods as a method of success, including sleep and adequate rest between workouts.	3 (6.1%)

Discussion

The present study examined the impacts of AI and perceptions of masculinity on BI in male collegiate wrestlers. Results from the MBSRQ-AS, AIMS, and HGS indicate that wrestlers experience overall higher BI satisfaction and emphasize body weight and size as a part of the sport. The quantitative data are in line with previous research discussing BI satisfaction in athletes and others engaging in physical activity (Sabiston et al., 2019; Toselli & Spiga, 2017). Responses from the open-ended section of the survey showed that many virtues of the successful wrestler align with the virtues of traditional Western masculinity and may facilitate a relationship among these factors and BI. While not a component of the original hypotheses, ED risk was assessed and found to be low for the overall sample compared to the EAT-26 criteria for ED risk (20 or above). However, the sample scored just below 15, which was considered moderate ED risk for this project. Further, the number of wrestlers in the present study that met the criteria for ED risk in addition to those at moderate risk for ED risk is indicative of a larger phenomenon wherein a sizeable portion of athletes, specifically those in sports where weight and body shape are associated with performance, may be at risk for an ED due to the methods used to succeed in their sport.

Traits of a Successful Male Wrestler

Neither AI nor perceptions of masculinity had a significant overall impact on the development of a wrestler's BI via the AIMS or the HGS alone. When the responses from the open-ended questions are considered, a relationship between AI and BI emerges, which could indicate that the AIMS alone may not be sensitive enough to capture the identity of a wrestler in its entirety, nor the HGS and masculinity regarding BI. Qualitatively, common themes emerge between self-reported traits of masculinity and a successful wrestler that could have

an underlying relationship on BI. Responses from the open-ended questions surrounding self-definitions of masculinity and a “wrestler” frequently include mental and physical strength, fighting through pain, and toughness as essential in addition to being confident and disciplined. The commonalities in the free responses in terms of athlete identity and masculinity outside of the AIMS and HGS highlights a relationship in which inherently male traits may strengthen those same attributes of the wrestler identity and vice versa. The data are in line with previous research in wrestlers that examines “wrestling like a man” as fighting through pain, physical strength, and the favorability of those “masculine” traits over “feminine” traits, like expressing emotion (Baker & Hotek, 2011; Delfino & Mechling, 2017). As the wrestlers in the present study associated these same traits with the self-defined traits of both of a wrestler and a male, it can be inferred that the culture of wrestling influences wrestlers to behave as a wrestler should behave, that is, how a man should behave. This means that wrestlers may be inclined to conceal their negative feelings or emotions, like BI dissatisfaction or ED risk, behind an image of strength because that is expected of a successful male wrestler.

Scores on the *appearance evaluation* subscale of the MBSRQ-AS positively and significantly correlated with scores on the *gender self-acceptance* subscale of the HGS. This was the only quantitative relationship found between BI and masculinity, suggesting that male BI satisfaction can be influenced by the positive perception of the individual’s body comparison to that of the ideal male. When examining the open-ended responses, this relationship is emphasized. Traditional hegemonic male features were commonly described, including both facial features, physical strength, and lean muscularity. The depiction of these features implies that male wrestlers subscribe to the traditional Western standard of

masculinity. These data are in line with current research indicating the same traits in male athletes who attribute success to having the ideal lean, muscular male body and ideal physical features (McNeill & Firman, 2014; Galli & Reel, 2009; Galli et al., 2017). The results in the present study add to current literature by providing an account of this relationship in the sport of wrestling at the collegiate level. College baseball players and football players, and athletes who weigh themselves frequently, like wrestlers, have the capacity to draw their success from how their bodies look compared to the social expectations of the male body in those sports (Galli & Reel, 2009; Galli et al., 2015; Galli et al., 2017). If one's body is perceived as different than that expectation, the desire to meet that aesthetic expectation could be a factor in a male's BI satisfaction as well as the formation of their masculine identity. (Filiault & Drummond, 2007; Delfino & Mechling, 2017). Along this vein, the present data indicate that male wrestlers may have the potential for BI dissatisfaction if they were to ever perceive their bodies as different than those of other successful male wrestlers.

