

# BODY IMAGE AND DISORDERED EATING AMONG ATHLETES

*Justine J. Reel, Jenny H. Conviser, and Amanda S. Tierney*

## **Body Image and Disordered Eating Among Athletes**

Professional and elite athletes are viewed as role models and scrutinized for their appearance, physique, and muscle tone. The US women's soccer team was thrust into the spotlight with their 2019 World Cup win. This media attention in the form of social media, features in magazines, and television coverage can contribute to an emphasis on appearance or a desire to achieve a lean body ideal. For athletes, this pressure to fit a particular aesthetic expected of one's sport coincides with existing performance expectations (Hartmann et al., 2018). The type of physique emphasized to achieve one's optimal performance varies by sport. Gymnasts and divers, who are subjectively judged for aesthetic displays of long lines, may be contrasted with endurance runners who are expected to be light on their feet. In line with these performance expectations, athletes may feel compelled to change their body weight, shape, or size. This attempt to meet sport-related performance demands can lead athletes to modify their eating patterns or increase certain types of exercise (Voelker & Reel, 2019).

Body image (BI) has been defined as one's perception of his or her appearance. Positive BI can contribute to higher self-esteem and feeling confident in one's ability to perform well in sports. Negative BI or feeling dissatisfied with one's body can result when one experiences pressure to change their appearance or weight in order to improve performance (Kristjánsson et al., 2019). Negative BI represents a discrepancy between one's perceptions of their actual body compared with a perceived ideal body and has been associated with having a negative effect on one's athletic performance. For example, Voelker and Reel (2015) found that figure skaters associated negative BI with having difficulty concentrating during training and performance. Moreover, negative BI was correlated with a lack of confidence about successfully completing jumps and other skating techniques. From a health perspective, it is noteworthy that body dissatisfaction has consistently been shown to be the strongest predictor of eating disordered behaviors (Reel & Gill, 1996).

Although physiques of athletes are celebrated in the media and upheld as societal ideals, a recent study reported that 17.9% of athletes who represented 20 different sports experienced moderate or severe body image disturbances (BIDs) (Kristjánsson et al., 2019). BI is impacted by a myriad of influences (e.g., biological, psychological, and sociocultural), but athletes face additional pressures related to maintaining the optimal size, shape, and weight for their sport.

Thomas Cash (2012) created a cognitive-behavioral conceptual model of BI to demonstrate the multidimensionality, non-singular nature, and composition of numerous interrelated variables that comprise BI. Cash's cognitive-behavioral model of BI integrates ideas, theory, and empirical evidence while emphasizing social learning, conditioning, and cognitive mediation of behavior and emotion. This model incorporates proximal and concurrent factors that shape BI development and functioning and acknowledges the ongoing reciprocal interactive causal loop among external environments, intrapersonal factors, and the individual's behaviors (Cash, 2011).

The concept of BI has expanded over the last decade to encompass more than just appearance. BI may now be understood as the intersection of an array of factors, occurring within the athlete, within the sport, and outside of sport, that are unique to each individual. BI may evolve over time and be powerfully influenced by the changing zeitgeist or expectations of the culture, community, sport, family, self, and other. The thin ideal may or may not be the ultimate goal of such expectations, and BI may be influenced by the athletic ideal, leanness, muscularity, or another aesthetic (Tiggemann & Zaccardo, 2016).

Positive BI, feeling comfortable, satisfied, proud, or accepting of one's body and appearance, can foster self-esteem and promote confidence in and outside of sport. Accurate awareness of one's body size, shape, and condition may inform optimal preparation for training and performance. Negative BI may be characterized as feeling dislike, discomfort, or dissatisfaction with one's body or appearance. In its extreme, negative BI or BID characteristic of some eating disorders like anorexia nervosa and bulimia nervosa may be exemplified by persistent and unyielding hate, repulsion, and/or distorted perception of body size, shape, weight, and/or features with discrepant perceptions of the actual versus ideal body (Cash & Pruzinsky, 2004). This negative body-related mindset can disrupt focus, confidence, athletic performance, health, and well-being (Voelker & Reel, 2015). Negative BI may persist beyond the athlete's career and impact self-confidence, esteem, mental health (Haynos et al., 2018), and physical health (Neumark-Sztainer et al., 2011).

### ***Prevalence of Body Image Disturbances***

Accurately tracking trends in BICs and BIDs have been challenging given inconsistent measurement tools, the variety of populations studied, a shortage of randomly selected samples, the lack of widely accepted operational definitions, and evolving conceptualizations (Fain, 2017; Fiske et al., 2014). In general, however, population trends in body weight over a 35-year period between 1981 and 2016 steadily increased. The mean body mass index (BMI) was 25.3 in 1981 and increased to 28.9 in 2016 (World Health Organization, 2020). Trends in body dissatisfaction rates for men were stable and thinness-related dissatisfaction among women decreased (Karazsia et al., 2017). Among adults in the US, the 2014 prevalence rates for BID were estimated to vary widely from 11% to 72% for women and 8% to 61% for men (Fiske et al., 2014). The work to date has primarily sampled the BI with respect to the gender binary; however, there is clinical evidence that anyone can struggle with body image concerns (BICs) regardless of their gender identity (Reel & Beals, 2009).

