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An exploration of the collegiate coach-athlete relationship and its impact on female athlete attitudes and behaviors toward disordered eating and body image

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An exploration of the collegiate coach-athlete relationship and its impact on female athlete
attitudes and behaviors toward disordered eating and body image

Bridget E. Smith

A dissertation submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

In

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Abstract

Collegiate female athletes face the challenges of conflicting feminine body ideals in society and in their sport all while striving for athletic success. Coaches are believed to play a significant role in an athlete's development, and thus have potential to (knowing or unknowingly) reinforce, or even introduce, eating pathology as a means to achieve athletic performance and/or a body ideal. Previous research has found a link between insecure attachment and subsequent eating pathology in athletes and non-athletes alike. The coach can be viewed as an important attachment figure in an athlete's life and development and thus serve a mediating role for how earlier attachment patterns do, or do not, transfer to an athlete's identity, well-being, and functioning. The aim of the present study is to explore (1) the interpersonal dynamics that occur between a collegiate athlete and a coach, (2) the context of this attachment relationship as related to other attachment relationships, and (3) the interaction of these attachment relationships on disordered eating behaviors and negative body image beliefs. Providing a clearer picture of the interactions and relational patterns that can occur between a coach and an athlete will be useful in developing methods and interventions to help increase awareness of the coach's impact on body image and eating, and to create tailored interventions for both coaches and athletes to access more adaptive attachment representations, coping styles, and ways of being.

An exploration of the collegiate coach-athlete relationship and its impact on female athlete attitudes and behaviors toward disordered eating and body image

Eating disorders are one of the most prevalent mental health illnesses encountered by young women. Regardless of type of eating disorder, the individual will experience psychosocial impairments that will impact their quality of life. Eating disorders have the highest levels of treatment seeking, inpatient hospitalization, suicide attempts, and mortality when compared to other mental health diagnoses (Stice, 2002). Disordered eating, defined as “behavior and attitudes toward body perception, eating habits, weight regulation and self-evaluation” (Waadegaard, Thoning, & Petersson, 2003, p. 434), increases the risk of developing eating disorders as well as experiencing other medical and physical health problems.

Disordered Eating in Athletics

Eating disorders and the related health consequences are prevalent in athletics, especially among weight class and aesthetic sports, where there is emphasis on an ideal body type, specific requirements to their sport, and an evaluative piece in performance. Previous research has estimated that 50-70% of female athletes engage in disordered eating, defined as a continuum of eating behaviors ranging from dieting and restrictive eating, abnormal eating behaviors, and ultimately clinical eating disorders (Torstveit & Sundgot-Borgen, 2005). Sundgot-Borgen and Torstveit (2010) observed that 32% of female elite athletes participating in weight class or aesthetic sports (e.g., sports that emphasize a lean body shape for performance), report features of disordered eating, including: restrictive eating, fasting, frequent meal skipping, use of diet pills, laxatives, or diuretics, and engaging in binge eating and purging. In general, athletes report higher levels of dietary restraint and engage in a higher frequency of bulimic behaviors than non-athletes (Byrne & McLean, 2002). Disordered eating behavior thus takes a clear toll on athletes,

who may be particularly vulnerable given many of the expectations and norms within the athletic environment.

Disordered eating can have performance and health consequences. Particularly among athletes, disordered eating can represent a deliberate attempt to create a negative physiological energy balance in a desire for a thinner or leaner build for performance purposes. The broader term relative energy deficiency in sport (RED-S) was introduced in 2014 as an update to the Female Athlete Triad (Mountjoy, et al., 2014). The Female Athlete Triad only addressed the physiological impairment that can occur with menstrual cycles and bone health in women athletes, despite the fact that energy deficiency can occur in either gender, and there can be additional physiological, physical, and psychological consequences. The condition involves impaired physiological functioning in various domains, including but not limited to, metabolic rate, menstrual function, bone health, immunity, protein synthesis, and cardiovascular health problems (Mountjoy, et al., 2014).

Energy deficiency can be easily created in sport, either inadvertently or intentionally via restrictive eating. Restrictive eating is a risk factor in the development of a clinical eating disorder (Sundgot-Borgen, 1994). Beyond the numerous health and medical consequences of eating disorders that impact quality of life and daily functioning, eating disorders have the highest rate of morbidity of any mental health diagnosis (Sullivan, 1995). Generally, in the transition from high school to collegiate sport, athletes experience an increase in practice time and intensity as well as expectation to perform. The increased time and intensity in physical expenditure combined with the responsibilities of being a student and living alone for the first time can impede much needed recovery time and may increase the risk of RED-S inadvertently. Thus, athletes who previously were not at risk for development of an eating disorder may find

that in the transition to college and managing their multiple roles and responsibilities as a student-athlete may increase their risk of engaging in disordered eating behaviors.

Disordered Eating Among Athletes

Identification of disordered eating among athletes can be difficult, and some of this is due to character and personality traits that are valued in sport. Thompson and Sherman (1999) highlighted the overlap that occurs between good athlete characteristics that have been recognized in the sport psychology literature (e.g., mental toughness, commitment to training, pursuit of excellence, coachability, unselfishness, performance despite pain) with characteristics of individuals with anorexia nervosa cited in eating disorder literature (e.g., asceticism, excessive exercise, perfectionism, over compliance, selflessness, denial of discomfort). What is notable is that the characteristics of an anorexic individual can be celebrated in the sports world and for good reason. An athlete who is self-disciplined, self-sacrificing, can “push through pain,” and have a commitment to training, the team, and the coach are usually the most valuable players, not the problem athletes. This overlap can complicate identifying an athlete who is currently struggling with disordered eating or is at risk of disordered eating.

Williamson, et al. (1995) explored psycho-social risk factors for the development of eating disorders in female student athletes. Results indicated that interaction of sociocultural value of thinness and athletic performance anxiety, as well as negative self-appraisal of athletic achievement significantly increased the likelihood that an athlete would engage in disordered eating behavior. Further, if these factors lead to body image concern it is more likely than an athlete will develop an eating disorder.

Body Image in Sport

Body image is related to how an individual perceives, feels, and thinks about one's body. It encompasses how one views their body shape and size, perceived physical attractiveness, and emotions associated with one's body, shape, and size. Body image is a multidimensional construct that develops and changes over the lifespan and can be influenced by family, peers, romantic relationships, and culture. There are many factors that contribute to body image development. Participation in athletics complicates body image development further, as at a collegiate level, the functionality of one's body (e.g., performance outcome) can be tied to one's worth (e.g., risk of losing scholarship). Additionally, female athletes are tasked with the challenge of training their bodies and developing a level of muscularity that will aide in their performance, while also being faced with the mainstream body ideal of femininity (Steinfeldt, Carter, & Benton, 2011), this challenge can lead to disordered eating behavior.

Further, within sport athletes are faced with sport body stereotypes that are believed to foster better performance. Previous research has found that women athletes in aesthetic or leanness sports may engage in restrictive eating patterns and other weight control methods, despite reporting satisfaction with their body because of sport specific demands (de Bruin, Oudejans, & Bakker, 2007; Torstveit, Rosenvinge, & Sundgot-Borgen, 2008).

De Bruin, Oudejans, & Bakker (2007) surveyed 153 adolescent girls (aged 13 to 20 years) on their dieting behaviors and body image. 68 of the girls were competitive gymnasts (17 elite gymnasts competing internationally, 51 non-elite gymnasts competing at the national level), and a control group of 85 adolescent girls who participated in recreational non-aesthetic sports. Results indicated that an athlete's restrictive eating behavior is only moderately related to body image, while stronger relationships were found with sport-specific variables (e.g., performance; weight-related pressure from coach).

Performance outcome can be directly related to weight and muscularity in sports where athletes must make weight to compete (e.g., wrestling, judo), in sports where an athlete's body is expected to be visually appealing (e.g., figure skating, gymnastics), and in sports where it is believed that a lower weight gives an athlete an edge (e.g., cross-country running, cycling). Not meeting the sport body ideal can cause increased distress regarding training, coach-athlete relationship, and team dynamics, and can lead to disordered eating behavior as a way to cope with distress and attempt to conform to the sport body ideal (de Bruin, Oudejans, Bakker, & Woertman, 2011). Additionally, sport uniforms have been found to contribute to a self-conscious awareness about one's physical body in sports such as swimming and diving, volleyball, track, gymnastics, and figure skating. Not conforming to society's body ideal or our sport's body ideal thus has potential to cause distress and lead to negative body image, disordered eating, and unhealthy training habits (Reel, Petrie, Soohoo, & Anderson, 2012).

Torstveit, Rosenvinge, and Sundgot-Borgen (2008) randomly selected 186 athletes from a sample of 669 participants to complete a clinical interview and measure body composition, in addition to questionnaires. Their results also indicated that among athletes participating in leanness sports (e.g., endurance and aesthetic sports), they reported higher body satisfaction than athletes participating in non-leanness sports (e.g., ball and power sports), however there was a higher prevalence of clinical eating disorders (46%) in athletes who participated in leanness sports than in athletes who participated in non-leanness sports (19.8%). Yet, non-leanness athletes reported a higher incidence (32%) of engaging in pathogenic weight control methods (e.g., over exercise) than leanness athletes (24%). In summary, body image in sport is multidimensional and dynamic and depending on the athlete and sport specific pressure, body dissatisfaction may or may not be related to disordered eating behavior. Messages regarding

weight, physical function, and appearance have the potential to be internalized, ultimately leading to distorted values pertaining to body shape and body image (Plateua, McDermott, Arcelus, & Meyer 2013; Sundgot-Borgen & Torstveit, 2010).

Attachment and Eating Disorders

Bowlby's Attachment Theory (1988) emphasizes the importance of understanding the self through one's interactions and relationships with important others and provides a framework for understanding why early experiences with caregivers, as well as significant others later, may have an impact on the development of eating disorders later on. An individual's early experiences with important caregivers lead to the development of one's internal working model, which consists of two cognitive representations: (1) expectations about the caregiver's availability in times of need/threat (e.g., do I have a secure base to return to?), and (2) a cognitive representation of the self as being (or not being) worthy of being taken care of (van Durme, Braet, & Goossens, 2015). Bandura (1977) posits that individuals learn behavior through observation, imitation and modeling. Additionally, Bandura's (1977) social learning theory emphasizes that personality develops as a result of continuous dynamic processes between the self (e.g., behavioral and cognitive factors), and their environment. Thus, the process of developing an internal working model and attachment style is a dynamic and reciprocal process that also incorporates attention, motivation, memory and identity. Positive early experiences with caregivers where one's safety and belonging needs are met usually lead to an adaptive and secure attachment style that persists into adulthood and provides a working model for what to expect in relation to self and others. Secure attachment (e.g., patterns of healthy autonomy and interdependence) is associated with enhanced wellbeing and social adjustment later on in life (Bowlby, 1988).

Interpersonal Patterns and Eating Disorders. Previous research has examined how interpersonal difficulties may lead to the development of eating disorders by (1) serving as a risk factor, (2) maintaining disordered eating, and/or (3) intensifying dynamics of the disorder. Early experiences with primary caregivers and later influences from significant relationships serve to create one template through which interpersonal difficulties develop (Critchfield & Benjamin, 2008; Critchfield & Benjamin, 2010; Critchfield, Benjamin, & Levenick, 2015). These early experiences with caregivers and other significant relationships have been implicated in the development of eating disorders in various studies that have found that insecure attachment styles (e.g., patterns associated with relational anxiety or extremes of enmeshment or distance) are linked with eating disorder symptomatology in both athlete and non-athlete populations (Bjorck, Clinton, Sohlberg, Hallstrom, & Norring, 2003; Broberg, Hjalms, & Nevonen, 2001; Hartmann, Zeeck, & Barrett, 2010; Tasca, Ritchie, & Balfour, 2001). Consequently, a student-athlete's early experiences with primary caregivers may have a significant impact on how they relate and experience their coach and other important figures in their sport.

Prior research has found that family dynamics and perceived relationships with parents are associated with eating disorders. Calam, Waller, Slade, and Newton (1989) examined the perceived relationship with parents using the Parental Bonding Instrument (PBI; Parker, Tupling and Brown, 1979). Participants included ninety-eight women with diagnosed eating disorders (31 women with anorexia, 34 women with bulimia with a history of anorexia, and 33 women with bulimia with no history of anorexia) and a control group consisting of 242 women with no eating disorder diagnosis. Results indicated that the women with an eating disorder diagnosis perceived higher protection and lower care from both parents. Specifically, the clinical group recalled their

mothers as less caring, and their fathers as less caring and more protective, impeding healthy individuation.

Further exploring the perceived parental relationship, Rhodes and Kroger (1992) examined both interpersonal and intrapsychic factors that may be associated with eating disorders among 20 late adolescent women and 20 healthy controls. Participants filled out the Eating Disorder Inventory (EDI, Garner, Olmstead, and Polivy, 1983), the Parental Bonding Instrument (PBI, Parker, Tupling, and Brown 1979) and the Separation-Individuation Test of Adolescence (SITA, Levine, 1987). The women with eating disorders reported significantly higher levels of maternal overprotectiveness during childhood and had significantly higher levels of separation anxiety and lower health separation than the control group.

Grenon, et al. (2016) examined the association between early parental bonds and body dissatisfaction. They surveyed 232 adult women who were referred to treatment center for an eating disorder. Participants were asked to complete the PBI (Parker, Tupling, and Brown, 1979), Experiences in Close Relationships Scale (ECRS, Brennan and Shaver 1995), The Sociocultural Attitudes Toward Appearance Questionnaire-3 (SATAQ-3; Thompson, van den Berg, Poehrig, Guarda, & Heinberg, 2004), and finally the Multidimensional Body Self-Relations Questionnaire-Appearance Scale (MBSRQ-AS; Brown, Cash, and Mikulka, 1990; Cash, 2000) to assess body dissatisfaction. A direct link was found between recollections of mothers being less caring and negative body image, whereas there was an indirect link between recollections of fathers being less caring and a poor body image, as mediated by higher reports of attachment anxiety and media internalization (Grenon, et al., 2016).

Utilizing an attachment framework, Broberg, Hjalms, and Nevonen (2001) examined the relationship between eating disorder symptoms, insecure attachment, and interpersonal difficulties in 145 female patients (aged 18 to 24 years) who had attended an outpatient clinic for eating disorder treatment, as well as 315 women (aged 18-24) as a comparison. Their results concluded that there is a link between insecure attachment patterns and eating disorders, regardless of subtype, and experienced significantly more interpersonal problems as measured by the Eating Disorders Inventory (EDI-2) (Norrington and Sohlberg, 1984; Garner, 1991) including interpersonal mistrust, fear of adult life, and social uncertainty. Patients who reported a diagnosis of bulimia nervosa reported more perceived interpersonal problems than patients who had a diagnosis of anorexia nervosa or eating disorder not otherwise specified.

Evans and Wertheim (1998) examined the relationship between eating problems, intimacy, and relationship styles among 360 college women. Participants completed the Adult Attachment Scale (AAS), the Sexual Attitude Scale (SAS), as well as measures of eating behavior, depression, anxiety, and questions pertaining to the quality of relationships between mother, friend, and current sexual partner. Results indicated that individuals who reported more eating problems also experienced more difficulty in intimate relationships, reported less satisfaction and discomfort in close relationships.