The qualitative responses yielded more evidence of a relationship between both AI and masculinity and BI in wrestlers than the quantitative measures. Previous research has examined athlete identity in the context of training without limits and gender self-confidence and its relationship to success in sport (Baker & Hotek, 2011; Galli & Reel, 2009; Petersson et al., 2013; Coker-Cranney et al., 2018). These constructs were primarily examined utilizing a qualitative approach, like personal interviews and participant observation, to understand the true emotions of the participants, knowing that quantitative measures are unable to capture those emotions in their entirety. The results of the present study further emphasize the notion that behavior, emotion, and motivation are difficult to quantify, that a qualitative approach

may be better suited for assessing possible relationships among complex topics outside of normal quantitative measures. This describes a need for qualitative over quantitative measures to accurately analyze these topics and their relationships. Future research should assess the ability of focus groups or semi-structured interviews to appropriately assess the honest thoughts of wrestlers and other athletes regarding behavioral and personal topics (Kvale & Brinkmann, 2015).

ED Risk in Collegiate Wrestlers

The correlations between scores on both the MBSRQ-AS *Body Areas Satisfaction* and *Overweight Preoccupation* scales and scores on the EAT-26 indicate ED risk is associated with lower BI satisfaction regarding weight and higher than normal weight vigilance in collegiate wrestlers. It is noteworthy that for a sample of this size, 38% of participants met the criteria for moderate (16%) or severe (22%) ED risk, which is much higher than the observed 6.1% of the male population in the US at risk for EDs (National Eating Disorders Association, 2021). This implies that male collegiate wrestlers are at higher risk for an ED than the average male in the US and that this population should be further investigated for ED risk as an already at-risk group (Dale & Landers, 1999; Chapman & Woodman, 2016). These results are similar to those found in a study by Goltz et al. (2013), where almost a quarter of the male athletes that competed in a weight-sensitive sport, like jiu-jitsu, rowing, gymnastics, and swimming, presented a risk for an ED. While the present sample of athletes is much smaller, the data imply that wrestling can be grouped with other weight-sensitive sports in which a sizeable number of athletes may be at risk for an ED. This specific population of athletes should be examined for ED symptomology in relation to the demands of their respective sport, which could exacerbate that risk. When analyzing the

open-ended responses of individuals who scored above a 16 or above on the EAT-26, those individuals reported that diet monitoring and taking the time out for extra practice, technique, or exercise and striving for success in wrestling should be considered a constant effort for those that consider themselves true wrestlers. Furthermore, it was reported that these participants believe that the ability to exceed physical and mental limits. This same mindset was examined in an in-depth, qualitative analysis, where wrestlers mentioned there being no limit to how far one would need to push themselves to be successful (Coker-Cranney et al., 2018; Petersson et al., 2013). These findings point to the culture of success in wrestling that, with an emphasis on constant, consistent exercise, practice, and diet restriction, may have negative implications on the individual's risk for an ED. This mindset could have harmful implications for exercise frequency and weight control, as well as how one mitigates physical fatigue and mental exhaustion following more frequent and intense training sessions (Vetter & Symonds, 2010; Logue et al., 2018).

BI and ED research in athletes has been largely focused on females and traditionally female-dominated sports like running, synchronized swimming, rowing, and gymnastics, where body weight control is recommended to improve performance (de Oliveira et al., 2017). These factors have been further researched at the collegiate level (de Oliveira et al., 2017; Arthur-Cameselle & Quatromoni, 2014). While BI dissatisfaction was not seen in the present sample, the results further current ED literature by depicting ED risk in a sizeable portion of current male collegiate athletes competing in sports where weight is associated with performance. The data highlight a need for continued research into ED risk in male athletes as they, too, can present with ED risk while participating in a weight-sensitive sport but may not report BI effects. Research has shown that when working with athletes at

risk for an ED, education regarding the risks, signs, and symptoms of EDs has proven to be the best measure for early prevention (Coehlo et al., 2014). While ED educational programs for the whole of the population already exists and is well researched (Coehlo et al., 2014), improvement upon or specialization of those programs per the sport in question may better aid sport and healthcare professionals in early detection and prevention of EDs in their athletes (Voelker et al., 2018).