Rates of BI satisfaction among athletes, however, have not always mirrored those of the general population. A meta-analysis of 78 studies concluded that prior to 2001, athletes experienced more positive BI than non-athletes, with no differences in BI associated with gender, age, BMI, or type of sport (Hausenblas & Downs, 2001). Over the next decade, a shift was observed showing greater BID among females than males, more in aesthetic than non-aesthetic sports, more among elite than non-elite athletes (Krentz & Warschburger, 2011:

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Torstveit et al., 2008), and more among women participating in leanness-promoting sports (Swami et al., 2009). Aesthetic athletes such as synchronized swimmers reported greater negative feelings about their appearance than athletes from team sports and non-athletes (Ferrand et al., 2005). Female dancers reported a greater discrepancy in observation of their actual body weight contrasted with their desired body weight (Hincapié & Cassidy, 2010; Robbeson et al., 2015). By 2008, eating, commonly characterized by BID, showed greater prevalence among female elite athletes participating in aesthetic sports compared with non-aesthetic sports (Torstveit, et al., 2008).

Reports from 1997 to 2012 indicated that sport participation provided some protection from BICs for highly competitive female athletes (National Collegiate Athletic Association, Division I), but that this protection was diminished for those participating in aesthetic sports (Varnes et al., 2013). Sport involvement appeared to protect BI among athletes in general but less so in women and higher-level athletes (Kong & Harris, (2015). Specifically, it is important to consider gender and level of competition as well as the type of sport in order to report an accurate picture of one's risk.

The prevalence and severity of BICs and related weight control behaviors were demonstrated by Chatterton and Petrie's (2013) study in which 94% of elite athletes in weight-sensitive sports reported more dieting and use of extreme weight control measures to achieve or maintain a desired weight than athletes in non-weight sensitive sports (Chatterton & Petrie, 2013). This intensification of BICs and dieting-related behavior, and some conflicting reports regarding prevalence rates, prompted further analysis (Martinsen & Sundgot-Borgen, 2013; Sudgot-Borgen et al., 2013). Researchers have identified sport-specific and sociocultural factors that influence BI such as objectification, body functionality, leanness, thin ideals, and athletic ideals (Varnes et al., 2013). Female athletes were two to three times more likely to meet criteria for disordered eating (often co-occurring with BICs) than non-athletes (Blair et al., 2017), whereas, a year later, 42% of female elite athletes involved in aesthetic sports reported disordered eating symptoms (Mongrain et al., 2018).

### ***Theories of Body Image Disturbances***

Athletes are committed to achieving optimal body composition for prospective performance improvements. However, those who continue to experience BICs or BIDs risk engaging in unbalanced exercise habits, unhealthy eating, unhealthy weight change behaviors and will fail to achieve their full athletic potential. Poor or irregular nutritional intake may disrupt focus, concentration, and confidence both in-sport and outside of sport endeavors, with potential to seriously compromise health and increase the risk of dangerous disordered eating (Voelker & Reel, 2019). Several theories have been proposed to describe and explain the concept of BI. These theories include but are not limited to cognitive dissonance theory, objectification theory, self-presentation theory, and social comparison theory.

Cognitive dissonance theory was originally developed to understand the role of social interactions and their effects on emotions, thoughts, and behaviors. The theory is based on the concept that people seek to minimize discrepancies between their thoughts or beliefs and their behaviors or resulting actions (Witcomb et al., 2013). For example, a person who believes that animals should not be harmed for food consumption will likely adopt a vegan lifestyle to avoid internal conflict. This theory is important for understanding BI and disordered eating because interventions must address thoughts and emotions to change behaviors. When addressing negative BI and combating extreme body-related judgments and experiences, individuals may need to express specific thoughts around their body and

work to change their self-talk if they are going to modify their behaviors in the long term (Witcomb et al., 2013).

Objectification theory addresses the sexualization of human bodies, especially for girls and women that can influence one's body perception. Fredrickson and Roberts (1997) demonstrated that this tendency for the objectification of female bodies powerfully influences one's socialization, mental health, negative BI, and the development of disordered eating. For female athletes, this objectification may occur on several fronts. For example, while athletes are glorified in the media, their bodies are on display for scrutiny and public consumption (Duncan, 1994). According to objectification theory, having one's body sexualized naturally leads to the internalization of this body monitoring that has been referred to as body surveillance or self-objectification (Reel, 2018). Women with heightened self-objectification were found to experience more negative BI, increased anxiety, and were at higher risk for developing disordered eating (e.g., restricting certain types of foods; Rollero & De Piccoli, 2017).