Hartmann, Zeeck, and Barret (2010) further investigated interpersonal patterns in a large clinical sample of 208 patients with an eating disorder diagnosis of anorexia nervosa-restrictive subtype, anorexia binge/purge subtype, or bulimia nervosa, as well as if interpersonal functioning changed over the course of treatment. To measure interpersonal distress the Inventory of Interpersonal Problems (IIP-C) (Horowitz, Alden, Wiggins, and Pincus, 2000) was utilized. The IIP-C is a 64-item self-report questionnaire that examines interpersonal difficulties

within two dimensions: dominance (agency) and love (communion). The questionnaire consists of 8 subscales: domineering, vindictive, cold, socially inhibited/avoidant, nonassertive, overly accommodating/exploited, overly nurturing, and intrusive. The researchers found that compared to healthy controls, the patients demonstrated a nonassertive interpersonal style, and reported more interpersonal distress in the areas of social inhibition, non-assertiveness, and overly nurturing. Overall there were no significant differences in interpersonal style between diagnoses, however patients diagnosed with anorexia binge/purge reported more interpersonal distress in the cold and socially avoidant octants of the IIP-C. Results also indicated that patients who complete treatment report less interpersonal distress at the end, as well as fewer difficulties with social avoidance and non-assertiveness. Thus, treatment can be helpful in addressing maladaptive interpersonal patterns and a harmful self-concept.

Building upon previous research that examined attachment style and eating disorders in the general and clinical population, Shanmugam, Jowett and Meyer (2012) explored the relationship between an athlete's current attachment style and disordered eating behavior, as well as examining how self-esteem, perfectionism, and depression may mediate the relationship. Participants included 159 male athletes and 252 female British athletes competing at the University or club level. Participants completed the Eating Disorder Examination Questionnaire (EDEQ; Fairburn and Beglin, 1994, 2008), Experiences in Close Relationships (ECR; Brennan, Clark & Shaver), as well as Participants completed measures assessing perfectionism, depression, and self-esteem. Results demonstrated that athletes who scored higher on avoidant and anxious attachment styles on the ECR also reported more eating disordered behavior on the EDEQ. However, there was not a direct relationship between one's attachment style and level of

disordered eating, but was mediated by the athlete's self-esteem, self-critical perfectionism, and depression (Shanmugam, Jowett, and Meyer 2012).

Additionally, using the same sample of 159 male and 211 British athletes, Shanmugam, Jowett, and Meyer (2013) examined the relationship between an athlete's attachment style and level of disordered eating, and the relationship with parents, coach, and teammates. The researchers utilized the Sport-Specific Quality of Relationship Inventory (S-SQRI; Jowett, 2009) to measure the coach-athlete, teammate-athlete, and parent-athlete relationship. Results indicated that there was an indirect link between the quality of the parent-athlete and coach-athlete relationships and level of disordered eating. Specifically, if the relationship with both parents and coach were perceived as being marked by conflict and lacking support, an athlete will report increased eating disorder behavior. Results did not find an association between the relationship with teammates and eating disorder behavior (Shanmugam, Jowett, & Meyer, 2013).

Structural Analysis of Behavior

Benjamin's (1974) Structural Analysis of Social Behavior (SASB) has been used in previous research to link eating disorders to relationship patterns and early experiences. The SASB is a circumplex model of social behavior measuring perceived interpersonal and intrapersonal interactions on three dimensions: (1) focus (e.g., "you focus on me; I react to your focus on me; I focus on myself", p. 20), (2) affiliation (e.g., love vs. hate), and (3) interdependence- enmeshment (control/submit) versus differentiation (emancipate/separate) (Benjamin, 2006, p. 20-21). It has proven to be a useful tool in measuring and tracking relational patterns and provides a clearer picture of attachment representations and patterns.

SASB, Parental Relationships, and Eating Disorders. Humphrey (1986) explored the current parent-child relationships of 60 women ages 15-23 who were currently seeking treatment

for an eating disorder and 20 women ages 15-23 with no history of an eating disorder using the SASB model. Results indicated that patients, regardless of eating disorder type (anorexia, restricting type, anorexia, binge-purge subtype, or bulimia) perceived more attack and neglect in both parental relationships than the control group. When looking within eating disorder groups, it was found that patients with bulimia and patients with anorexia, binge-purge subtype, perceived both of their parents as less affirming and less understanding than those patients with anorexia, restricting type. Patients with bulimia perceived both of their parents as far less nurturing and supportive than any other eating disorder group. When compared to the healthy control group, all patients reported hostile self-treatment and neglect.

Wonderlich and Swift (1990) considered how a patient's eating disorder subtype and depressed mood might impact family functioning and interpersonal dynamics among a group of 48 patients between 18 and 34 years of age and 29 age-matched healthy controls using the SASB model. It was found that, regardless of eating disorder type, only patients with high scores of depression (>75 on the Millon Dysthymia Scale) perceived more hostility in their parental relationships than did healthy controls, and that patients reporting low or no depression did not differ from the healthy control group. It is likely that an early hostile environment can contribute to the development of depressed and negative affect states.

Further, using the SASB model, Wonderlich, Klein, and Council (1996) explored the relationship between perceived parental relationships and self-concept among 40 female patients ages 18 to 44 with bulimia and 27 healthy controls. Overall, it was found that patients with bulimia perceived more hostile disengagement from parents than controls. Additionally, patients reported less submission to their mothers than did control participants and that patient self-concept ratings were associated with perceived paternal attack.

SASB and Relationship with Self. Bjork, et al. (2003) examined the profiles of eating disorder patients with a range of diagnoses (e.g., AN, BN, BED, EDNOS) using the introjective self-treatment portion of the Structural Analysis of Social Behavior (SASB) model. The SASB model objectively measures perceived interpersonal and intrapsychic relations (Benjamin, 2003), and therefore, is useful in recognizing relational patterns and ways of coping (e.g., disordered eating behavior). The study used two control groups, one being healthy controls and the other being a group with subclinical depressions (diagnosed with a Beck Depression Scale score >10). Compared to both control groups it was found that eating disorder patients may have unique interpersonal profiles that make engagement in the therapeutic process more difficult. Amongst the four subgroups, it was found that patients with anorexia scored significantly lower on self-emancipation and significantly higher on self-control. Compared to patients with binge-eating, patients with bulimia scored significantly lower on self-affirmation and significantly higher on self-control, self-blame, and self-hate. Patients with EDNOS scored significantly higher than patients with BED on self-control. Overall, patients with BED had a more positive self-treatment profile (e.g., perceived themselves to be more self-emancipating, self-affirming, and self-loving, and less self-controlling in comparison to the other groups). However, Bjork, et al. (2003) hypothesized that this does not necessarily mean that they are an easier population to engage in the therapeutic process with, and further their positive interpersonal style and response they receive from others (e.g., cooperative, trusting), may actually hinder change. Further exploration and knowledge of a patient's interpersonal profile using the SASB model might help improve treatment implications.

SASB and Other Important Relationships. SASB has been used in non-clinical settings as well to explore the impact of other important relationships on self-concept. Conroy

(2003) employed the use of SASB to study associations between fear of failure and self-concept and interpersonal relationships with others in 211 high school and college-aged students and athletes. Results indicated that fear of failure was strongly associated with more hostile perceptions of important others, including teachers and coaches, and negative self-concept.

The SASB has also been used to examine relationships other than those between individuals. Mantilla, Clinton, and Birgegard (2017) utilized the SASB to operationalize how patients experience the actions of their eating disorder and their own reactions to the disorder. Participants also completed the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994). Results indicated that one's relationship with their eating disorder resembled a negative and enmeshed interpersonal relationship. Individuals reported perceiving their eating disorder as blaming and controlling, and in response they sulk and submit (Mantilla, Clinton, and Birgegard, 2017). Moreover, results also found that eating disorder control and patient submission were associated with more eating disorder behavior, yet individuals who reacted more negatively (e.g., towards their disorders were less symptomatic (Mantilla, Clinton, and Birgegard, 2017).

Copy Process Theory

Benjamin's (2003) Copy Process Theory provides more specificity about an individual's development in their way of being with self and others. Copy process theory posits that patterns of adult behavior (whether adaptive or maladaptive) directly and precisely parallel the patterns of behavior developed and remembered from relationships with key, early attachment figures (Critchfield & Benjamin, 2008). It is a dynamic process that is used to understand relational patterns. Copy process suggests three ways in which adult behavior can be linked to early attachment figures: Identification, Recapitulation, and Introjection. Identification to an early

attachment figure is present if the current interpersonal behavior copies that of the attachment figure (e.g., “I behave like him or her”). Recapitulation is present if current interpersonal behavior is like or similar to past interpersonal behavior with an important attachment figure (e.g., “I behave as if he or she is still present and in charge”). Lastly, Introjection is present when current ways of relating to oneself is similar to previous treatment from an important attachment figure (e.g., “I treat myself as I was treated by him or her”). Copy process theory focuses on the individual’s perceptions of both the present and the past. Consequently, a collegiate athlete may perceive their interactions with or treatment from their coach similar to early attachment figures, and respond accordingly, either adaptively or maladaptively. Critchfield and Benjamin (2008) posit that copy process patterns are maintained in part by attachment-based desire to feel psychologically close to and connected with important figures in a person’s life.

It is also likely that the coach can play the role of a significant attachment figure in an athlete’s life and can either serve to be a corrective or protective figure or potentially detrimental to the athlete’s wellbeing. Thus, it is paramount to further understand a coach’s contribution to both the interpersonal and intrapersonal dynamics involved in disordered eating and distorted body image.

Coach-Athlete Relationship

The Coach as an Attachment Figure. Previous research has demonstrated that a coach can play an important role in contributing to an athlete’s self-esteem, personal growth, and general well-being (Cote, 2002). Further research suggests that athletes seek out their coaches for support in times of need and that in turn, coaches provide advice, guidance (Jowett and Cockerill, 2003). Additionally, research supports that coaches can serve as an attachment figure as they encourage new skills and challenges, resiliency, and provide a foundation for growth and

development (Lyle, 2002). Davis and Jowett (2010) explored the pervasiveness of the three main functions of attachment (e.g., secure base, safe haven, and proximity maintenance) within the context of the coach-athlete relationship; the relationship between athletes' attachment styles and coach-athlete relationship satisfaction, as well as sport satisfaction, and finally the process by which athletes' attachment styles and satisfaction with sport are associated. Davis and Jowett (2010) surveyed a total of 309 British student athletes (150 males, 159 females). Participants completed the ECR (Brennan and Shafer, et al. 1998), Components of Attachment Questionnaire (CAQ; Parish, 2000), as well as measures of sport and relationship satisfaction. Results demonstrated that the coach is likely to fulfill the three basic attachment functions, and athletes are likely to seek a level of closeness with their coach. Further if athletes reported an avoidant or anxious style of attachment with their coach, they reported decreased satisfaction with the relationship and with their sport participation.

Davis and Jowett (2014) expanded on their coach-athlete relationship research and examined whether athletes' attachment styles with their coach were associated to aspects of the quality of the relationship, and then whether the quality of the relationship was associated with athletes' well-being. 192 athletes (122 males and 70 females) between the ages of sixteen and thirty-two completed the Coach-Athlete Attachment Scale (CAAS; Davis & Jowett, 2013), the Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegen, 1988); and The Quality of Relationships Inventory (sport version; Jowett, 2009). Their findings indicated that there is not an association between anxious attachment style and relationship quality and well-being within the coach-athlete relationship. The authors hypothesized that possibly anxiously attached athletes go elsewhere to meet their psychological needs (e.g., parents), so their attachment style may not impede, or benefit, the quality of the coach-athlete relationship.

However, their results found that athletes with an avoidant attachment style are more likely to perceive a lower level of support from the coach and perceive the relationship to be less important (Davis & Jowett, 2014). Yet, athletes with an avoidant attachment style characterized by emotional distance, independence, and self-reliance are also less likely to experience interpersonal conflict within the coach-athlete relationship (Davis & Jowett, 2014). Finally, athletes with a secure attachment style who report being comfortable with emotional closeness and interdependence, perceive that coaches are available to provide support, value the importance of the coach-athlete relationship, and experience less interpersonal conflict (Davis & Jowett, 2014). In regards to an athlete's perceptions of well-being, it was found that lower levels of interpersonal conflict was associated with more positive affect (e.g., vitality, enthusiasm), while higher levels of interpersonal conflict are associated with more negative affect (e.g., tiredness, irritability).

Influence of Coach-Athlete Relationship on Disordered Eating. Prior research indicates the importance of both the coach-athlete and parent-athlete relationship in the development and/or maintenance of disordered eating behaviors and distorted body image beliefs (Jones, Glimtmeier, & McKenzie, 2005; Shanmugam, Jowett, & Meyer, 2013). Given this, it is important to further understand the nature of an athlete's relationship to his or her coach, how that relationship may contribute to and/or maintain disordered eating patterns, and how that relationship may be protective against engagement in disordered eating behavior.

Jones, Glimtmeier, and McKenzie (2005) utilized interpretive biography to illustrate the case of a specific coach-athlete relationship and its influence on the development of an eating disorder. The authors interviewed an elite swimmer whose career ended early due to her bulimia nervosa. In the interview, the athlete reported characteristics of a "good athlete" (see Thompson

and Sherman, 1999), including compliance, as well as feeling sport specific pressure to lose weight due to the belief that the leaner the swimmer, the better the performer. The athlete reported a comment made by the coach regarding her weight was influential in the development of her eating disorder. The case study also examined how the coach plays a role in identity development, and how an athlete's sense of worth or value can be inextricably tied to how one performs.

Given that sport-specific variables have been found to be contributing factors to disordered eating behavior, it is likely that how a coach communicates about weight and performance has an impact; and can be affirmative or detrimental for the athlete. Coppola, Ward, and Freysinger (2014) interviewed eight Division I female athletes regarding their experiences around how their coaches' communicate sport body image. Several themes were identified: (1) encouragement of healthy, fit sport bodies is a positive, (2) sport and training environment impact, (3) body comparisons and criticisms generally need to be avoided, (4) coaches' recognition of athletic body change, (5) the importance of individualized athlete-centered training, (6) and how the coach can be a role model through their own eating and exercise habits.

Overall, it was found that communicating muscle gain and eating to fuel workouts and performance contributed to the development of a healthy sport body image. In regards to the sport and training environment, athletes indicated that training regimens that were encouraged to reach performance potential instead of conforming to a sport body ideal or losing weight was more positively received (Coppola, Ward, & Freysinger, 2014). Previous research has recommended that coaches should avoid monitoring athletes' weight, recommending weight change, or monitoring body fat (Thomas & Sherman, 1999). Coppola, et al. (2014) found, that while generally this is true, coaches that provide athletes autonomy to choose how they would

like to monitor physical development (e.g., keeping personal record sheets of weight room workouts, body fat percentage measurements) or receive feedback or guidance in facilitating healthy and appropriate changes with their body (e.g., recommending an individualized nutritionist meeting instead of saying “don’t eat that,” a sensitive recommendation of why something else may be better) can have a positive impact on sport body image development. The key is allowing the athlete to identify what is most helpful and not making weigh-ins or body fat percentage recordings mandatory, but an option with the purpose being tied to sport performance and not self-worth. Moreover, it was agreed upon that any criticism of an athlete’s body was unhelpful. The athletes especially found it frustrating and irrelevant to criticize body shape or size if the athlete was performing well, and recommendations to further enhance performance (e.g., weight loss, muscle gain) should be done sensitively.