Female athletes struggling with EDs have reported that the desire to be healthy enough for competition was beneficial in their recovery, having understood that they would perform more optimally if proper recovery and nutritional needs are met (Arthur-Cameselle & Quatromoni, 2014). Further, positive social support from family, friends, and teammates was found to be integral in shifting the beliefs surrounding their behaviors, as well as self-acceptance and perceived control over their symptoms (Arthur-Cameselle & Quatromoni, 2014; de Vos et al., 2017). If the desire to be sport-healthy can be instilled in male athletes at risk for ED to overshadow the inherently male belief of handling pain and discomfort, they may better understand the negative implications of their disordered eating behaviors. With appropriate and individualized support, this could lead to changes in thought regarding those behaviors and perceived improvements in performance capability. Social support from family and teammates can be as beneficial for male athletes as it is for female athletes, especially those who may not be diagnosed with an ED but may still present with that risk.

Personal Reflection

My senior season of high school wrestling was my most successful, a testament to the hard work, grit, and perseverance I had exemplified prior to the beginning of the season. In the month and a half prior first wrestling match that season, I lost thirty-nine

pounds of body weight to meet the weight requirement to compete at the 182lb class, where I believed I performed the best. I placed myself on a rigorous exercise schedule that involved a daily 5-mile jog at both 5 a.m. and 5 p.m. in a sauna suit and layers of sweat clothes in addition to wrestling practice. I restricted my diet to two meals of one-half chicken breast and 6-8 pieces of broccoli a day, providing my body with the bare minimum amount of nourishment necessary to function during the day and taking a laxative very other night to “keep the weight down.” I was not aware that at that time, I was exhibiting high risk for ED-type behavior. In hindsight, the methods I used to consistently lose that weight have had negative implications on my own BI. I began this project with the knowledge and the belief that there were many other young wrestlers like me who had used similar methods of rapid weight loss to meet the requirements of the sport. I had seen wrestlers run laps outside the gym in trash bags to lose those last two pounds before final weigh-in. I remember overhearing wrestlers from other schools offer their teammate laxatives “for next time.” Having interacted closely with many collegiate wrestlers following my high school career, I found that the methods they used to lose weight to meet a weight class standard were similar, more frequent in nature and performed to a greater extreme, largely because the competition is that much greater, as is the desire for success. I wanted to reflect the severity of those behaviors in a wider sample of people wrestling at a higher echelon of competition.

With my own perspective as an athlete in mind, I chose to analyze how BI, influenced by weight loss behaviors, is affected by AI and masculinity, hoping to provide a current account of the culture of wrestling, the motivations behind why a wrestler would cut weight and how they can become better informed of the unhealthy implications of weight cutting behaviors. Many wrestlers with whom I have interacted over the years are less

interested in academic research about wrestling than physically being on the mat. When I was in high school, I never wanted to learn the minutiae of the sport because that would have had no perceived impact on my performance. In high school I was one of many wrestlers who was enthusiastic about talking about their wrestling experiences with others, like comparing wrestling technique, past wins and losses, favorite post-tournament meal, and headgear brand. I still tell accounts of my wrestling experiences to younger wrestlers, former wrestlers, teammates, and friends. Knowing that these experiences are difficult to quantify, I decided to use a mixed-methods approach for this project to obtain as much descriptive information about these wrestlers and their experiences as possible. However, because this was done in an online survey format as opposed to a more descriptive approach, a portion of the wrestlers did not complete the survey in its entirety. Of those that did, many of their open-ended responses were descriptive but quite minimally worded. This can be telling of the overall culture of wrestling surrounding sensitive topics like weight cutting, identity, and BI. Wrestlers may not be interested in or shy away from talking about these topics as they are more inclined to follow the common male wrestler trait of hiding sensitive emotions or thoughts. Wrestlers may not be as informed about the topics to answer the questions accurately because they may not understand what body image entails or how it interacts with their more complex thoughts, like self-identity or BI. Choosing to analyze these intersections quantitatively has allowed me to understand that behavioral tendencies involve more than the presence of a quantitative relationship. Qualitative reporting of one's personal experiences are essential to obtaining as much behavioral information about the person as possible. This project has confirmed my belief that college wrestlers do cut weight and that cutting weight can relate to BI perceptions, however this not directly affect them, nor may they even know

enough about their BI to understand the implications of ED behaviors on it. It is my hope that this project will become a piece of the current literature for understanding the mindset of the competitive wrestler and the qualities that motivate one to pursue success through rapid weight loss.