Self-presentation theory gained popularity in the early 1990s to characterize one's emotions and perceptions about self and how one displayed their positive features to social others (Leary, 1992). This conceptual approach was eventually tied to how one presented their body to others as well as the likelihood associated with having anxiety about one's physique potentially being judged by others. According to the self-presentation theory, human beings strive to present a favorable image to other social beings (i.e., impression management). However, some individuals experience heightened social anxiety relative to having their body evaluated by others. This has been termed social physique anxiety (Hart et al., 1989) and provided an explanation for concerns with wearing form-fitting athletic uniforms and costumes (e.g., Reel & Gill, 1996). Additionally, perfectionism (which often accompanies higher social anxiety) has been reliably linked with disordered eating as well as a greater self-reported need to present oneself in a particular way. Given the links between self-presentation theory, social anxiety, perfectionism, and disordered eating, it is important to develop an understanding of self-presentation theory as well as an appreciation for its role in the etiology of eating disorders.

Social Comparison Theory was first proposed in 1954 (Festinger, 1954) and used to describe the ways in which people tend to compare themselves with others and engage in self-evaluation. According to this theory, physical traits, abilities, attractiveness, and attitudes are common targets of social comparison. Among athletes, such comparisons are common and may originate from the athlete, parent, coach, and others. Social comparisons typically fall into one of two categories. The first category is composed of downward comparisons, which occurs when one compares themselves with what is perceived to be a less skilled or a less attractive individual and this is intended to help one feel better. The second category is composed of upward comparisons, which occur when one is compared with an individual who is perceived to be more skilled or more attractive and this is intended to motivate personal improvement. Research shows that self-ratings relative to others who are perceived to be more attractive result in lower self-ratings of attractiveness, and indeed, frequent attractiveness-related comparisons predict body dissatisfaction (Tantleff-Dunn & Gokee, (2002).

### ***Cultural Influences***

Athletes are highly scrutinized for their appearance, physique, and/or muscularity, but they are not alone. Many value appearance, as demonstrated by multibillion-dollar fashion industries, beauty products, cosmetic surgery practice, media trends, etc. The fashion industry is one of the largest in the world, estimated at about \$3 trillion and representing 2% of global

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gross domestic product (GDP) (Schmelzer, 2019). The US is considered the most valuable beauty and personal care market in the world, generating approximately 89.5 billion US dollars in revenue per year (Shahbandeh, 2018).

US trends in image altering cosmetic surgery have increased over the recent five years (2014–2019) to an estimated \$18 billion in yearly revenue (IBIS World, 2019). The reported rates of cosmetic surgeries performed in the US in 2017 was approximately 1.8 million and included, breast augmentation (300,378), liposuction (246,354), nose reshaping (218,924), eyelid surgery (209,571), and tummy tucks (129,753) (American Society of Plastic Surgeons, 2018). Additionally, 15.7 million minimally invasive medical procedures to alter appearance were conducted in the US in 2017 (American Society of Plastic Surgeons, 2018).

While the focus of research as noted earlier has been on the gender binary, this intense prioritization of appearance is not exclusive to cis-gender white women. Males and members of marginalized populations including, ethnic or religious minorities, Lesbian, Gay, Bisexual, Transgender, Queer, and others also appear to have a great risk of body dissatisfaction (Herbozo et al., 2017). The risk of BIC among marginalized populations may be in part due to added social stress related to discriminatory experiences, perceived stigma, and internalized homonegativity (Morrison & McCutcheon, 2012). Substantial evidence of BICs among men is evidenced by the 1.3 million cosmetic procedures performed, representing a 29% increase since 2000 (American Society of Plastic Surgeons, 2018). The primary changes pursued via surgery were enhanced physique, younger appearance, and smaller midsection of their body (American Society of Plastic Surgeons, 2019). According to Alan Matarasso, MD, President of the American Society of Plastic Surgeons, men desire weight loss, improved confidence, and a fit image that may facilitate career advancement. Matarasso also stated that plastic surgery of all kinds including rhinoplasty, eyelid surgery, and liposuction (200,000 yearly) are elected when diet and exercise fail to help men reduce body fat in specific areas or to reach their overall toned, youthful, and fit appearance goal. Importantly, athletes are influenced by both in sport and out of sport factors and are unfortunately not immune from cultural expectations regarding physique and appearance.

Appearance-driven scrutiny exists within and is perpetuated by a competitive and comparative culture. Social media platforms such as Instagram, Facebook, and Snapchat display the bodies of athletes who have followers like other celebrities. Photos depicting proposed ideal bodies, bombard viewers via social media, magazine features, and television coverage. This exposure to thin, fit, and other idealized images in mass media has been linked to the internalization of such ideals and subsequent body dissatisfaction (Fardouly et al., 2015). In addition, the use of social media was associated with aggravated depression, anxiety, and negative BI (Cramer & Inkster, 2017).