Coker-Cranney and Reel (2015) examined 248 female collegiate athletes and dancers’ perceived weight-related coach pressure, the coach-athlete relationship, and disordered eating behaviors. They hypothesized that along with sport and societal pressure to be lean, engagement in disordered eating behavior may be a result of over conformity to their sport and athletic identity (e.g., striving for distinction, playing through pain), and thus may lead to ‘uncritically accepting’ their coach’s feedback and/or team culture. Amongst the 248 athletes it was found that 28% of athletes believed that their weight and physical appearance were important to their coach, 25% perceived that their coach noticed if they lost weight, and 25% reported that coach encouraged athletes to drop pounds, indicating both direct and indirect weight-related pressure. Overall, it was found that a weaker coach-athlete relationship, as measured by the Coach-Athlete Relationship Questionnaire (CART-Q, Jowett 2009), is related to increased perceptions of weight-related coach pressure and poorer outcomes (e.g., subclinical eating disorders). Hence, it

can be seen that the coach plays an important role in how athletes view their body, and that the coach-athlete relationship can be a powerful influence in how those views develop.

The Coach, Team Culture, and Eating Disorders. Coaches play a key role in setting the team culture and norms, which impact team dynamics and relationships. Kroshus, Kubzansky, Goldman, and Austin (2014) observed two female cross-country teams of similar competitive levels and explored team norms and coach support around disordered eating behavior. Results indicated that having a coach or assistant coach help establish and model healthy communication around eating behaviors creates a culture where teammates feel more adept and supported when a conversation with a fellow teammate may need to happen.

The social environment and culture that exists within sport and within each team can impact an athlete's overall wellbeing. The coaching style and emphasis placed on physical appearance as a means of functionality can negatively impact body image and can contribute to disordered eating. Achievement goal theory (Nicholls, 1984) is a framework that can be used to understand how the coach is influential in establishing team culture and norms. Achievement goal theory posits that there are two different perspectives on achieving goals: 1) ego orientation and 2) task orientation. The main assumption of achievement goal theory is that individuals are motivated to demonstrate competency and skill of their abilities in certain domains (e.g., academic performance, sport performance). However, individuals differ on when they believe they have successfully achieved competency. Further, achievement goal theory also can be applied to a broader level. Thus, a coach can create a motivational climate that is more ego, or more task-orientated which can impact an athlete's motivation and overall performance. Previous research has shown that athletes who are more ego-orientated are more likely to possess a "win-

at-all-costs” attitude, which can be related to engaging in maladaptive behaviors (e.g., restrictive eating, substance use) (Duda, 2001).

de Bruin, Bakker, and Oudejas (2009) explored the relationship between engagement in disordered eating behaviors and achievement goal orientations and motivational climates in female gymnasts and dancers. It was hypothesized that an individual with more of an ego-orientation (e.g., focused on outcome in comparison to others), would be more likely to engage in disordered eating behavior due to the “win-at-all costs” mentality that exists in ego-orientated environments. Fifty-nine highly competitive gymnasts and thirty-five high level modern dancers filled out questionnaires assessing both individual ego and task orientation, as well as perceived motivational climate, self-esteem, perfectionism and weight-related peer and coach pressure. Overall, results indicated the sample of aesthetic athletes were more task-oriented. However, the athletes that did report higher in ego orientation were more likely to engage in disordered eating behavior, perceive more weight-related peer pressure, and report higher perfectionism and lower self-esteem (de Bruin, Bakker, and Oudejas, 2009). Similarly, athletes who perceived their motivational climate to be more ego-orientated than mastery orientated, reported more perceived weight related coach pressure. The results suggest that a mastery motivational climate is likely a protective factor. Athletes that perceived their environment to be task-focused also reported less dieting behaviors, less weight-related pressure from both coaches and peers, and a higher self-esteem (de Bruin, Bakker, and Oudejas, 2009). These results are consistent with the findings of Sangenis et al., (2005), which demonstrated that ego-oriented athletes are focused on out-performing others, and thus are also constantly comparing themselves with both rivals and teammates. In aesthetic sports especially, this can lead to comparing one’s body shape and size, which can lead to disordered eating and body image concerns. When coaches compare

teammates' bodies and their performances, even if inadvertently (e.g., you'll never have her body), this also contributes to unhealthy comparing and disordered eating behavior (Sherman and Thompson, 1996). When an athlete values their coach's opinion, these types of messages are quickly internalized and can lead to behavior (e.g., dieting) to seek approval.

Peer approval and influence are in turn important mediating factors, especially during the adolescence and college years, both in and out of sport (Slater & Tiggemann, 2010). In a survey of 1445 NCAA elite Division I athletes, Engel, et al. (2003) found that athlete's perceptions of other teammate's normative eating-related behavior was associated with disordered eating. For example, if an athlete believes that others on their team are engaging in restrictive eating to control weight, they are more likely to also engage in this behavior. Team culture can influence team member eating behaviors, consequently unhealthy team norms around eating and exercise (e.g., bingeing, purging, extra gym time) can increase the risk of an athlete engaging in unhealthy behavior, but if the team norms support healthy behavior (e.g., proper nutrition given caloric expenditure, promotion of rest and recovery), it is likely an individual will engage in healthier behavior and have a healthier body image (Kroshus, Kubzansky, Goldman, & Austin, 2015).

Given the challenges that female collegiate athletes face with managing (1) both performance and academic expectations, (2) conflicting societal messages regarding female body image, and (3) personality-related patterns and styles that are valued in sport (e.g., self-discipline and commitment), it is not surprising that eating disorders and disordered eating behavior are prevalent in the athletic culture (Sundgot-Borgen & Torstveit, 2010, Thompson & Sherman, 1999). Prior studies have examined both the coach-athlete and parent-athlete relationships using an attachment framework and demonstrated that these relationships can play a role in an athlete developing and/or maintaining disordered eating behaviors and having distorted body image

(Jones, Glintmeyer, & McKenzie, 2005; Shanmugam, Jowett, & Meyer, 2012; Shanmugam, Jowett, & Meyer, 2014).

Study Aims

The purpose of the current study is to further examine the impact of the collegiate coach-athlete relationship on engagement in disordered eating behavior and body image. The study will utilize copy process theory and SASB-based measurement methods. Specifically, this present study seeks to uncover: (1) how the interpersonal dynamics that can occur between a coach and athlete may impact (either negatively or positively) the engagement in disordered eating behavior, (2) the impact of coach-athlete relationship on body image and self-perception, and (3) understand relationship patterns learned and internalized with parents. It is hypothesized that the coach will be viewed as an attachment figure, and thus healthier attachment and relating with the coach will be associated with healthier eating and positive body image and self-perception.

This work is conducted in hopes that clarity about the nature of interactions and relational patterns of the parents, coaches and an athlete will be useful to help develop methods and interventions for (1) improving athlete eating behaviors and body image and (2) improving coping styles, attachment relationships, and overall well-being, by appeal to these key relationships in the athlete's life.

Method

Research Design

Participants. Participants were 42 female student-athletes enrolled NCAA Division 1 universities located in the southeastern United States. Participation in the current study was voluntary. Subject recruitment was initiated by an email (see Appendix A) sent to the Division 47 listserv, as well as athletic support staff colleagues (dietician, sport psychologist), who then forwarded it to female athletes at their institutions. This email contained information about the purpose and rationale of the study and a link to an online, anonymous survey located on a secure website, containing the measures to be used. The primary researcher also shared the link to the online, anonymous survey on social media platforms (e.g., Facebook, Twitter). Additionally, the undergraduate research assistant shared the recruitment email. Prior to filling out the survey, participants were provided a brief description of the purpose of the study, a statement of informed consent that informed them of the voluntary nature of their participation and that the information would be kept confidential and therefore cannot be linked back to them in any way. Participants were also informed how their participation will contribute to furthering the knowledge and understanding of the coach-athlete relationship. Upon completion of the survey, participants were entered into a random drawing to win one of five \$25 Amazon gift cards as compensation for their participation. Approval from the JMU Institutional Review Board was obtained prior to starting the study.

Materials

Demographic information. Information was requested in each of the following domains: age, type of sport, years of participation in sport, injury history, and eating disorder history. Participants were also asked to briefly describe how they felt about their bodies in the

sport context and the social context. The narrative statements in the sport and social settings were coded as either: 1) positive body image, 2) neutral body image, or 3) negative body image. A narrative statement was coded as positive if the statement included words such as “positive”, “empowered”, “confident”, or “muscular” (specific to sport setting). A neutral statement included words and phrases such as “average”, “decent”, “depends” or a “positively, but...” statement. Finally a negative statement included sentiments such as “negative”, “big”, “too...(e.g., muscular, thin, small).” The primary researcher and a clinician specializing in the treatment of athletes coded the narrative statements and had strong agreement as to their valence. An interrater reliability analysis using the Kappa statistic was performed to determine consistency among raters. Disagreements were resolved by discussion to consensus.

Female Athlete Screening Tool (FAST). The FAST (McNulty, Adams, Anderson, & Affenito, 2001) was used to measure the level of eating pathology present. The FAST is a 33-item self-report measure that assesses the reasons for engaging in atypical exercise and eating. Higher scores (>94) indicate that a clinical eating disorder is present, while scores that fall between 77-94 indicate sub-clinical disordered eating behavior. The FAST has been found to have discriminant validity, as athletes with eating disorders score significantly higher on the FAST as compared with athletes without eating pathology, and non-athletes with eating disorders ($p < .001$). Reliability analysis indicates a high internal consistency of the FAST (Cronbach’s $\alpha = 0.87$). The FAST is strongly correlated to the Eating Disorder Examination-Questionnaire (0.60) and the Eating Disorder Inventory (0.89). Participants are asked to answer items about their physical activity, eating habits. Examples of items include: “I take dietary or herbal supplements in order to increase my metabolism and/or to assist in burning fat,” and “If I

were to be injured, I would still exercise even if I was instructed not to do so by my athletic trainer or physician.”

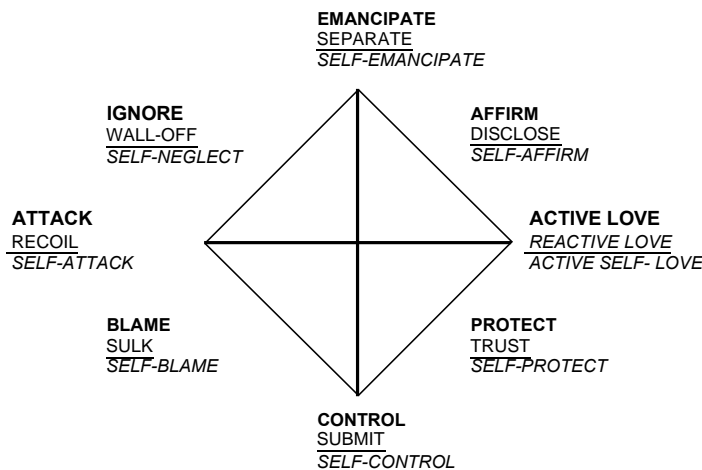
Coach Athlete Attachment Scale (CAAS). The CAAS (Meyer & Jowett, 2013) is a sport-specific 19-item self-report measure designed to assess an athlete’s attachment style. It measured the athlete attachment styles in relation to their coach, as well as contextualized the rating provided by the Intrex questionnaire. Reliability analysis indicates a high internal consistency for each attachment dimension: avoidant attachment (Cronbach’s $\alpha = .86$), anxious attachment (Cronbach’s $\alpha = .82$), and secure attachment (Cronbach’s $\alpha = .86$). Participants were asked to rate items on a 7-point Likert scale (ranging from *Strongly Agree to Strongly Disagree*). Examples of items include: “I do not ask my coach for advice and help” and “I feel confident that that our coach-athlete relationship will last.”

Henriques Five Items (H5). Based on consultation, these five items were developed by Gregg Henriques in an attempt to more directly address conscious awareness by athletes of the degree to which the coach influences an athlete’s self-concept, body image, and engagement in disordered eating behavior. These five items are not based on an underlying framework, and thus are not treated as a scale but will be examined item-by-item. Inspection of inter-correlation matrices and alpha statistics confirm that the items do not capture only a single construct and for this reason are also not summed for comparison with other variables. Participants were asked to respond on a 7-point Likert scale (ranging from *Not True at All to Very True*). The 5 items are listed in turn under Results and include: “My coach has pressured me to change the shape of my body,” and “I have thought about my coach when I am eating”

Structural Analysis of Social Behavior (SASB) Intrex Questionnaire Medium Form. SASB is an empirically validated assessment model of interpersonal behavior built around three

constructs: (1) behavioral focus, (2) affiliation, and (3) interdependence. Thus, the model examines in depth the relationship patterns with self (intrapsychic) and others (interpersonal). The interpersonal focus of behavior is measured as “I focus on you” (other focus) or “I react to your focus on me (self-focus) (Benjamin, 2006, p. 20). Focus on Other is transitive, describing behavior done to, for, or about another person (e.g. “he controls her”, and “she protects him”). Focus on Self is intransitive, describing behavior done to, for or about the self in relation to the other person (e.g. “he relies on her”). Figure 1 is a simplified version of the SASB model and outlines the three types of focus: 1) other (indicated by bold font), 2) self (indicated by underline font), and 3) introject (indicated by italic font). The vertical dimension on the SASB model, Autonomy (AU) depicts interdependence (e.g., autonomy and healthy separation to enmeshment), while the horizontal dimension, Affiliation (AF) represents degrees of friendliness (e.g., hostility versus love).

Figure 1. Simplified SASB cluster model. Focus on Other, Self, or Introject are respectively indicated by **Bold**, Underline, and *Italic* fonts. From: Benjamin, L.S. (1996). *Interpersonal diagnosis and treatment of personality disorders, Second edition*. N.Y.: Guilford. Copyright the Guilford Press.



This study utilized Benjamin's (1995) Intrex Short and Medium Form as a measure to assess the athlete's current relationship with the self, early parental relationships, and their current coach. The Intrex corresponds to the SASB circumplex model. The Intrex short form contains 16 items, while the medium form contains 32-items for each focus and relationship in Benjamin's SASB model and is administered as a self-report questionnaire. Participants will be asked to respond to a series of descriptions rating the perceived relationships with important others (parents as remembered from childhood, current coach) and with the self.

The Intrex medium form was used to assess the athlete's self-concept and relationship with the coach, while the Intrex short form will be used to assess relationship with parents. For current relationships (with self, coach), items will be rated for contexts when the relationship is "at best" and when it is "at worst." Each item is rated on a scale of 1 (not at all true) to 100 (very true). An example item is, "To become perfect, I force myself to do things correctly", where the individual would then rate how true this statement is. The Intrex has been shown to have strong validity and psychometric properties (internal consistency reliability, test-retest reliability) across a variety of settings and relationships (Benjamin, 2000).