Limitations and Implications for Future Research

As with all research, there are limitations with this project. First, not all respondents completed 100% of the survey, some leaving the AIMS, HGS, and open-ended portion incomplete. Further, the anonymous responses were limited to the questions asked, excluding opportunities for follow-ups to those responses for depth, clarification, or further completion. To mitigate this in an online format, strict instruction on total completion of the survey should be included prior to starting the survey, as well a mention of being as descriptive as possible when answering the open-ended questions. The time of year in which the surveys were completed may have influenced the type of responses provided. The survey was provided to participants in May of 2021, after the 2020-2021 NCAA wrestling season had concluded and most students had left campus for the semester, according to several head coaches for those schools. Additionally, some schools were made to cancel their 2020-2021 seasons because of COVID-19 restrictions. These factors could have affected both the number of possible participants and the type of responses provided. It is possible for an individual to experience stronger thoughts and emotions towards a behavior if they are participating in those behaviors at the time of inquiry. One final limitation surrounds the type of answers required of the participants, oftentimes personal and sensitive in nature (BI, ED risk, etc). Individuals may respond in a way that is more socially acceptable that may not entirely encompass their true thoughts or behaviors, referred to as social desirability. (Chung,

2003). Respondents may have provided answers that overrepresented their positive traits and methods of success in wrestling. Doing so would provide the perception of social approval for the participant than otherwise responding with their honest thoughts.

In finding a relationship between BI and ED risk in collegiate wrestlers, current preventative ED measures should be updated to reflect the specific implications that different sport types (aesthetic, non-aesthetic, weight-sensitive, etc.) have on BI. Future research should specifically examine the prevalence and underlying causes of ED risk and its relationship to BI satisfaction in this population within the sport season. To do this, it would be beneficial to perform personal interviews or conduct focus groups during the season to gain a more self-descriptive account of the subject's true emotions regarding BI satisfaction and their risk of an ED. Further, a more sport-sensitive measure should be developed that can accurately analyze eating disorder risk and BI in an athletic context as opposed to the general population. Research should also investigate the components of gender-aligned BI satisfaction in collegiate wrestling as a component of the wrestler identity and if that has an impact on eating behaviors or BI.

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Appendices

Appendix A: Eating Attitudes Test, 26-item (EAT-26)

Part A: Complete the following questions:

- 1) Birth Date: Month: _____ Day: _____ Year: _____
- 2) Gender: Male _____ Female _____
- 3) Height: Feet _____ Inches _____
- 4) Current Weight (lbs.):
- 5) Highest Weight (excluding pregnancy):
- 6) Lowest Adult Weight:
- 7) Ideal Weight:

Part B: Check a response for each of the following statements:

“Always” “Usually” “Often” “Sometimes” “Rarely” “Never”

1. I Am terrified about being overweight.
2. I Avoid eating when I am hungry.
3. I Find myself preoccupied with food.
4. I Have gone on eating binges where I feel that I may not be able to stop.
5. I Cut my food into small pieces.
6. I Am aware of the calorie content of foods that I eat.
7. I Particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes, etc.)
8. I Feel that others would prefer if I ate more.
9. I Vomit after I have eaten.
10. I Feel extremely guilty after eating.
11. I Am occupied with a desire to be thinner.
12. I Think about burning up calories when I exercise.
13. I Other people think that I am too thin.
14. I Am preoccupied with the thought of having fat on my body.
15. I Take longer than others to eat my meals.
16. I Avoid foods with sugar in them.
17. I Eat diet foods.
18. I Feel that food controls my life.
19. I Display self-control around food.
20. I Feel that others pressure me to eat.
21. I Give too much time and thought to food.
22. I Feel uncomfortable after eating sweets.
23. I Engage in dieting behavior.
24. I Like my stomach to be empty.
25. I Have the impulse to vomit after meals.
26. I Enjoy trying new rich foods.