The detrimental impact of social media has been largely attributed to social comparison, appearance commentary, and self-objectification associated with restrained eating (Niu et al., 2020). Social media is indeed the epicenter of frequent and rapid social comparisons associated with the internalization of appearance-related ideals (Tiggemann & Miller, 2010). Comparing one's appearance to others is a common daily or multiple times daily event (Chua & Chang, 2016; Fardouly et al., 2015) with posturing attractiveness and appeal as the goal. Posted images may be filtered, enhanced, touched, re-touched, or selected from dozens of available retakes. Of note, is the upward direction of social media-related comparisons, driven by unrealistic perceptions and characterized by idealized expectations, and unfortunately resulting in decreased confidence and lower body satisfaction (Fardouly et al., 2015).

Social media use continues to increase with trends indicating that greater levels of self-objectifying social media use predicted greater body shaming and increased body surveillance.

More significant negative impacts appeared to be among those individuals exhibiting the greater need for external approval (Salomon & Brown, 2019). Among elementary school girls who read magazines, 69% said that the pictures influenced their concept of the ideal body shape and 47% said that the pictures made them want to lose weight (Tiggemann & Slater, 2013). Pressure from mass media was also associated with body dissatisfaction among men. This effect was smaller than among women but remained significant (Tiggemann & Slater, 2013). Like non-athletes, male and female athletes are exposed to all the general pressures that exist regarding body shape, weight, muscularity, and appearance. The persistent and repetitive exposure to ideal images and social messaging may prompt internalization of such ideals, greater social comparison, and greater body dissatisfaction (McCreary, 2011).

### ***Sport Influences***

Prior to 2001, athletes generally experienced more positive BI than non-athletes (Hausenblas & Downs, 2001) with no noted differential influences as a result of sport type (Varnes et al., 2013). By 2018, the researchers noted differences in BI among highly trained female athletes engaged in different types of sport (Kantanista et al., 2018). Type of sport explained 7.1%, age explained 4.5%, BMI explained 3.6%, and the level of competition explained 0.9% of variance in BI with more positive BI associated with older athletes, lower BMI, elite (international) competitors, and aesthetic sports (Kantanista et al., 2018). In contrast to previous findings, emerging evidence has noted that BI-related factors are related to a variety of sport-specific conditions including performance requirements, nature of the training conditions, cultural expectations regarding body ideals, team member pressure, coaching styles, and more. While BICs may occur in any individual athlete and may occur in any particular sport environment, the inherent nature of certain sports may pose more or less risk of BICs. Sport-related BIC risk falls into five categories: ball, aesthetic, weight class, anti-gravity, and endurance sports.

Athletes who participate in ball sports such as baseball, basketball, and softball were believed to experience less pressure to lose or gain weight for the purpose of performance or appearance than noted in other types of sports (Reel et al., 2018). While ball players may not experience the same pressures observed in aesthetic and weight class sports, rates of BICs may be climbing among ball players. In one study, BICs were found to be more common among baseball players than football or basketball players (Killion & Culpepper, 2017). In that study, baseball players were specifically more dissatisfied with the size and strength of their upper body. Another study showed greater levels of BIDs among ball players than among athletes participating in weight class, fitness, and endurance sports (Kristjánsdóttir et al., 2019). Ball sports may not cause BICs, sociocultural factors occurring either inside or outside the sport culture like body shaming, history of mental illness, chronic stress, weight-related teasing, bullying, or introjected thin ideals, etc., may be sufficient in sum to influence body satisfaction (Harriger & Thompson, 2012).

Aesthetic sports such as diving, figure skating, and gymnastics depend on a particular look, artistic lines, or appearance for competitive success and, historically, have had a greater risk of BICs (Sundgot-Borgen & Garthe, 2011). Athletes may attempt to change weight, eating, and exercise behaviors, believing that they can improve their athletic performance and/or scores. Of great concern are the high prevalence rates of BICs (39.4%) among athletes participating in aesthetic sports (Kristjánsdóttir et al., 2019).

In weight class sports like wrestling, boxing, and crew, athletes face direct pressure to manage body weight in order to comply with the requirements of their sport. Weigh-ins prior to competition are a routine practice in weight class sports and confirm eligibility



to compete within a specified weight class. Athletes in weight class sports may feel pressured to engage in risky weight loss behaviors to reach qualifying weigh-in targets before a competition.

Indeed, the number of attempts to lose weight is higher among weight class than among non-weight class athletes (Sundgot-Borgen & Garthe, 2011). The underlying drive to lose weight in weight class sports may be more motivated to meet the sport requirements than aesthetics. Regardless of the source of motivation to change one's body, greater emphasis on dieting, dieting to change weight, and greater fluctuations in weight are associated with a greater prevalence of BICs and eating disorder risk (Stice et al., 2017).

Athletes participating in sports challenged by gravitational forces, like high jump or long jump, endeavor to find the optimal balance between body weight and muscularity. The correct balance facilitates the optimal speed and distance necessary for peak performance. The belief that dieting and weight loss may improve performance can undermine healthy eating behavior and body satisfaction.