Possible Intrex means for each individual cluster (e.g., Freeing & Forgetting; Affirming & Understanding) range from 0-100. The affiliation (AF) and autonomy (AU) scores represent a weighted linear combination of the clusters that contributes to each one conceptually (e.g., Loving & Approaching receives a strong positive weight for AF; Attacking & Rejecting receives a strong negative weight). Weights as given by the Intrex manual are such that the resulting AF and AU scores produce a maximum range of about +/- 210. The zero point indicates roughly equal degrees of affiliation and disaffiliation as represented across all relevant SASB clusters. The AF score depicts how friendly (versus hostile) the relationship with self or an important

other is, while the AU score depicts degrees of interdependence present in the relationship with self or an important other, with independence represented as positive scores, interdependence/enmeshment as negative scores (Benjamin, 2000).

Norms are available for comparison with the self-concept and parental ratings used in this study. Estimates of normative values on the Intrex for coaching relationships are produced for the first time here. Maladaptive or problematic behavior is defined for purposes of this study as cluster scores that fall two standard deviations away from empirical norms following the methods used by Critchfield and Benjamin (2010).

Copy Process Analysis

Additionally, two individual cases were examined to provide a more in-depth picture of copy process utilizing the SASB model.

Figure 2

Intrex Ratings Used to Define Each Copy Process Profile

<i>Copy Process</i>	<i>Intrex: Current Behavior</i>		<i>Potentially Copied Relationships</i>
Introjection “I treat myself as s/he treated me” <i>Example:</i> Self-Blame (3-6) at worst now parallel’s Father’s Blame (1-6)	Introject at best Introject at worst	Compared with →	Mother focused on me Father focused on me
Identification “I treat others as s/he treated me” <i>Example:</i> Control (1-5) of coach at best parallels Mother’s Control (1-5) of me	I focus on my Coach at best I focus on my Coach at worst I react to my Coach at best	Compared with →	Mother Focused on me Father focused on me Mother reacted to me Father reacted to me

	I react to my Coach at worst		
Recapitulation “I act as if still with him/her” <i>Example:</i> Submit (2-5) to coach at worst now parallels my Submit (2-5) to my mother’s control	I focus on my Coach at best I focus on my Coach at worst I react to my Coach at best I react to my Coach at worst	Compared with →	I focused on mother I focused on father I reacted to mother I reacted to father

Figure 2: In this study, relationships were reviewed between current self-image, remembered relationships with parents, and current relationship with coach. The above table provides an example of how the Intrex interacts with the SASB model to result in copy process that is ultimately represented on individualized profiles.

Adapted from: Critchfield, K. L., & Benjamin, L. S. (210). Assessment of repeated relational patterns for individual cases using the SASB-Based Intrex Questionnaire. *Journal of Personality Assessment*, 92(6), 480-489.

Procedure

After indicating agreement with the informed consent, participants were directed to provide basic demographic information and asked to provide brief statements about how they feel about themselves in their performance setting and their social setting. Participants were then asked to rate to the 5 items that Henriques (2016) developed for the study. Once participants completed the 5 items, they were directed to complete the FAST. The measure was used to assess the level of disordered eating behavior present. After the FAST, they were directed to complete the CAAS, which was used to assess an athlete’s attachment style with their coach, either being more secure or less secure. Upon completion of the CAAS, participants were directed to complete the Intrex, which assessed their self-concept, relationship with coach, and perceptions of earlier experiences with parents. Participants were allowed to skip items and continue with the assessment if they desired. Upon completion of the study, participants were

given the option to provide their email address to be entered into a random drawing to win one of five \$25 Amazon gift cards. The primary researcher deleted all email addresses after completing the random drawing and before beginning data analyses. In total, participation required a time commitment of approximately 45-60 minutes. Quantitative data was analyzed with SPSS version 24 and the narrative statements regarding an individual's body image, were coded by the primary researcher and a clinician.

Data Analysis Plan

Data was collected on current self-concept, body image, and eating behavior, as well as coach and parent relationships. Inspection of patterns of correlation in the multi-trait, multi-method matrix (MTMM) formed by study measures, as well as hierarchical multiple regression techniques (if power is sufficient), will be used to test for presence of links as well as moderating effects consistent with the idea that coaches serve as important attachment figures in terms of their impacts on athlete self-concepts, body image, and eating. Specifically, statistical tests will be run to explore: (1) how the SASB-defined, underlying dimensions of affiliation and interdependence in both the perceived coach-athlete relationship and the parent-athlete relationship are associated with primary outcome variables (e.g., eating behavior, body image, self-concept). To the degree that the resulting sample size allows, demographic and sport specific variables will also be used to understand whether effects are stronger in some contexts more than others., (2) If the expected associations are observed, hierarchical regression techniques (Baron & Kenny, 1986) will be used to explore how dimensions of the perceived coach-athlete relationship may serve to moderate early parental input to each of self-concept, body image, and disordered eating behavior, (3) to further explore the degree to which the coach-athlete relationship reflects attachment concepts, a final set of analyses will build on methods modeled

by Critchfield and Benjamin (2008, 2010) specific to the Intrex measure that allow an index of the extent to which athlete relational patterns with a coach, and in self-concept, may also replicate formative attachment relationships in their early experiences with parents. Strong within-subject correspondence of specified comparisons of interpersonal profiles on the Intrex is interpreted to suggest presence of copy process.

Results

The data set on which the data analysis is based consists of the 42 surveys that were partially filled out and/or completed. Table 1 includes completion rates across the study protocol. The table shows the instruments in order of their presentation. No adjustments will be made in the analyses for missing data, however since substantial attrition occurred over the course of the online assessment, power will be reduced to detect effects involving measures that appeared later, especially those in relation to early childhood relationships.

First, results will focus on the indices of athlete self-concept and self-treatment. Then the focus will shift to examine the variables that related to the coach relationship, including whether the relationship conforms to what would be expected for an attachment relationship. Finally, the results will examine whether the coaching relationship impacts an athlete's self-concept and self-treatment. These analyses are then supplemented by information about parental relationships and two case studies are explored.

Table 1

Completion Rates for Substantive Measures across the Study Protocol in Order Presented

Measure	Subscale	N
Body Image Statements	<i>How do you feel about yourself in your sport setting?</i>	42
	<i>How do you feel about yourself in social settings?</i>	42
Henriques 5 Items	<i>My coach has played a role in how I think of myself</i>	39
	<i>My coach has made comments about my body</i>	32
	<i>I think coaches influence how women athletes feel about their bodies</i>	40
	<i>My coach has pressured me to change the shape of my body</i>	29

	<i>I have thought about my coach when I am eating</i>	32
Female Athlete Screening Tool		39
Coach Athlete Attachment Scale		39
Intrex	<i>Self-Concept</i>	
	Introject at Best	33
	Introject at Worst	31
	<i>Coach-Athlete Relationship</i>	
	Coach at Best	23
	Athlete with Coach at best	22
	Coach at worst	22
	Athlete with Coach at worst	21
	<i>Parent-Athlete Relationship</i>	
	Mother in childhood (age 5-10)	24
	Athlete with Mother in childhood (age 5-10)	24
	Father in childhood (age 5-10)	22
	Athlete with Father in childhood (age 5-10)	22

Descriptive Data

Demographic variables are shown above in Table 2. Participants ranged from 18 to 25 years old ($M = 20.02$, $SD = 1.6$). Participants reported a range of 1 to 19 years of playing ($M = 9.24$, $SD = 5.16$). Twelve sports were represented in the sample. Participants were asked about sport related injuries. 22% of participants reported no history of injury, 18.5% reported one sport related injury, and 40.7% reported two or more sport related injuries. Participants were also

asked if they had a history of an eating disorder. 15.4% of the sample reported a history of an eating disorder, while 84.6% of the sample reported no history.

Table 2

Demographics

	Mean	Std. Deviation	N
Age	20.02	1.6	42
Years Participation	9.24	5.16	
Sport	Frequency	Percent	42
Cross Country & Track	17	40.5	
Swimming & Diving	6	14.3	
Field Hockey	5	11.9	
Soccer	4	9.5	
Golf	2	4.8	
Tennis	2	4.8	
Volleyball	1	2.4	
Softball	1	2.4	
Lacrosse	1	2.4	
Gymnastics	1	2.4	
Rowing	1	2.4	
Basketball	1	2.4	
Injury History	Frequency	Percent	41
No history of injury	9	22.0	
One injury	10	18.5	

they felt about their body in their performance setting and in social settings. The statements were coded as positive, neutral, or negative by two raters. The interrater reliability for the raters on sport body image was found to be Kappa = .84. The interrater reliability for the raters on social body image was found to be Kappa = .87. 54.8% of the sample endorsed having a positive body image in their performance setting (e.g., “strong and beautiful”; “empowered”), 21.4% of the sample endorsed a neutral view (e.g., “decent”, “average”), and 23.8% of the sample endorsed a negative body image in the performance setting (e.g., “negatively, not thin enough”; “I feel like I have too much body fat to be as fast as my competition”). In social settings, more participants held a negative view of themselves compared to how they felt in their performance setting. 38.1% of the sample endorsed a positive social body image (e.g., “confident”; “positive”). 23.8% of the sample endorsed a neutral view in social settings (e.g., “I feel fine about my body, not thrilled, but not upset in any way about it”, “average”). 38.1% of the sample endorsed a negative body image in social settings (e.g., “Negatively, embarrassed about my muscular thighs”, “much more negatively, I find myself feeling obligated almost to inform other non-athletes in social settings that my issued gear... that my size, unlike some of my teammates, is because I'm extremely strong, I'm not fat, I take care of my body and can kick ass in the weight room”).

Table 4

Means and Standard Deviations of Self-Treatment

Measure		<u>Mean</u>	<u>SD</u>	<u>N</u>
Intrex Introject	<i>Affiliation</i>			
	At Best	109.87	70.73	33
	At Worst	22.5	105.43	31
	<i>Autonomy</i>			

At Best	-14.83	47.16	33
At Worst	-30.97	46.91	31

Regarding Table 4, introject for athletes (medium form Intrex) is not significantly different from a normative comparison group of undergraduate students ($N = 70$, unpublished data from Tracey Smith, Ph.D. collected at University of Utah) in At Best or At Worst conditions (independent group t-tests, all p 's $> .05$). However, at a cluster level analysis of the individual behaviors that constitute affiliation and autonomy at best and worst, athletes reported being more self-freeing at best; $t(101) = 3.24$, $p < .01$, and more self-protective at worst; $t(99) = 2.28$, $p < .05$. Results also indicated that, at worst, athletes may show more self-love; $t(99) = 1.76$, $p = .08$, and be more self-controlling; $t(99) = 1.86$, $p = .06$.

Table 5

Descriptive Statistics of the Female Athlete Screening Tool (FAST)

Female Athlete Screening Tool	Mean	Std. Deviation	N
	76.52	15.89	39
	<u>Frequency</u>	<u>Percentage</u>	
Below Clinical Range	22	56.4	
Subclinical Range	10	25.6	
Clinical Range	7	17.9	

Table 5 displays the descriptive statistics for the Female Athlete Screening tool. The FAST was scored to assess for disordered eating behavior. Higher scores (>94) indicate that a clinical eating disorder is present, while scores falling within 77-94 indicate sub-clinical disordered eating behavior. FAST scores ranged from 55 to 110. The total sample scored just

below the sub-clinical threshold ($M = 76.52, SD = 15.89$). 56.4 % of the total sample scored below the sub-clinical range and endorsed no problematic eating or exercise behavior. 25.6% of the total sample scored in the sub-clinical range. 17.9% of the total sample scored above 94 and endorsed clinically significant eating and exercise patterns.

Table 6

Relationship between Eating Behavior and Self Treatment

	FAST Total
1. FAST Total	-
2. Self-Directed Affiliation at Best	-.33
3. Self-Directed Autonomy at Best	-.30
4. Self-Directed Affiliation at Worst	-.50*
5. Self-Directed Autonomy at Worst	-.18

*Correlation is significant at the .05 level (2-tailed)

Table 6 displays the relationship between an individual’s current eating behavior, and their self-treatment at best and worst. Consistent with prior research, results also suggest that there is a relationship between hostile self-treatment (e.g., self-attack, self-neglect, self-blame) and disordered eating behavior ($r = -.50, p < .05$).

Figure 3

Relationship between Self Treatment at Worst and FAST Score

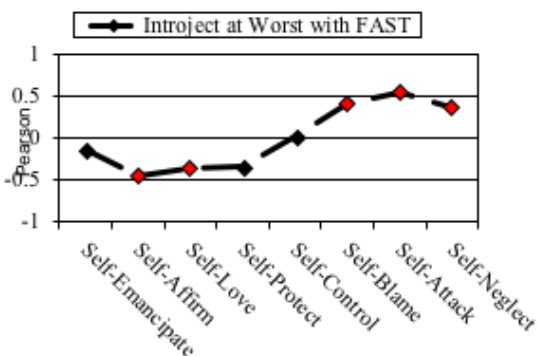


Figure 3 further unpacks the key finding in Table 5 regarding link between self-directed affiliation and disordered eating. It displays correlations between each of the individual behaviors that constitute Self-Directed Affiliation at Worst (row 4 in Table 5) as correlated with the FAST total score. Each of the SASB cluster points is displayed along with the correlation of each one to the FAST score. Degree of correlation is indicated on the Y-axis of the graph. Degree of correlation is indicated on the Y axis of the graph. Statistically significant correlations ($p < .05$) are displayed by the red diamonds. When inspected at this more in-depth level of analysis, results confirm the pattern suggested by negative correlation with the AF score. Significant positive correlations are observed between unhealthy eating and forms of hostility that include self-blame, self-attack, and self-neglect. In direct contrast, forms of friendly relating with the self (especially self-affirm, which is consistent with self-acceptance) are associated with healthier eating.

Table 7

Body Image and Eating Behavior as measured by the FAST

	<u>N</u>	<u>FAST Mean</u>	<u>FAST SD</u>
<i>Sport Body Image</i>			
Negative	9	93.6	11.5
Neutral	8	73.5	14.7
Positive	22	70.5	15.9
<i>Social Body Image</i>			
	<u>N</u>	<u>Mean</u>	<u>SD</u>
Negative	16	83.5	15.4
Neutral	9	73.7	17.1
Positive	14	70.2	13.2

Table 7 displays group means on the FAST for each of the coded categories of free response about how an athlete views herself in performance and social settings. The pattern of means suggest that the more positive an athlete was rated when describing their bodies in their performance setting, and in their social setting, the more likely they engaged in healthier eating behavior, thus resulting in lower FAST scores. This observed pattern was tested for statistical significance by use of One-Way ANOVA, as shown in Tables 7 and 8.