Part C: Behavioral Questions:

In the past 6 months have you (“Never,” “Once a month or less,” “2-3 times a month,” “Once a week,” “2-6 times a week,” “Once a day or more”)

- A. Gone on eating binges where you feel that you may not be able to stop?*
- B. Ever made yourself sick (vomited) to control your weight or shape?
- C. Ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?
- D. Exercised more than 60 minutes a day to lose or to control your weight
- E. Lost 20 pounds or more in the past 6 months YES _____ NO _____
- F. Have you ever been treated for an eating disorder? YES _____ NO _____

*Defined as eating much more than most people would under the same circumstances and feeling that eating is out of control.

Appendix B: Multidimensional Body Self-Relations Appearance Scales Questionnaire (MBSRQ-AS)

EXAMPLE:

_____ I am usually in a good mood.

In the blank space, enter a **1** if you **definitely disagree** with the statement.
 enter a **2** if you **mostly disagree**.
 enter a **3** if you **neither agree nor disagree**.
 enter a **4** if you **mostly agree**.
 or enter a **5** if you **definitely agree** with the statement.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree Nor Disagree	Mostly Agree	Definitely Agree

- _____ 1. Before going out in public, I always notice how I look.
- _____ 2. I am careful to buy clothes that will make me look my best.
- _____ 3. My body is sexually appealing.
- _____ 4. I constantly worry about being or becoming fat.
- _____ 5. I like my looks just the way they are.
- _____ 6. I check my appearance in a mirror whenever I can.
- _____ 7. Before going out, I usually spend a lot of time getting ready.
- _____ 8. I am very conscious of even small changes in my weight.
- _____ 9. Most people would consider me good-looking.
- _____ 10. It is important that I always look good.
- _____ 11. I use very few grooming products.
- _____ 12. I like the way I look without my clothes on.
- _____ 13. I am self-conscious if my grooming isn't right.
- _____ 14. I usually wear whatever is handy without caring how it looks.
- _____ 15. I like the way my clothes fit me.
- _____ 16. I don't care what people think about my appearance.
- _____ 17. I take special care with my hair grooming.
- _____ 18. I dislike my physique.
- _____ 19. I am physically unattractive.
- _____ 20. I never think about my appearance.
- _____ 21. I am always trying to improve my physical appearance.
- _____ 22. I am on a weight-loss diet.

For the remainder of the items use the response scale given with the item, and enter your answer in the space beside the item.

_____ **23. I have tried to lose weight by fasting or going on crash diets.**

1. Never
2. Rarely
3. Sometimes
4. Often
5. Very Often

_____ **24. I think I am:**

1. Very Underweight
2. Somewhat Underweight
3. Normal Weight
4. Somewhat Overweight
5. Very Overweight

_____ **25. From looking at me, most other people would think I am:**

1. Very Underweight
2. Somewhat Underweight
3. Normal Weight
4. Somewhat Overweight
5. Very Overweight

26-34. Use this 1 to 5 scale to indicate how dissatisfied or satisfied you are with each of the following areas or aspects of your body:

1	2	3	4	5
Very Dissatisfied	Mostly Dissatisfied	Neither Satisfied Nor Dissatisfied	Mostly Satisfied	Very Satisfied

_____ **26. Face (facial features, complexion)**

_____ **27. Hair (color, thickness, texture)**

_____ **28. Lower torso (buttocks, hips, thighs, legs)**

_____ **29. Mid torso (waist, stomach)**

_____ **30. Upper torso (chest or breasts, shoulders, arms)**

_____ **31. Muscle tone**

_____ **32. Weight**

_____ **33. Height**

_____ **34. Overall appearance**

MBSRQ-AS by Thomas F. Cash, Ph.D.