Distance running, soccer, lacrosse, and cross-country skiing represent endurance sports. Endurance athletes are expected to be fast, light on their feet, and have superior cardiovascular endurance. Endurance athletes and their coaches often over-exaggerate the perception that performance and body weight are inextricably linked. In other words, losing weight is viewed as a performance strategy. However, recommending weight change may threaten health and well-being. For example, Mary Cain, the youngest American track and field athlete on the US World Championship Team in 2013, reported receiving harsh treatment from her coaches. "They were critical, fat shaming and convinced she had to get thinner, and thinner, and thinner. She was weighed, reprimanded and shamed in front of other team members. In an effort to meet expectations, she lost weight, lost more weight, endured both physical and emotional abuse and experienced her body breaking down" (Crouse, 2019). Cain suffered resulting mental and physical health-related conditions including low body weight, amenorrhea, multiple bone fractures secondary to malnutrition, relative energy deficiency syndrome (RED-S) (Mountjoy et al., 2014), lower confidence, fatigue, self-injury, and declining athletic performance. She felt alone, undefended, and unsupported. Suicidal feelings emerged.

Athletes may feel compelled to alter body weight, shape, or size by modifying eating patterns or changing exercise regimens to meet the demands of their sport and/or sociocultural expectations (Voelker & Reel, 2019). Unfortunately, the body is not infinitely malleable (Brownell, 1991). Escalating body-related preoccupation, weight-related expectations, and dieting behavior pose a serious risk to mental health, physical health, and athletic performance. Brownell (1991) stated, "Modern society breeds a search for the perfect body. Today's aesthetic ideal is extremely thin, and now, superimposed on this, is the need to be physically fit. People seek the ideal, not only because of expected health benefits, but because of what the ideal symbolizes in our culture (self-control, success, and acceptance). Two assumptions are widespread with regard to body weight and shape. One is that the body is infinitely malleable and that, with the right combination of diet and exercise, every person can reach the ideal. The second is that vast rewards await the person who attains the ideal. Research has shown that biological variables, particularly genetics, are influential in the regulation of body weight and shape. Hence, there are limits to how much a person can change. This places culture in conflict with physiology. In addition, the rewards of being attractive are less than most would expect. There are serious consequences of seeking the ideal and falling short, some psychological and others physical (e.g., increase health risk for weight cycling)" (Brownell, 1991, p. 1).

### ***Weight-Related Beliefs and History***

Among athletes, restrictive dieting may be prompted by factors such as the pursuit of muscularity, athletic internalization, and/or the belief that a change in body weight, shape, or size will improve athletic performance (Rodgers et al., 2012). However, body weight frustrations and early dietary restraint may not guarantee improved athletic performance, can precede BICs, and play a pivotal role in developing risk to health or eating disorder symptoms (Parkinson et al., 2012). Early exposure to putative behaviors such as caloric restriction or intense focus on the body and eating is associated with greater BID (Conviser, Tierney, et al., 2018). Focus on exercise for the purpose of caloric expenditure and weight loss is associated with subsequent higher rates of obesity and greater severity of obese conditions in the future (Neumark-Sztainer et al., 2011).

Coaches and trainers may inadvertently play a role in encouraging disordered eating behaviors by focusing attention on dietary behaviors, cutting calories, and restricting certain types of food. Moreover, the tendency of certain sports to conduct regular weigh-ins can reinforce the need to control one's weight or change one's weight to meet performance demands (Arthur-Cameselle et al., 2016). Coaches who conduct team weigh-ins and/or encourage self-weighing inadvertently sacrifice the athlete's body confidence (Galli et al., 2017). Well-meaning coaches may monitor weights believing that weight manipulation guarantees improved sport performance. Coaches may hold the belief that weight change is easy, sustainable, and can be achieved without physical and psychological risk. Team weigh-ins, a mechanism utilized by coaches to observe and manage their athlete's weight and physical progress, leads athletes to engage in pathological behaviors in order to "make weight" and avoid punishment, "engage in pathological weight loss behaviors (e.g., use of diuretics, diet pills, vomiting, fasting) just prior to, and during, periods of body measurements and fitness testing" (Galli et al., 2017, p. 51). Focusing on the numbers associated with one's body or having weight-related requirements established by an external entity undermines both body confidence and control (Galli et al., 2017).

### ***Early Sport Specialization***

Early sport specialization is an approach to training intended to facilitate the development of elite athletic success. It is characterized by a focus on one sport to the exclusion of others at an early age, committing to year-round training, and substantial weekly training loads that typically include a commitment to multiple weekly sessions of out of sport conditioning and training. The cost to sustain such a regimen is high and more likely affordable by those of higher socioeconomic status (Jayanthi et al., 2018). In fact, athletes who had high socioeconomic status reported more serious overuse injuries than athletes with low socioeconomic status and possibly due to higher rates of early sport specialization (Gould, 2010). Specifically, higher rates of injury, increased psychological stress, and premature recidivism were identified as negative outcomes associated with early sport specialization (Jayanthi et al., 2013). Therefore, sports medicine organizations discourage early sport specialization and advocate for multisport participation and informed decision-making regarding when to initiate sport specialization in order to preserve physical and psychological health (Gould, 2010). Early sport specialization is also associated with a greater risk of psychological stress. Factors contributing to such risk may be financial pressure, time management stress, fear of missing out on other activities, and burn out, given the required hours of participation and high



expectations. Insufficient time for emotional recovery may undermine mental health. Early sport specialization is associated with the athlete's greater external focus on rewards such as scholarships, contracts, and monetary rewards. The detrimental impact of social media, for example, is greater for those athletes who are more dependent on external reinforcement (Salomon & Brown, 2019), thereby increasing vulnerability for illness and or injury including BICs. In its extreme, early sport specialization may disrupt typical identity development otherwise dependent on adequate internal focus and awareness.