Table 8

Analysis of Variance (ANOVA) Between Sport Body Image and FAST Score

Source	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between Groups	2	3479.22	1739.61	10.23	.000
Within Groups	36	6116.99	169.91		
Total	38	9596.22			

Table 8 displays the relationship between how an athlete views herself in her performance settings and their FAST score. There was a statistically significant difference between an athlete's FAST score and how they viewed themselves in the performance setting as determined by one-way ANOVA ($F(2,36) = 10.23, p < .01$). A Tukey post hoc test revealed that the individuals who endorsed a negative sport body image had a significantly higher FAST score ($M = 93.63$) than those who endorsed a neutral sport body image ($M = 73.59$) and positive sport body image ($M = 70.59$). These findings are consistent with those from the Intrex, suggesting that disordered eating behavior is associated with negative evaluation of the self specifically in the athletic context.

Table 9

Analysis of Variance (ANOVA) Between Social Body Image and FAST Score

Source	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between Groups	2	1404.58	702.29	3.08	.058
Within Groups	36	8191.64	227.54		
Total	38	9596.22			

Table 9 displays a parallel ANOVA analysis as in Table 7, but groups are now defined in terms of how an athlete described herself in her social settings. While a near-significant trend was observed, results indicate that there was not a statistically significant difference between an individual's FAST score and how she viewed her body relative to social settings ($F(2,36) = 3.086, p > .05$).

Table 10

Descriptive Statistics for Sport Body Image by Injury History

Sport Body Image	Injury History	
	<u>No Injury</u>	<u>Multiple Injuries</u>
Positive	6	16
Neutral	3	6
Negative	0	10

Since sport body image is assumed to relate to the body's functioning, rather than appearance only, Table 10 displays how individuals rated their body image in sport settings and their injury history. A chi-square test of association was performed to examine the relation between body image and injury history. Interestingly, there was no association observed between sport body image and injury history $X^2(2) = 3.857, p > .05$.

Table 11

Descriptive Statistics for Social Body Image by Injury History

Social Body Image	Injury History	
	<u>No Injury</u>	<u>Multiple Injuries</u>
Positive	6	9
Neutral	3	7
Negative	0	16

Table 11 displays how individuals rated their body image in social settings and their injury history. The relation between social body image and injury history was significant ($X^2(2) = 7.730, p < .05$), suggesting an opposite pattern from what was expected whereby injury history is more associated with body image in social rather than sport contexts.

Analyses focused on the Coach-Athlete Relationship

The preceding sections have focused on associations between variables that all have to do with an athlete's view and/or treatment of herself. The current section now turns to a parallel examination of variables that all describe aspects of the coach-athlete relationship. Sections that follow will be turn to the relationship between those two broad domains of interest.

Table 12

Descriptive Statistics of Coach Athlete Relationship

Measure	Subscale	Mean	SD
Henriques 5			
	<i>My coach has played a role in how I view my self</i>	4.00	2.18
	<i>My coach has made comments about my body</i>	3.21	2.35
	<i>I think coaches influence how women feel about their bodies</i>	4.40	1.75

	<i>My coach has pressured me to change the shape of my body</i>	2.20	2.31
	<i>I have thought about my coach when eating</i>	2.20	2.19
Measure	Subscale	Mean	SD
CAAS			
	Avoidant Attachment	4.05	1.87
	Anxious Attachment	3.04	1.83
	Secure Attachment	4.97	1.89

Table 12 displays the means and standard deviations of study variables that measured the coach-athlete relationship including the Henriques 5 items, the Coach Athlete Attachment Scale. Participants were asked to respond on a seven-point likert scale (0 is “not true at all” to 7 is “very true”). Responses to Henriques items suggest that participants perceive that their coach has somewhat played a role in self-concept, *My coach has played a role in how I think of myself* ($M = 4.41, SD = 2.18$), as having some influence in how women athletes feel about their bodies, *I think coaches influence how women athletes feel about their bodies* ($M = 4.4, SD = 1.75$). Interestingly, and as displayed in Table 1, despite the items being administered at the beginning of the survey, 11 participants skipped item 4, *My coach has pressured me to change the shape of my body*, and 8 participants also skipped item 2, *My coach has made comments about my body* and item 5, *I have thought about my coach when I am eating*.

The CAAS was scored to find the average scores for each attachment style within the coaching relationship. Lower scores on the avoidant and anxious attachment style scales imply secure attachment, and indeed there is a strong negative correlation observed between the

securely-attached coach-athlete scale and the avoidant attachment and anxious attachment scales ($r = -.75$ and $-.76$ respectively, p 's $< .01$).

A paired samples t-test was conducted to determine if a scale was significantly higher. There was a significant difference between Secure Attachment ($M = 4.97$, $SD = 1.89$) and Anxious Attachment ($M = 3.04$, $SD = 1.83$), $t(38) = 3.429$, $p < .01$. There was also a significant difference between Anxious Attachment ($M = 3.04$, $SD = 1.83$) and Avoidant Attachment ($M = 4.05$, $SD = 1.87$), $t(38) = 3.429$, $p < .01$. However, there was not a significant difference between the Secure Attachment scale ($M = 4.97$, $SD = 1.89$) and Avoidant Attachment ($M = 4.05$, $SD = 1.87$), $t(38) = 1.644$, $p > .05$. The overall pattern suggests that the athletes tended to rate their coaches in ways that suggest primarily secure forms of attachment.

Table 13

Means (SD) for the Coach Athlete Relationship using the Intrex

Intrex			
		<u>Affiliation</u>	<u>Autonomy</u>
		<u>M(SD)</u>	<u>M(SD)</u>
At Best			
Coach			
	Focus on Other	90.98 (113.13)	-25.32 (38.60)
	Focus on Self	82.77 (97.62)	37.99 (41.80)
Athlete			
	Focus on Other	128.35 (50.10)	56.10 (37.15)
	Focus on Self	84.36 (99.80)	-19.10 (46.19)
At Worst			

Coach

Focus on Other	35.24 (123.74)	-25.33 (46.04)
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Focus on Self	48.69 (95.63)	60.38 (54.60)
---------------	---------------	---------------

Athlete

Focus on Other	68.08 (65.97)	56.73 (37.94)
----------------	---------------	---------------

Focus on Self	31.90 (100.2)	-8.20 (42.58)
---------------	---------------	---------------

Note: For Coach at Best ratings, N = 23, Coach at Worst ratings, N = 22, Athlete with Coach at Best ratings, N = 22, Athlete with Coach at Worst ratings, N = 21.

Table 13 displays the means and standard deviations of the coach-athlete relationship components of the Intrex. AF and AU scores produce a maximum range of about +/- 210, centered on 0. Higher affiliation scores indicates friendliness (versus hostility) within the relationship, while higher autonomy scores indicate more independence (versus interdependence or enmeshment) within the relationship. Norms for comparison do not exist for coaching relationships rated in this manner. However, these relationships can be characterized in absolute terms within the SASB model space as moderate to strong affiliation and a balance of independence versus interdependence for each interpersonal focus and state. Repeated-measures t-tests were run to examine whether the coaching relationship significantly changed across best and worst states. There were no significant differences between the coach ratings at best and the coach ratings at worst (repeated-measures t-tests, all p's > .05). However, athletes rated themselves as being significantly more affiliative toward their coach at best than at worst conditions, $t(41) = 3.38, p < .01$.

Figure 4

Coaching and Parental Relationships on the SASB model

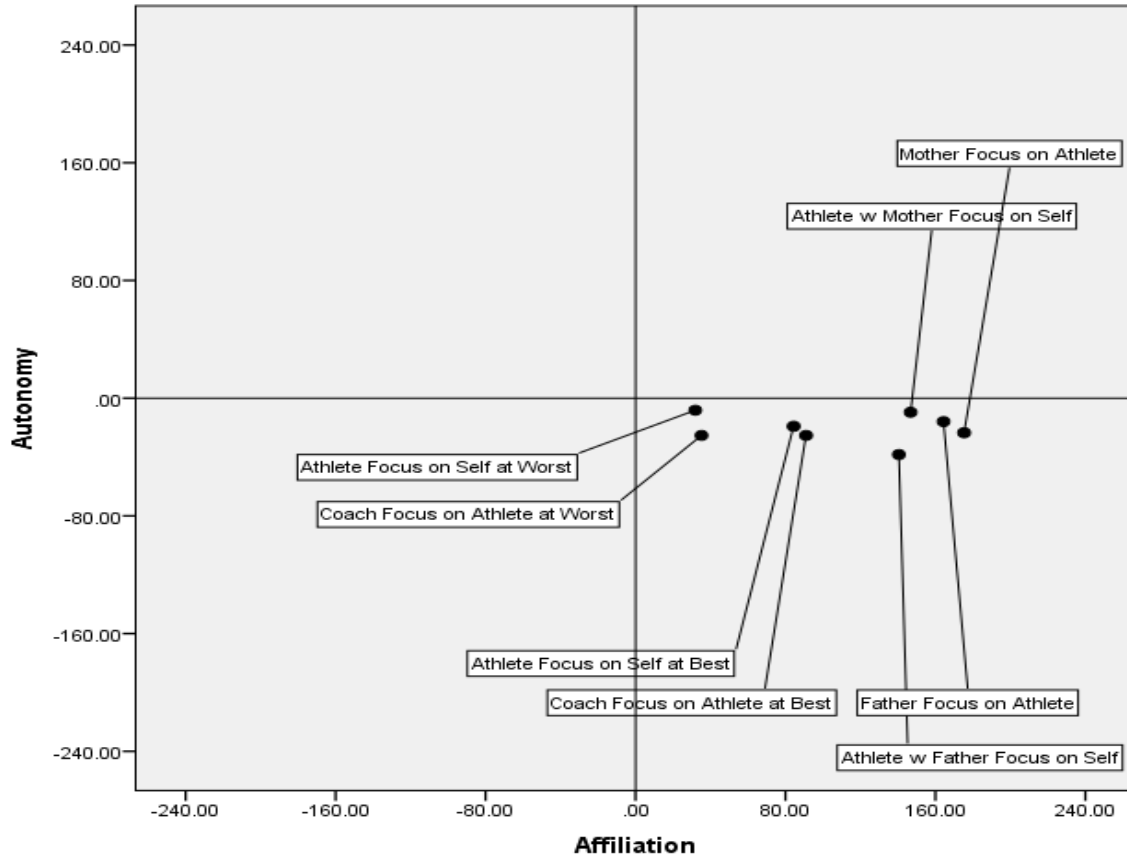


Figure 4 depicts coaching and parental relationships with the athlete on the SASB model. The graph provides a pictorial representation of the same data contained in Table 12 showing both parental and coach-athlete relationships to be essentially friendly, and to have a balance of interdependence. Contrary to what might be expected, the coaching relationships were not seen as being saturated with control, even in the “at worst” state. Each data point reflects a group mean rating on both AF and AU axis. Predictably, coaching relationships tend to be seen as less friendly than parenting relationships and “at worst” conditions are seen as less friendly than “at best.”

Table 14

Correlations between CAAS and the H5 Items

Focus on Other AF	-.03	-.26	-.11	-.54*	-.43	-.62*	-.63*	.82*
Focus on Other AU	-.08	.28	.08	-.18	-.17	.21	-.22	.10
Focus on Self AF	-.13	-.21	-.05	-.45	-.41	-.58*	-.71*	.82*
Focus on Self AU	.19	.23	.34	.39	.38	.34	.58*	-.66*
<u>Coach at Worst</u>								
Focus on Other AF	-.06	-.19	-.09	-.57*	-.57*	-.48*	-.71*	.83*
Focus on Other AU	.15	.00	-.05	-.35	-.17	-.03	.24	.09
Focus on Self AF	-.17	-.34	-.07	-.57*	-.59*	-.54*	-.77*	.83*
Focus on Self AU	.39	.56*	.40	.65*	.72*	.25	.51*	-.51*
<u>Athlete at Best</u>								
Focus on Other AF	-.19	-.37	.03	-.18	-.08	-.22	-.24	.44*
Focus on Other AU	.07	.12	.29	.28	.32	-.08	.02	.14
Focus on Self AF	-.05	-.21	.01	-.36	-.31	-.63*	-.69*	.89*
Focus on Self AU	-.27	-.20	-.22	-.39	-.48*	-.17	-.63*	.39
<u>Athlete at Worst</u>								
Focus on Other AF	-.30	-.30	-.04	-.12	-.15	-.00	-.27	.29
Focus on Other AU	.12	.44	.15	.35	.38	-.01	.15	.06
Focus on Self AF	-.11	-.29	.03	-.34	-.38	-.41	-.64*	.67*
Focus on Self AU	.00	-.14	-.17	-.32	-.29	.02	-.29	.04

*Correlations significant at a .05 level

Table 15 displays the relationship between the Intrex coach-athlete variables, the H5 items, and the CAAS. Numerous, sensible associations were observed and are briefly summarized here. Results indicate a significant relationship between less secure attachment,

problematic coaching behaviors (e.g., a coach pressuring an athlete to change the shape of their body), and perception of the coach-athlete relationship as more hostile.

Results indicated that athletes who endorsed that their coach had made comments about their body viewed their coach, at worst, as more distant. Athletes who endorsed that their coach has pressured them to change the shape of their body viewed their coach generally as less friendly and trusting. Athletes who reported that they have thought about their coach while eating also viewed the relationship as less warm and perceived the coach as more cold and hostile. Additionally, athletes who reported that they feel that their coach has pressured them to change the shape of their body or think about their coach while eating are generally more submissive to their coach 'at best'.

Consistent with expectation, athletes who endorsed a more avoidant or anxious attachment style perceived their coaches as more hostile (e.g., blaming, attacking) and distant when 'at best' and 'at worst.' Secure attachment was associated with forms friendliness as indicated by multiple association with AF variables. Associations with AU variables indicate that secure attachment on the CAAS is consistent with coaches being perceived as more engaged / less distant or walled-off from the athletes. The overall patterning of the coaching relationship appears to conform to the familiar patterning of an attachment relationship as usually measured with parents, children, and significant others.

Figure 5
Coach Relationship at Worst with Secure Attachment

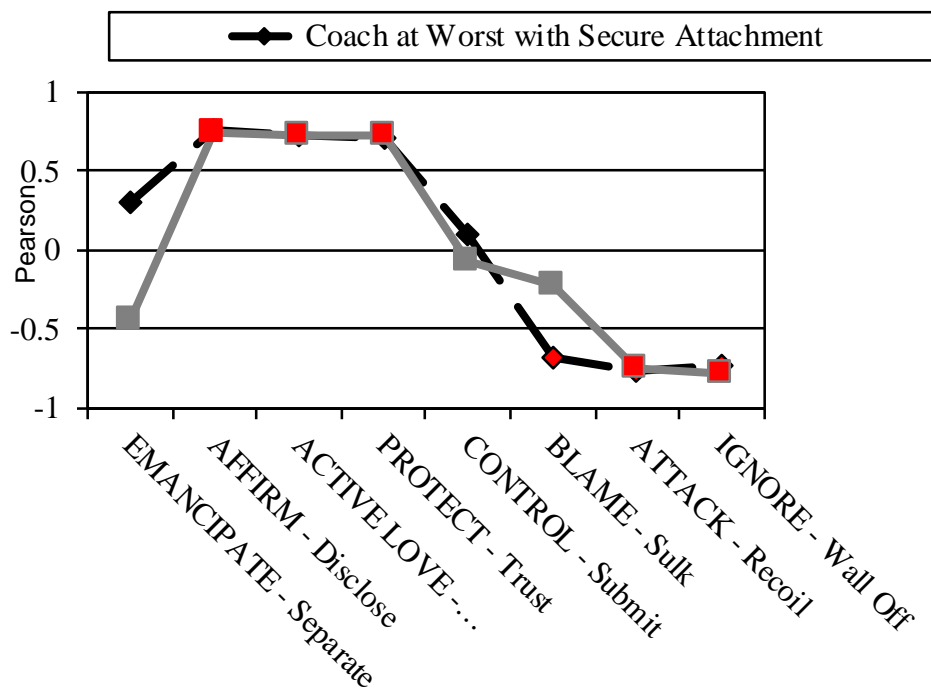


Figure 5 depicts the coaching relationship at worst with secure attachment, as measured by the CAAS. Each of the SASB cluster points is displayed along with the correlation of each one to CAAS secure attachment. The black line indicates coach focusing on the athlete, while the gray line indicates the coach reacting to the athlete. Statistically significant correlations ($p < .05$) are displayed by the red diamonds. The profile for the coach relationship with secure attachment had a similar pattern of associations at best and at worst. The resulting profile looks like the SASB-based definition of secure attachment, which provides further support that one can view the coach as a separate attachment figure.