Appendix C: Athlete Identity Measurement Scale (AIMS), adjusted for wrestling

1. I consider myself a wrestler.
2. I have many goals related to the sport of wrestling.
3. Most of my friends are wrestlers.
4. Wrestling is the most important part of my life.
5. I spend more time thinking about wrestling than anything else.
6. I need to participate in wrestling to feel good about myself.
7. Other people see me mainly as a wrestler.
8. I feel bad about myself when I do poorly in wrestling.
9. Wrestling is the only important thing in my life.
10. I would be very depressed if I were injured and could not compete in wrestling.

Appendix D: Hoffman Gender Scale (HGS)

1. When I am asked to describe myself, being female (male) is one of the first things I think of.
2. I am confident in my femininity (femaleness)/masculinity (maleness).
3. I meet my personal standards for femininity (femaleness)/masculinity (maleness).
4. My perception of myself is positively associated with my biological sex.
5. I am secure in my femininity (femaleness)/masculinity (maleness).
6. I define myself largely in terms of my femininity (femaleness)/masculinity (maleness).
7. My identity is strongly tied to my femininity (femaleness)/masculinity (maleness).
8. I have a high regard for myself as a female/male.
9. Being a female/male is a critical part of how I view myself.
10. I am happy with myself as a female/male.
11. I am very comfortable being a female/male.
12. Femininity (femaleness)/Masculinity (maleness) is an important aspect of my self-concept.
13. My sense of myself as a female/male is positive.
14. Being a male/female contributes a great deal to my sense of confidence.

What do *you* mean by femininity/masculinity?

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Appendix E: Open-Ended Prompts

- What do you mean by masculinity?
- In your own words, what do you believe it means to be a “wrestler”? What qualities are most associated with a "wrestler"?
- What specific methods have you used to achieve success during in-season competition?

Appendix F: Mental Health Resources Provided during Survey

- National Suicide Prevention Lifeline: 800-273-8255
- Substance Abuse and Mental Health Services Administration (SAMHSA)
 - Hotline: 1-800-622-HELP (4327)
 - SAMHSA Resource Homepage: <https://www.samhsa.gov/find-treatment>
- Mental Health First Aid Resource List: <https://www.mentalhealthfirstaid.org/mental-health-resources/>

Appendix G: Responses of those at Moderate or High Risk for ED, *Demographics*

<i>Participant</i>	<i>Age</i>	<i>Race</i>	<i>Years Wrestled</i>	<i>NCAA Division</i>	<i>Scholarship Status</i>	<i>Grade Level</i>
1	20	White	13	3	No	So.
2	21	White	14	2	Yes	So.
3	21	White	13	3	No	Junior
4	18	White	11	1	Yes	Fr.
5	19	White	13	2	Yes	Fr.
6	21	White	15	2	Yes	So.
7	22	Black or African American	8	3	Yes	Junior
8	20	White	15	3	No	So.
9	20	Hispanic or Latino	9	3	No	So.
10	20	White	14	1	Yes	Fr.
11	23	White	18	3	No	Senior
12	22	Hispanic or Latino	15	1	No	Junior
13	21	White	12	2	Yes	Senior
14	19	White	4	3	No	So.
15	19	White	1	2	No	Fr.
16	21	White	15	3	No	Junior
17	19	White	6	2	Yes	Fr.
18	20	White	11	2	Yes	So.
19	19	White	7	2	Yes	Fr.
20	19	White	12	3	Yes	So.
21	18	White	12	3	Yes	Fr.
22	19	White	8	2	Yes	So.
23	20	Hispanic or Latino	7	3	Yes	So.
24	19	Black or African American	13	3	Yes	So.