### ***Family Influences***

For athletes, the pressure to achieve a certain body ideal is layered upon other preexisting, developmental, genetic, neurochemical, biological, and sociocultural factors, which may powerfully influence an individual's focus and perspective on their body. Developmental factors such as the history of loss, separation, substantial grief, physical, emotional or sexual abuse, trauma, serious illness, or accident can threaten emotional resilience and increase BIC vulnerability. Body-related shaming, teasing, or bullying at any age may influence later BI. Developmental factors such as body-related perspectives modeled by parents, exemplified by the community and media can have a lasting impact on children's personal views of their own body. Additionally, early family experiences related to food choices, dining customs, and values are significant with regard to future BIC vulnerabilities. Early childhood dieting and or excessive focus on body size and eating for any reason may increase the risk of BID (Conviser, Fisher, et al., 2018).

Genetics may powerfully influence a variety of biological factors and BIC vulnerability since factors like metabolism, fat cell number, numbers of fast or slow-twitch muscle fiber, length of certain limbs, body type, body composition, and body proportion, etc. are all strongly genetically influenced (Epstein, 2014). Athletes who are genetically prone to have the body type preferred for sport may be at less risk for BIC, while athletes that must change their body to suit the demands of their sport will be at greater BIC risk. Genetic and neurochemical structures regulate factors such as depression and anxiety (Rosen & Lietenberg, 1982), appetite and interest in eating (Johnson et al., 2012), and obsessive-compulsive focus on eating, body, and appearance (Bermudez, 2015). Food, eating, and body focus may serve vital roles in emotion regulation beyond any sport-related needs.

Pre-existing sociocultural factors related to BIC risk may include life stress, family, and cultural expectations (Hartmann et al., 2018). Other factors that may increase BIC risk include financial stress in general or stress specifically related to food scarcity, food insecurity, chronic hunger, or deprivation. Any one or more such factors can influence an individual's relationship with food, body, and related confidence and comfort. Family and cultural expectations for success may concern education completed, titles achieved, dollars earned, and accomplishments outside of sport, all of which may contribute to overall stress, well-being, and health. A comparative culture among family members, friends, media, or community increases the risk of BICs. Over focusing on body size or appearance, comments regarding appearance, comparing body photos, capabilities or body weight with others, and comments about one's own body whether negative or positive may increase the risk of negative BI. Any number of factors may influence the extent to which human beings or athletes focus on body, food, and weight. Individuals who experience BICs and BID without current or past participation in sport reveal these factors.

### ***Sport Pressure***

Earlier research indicated that pressure to perform in sport powerfully predicted BID (Anderson et al., 2012). For example, for female collegiate gymnasts and swimmers/divers, sport pressures predicted increased BICs (Anderson et al., 2012). Later research showed how the pressure to perform was embedded in the internal mindset of the athlete and trumped more external pressures such as comments from teammates or sport professionals (e.g., coach). That is, how the athlete perceived the ideal body for one's sport, individual goals, and competitive mindset was most important for setting the tone for one's body satisfaction or tendency toward negative BI (Arthur-Cameselle et al., 2016). Indeed, cultural influences such as a thin ideal pose unrealistic expectations. BICs among athletes appeared related to feelings of inadequacy, teammates modeling disordered eating behavior, and sport performance pressure (Arthur-Cameselle et al., 2016). High rates of body dissatisfaction (80%) have been reported by athletes and non-athletes with disordered eating (Arthur-Cameselle et al., 2016).

### ***Personality***

Some personality traits common among athletes may support or disrupt positive BI. Since many athletes are typically self-reliant, independent, and disciplined, they may be less receptive to seeking early professional counseling or treatment (Newton & Holmes, 2017) and prefer to deal with BI issues on their own (Vogel, Wester, & Larson, 2007). Athletes may feel that BICs are a personal matter and fear reprisal. Athletes may fear lost privacy, shame, and confidentiality and experience feelings of vulnerability or embarrassment in anticipation of disclosing concerns about BICs.