Analyses Related to Self-Concept and the Coach-Athlete Relationship

After focusing in turn on multiple indicators within the domains of (a) athlete self-concept and (b) coach-athlete relationships, this section now turns to a focus on how self-concept and the coaching relationship may be related to one another, and especially in terms of the

primary focus of this study on how the coaching relationship is related to an athlete's healthy versus unhealthy eating behavior.

First, correlations were run to examine if there were relationships between the Henriques items and an athlete's FAST score. There were significant positive relationships between an athlete's FAST score and their responses to items H4 and H5. An athlete's FAST score was higher if they felt that their coach had pressured them to change the shape of their body ($r = .48$), or if they had thought about their coach while eating ($r = .60$).

The coach-athlete relationship was also examined to see if there were associations between an athlete's attachment style, as measured by the CAAS, which provides a broad picture of attachment, with their coach and their FAST score. Interestingly, results indicated that there were no significant associations between attachment style and an athlete's FAST score. Finally, analysis was done to examine if there was a relationship between the coach-athlete relationship as measured by the Intrex, which focuses more on specific interpersonal relational patterns, and an athlete's unhealthy eating (e.g., the FAST score). Results indicated that there is a significant association between how affiliative the coach is when focused on the athlete 'at worst' and an athlete's eating behavior ($r = -.48$) and when the coach is reacting to the athlete 'at worst' ($r = -.49$). Thus, the friendlier the coach is perceived at worst, the healthier an athlete's eating. Given that significant associations were present between an athlete's FAST score and coach relationship, analysis was done to further explore the individual interpersonal clusters on the SASB model. Results indicated that specific coaching behaviors as measured by the Intrex are associated with the FAST.

Figure 6

Associations between Coaching Behaviors at Worst, Focus on Athlete and Eating Behavior

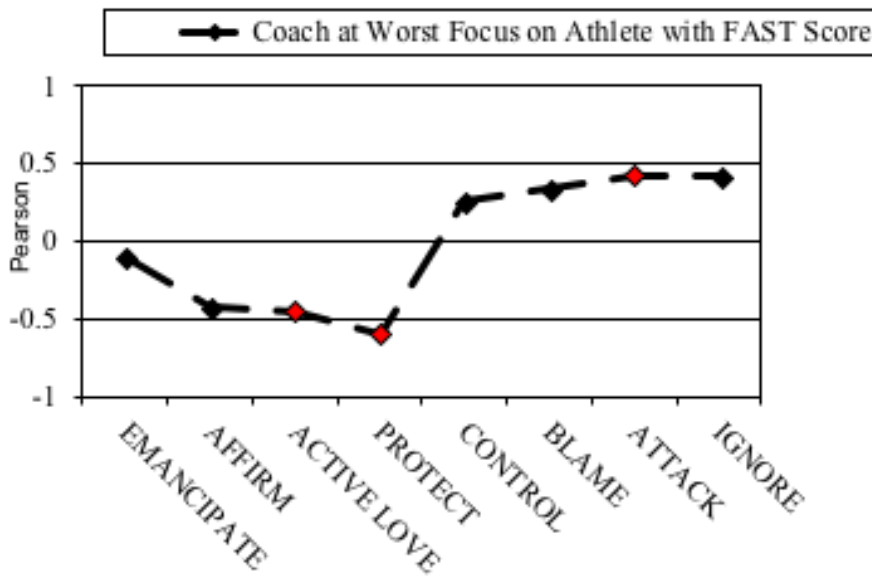


Figure 6 displays the correlations between coaching behaviors ‘at worst’ while focusing on the athlete. Each of the SASB cluster points is displayed along with the correlation of each one to the FAST score. Statistically significant correlations ($p < .05$) are displayed by the red diamonds. The more affiliative (e.g., loving, protecting) a coach is perceived ‘at worst’, the lower the FAST score, whereas the more hostile (in this case, attacking) a coach is perceived ‘at worst’, the less healthy the eating (e.g., the higher the FAST score).

Figure 7

Associations between Coaching behaviors at Worst, Reacting to Athlete, and Eating Behavior

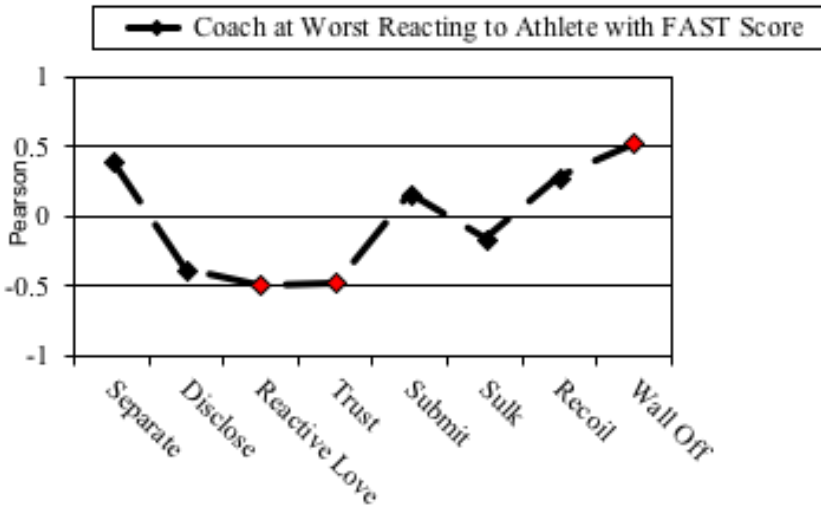


Figure 7 displays the correlations between the intransitive (self-focused) coaching behaviors ‘at worst.’ Each of the SASB cluster points is displayed along with the correlation of each one to the FAST score. The more affiliative a coach is perceived ‘at worst’ when reacting to an athlete (e.g., loving, trusting), the lower the FAST score, whereas hostile behavior in reaction to an athlete, such as walling off, is positively associated with higher FAST scores.

Table 16

Correlations between Coach Relationship and Introjective Self Treatment

<u>Intrex</u>	<u>At Best</u>		<u>At Worst</u>	
	<u>AF</u>	<u>AU</u>	<u>AF</u>	<u>AU</u>
<u>Coach at Best</u>				
Focus on Other AF	.49*	.35	.62*	.12
Focus on Other AU	.32	.41*	.22	.25
Focus on Self AF	.54*	.40	.61*	.16
Focus on Self AU	-.57*	-.24	-.75*	-.14
<u>Coach at Worst</u>				

Focus on Other AF	.77*	.58*	.80*	.29
Focus on Other AU	-.22	.04	-.16	.16
Focus on Self AF	.70*	.56*	.70*	.26
Focus on Self AU	-.51*	-.06	-.55*	-.08
<u>Athlete at Best</u>				
Focus on Other AF	.18	.16	.30	.16
Focus on Other AU	-.13	.29	-.06	.13
Focus on Self AF	.55*	.24	.58*	.12
Focus on Self AU	.47*	.36	.33	.17
<u>Athlete at Worst</u>				
Focus on Other AF	.41	.42	.47*	.37
Focus on Other AU	-.06	.28	.06	.23
Focus on Self AF	.74*	.40	.74*	.36
Focus on Self AU	.32	.35	.16	.19

Table 16 displays the relationship between the coach-athlete relationship and an athlete's relationship with self. Results indicate an association between hostile self-treatment (e.g., self-control, blame, attack and neglect) and how hostile and distant an athlete perceives the coach (e.g., less trusting, and more distant (e.g., walled-off). Conversely, results also indicate that the more confident an athlete is (indicated by forms of friendliness to the self), the more they are able to become interdependent, submitting to and trusting in the coach ($r = .47$).

Table 17

Sport Body Image and Coach Relationship Variables Means (SDs)

	<u>Sport Body Image</u>		
	Negative	Neutral	Positive
My coach has pressured me to change the shape of my body	4(2.29)	1(1.54)	1.71(2.05)
I have thought about my coach when I am eating	3.77(2.58)	1.75(1.75)	1.60(1.80)
Coach at Worst Focus on Self Autonomy	101.27(59.74)	77.75(55.95)	27.79(30.62)

Finally, the coach-athlete relationship variables were examined with a one-way ANOVA to determine if the quality of the coach-athlete relationship differed based on how an athlete rated her body image in her social and sport settings. Table 17 displays the group means of significant findings. Regarding sport body image, the more negative an athlete rates their body image in her performance setting, the more likely an athlete feels that their coach has pressured them to change the shape of their body ($F(2,26) = 4.90, p < .05$) and that they have thought about their coach while eating ($F(2,29) = 3.52, p < .05$). Additionally, the more negative an athlete rates her body image in her performance setting, the more likely that they perceive their coach as being distant ($F(2,19) = 4.82, p < .05$).

Table 18

Social Body Image and Coach Relationship Variables Means(SDs)

	<u>Social Body Image</u>		
	Negative	Neutral	Positive
My coach has pressured me to change the shape of my body	3.38(2.43)	1.80(2.68)	1.18(1.40)

I have thought about my coach when I am eating	2.71(2.64)	1.33(1.86)	2.16(1.74)
Anxious Attachment	4.22(1.89)	2.02(.76)	2.50(1.67)
Secure Attachment	3.93(1.99)	6.02(.64)	5.35 (1.91)
Coach at Worst Focus on Self Autonomy	89.49(44.82)	38.96(50.58)	48.54(60.84)

A one-way ANOVA was run to examine the coach-athlete relationship and social body image. Table 18 displays the group means of significant findings with social body image. Similar to sport body image, the more negative an athlete rates their body image in her social setting, the more likely an athlete feels that their coach has pressured them to change the shape of their body ($F(2,26) = 3.29, p = .05$). Additionally, results indicated that how an athlete rated their social body image differed based on their attachment style towards their coach, as measured by the CAAS. Athletes who rated themselves more negatively in their social settings scored higher on anxious attachment as measured by the CAAS ($F(2,36) = 6.92, p < .01$). Athletes who rated themselves more positively in their social environment had a more secure attachment to their coach ($F(2, 36) = 4.90, p < .05$). Finally, athletes who rated themselves more negatively in their social setting were more likely to be distant from their coach ($F(2, 19) = 4.20, p < .01$).

Supplementary / exploratory analyses of the relationship between Parent and Athlete and other study variables

Analysis were run to examine if there were associations between an athlete's self-treatment and relationship with parents. Given the reduced sample size with the Intrex there was a reduced ability to detect any but the largest effects present. Consistent with prior research focused on copy processes (Conroy & Pincus, 2006; Critchfield & Benjamin, 2008, 2010), results indicated a significant positive association between self-treatment at best and recalled relationships with mom and dad from childhood. Athlete's self-treatment at best was positively

associated with interdependence with mom ($r = .50$). Athlete's self-treatment at best was also positively associated with recalled affiliative focus from dad ($r = .60$). At worst, there was a significant association between degree of self-control at worst and dad's perceived degree of control focused on the athlete (AU vectors, $r = .55$, $p < .05$).

Table 19

Means (SD) for the Parent-Athlete Relationship

Intrex	<u>Affiliation</u>	<u>Autonomy</u>
	<u>M(SD)</u>	<u>M(SD)</u>
Mother		
Focus on Other	175.29(53.47)*	-23.50(39.31)
Focus on Self	167.49(35.89)*	12.76(45.85)
Athlete		
Focus on Other	160.90(49.67)*	54.98(41.60)
Focus on Self	146.76(54.14)*	-9.54(37.31)*
Father		
Focus on Other	164.34(75.93)*	-15.91(45.15)
Focus on Self	138.73(71.70)*	17.55(48.08)*
Athlete		
Focus on Other	156.80(60.30)*	68.78(38.28)

Focus on Self	140.52(66.36)*	-38.34(48.12)*
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Note: For Mother ratings, N = 24, for Father, N = 22.

*denotes significant differences from normative sample, unpublished short form data from Critchfield, Hebenstreit, and Karpiak, collected at the University of Utah and the University of Scranton.

Table 17 displays the means and standard deviations of the parent-athlete relationship components of the Intrex. Independent samples t-tests were conducted to see if there were significant differences between parent-athlete relationships and parent-undergraduate student relationships in general, based on available norms (Mother ratings, N = 512, Father ratings, N = 505, unpublished short form data from Critchfield, Hebenstreit, and Karpiak, collected at the University of Utah and the University of Scranton). Athletes overall reported parental relationships that were warmer (more affiliative) and closer (more interdependent) than a large comparison sample of undergraduate students (all p-values < .05).

Since only about half of the study sample completed the parental relationships part of the Intrex, likely due to rater fatigue and/or loss of interest, the analyses in this section are underpowered and the results are considered to be more tentative and exploratory than those found in other sections. Correlations were run to examine if there was a relationship between the parent-athlete relationship and an athlete's self-concept, eating behavior, and athlete's relationship with the coach.

Perhaps unsurprisingly, given the small and relatively healthy/secure sample, findings from the clinical literature surrounding eating disorder were not replicated and no significant associations were found between the parent-athlete relationship and FAST total score. Because no associations were found between the parent-athlete relationship and FAST, the initially-planned regression analyses to test for mediation could not be pursued further.

Copy Process

As stated previously, copy process suggests three ways in which adult behavior can be linked to early attachment figures: Identification, Recapitulation, and Introjection. Copy process theory focuses on close, SASB-defined parallels between an individual's perceptions of present and past relationships. The data analytic approach here changes from the prior focus on aggregate, between-subjects statistics. Instead, the frame is to begin with an idiographic "within-subjects analysis," conducted one participant at a time. In this approach, SASB-based profiles from the Intrex are compared for a single athlete on a within-subjects basis to look for close parallels, each of which suggest presence of a potential copy process. A Pearson's correlation of .70 is the minimum correlation necessary to say that two profiles are similar (e.g., that they share at least 50% variance), and by inference that copy process seems to be present, thus $r > .70$ was the threshold used when examining the sample for copying. Evidence of Identification to an early attachment figure is defined as present if the current interpersonal behavior copies that of the attachment figure (e.g., "I behave like him or her"). Evidence of Recapitulation is defined as present if current interpersonal behavior is like or similar to past interpersonal behavior with an important attachment figure (e.g., "I behave as if he or she is still present and in charge"). Lastly, Introjection is considered present when current ways of relating to oneself is similar to previous treatment from an important attachment figure (e.g., "I treat myself as I was treated by him or her"). After each participant's profiles are inspected, tallies are made to indicate the percent of the sample that qualifies for each type of copy process. Profiles that show significant departure from healthy/normal patterning (e.g., 2 standard deviations away from the norm) are considered to be maladaptive, and are also tallied so that (a) frequency of overall copying (healthy or unhealthy) can be tracked, and (b) problematic copying can be tracked separate from the overall base rate of normative attachment.

