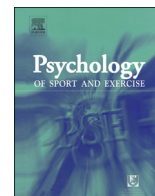




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Psychosocial correlates of bulimic symptomatology among male athletes

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ABSTRACT

Objectives: To examine the relationship of four psychosocial constructs – body dissatisfaction, restrained eating, drive for muscularity, and negative affect – that have been identified as potential risk factors for bulimic symptoms in male athletes.

Design: We used a cross-sectional design and self-report questionnaires.

Methods: Participants were 203 male, NCAA Division I athletes who were drawn from three different U.S. universities and who competed in 17 different varsity sports. Athletes completed self-report measures of body satisfaction, dietary restraint, drive for muscularity (i.e., muscularity behaviors, muscular body image), negative affect (i.e., fear, hostility, guilt, sadness), and bulimic symptomatology.

Results: After controlling for the effects of body mass and social desirability, hierarchical regression analysis showed that the psychosocial variables explained an additional 21% of the variance in bulimic symptoms. In the full model, engaging in muscle building behaviors ($\beta = .16$), such as lifting weights, as well as restricting caloric intake ($\beta = .33$) were associated with higher levels of bulimic symptomatology; negative affect and body dissatisfaction were not.

Conclusions: Male athletes' bulimic symptomatology is best explained by the extent to which they report engaging in behaviors to become leaner (i.e., less body fat) and more muscular.

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Researchers have identified male athletes as a subpopulation at increased risk for clinical and subclinical eating disorders (e.g., Hausenblas & Carron, 1999; Thompson & Sherman, 2010). Clinical eating disorders are psychiatric disorders that involve pathogenic eating and weight control behaviors and disturbed weight- and self-related cognitions and perceptions, and include bulimia nervosa, anorexia nervosa, and eating disorders, not otherwise specified (American Psychiatric Association [APA], 1994). Subclinical disorders are characterized by disturbed eating behaviors and attitudes that are problematic and unhealthy but less severe than found in clinical eating disorders. These subclinical disorders involve psychological and physical symptoms, such as body image distortions and negative beliefs about self, and the use of pathogenic weight control behaviors (e.g., extreme caloric restriction, excessive exercising, and binge eating). In fact, because of its higher prevalence than clinical disorders (Petrie, Greenleaf, Reel, & Carter, 2008), indices of subclinical eating disorders, such as bulimic

symptomatology, are the most salient outcomes to consider in research on disordered eating in athletes (Hausenblas & Carron, 1999; Petrie & Greenleaf, 2012).

Male athletes' risk of developing disordered eating symptomatology (as well as clinical disorders) stems, in part, from the sociocultural pressures, messages, and ideals that exist within Westernized societies concerning weight, body, appearance, eating, and masculinity (e.g., Cafri et al., 2005; Ricciardelli & McCabe, 2004). Through the socialization process, boys and men learn that they are supposed to be independent, competitive and confident, lose weight primarily through physical activity, and be tall and muscular, yet very lean, to be considered attractive (Drummond, 2002). But male athletes also experience messages and pressures from within the sport environment (e.g., Galli, Reel, Petrie, & Chatterton, in press), such as performance demands from coaches, teammates' eating-related behaviors, subjective judging criteria, revealing/body fitting uniforms, and weight limits, which increase their vulnerability. These general and sport-specific pressures represent the sociocultural factors that, in combination, increase male athletes' risk (Petrie & Greenleaf, 2012). Indeed, research has shown that male athletes exercise excessively to

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manage their weight and body shape (i.e., 46.9% exercised one or more hours per day specifically to burn calories; Petrie et al., 2008), experience high levels of subclinical eating disorders (21.2%; Sanford-Martens et al., 2005), and have higher rates of clinical eating disorders than male nonathletes (8% vs. .5%; Sundgot-Borgen & Torstveit, 2004).

The effects of these general and sport-specific pressures, however, are not direct but occur through negative affect, body dissatisfaction, dietary restraint, and drive for muscularity, which are hypothesized to lead directly to increased levels of bulimic symptomatology (Petrie & Greenleaf, 2012). For negative affect, when individuals feel anxious and/or sad they may distract themselves from these emotions and provide short-term comfort through binge eating (which often is referred to as “emotional” eating). Among male and female undergraduates, eating for emotional reasons has been associated with higher levels of negative affect and lower levels of positive affect (Tylka & Kroon Van Diest, 2013). Binge eating, in turn, may result in other negative emotions, such as anger and guilt/shame, and then to the use of compensatory behaviors (e.g., overexercising). This cycle of binge eating (and subsequent compensation) may serve as a precursor to the development of bulimia nervosa and related symptomatology (Fairburn, Cooper, Doll, & Davies, 2005).

In support of this connection, Petrie, Greenleaf, Reel, and Carter (2009) found that, within a mixed-sport sample of female collegiate athletes, the women who were classified as symptomatic or clinical with respect to an eating disorder reported significantly higher levels of sadness, anxiety, stress, and guilt/shame than those who reported no disordered eating symptoms. Similarly, female collegiate swimmers/divers and gymnasts’ negative affect (i.e., sadness, anger, fear) was related to higher levels of bulimic symptomatology (Anderson, Petrie, & Neumann, 2011). For male athletes findings have been equivocal. For example, Petrie, Greenleaf, Carter, and Reel (2007) found that negative affect was unrelated to the collegiate athletes’ level of disordered eating symptoms, whereas Papathomas and Lavallee (2006) reported that high levels of stress, binge eating, and depression co-existed for a male soccer player who was suffering with bulimia nervosa. Given the limitations of these male athlete studies – case study or use of single item measures of negative affect – additional research is warranted with male athletes to test this pathway in the Petrie and Greenleaf (2012) model.