Athletes are trained and experienced in outwardly appearing confident and strong (Lopez & Levy, 2013). They are adept at persisting through adversity (Douglas & Fox, 2002) and are trained to remain focused on sport-related goals despite stress or distraction (Hellstrom, 2009). Athletes are also known to have a high tolerance for pain (Douglas & Fox, 2002; Standage & Ryan, 2012) and stress (Gucciardi et al., 2011). Therefore, any discomfort, low energy, or poor focus stemming from BICs or BIDs may be masked and/or not recognized as a serious or requiring intervention. Moreover, athletes tend to assign greater value to protecting the team than protecting self-interests (Goodman-Brown et al., 2003). Fear of any potential negative impact on the coach or team, potential changes in playing time, threats to scholarship or contracts, or disruption to team success all impact an athlete's willingness to disclose BICs or BID (Goodman-Brown et al., 2003).

Athletes generally view themselves as and demonstrate that they are healthy and resilient (Lopez & Levy, 2013). The seriousness of any signs or symptoms and related short- and long-term consequences of BICs, related DEBs, or mental health issues may be difficult to detect and result in additional risk to health and well-being (Styer et al., 2014).

Perfectionism is a character trait that may serve an athlete well. Attention to detail, establishing high expectations, holding oneself to high standards, and the willingness to persist despite obstacles are all qualities associated with athletic success. Perfectionism in its extreme, however, may present with some cognitive and emotional rigidity that impedes performance and especially so when standards of excellence are unattainable. The characteristic of perfectionism is positively correlated with exercise dependence, BICs, and restrained eating among elite athletes more than recreational athletes (Limburg et al., 2017; Mathisen & Sundgot-Borgen, 2019).

### ***Recommendations for Addressing Body Image Concerns and Athletes***

Athletes, sport personnel, and medical care professionals may have little formal training in recognizing signs and symptoms of BICs (Torres-McGehee et al., 2012). Members of the sport community may view body-related self-deprecation as a means of discipline, efforts to further motivate training, or weight control or as normative behavior with low risk because of the high prevalence within the sport culture. Extreme weight loss strategies may be considered as “just what it takes” to perform at the highest level (McArdle et al., 2016). Health consequences associated with BICs and related weight or eating-related behaviors are not always fully realized (Markser, 2011). Further, helping athletes with BICs may be perceived by some coaches and staff as interfering with training and competition, especially if it means the athlete’s training or competition schedule must be altered (Conviser, Tierney, et al., 2018). Athletic staff may already be providing extensive support to their athletes and feel pressured to manage the “problem” in-house. Attempts to provide treatment in this setting by a professional without appropriate credentials would be considered operating outside of the scope of practice.

Sports entities are advised to cultivate awareness of licensed mental health care professionals, clinics, hospitals, and mental health care providers who may be available to support their athletes. In addition, they are encouraged to draft, post, and distribute contact information for easily available and affordable access to resources for BIC and BID support services, inquiries, consultation, evaluation, and formal treatment by licensed and certified professionals and related financial support. Relevant and vetted informational materials, such as books, articles, website links, pod-casts, documentaries, etc., should also be available for athletes, coaches, and athletic personnel. A list of professional agencies who support good health, nutrition, and positive body acceptance may be available for all athletes and athletic personnel and useful in supporting prevention, awareness, and recovery efforts.

In reality, athletes may hesitate to disclose mental illness and seek treatment (Eisenberg, Golberstein, & Gollust, 2007). Student-athletes compared with non-athletes are less likely to seek help and less likely to receive mental health care. Among college students, 33% experience significant symptoms of depression, anxiety, or other mental health conditions while only 30% seek help (Davoren & Hwang, 2014). Of college athletes with mental health conditions (30%), only 10% seek professional help (Davoren & Hwang, 2014). Studies indicate that college student-athletes (63%) and non-athletes (68%) report that they are willing to seek help for mental health concerns (Davoren & Hwang, 2014).

A variety of factors contribute to the athlete’s reluctance to reveal mental health conditions and/or access treatment such as mental health-related stigma as a barrier facing athletes (Gucciardi, Hanton, & Fleming, 2017; Bauman, 2016), fear of a reaction from an unsupportive coach (Barnhouse, 2019), the assumption that BICs are a female issue only (Barrow, 2012), and/or the fear that participating in mental health care could disrupt sport training, team membership, sport-related career responsibilities, etc. (Gulliver, et al., 2012). Other athletes may fear that disclosing mental health symptoms or diagnosis could impede professional team contracts or team status (Bauman, 2016).

The perception of professional competence and expertise of the mental health care provider may also influence the athlete’s willingness to seek mental health care (Weigand, Cohen, & Merenstein, 2013). Athletes may not wish to work with sport psychologists and mental health specialists who hold insufficient expertise or training in clinical mental health or work with mental health specialists who may not be sufficiently familiar with sport-related policies, requirements, and/or sport culture. For those athletes with BICs or BIDs

or experience pressure to maintain a particular body shape, experience, or image, it may also be reluctant to enter treatment given any potential for necessary changes in body shape, size, or weight (Tan et al., 2014). Making referrals for BIC assessment or treatment should be provided in a sensitive manner and in a private setting. Athletes may feel embarrassed about seeking treatment or believe that they should recover without professional support. College athletes may minimize the seriousness and acuity of any BIC and even refuse additional assistance believing it to be unnecessary. Outside support and assistance may be useful if not necessary regardless of age or level of success. Being empathic, preserving the athlete's autonomy, while helping the athlete receive support or treatment will produce the most favorable outcome (Conviser, Fisher, et al., 2018). Shame, blame, and reprimand are not associated with improved BICs, optimal sport performance, or secured well-being (Miller & Rollnick, 2002).