The data was analyzed to examine if copy process was present. Overall, results indicated that some type of copy process (e.g., Identification, Recapitulation, and Introjection) is present in every case (100%, N = 24). 20 athletes (87%, N= 23) showed evidence of Identification and 21 athletes (91.3% of sample, N= 23) showed evidence of Recapitulation.

Within the coaching relationship, 19 athletes (82.6% of the sample, N= 23) showed evidence of introjection, which signifies that the athlete's current self-treatment is similar to previous attachment figures (e.g., parents). Within the parental relationships, 18 athletes (75% of sample, N= 24)) showed evidence of introjection with their mom, while 17 athletes (77.3% of sample, N=22) showed evidence of introjection with their dad.

Overall, the sample demonstrated healthy patterns, however, there was evidence of maladaptive copy process in certain cases. Profiles that show significant departure from healthy/normal patterning (e.g., 2 standard deviations away from the norm) are considered to be maladaptive. 2 athletes (8.7%, N= 23) reported maladaptive recapitulation. 3 athletes (13%, N =23) showed evidence of maladaptive introjection with their coach, 1 athlete (4.5%, N= 22) showed evidence of maladaptive introjection with their father. Given the very low base rate of internalized problematic patterns, it does not seem to be associated with the outcome variables and precludes further testing.

Case Studies

Given the potential clinical concerns of athletes, two cases were further examined to see how attachment/relationship history and maladaptive copy process may be related to disordered eating. The following cases illustrate exceptions to the general healthy relational patterns detected in the sample.

Brianna. Brianna identifies as a 19-year old cross country and track athlete who reported running for the past 8 years. She reported a history of one injury. She did not respond to the question regarding if she had a history of an eating disorder. Regarding sport body image she stated: *I feel like I have too much body fat to be as fast as my competition.* Regarding social body image she stated: *Negatively, embarrassed about my muscular thighs.*

Table 20

Descriptive Statistics for Brianna

Measure	Subscale	Total
Henriques 5		
	<i>My coach has played a role in how I view my self</i>	7
	<i>My coach has made comments about my body</i>	6
	<i>I think coaches influence how women feel about their bodies</i>	7
	<i>My coach has pressured me to change the shape of my body</i>	7
	<i>I have thought about my coach when eating</i>	7
Measure	Subscale	Mean
CAAS		
	Avoidant Attachment	6.86
	Anxious Attachment	7.0
	Secure Attachment	1.0
Measure	Total	
FAST	110	

Table 18 displays Brianna’s responses to the H5 items, CAAS, and FAST total score. In regards to the Henriques 5 items, she reported that it was ‘true’ to ‘very true’ that her coach has had an influence on her self-concept, has made comments about her body, how she feels about her body, has felt pressure to change her body, and has thought about her coach while eating. She endorsed a combination of avoidant and anxious attachment style with her coach, and her FAST score indicates clinical eating disorder behavior.

Figure 8

Brianna’s Self-Treatment at Worst with Coach

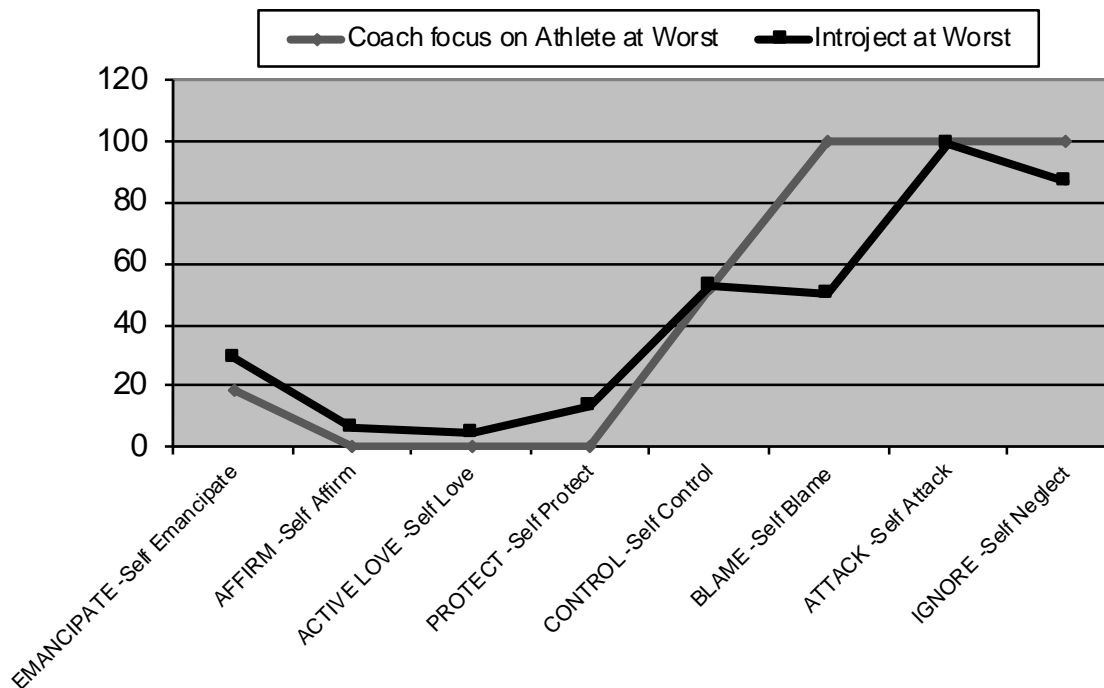


Figure 8 displays the raw scores for the SASB interpersonal clusters. The black line denotes athlete’s self-treatment at worst, while the gray line denotes how the coach focuses on the athlete at worst. The resulting profile provides evidence of maladaptive copy process ($r=.91$). The athlete endorsed a similar pattern of associations at best ($r=.90$). The way that the athlete

perceives her coach treating her (e.g., blaming, attacking, ignoring) parallels her self-treatment (e.g., cold, attacking, neglecting).

Analyses were run to examine if there was copy process present with the parent-athlete relationship. Results indicated that the athlete’s self-treatment was inverse to the way that she perceived her parents treating her (e.g., parents as warm and loving).

Figure 9

Brianna’s Self-Treatment at Worst with Mom

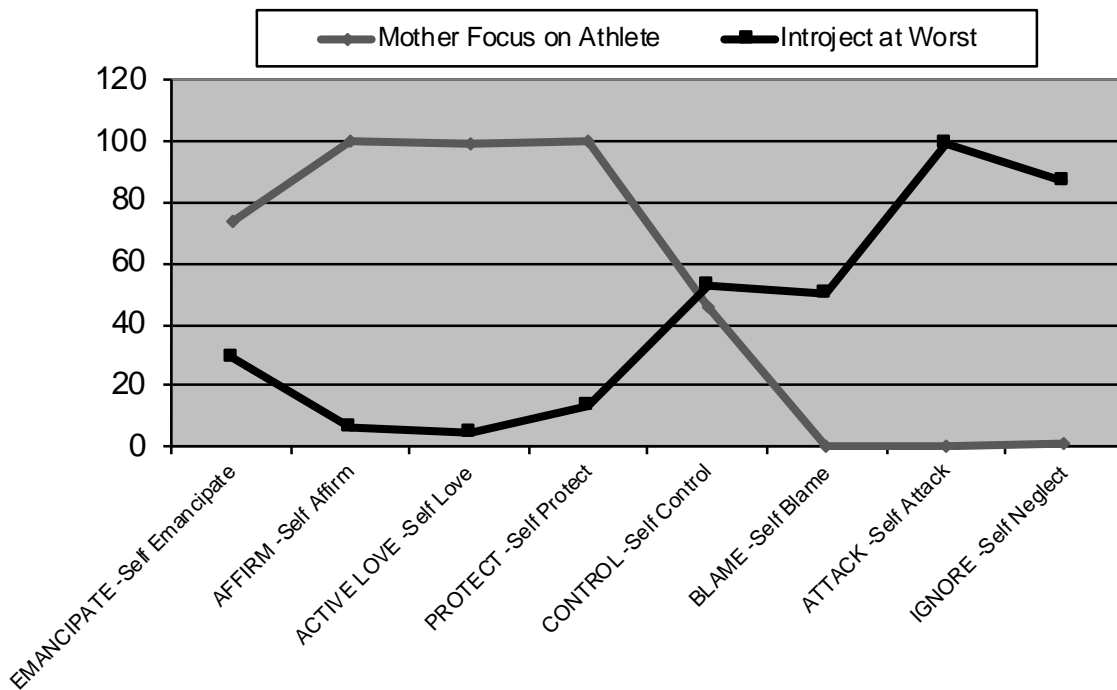


Figure 9 displays the raw scores for the SASB interpersonal clusters. The black line denotes athlete’s self-treatment at worst, while the gray line denotes how her mom focuses on the athlete. The resulting profile shows an inverse relationship between how the mom treats the athlete and how the athlete treats herself ($r = -.92$).

Figure 10

Brianna’s Self-Treatment at Worst with Dad

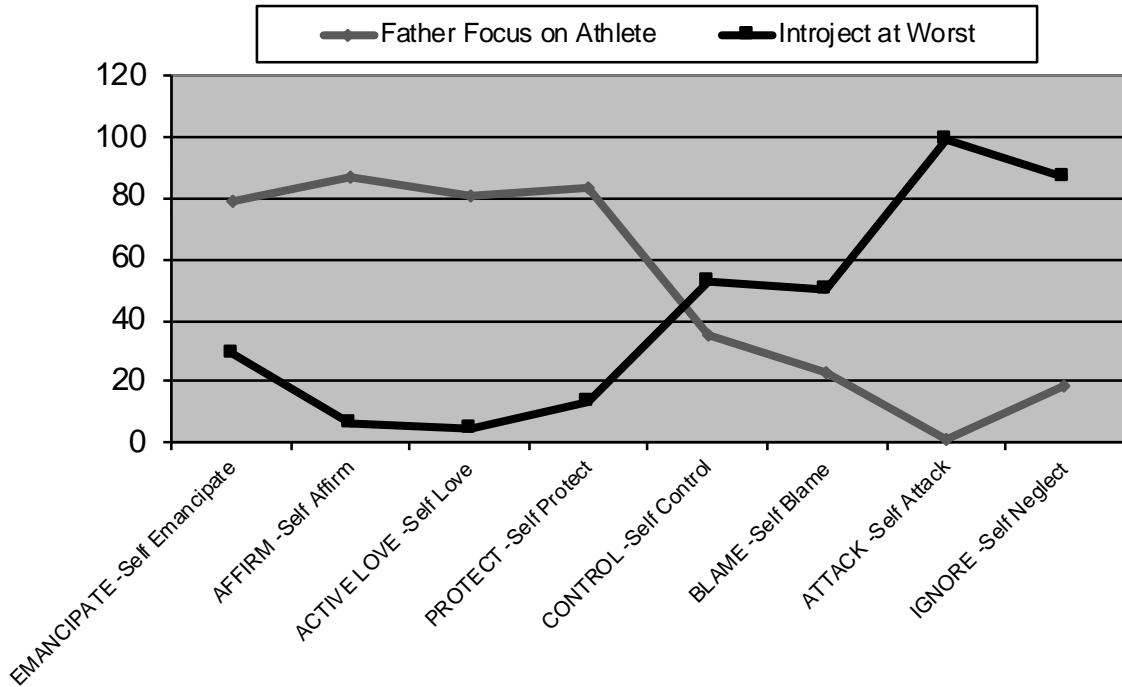


Figure 10 displays the raw scores for the SASB interpersonal clusters. The black line denotes athlete’s self-treatment at worst, while the gray line denotes how her dad focuses on the athlete. The resulting profile shows an inverse relationship between how the dad treats the athlete and how the athlete treats herself ($r = -.94$).

Results indicate that the coach-athlete relationship is associated with the athlete’s self-treatment, body image, and eating disorder behavior. Brianna is congruent with the aggregate results from the study that depict that the coach-athlete relationship is associated with an athlete’s self-concept, body image, and eating behavior, and that the parental relationship has less influence on eating behavior.

Emma. Emma identifies as a 19-year old Cross Country and Track athlete. Ct reported a history of two injuries and denied history of eating disorder. Regarding sport body image she stated: *positive, too thin*. Regarding social body image she stated: *positive*.

Table 21

Descriptive Statistics for Emma

Measure	Subscale	Total
Henriques 5		
	<i>My coach has played a role in how I view my self</i>	2
	<i>My coach has made comments about my body</i>	3
	<i>I think coaches influence how women feel about their bodies</i>	3
	<i>My coach has pressured me to change the shape of my body</i>	3
	<i>I have thought about my coach when eating</i>	3
Measure	Subscale	Mean
CAAS		
	Avoidant Attachment	7.0
	Anxious Attachment	7.0
	Secure Attachment	1.6
Measure		Total
FAST		58

Table 19 displays Emma's responses to the H5 items, CAAS, and FAST total score. Emma endorses an avoidant and anxious attachment to the coach, similar to Brianna. However, she differs in her perception of coach having an impact on her body as measured by Henriques 5 and the FAST. Her total FAST score indicates that there is no presence of disordered eating behavior.