Appendix H: Responses of those at Moderate or High Risk for ED, *MBSRQ-AS*

<i>Participant</i>	<i>MBSRQ-AS, AppOR</i>	<i>MBSRQ-AS, AppEval</i>	<i>MBSRQ-AS, BASS</i>	<i>MBSRQ-AS, OP</i>	<i>MBSRQ-AS, SCW</i>
1	3.67	4.29	2.67	3.75	3.00
2	4.00	3.43	3.56	4.00	3.00
3	3.50	3.86	4.22	3.50	3.00
4	3.25	3.86	3.11	4.00	2.50
5	3.33	4.29	4.67	3.50	3.00
6	3.42	4.14	3.78	4.50	2.50
7	3.92	3.00	2.56	4.00	3.50
8	3.58	2.29	2.67	3.75	3.50
9	3.92	3.57	3.44	4.25	2.50
10	3.58	4.14	2.33	3.50	2.50
11	-	-	-	-	-
12	4.50	4.14	4.00	4.00	3.50
13	4.08	4.57	3.11	4.75	3.00
14	2.50	3.71	3.33	2.25	4.00
15	2.33	4.00	3.44	3.50	3.50
16	-	-	3.22	-	3.00
17	2.67	4.14	3.56	3.00	2.50
18	2.92	4.29	4.00	2.25	3.00
19	2.42	3.14	3.11	2.25	2.50
20	3.25	3.71	3.67	3.75	2.50
21	3.17	4.14	3.67	2.50	3.00
22	3.33	4.29	4.22	3.00	4.00
23	4.00	3.29	3.56	4.25	4.00
24	3.42	4.29	4.33	4.00	3.00

Appendix I: Scores of those at Moderate or High Risk for ED, AIMS, HGS, EAT-26

<i>Participant</i>	<i>EAT-26 Score</i>	<i>AIMS Score</i>	<i>HGS, Gender Self-Acceptance</i>	<i>HGS, Gender Self-Definition</i>
1	28.00	68.00	39.00	36.00
2	20.00	50.00	35.00	31.00
3	22.00	37.00	27.00	18.00
4	35.00	64.00	41.00	37.00
5	34.00	47.00	42.00	38.00
6	45.00	64.00	36.00	29.00
7	24.00	43.00	32.00	33.00
8	33.00	53.00	28.00	22.00
9	67.00	55.00	30.00	23.00
10	34.00	44.00	33.00	27.00
11	24.00	-	-	-
12	21.00	64.00	39.00	36.00
13	34.00	52.00	35.00	28.00
14	35.00	52.00	34.00	29.00
15	18.00	40.00	42.00	34.00
16	19.00	29.00	-	-
17	18.00	54.00	36.00	19.00
18	17.00	67.00	42.00	28.00
19	16.00	66.00	38.00	38.00
20	18.00	55.00	38.00	41.00
21	17.00	38.00	39.00	20.00
22	18.00	56.00	-	-
23	15.00	62.00	41.00	42.00
24	15.00	31.00	38.00	17.00

Appendix J: Responses of those at Moderate or High Risk for ED, *Open-Ended*

Participant	<i>What do you mean by masculinity?</i>
1	-
2	Masculinity to me means that you're a hard worker and put yourself on the line to help other people. I also think it means to be a caretaker and to look out for those who are physically not as inclined as others.
3	being strong and confident
4	Physical strength and appearance, how you carry yourself as a man.
5	Loving, caretaker, getting stuff done, physically strong, mental strong, hardworking, faithful, honest, dedicated, kind
6	Being tough and unbreakable
7	Having very noticeable features such as strong, independent, confident, and many others.
8	Being bold in most aspects of life
9	-
10	Being comfortable in yourself as a male
11	-
12	Having masculine tendencies and attributes
13	Masculinity to me means to be a physical and mental strong person that believes too much in the perception of others and determination for achieve drives from being a male and high male standards.
14	My strength body composition and overall look
15	A lot of muscle mass.
16	-
17	Being a male, very strong and usually a rock for everyone.
18	Being "manly". Having muscular features.
19	Being tough and doing what is right
20	Acting like a man, doing guy things
21	Masculinity is generally considered to be aggression, confidence, and "macho", but I see masculinity as being able to be comfortable with with your emotions and more "feminine" traits without being scared that you aren't "man enough."
22	-
23	Being a man or displaying masculine or male characteristics
24	I really don't know

Appendix K: Responses of those at Moderate or High Risk for ED, *Open-Ended (cont.)*