Body dissatisfaction is a risk factor in men’s psychological health and well-being (e.g., Cafri et al., 2005). Even athletes, who generally report a more positive body image than non-athletes (de Bruin, Oudejans, & Bakker, 2007; Hausenblas & Symons Downs, 2001; Petrie, 1996), may believe that they fall short of societal body or sport-performance appearance ideals and thus may be dissatisfied with the leanness, muscularity and shape of their current bodies (Raudenbush & Meyer, 2003). When individuals’ perceptions of their current appearance are different from their ideal, the risk of experiencing psychological distress exists, including low self-esteem, depression, and disordered eating (Higgins, 1987). Greater real-ideal discrepancies may lead to more body dissatisfaction and stronger desires to modify size/shape. This desire may result in the adoption of unhealthy behaviors, such as fasting, dieting and/or binge eating, which are precursors for bulimic symptomatology (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006).

Body dissatisfaction has been related to various disordered eating indices for boys and men (e.g., Halliwell & Harvey, 2006; McFarland & Petrie, 2012; Tylka, Bergeron, & Schwartz, 2005). Among male athletes, body image issues have been identified as a central concern (e.g., Galli & Reel, 2009). For example, Petrie et al. (Petrie, 1996; Petrie et al., 2007) found that body dissatisfaction was

related to higher scores on the bulimia subscale of the Eating Disorder Inventory (EDI; Garner, Olmstead, & Polivy, 1983) and fear of becoming fat differentiated between those athletes who were symptomatic vs. those who were asymptomatic. Given the importance of body dissatisfaction in male athletes’ self-image (Galli & Reel), given the strong association of body dissatisfaction to indices of disordered eating in female athletes (e.g., Anderson et al., 2011), and given that few studies have examined this association with male athletes, additional research is warranted.

Self-reported intentions to engage in food/caloric restriction (i.e., dietary restraint) have been identified as a risk factor in the development of bulimic symptomatology (Stice, 2002). In an eight-year prospective study, Stice, Marti, and Durant (2011) found that, even amongst women with low levels of body dissatisfaction, self-reported dietary restraint was a significant predictor in the development of a clinical eating disorder. However, because self-reported dietary intentions do not predict actual reductions in caloric intake during acute eating episodes (e.g., single meals), a negative energy balance may not be the causal mechanism between these self-reports and subsequent binge eating and bulimic symptoms (Stice, Fisher, & Lowe, 2004; Stice, Presnell, Lowe, & Burton, 2006). Instead, these self-report measures simply may be identifying individuals who are temporarily halting a tendency to overeat (Stice et al., 2006), which during times of stress, may be activated and lead to binge-eating. Further, dieting, or even just restraining a tendency to overeat, may disrupt innate abilities to recognize and respond to physical cues regarding hunger and satiety. Because dieting requires the assumption of cognitive control over natural physiological processes, individuals often “convince” themselves that they are not hungry or that they are full so they will eat less food. Over time, cognitively overriding hunger and satiety signals may interfere with individuals’ ability to trust their body’s cues and accurately regulate when to start and stop eating; that is, individuals may increase their likelihood of binge eating. Tylka and Kroon Van Diest (2013) found that male and female undergraduates’ who reported not trusting (or relying on) their physical signals of hunger and satiety had higher levels of disordered eating.

Dieting is a common behavior among athletes that often results from coach and teammate pressures about body and weight, may be engaged in to either improve performance or appearance, and has been associated with bulimic symptomatology (e.g., Anderson et al., 2011; Anderson, Petrie, & Neumann, 2012; de Bruin et al., 2007; Dale & Landers, 1999; Hinton & Kubas, 2005; Martinsen, Bratland-Sanda, Eriksson, & Sundgot-Borgen, 2010). For example, for each one unit increase in female collegiate athletes’ scores on a measure of drive for thinness and performance, the athletes were 10.6 times more likely to be classified as subclinical or clinical in terms of disordered eating status (Hinton & Kubas, 2005). Few studies, though, have examined this relationship with male athletes and results have been mixed. Dale and Landers found that wrestlers’ dieting was higher when in vs. out of season, but the wrestlers attributed their focus on weight and eating to the demands of their sport and not to an underlying eating disorder. However, Petrie (1996) reported a significant relationship between EDI drive for thinness and bulimia among male collegiate athletes. Athletes’ relationship with food is central to their success, yet dieting (or simply restraining tendencies to overeat) can cause potential problems so understanding its relationship to disordered eating is essential for ensuring male athletes’ health.

Drive for muscularity (DM) is a socially-constructed drive that arises from the perception that one is insufficiently muscular and thus must engage in behaviors (e.g., weightlifting) to increase body size and strength (Edwards, Molnar, Tod, & Morrison, 2012; McCreary & Sasse, 2000). Men consistently score higher than

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