A recent poll of collegiate athletic directors in the US showed that concerns about "student-athlete mental health" was rated first in importance and ranked higher in importance than student-athlete academic support, injury prevention and care, drug use, and student-athlete compensation (Athletic Business, 2020). Unfortunately, there is a lack of awareness in most sport communities regarding the serious and life-threatening risks associated with BICs and BID.

Of concern here are the false assumptions that weight loss is without risk and guarantees better athletic performance, that appearance can or should be changed, and that BID can be corrected via weight loss. These assumptions are false. The downward spiral of wanting improved athletic performance, followed by BICs, escalation of weight loss behaviors, and increased BID, resulting in ED thoughts, behaviors, and dangerous risk to physical and emotional health. In addition, any normalizing of dangerous eating and weight loss behaviors and believing that they are a necessary or acceptable part of training regimens, that food and body changes will ensure optimal performance and that problematic eating or behavior will remit without professional intervention, may all be barriers to recovery.

Research has identified interventions that could reduce the athlete's risk of compromised health, BICs, or disordered eating. These interventions propose targeting messages, ideals, and behaviors within the sport environment that herald the importance of weight loss and changing appearance (Anderson et al., 2012). Since depiction of average weight images in social media is associated with less BICs and greater body appreciation than the thin images (Tiggemann et al., 2020), it is recommended that publishers, administrators, and coaches be encouraged to utilize images that depict diversity in body size, provide greater opportunity for athletes to improve their awareness of detrimental media influences, and encourage healthy and responsible exposure to potentially hurtful and/or discriminatory information.

There exists a false notion among medical and sport professionals that athletes, especially male athletes, have a lower risk of BICs and related health issues. Kristjánssdóttir et al. (2019) found that 17.9% of elite male athletes reported moderate or severe BIDs (p. 2728). Rates of BID among college men were as high as 95% in one study (Daniel & Bridges, 2013), over 90% with related negative thoughts and feelings in another (Castonguay et al., 2014). Rates of BIDs appeared most prevalent among gay and male heterosexual teens and young adults (Burlew & Shurts, 2013). Detection of BICs may be difficult in part due to the experience of shame, embarrassment, and an often observed personal or quiet approach to processing BICs and in seeking support (Burlew & Shurts, 2013). Being male may threaten early detection, referral, and access to care for BICs and co-occurring conditions. Future research should examine factors that may reduce the risk of BICs among diverse athletes.

## Body Image and Disordered Eating

A barrier to detecting BICs is the tendency for athletes to appear healthy. Athletes with BICs may have normal body weight and may not necessarily appear emotionally or physically compromised. Decrements in athletic performance in the face of more minor BICs may not be readily apparent. An athlete's healthier appearance and/or elevated BMI due to muscularity may impede the detection of problematic body-related thoughts and experiences. Medical professionals should not depend on BMI values alone and/or relying on self-reported height and weight data to determine an athlete's health risk (Kantanista et al., 2018). Importantly, any potential for adverse effects on others, including coach, team, or family, may discourage or delay the athlete's disclosure of problematic symptoms or worries (Vogel, Wester, & Larson, 2007). Delay in detection and treatment perpetuates health risk and complicates recovery.

Prevention and intervention programs for athletes having the risk of BICs or BID should address athlete, sport, and coach-related factors (Vaughan, King, & Cottrell, 2004) as well as sociocultural, genetics, biology, dieting history, and stress-related issues occurring earlier in the athlete's life and outside the sport community. Prevention programs may inform both protective factors and risk factors to increase self-awareness and self-control. Prevention programs may include educational seminars for coaches addressing self-esteem, self-efficacy, mental training, sport nutrition, balanced training practices, body composition, BICs, weight, or eating-related problems.

Since BI satisfaction is multi-dimensional, risk-reduction strategies will be ongoing and multifaceted and include reducing early sport specialization when choosing to specialize in sport, matching body type and sport to minimize risks associated with changing body composition or aesthetic, selecting the level of play or competition that best suits both physical and mental health status, minimizing exclusive focus on external reinforcement, and considering the "whole person," past, present, and future, in making decisions about training and competition. The age of early sport specialization, which is associated with the greatest risk is not currently known (Jayanthi, et al., 2019). Risk reduction strategies should permit adequate recovery time given the age of athletes, length of season, and hours of weekly training and should endeavor to reduce frequency and severity of sport injuries and preserve self-worth, identity development, and confidence in and outside sport pursuits. In summary, BI concepts are complex and multi-dimensional. Increased awareness is needed with respect to the myriad of factors that influence the tendency toward BICs among athletes.

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