Participant	<i>In your own words, what do you believe it means to be a "wrestler"? What qualities are most associated with a "wrestler"?</i>
1	Overcoming all obstacles in all aspects of life and in wrestling. Not much glory yet a lot of hard work is put in behind closed doors.
2	Wrestlers are passionate, gritty, tough, hard working, and possess the most mental toughness out of anybody else that I've met.
3	being tough, strong, hard working, etc.
4	I believe it means to be a highly dedicated athlete who is very disciplined and hardworking.
5	Wrestlers work hard, are dedicated, have self control, are mentally tough, are physically tough, self reliant, and have a brotherhood
6	Toughness
7	To be a wrestler means you have the determination and courage to always go beyond the call of duty.
8	Being a hard worker, never quitting, and high standards of yourself.
9	-
10	Tenacity, hard worker, focused, driven
11	-
12	Always striving to be better in all aspects of life.
13	-
14	Strong, fearless, tough, enduring,
15	To be a wrestler, first off wrestling should be your life. Someone who wrestles on and off is not a wrestler, wrestling is a sport where you should want to get better and perfect your craft every single day.
16	-
17	To go out on the mat and give everything your all no matter what shape you feel. And in practice to come in and work harder then before every time
18	-
19	Wrestlers are tough and disciplined
20	Perseverance, hard work,
21	Someone who is driven, tough, strong (both mentally and physically), and dedicated to the sport
22	-
23	Being a wrestler is a lifestyle and I think one of the most associated qualities is being aggressive.
24	To be a "wrestler" means to be of a different breed. Not just anyone is able to have the discipline and mental strength to grind 7 days a week while balancing your diet, academics, and taking care of your body.

Appendix L: Responses of those at Moderate or High Risk for ED, *Open-Ended (cont.)*

Participant	<i>What specific methods have you used to achieve success during in-season competition?</i>
1	-
2	Just hard work and almost an obsession like drive to work towards a goal.
3	training at club practices, cutting weight, lifting weights, doing cardio, etc.
4	Extra practices and lifts, meeting with coaches to discuss technique, mindset training.
5	Use every second of practice as if it's my last, eat as good as possible, drink only water, pray to God frequently, focus extremely hard on classes, focusing on my recovery after practices
6	Working out and critical thinking about matches and practice
7	Remaining disciplined in school, social setting, eating habits and others
8	Constantly working either for school or wrestling and only stopping to sleep
9	-
10	I constantly try to outwork everyone else... whether that it is extra workouts or staying after practice
11	-
12	I work out constantly and always remind myself of my goals
13	-
14	Practice over my body's limits, made myself throw up, Starve myself
15	Stay in shape, find a great wrestling partner, pay attention to every move that your coach shows you.
16	-
17	Lots of training room visits to stay healthy. Bought a personal stim machine and a muscle gun to stay loose. Also a lot of ibuprofen because of the stress on your body and the soreness
18	-
19	Working out extra, going to extra practices
20	Hard work and practice, eat sleep and train right
21	Studying film, conditioning, technique drilling, live competition
22	-
23	Grinding.
24	I avoid going out during the season to give my body time to rest, I find time to take naps, and I plan out ahead of time so that I stay organized.

Vita

Nolasco “Nick” Stevens Jr. is from North Charleston, SC. He graduated from R.B. Stall High School in June 2016. The following autumn, he entered Appalachian State University to study Exercise Science, awarded the Dean’s Scholarship from the Beaver College of Health Sciences. In December 2019, he was awarded his Bachelor of Science degree in Exercise Science. In the spring of 2020, he accepted a graduate research assistantship under Dr. Kimberly Fasczewski in the Human Behavior and Physical Activity Laboratory at Appalachian State University, beginning studies toward a Master of Science degree in Exercise Science with a concentration in Research. He was awarded the M.S. in August 2021. Mr. Stevens is a member of Phi Beta Sigma Fraternity, Inc., a competitor for USA Powerlifting, and a member of the Association for Applied Sport Psychology (AASP), the National Strength and Conditioning Association (NCSA), and the North American Society for the Psychology of Sport and Physical Activity (NASPSPA). He currently resides in Charlotte, NC.