Figure 11

Emma's Self Treatment at worst with Coach at Worst

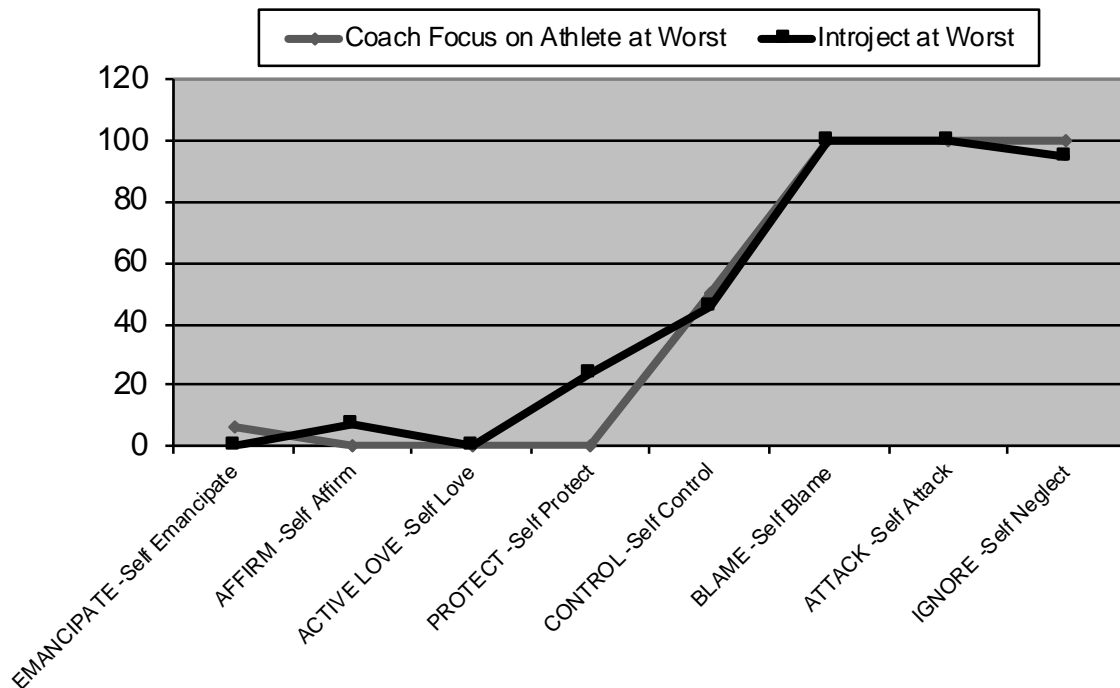


Figure 11 displays the raw scores for the SASB interpersonal clusters. The black line denotes athlete's self-treatment at worst, while the gray line denotes how the coach focuses on the athlete at worst. The resulting profile provides evidence of maladaptive copy process ($r=.98$). The athlete endorsed the same pattern of association when the relationship is at its best ($r=.98$). The way that the athlete perceives her coach treating her (e.g., low warmth, high hostility) parallels her own self-treatment.

Analyses were run to examine if there was copy process present with the parent-athlete relationship. Emma filled out the Intrex for her mom, but there did not fill out data on her dad or other father figure. Results indicated that the athlete's self-treatment was inverse to the way that she perceived her mom treating her (e.g., mom as warm and loving). Results indicate that the coach-athlete relationship is associated with the athlete's self-treatment.

Figure 12

Emma's Self Treatment at Worst with Mom

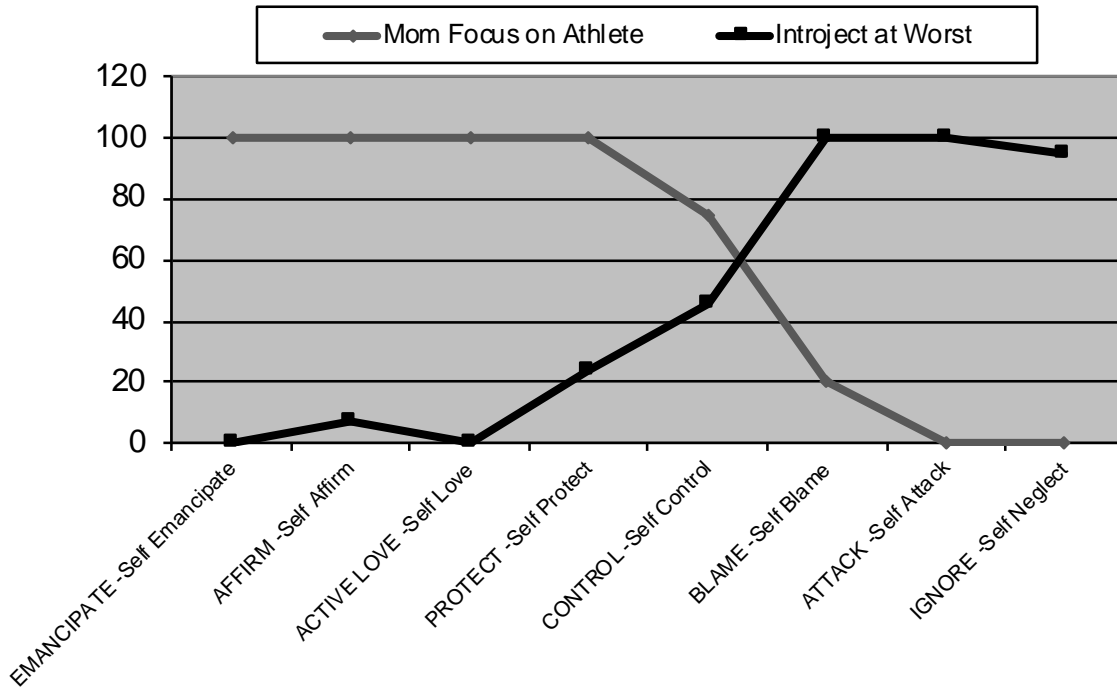


Figure 12 displays the raw scores for the SASB interpersonal clusters. The black line denotes athlete's self-treatment at worst, while the gray line denotes how her mom focuses on the athlete. The resulting profile shows an inverse relationship between how the mom treats the athlete and how the athlete treats herself ($r = -.96$). Emma illustrates that poor self-treatment and a maladaptive coach relationship is not always associated with eating behavior or poor body image, and that there are other factors and behaviors to consider when assessing athlete's well-being and mental health.

Discussion

The present study investigated how (1) the interpersonal dynamics that can occur between a coach and athlete may impact (either negatively or positively) the engagement in disordered eating behavior, (2) the impact of the coach-athlete relationship on body image and self-perception, and (3) understand relationship patterns learned and internalized with parents. It was hypothesized that the findings may provide support for the proposition that the coach-athlete relationship can be thought of, and function as, an attachment relationship, and that healthier attachment and relating with the coach would be associated with healthier eating and positive body image and self-perception.

An aim was to provide clarity about the nature of interactions and relational patterns of parents and coaches with an athlete and advance our understanding to help develop methods and interventions for (1) improving athlete eating behaviors and body image and (2) improving coping styles, attachment relationships, and overall well-being, by appeal to these key relationships in the athlete's life. Participants completed demographic information, including: primary sport, years playing, injury history, history of eating concerns, and how the athlete viewed their body image in both their performance and social settings. Then the athlete completed four measures to assess relationships with self and important others (e.g., coach, parents) and current eating behavior including Henriques 5 Items, the FAST, CAAS, and the Intrex.

Athlete Relationship with Self

This study utilized Benjamin's (1995) Intrex Short and Medium Form as a measure to assess the athlete's current relationship with the self. Using this measure, student-athletes did not differ significantly from a normative comparison group of undergraduate students. Consistent

with prior research, hostile self-treatment (e.g., self-blame, self-attack, and self-neglect) is associated with unhealthy eating behavior, while more friendly self-treatment, specifically self-affirming behavior is associated with healthier eating behavior.

This study utilized brief qualitative statements to assess an athlete's body image, and the FAST (McNulty, Adams, Anderson, & Affenito, 2001) to assess an athlete's eating behavior. Broadly, the sample endorsed healthy eating behavior. This study examined how an athlete's view of self may vary across their performance and social settings. Overall, athletes reported having the most positive body image in their performance settings, and on average, view themselves a little less positively in their social settings. Taken together these observations are consistent with previous theory positing that body image is a multidimensional construct and that female athletes may be confronted with conflicting messages between performance demands (e.g., muscularity and function) and societal ideals (e.g., thin) (Steinfeldt, Carter, & Benton, 2011, de Bruin, Oudejans, & Bakker, 2007; Torstveit, Rosenvinge, & Sundgot-Borgen, 2008). Interestingly, results indicated that there is no relationship between injury histories (e.g., multiple injuries) and how an athlete rates their body image in their performance setting, however athletes with an injury history rated their social body image more negatively. It is hypothesized that the experience of injury, rehabilitation and return to play fosters resilience and confidence in oneself in the face of adversity, and that confidence may not transfer over to their social setting. We also hypothesize that perhaps the injury may have left a physical scar that may lead to more negative self-evaluation in the social setting. However, further research would have to be conducted to further understand the relationship between an athlete's body image in social settings and sport injury history.

Coach-Athlete Relationship

One of the primary aims of this study was to understand the interpersonal relational patterns that occur between the coach and an athlete, and examine how the coach-athlete relationship impacts disordered eating behavior. It was hypothesized that the coach would serve as an additional attachment figure to the athlete. Athletes completed the Henriques 5 items, the CAAS and the Intrex to assess the coach-athlete relationship. Responses to Henriques' items suggest that participants perceive that their coach has played a role in self-concept and has some influence in how an athlete feels about her body. The overall pattern of response suggests that the athletes tended to rate their coaches in ways that suggest primarily secure forms of attachment. Results indicate a significant relationship between less secure attachment, problematic coaching behaviors (e.g., a coach pressuring an athlete to change the shape of their body), and perception of the coach-athlete relationship as more hostile. This supports prior research that has suggests that the coach can serve as an attachment figure with a more avoidant or anxious styles of attachment accompanied by decreased satisfaction with the relationship (Lyle, 2002; Davis & Jowett, 2002).

Given that norms for the coaching relationship for the Intrex did not exist, this study serves to establish norms of the coach-athlete relationship as measured by the Intrex and SASB model. As measured by the SASB, the overall patterning of the coaching relationship appears to conform to the familiar patterning of an attachment relationship as usually measured with parents, children, and significant others. The coach relationship was generally characterized by affiliative behaviors associated with secure attachment friendly (e.g., affirming, protecting, trust) and had a balance of interdependence, similar to the reported relationships with parents. Unsurprisingly, coaching behaviors that depart markedly from a baseline of secure attachment

(e.g., hostile, attacking) were found to be associated with hostile self-treatment and unhealthy eating behavior.

Finally, results indicated that the coach-athlete relationship is associated with how an athlete views her body in performance and social settings. There is an association between poor self-concept and poor impressions of the coach, which we tend to interpret as the coaching relationship having an impact on self-concept. Interestingly, the attachment style, as measured by the CAAS was only associated with how an athlete rated herself in her social setting, with secure attachment being associated with positive social body image. For example, it could be that an athlete who endorses a more secure attachment with their coach will endorse a more positive self-concept in both their performance and social settings.

Parent Relationship

Overall results indicated significant positive associations between self-treatment (especially at best) and recalled relationships with mom and dad from childhood. Interestingly, athletes overall reported parental relationships that were warmer (more affiliative) and closer (more interdependent) than a large comparison sample of undergraduate students (all p-values < .05). Perhaps unsurprisingly, given the small and relatively healthy/secure sample, findings from the clinical literature surrounding relationships with parents and eating disorder development were not replicated and no significant associations were found between the parent-athlete relationship and FAST total score.

Copy Process and Clinical Implications

This study utilized Copy Process Theory (Benjamin, 2003) to further understand the intrapersonal dynamics and relational patterns with self and important others. Copy process theory focuses on close, SASB-defined parallels between an individual's perceptions of present

and past relationships. Copy process suggests three ways in which adult behavior can be linked to early attachment figures: Identification, Recapitulation, and Introjection. Overall, results indicated that some type of copy process is present in every case (e.g., identification, recapitulation, or introjection). However, results suggest that the patterns being copied are generally healthy, which may suggest resiliency.

While overall healthy patterns observed in the sample, Brianna and Emma were presented to demonstrate maladaptive copy process. The two cases were similar in that both reported relatively warm and affiliative input from parents, which is not uncommon in the sample. However this input was not repeated in the self-concept of these two athletes, who instead both reported very low behaviors of self-emancipate, self-affirm, self-love, and self-protection and elevated levels of self-blame, self-attack, and self-neglect.

Both Brianna and Emma reported that their coaches engaged in the coaching relationship with low levels of affiliative behavior (e.g., love, trust) and high levels of hostility (e.g., blame, wall-off). The coach's input of hostile behavior parallels with each athlete's self-concept to a high degree (respectively, $r = .90$, $r = .98$). This suggests maladaptive copy process, as well as internalization of the coach in a way that overrides earlier parental input that was characterized by affiliation and interdependence. The internalization of coach as an important other offers further support that the coach serves as an attachment figure.

Despite the maladaptive copying of coach, only Brianna endorsed unhealthy eating behavior (FAST total score = 110). Brianna's case provides support to the hypothesis that the coach-athlete relationship is associated with unhealthy eating behavior. Emma's case illustrates that poor self-treatment and an unhealthy coaching relationship is not always associated with eating behavior or poor body image. Clinically, it is important to understand how the coach-

athlete relationship is impacting an athlete's self-treatment and well-being. Thus, in addition to assessing eating behavior, it is also important to consider other factors and behaviors when assessing an athlete's well-being and mental health (e.g., how is the poor self-treatment being expressed?). It is also important to understand their relationship to their parents and messages received. However, perhaps given the developmental stage in life, the coach relationship may have more of an impact on a collegiate athlete's self-concept and self-treatment.

Limitations and Future Directions

In considering the aforementioned findings of the current exploratory study, it is important to note several potential limitations. Similar to other exploratory studies, the current study was limited by a small sample size. Further, there was a low attrition rate, with 42 participants beginning the survey and only 22 completing the survey in its entirety. The low attrition rate is perhaps reflective of the length of the survey and survey fatigue.

While this study utilized the Intrex to establish norms for the coaching relationship, a larger sample size is necessary to verify and replicate the current findings. The small sample size also impeded on the ability to detect how the coach relationship and parent relationship may mediate an athlete's unhealthy eating behavior, or if the parental relationship was related to disordered eating. Overall, the small sample size had a low base rate of disordered eating, generally healthy and secure parental and coach relationships, thus we had low power to detect if there were effects related to maladaptive patterns.

Another limitation of the current exploratory study is the generalizability of the results. This study specifically examined athletes who identified as female and participated in NCAA DI varsity sports. Therefore, this current study does not help further understand the experience body image, disordered eating or the coaching relationship among male collegiate athletes, or female

collegiate athletes who compete at a different level (e.g., DII, DIII, club sports). The NCAA is also a unique culture, therefore the results of this study cannot be generalized to other coaching relationships in different cultures and contexts (e.g., elite or professional level, prep schools, and international competition).

Despite the limitations, this study provided further evidence that the coach-athlete relationship operates akin to an attachment relationship. Overall the sample endorsed healthy and secure attachment, and the evidence of healthy copying of patterns suggests resiliency. Further research may examine if collegiate athletes are more resilient and consider factors that contribute to this.

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Appendix A Recruitment Email

Hello!

My dissertation is looking at the coach-athlete relationship and its impact on female athlete attitudes and behaviors toward disordered eating, and has been approved by the JMU Institutional Review Board (IRB protocol #16-0073).

Below is a link for a survey for current DI female collegiate athletes. It has three parts and takes about 45 minutes. Participants will be automatically entered into a drawing for a chance to win one of eight \$25 Amazon gift cards. This survey can really help us understand the coach-athlete relationship as well as provide a clearer picture of an athlete's engagement with disordered eating behavior. This study's mission will be able to provide us a better understanding of the collegiate female athlete's experience and enhance interventions to improve wellbeing in and out of sport.

If you are a DI female athlete yourself and are willing, please fill out the survey. The survey will be available until April 28. If you are willing to pass along the link know anyone that may be interested, please send the survey their way. I'm available for any questions anyone might have. Thank you in advance!

Here's the link: http://jmu.co1.qualtrics.com/SE/?SID=SV_8Jlrd0YL22tqGoJ

Best Regards,

Bridget

e: smith3be@dukes.jmu.edu