



Eating pathology in female gymnasts: Potential risk and protective factors



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ABSTRACT

Although participation in sports that emphasize aestheticism, such as women's gymnastics, are associated with higher rates of eating pathology, little is known about the risk and protective factors involved in this process. We established and tested a model proposing that body surveillance and body shame are processes by which pubertal development and training may uniquely contribute to pathological eating by sampling 100 competitive female gymnasts via questionnaires. We further tested whether self-esteem moderated several model relationships. Results demonstrated that pubertal development was associated with higher levels of body surveillance, body shame and disordered eating; whereas greater time spent training was associated with lower levels of body shame and disordered eating. Finally higher self-esteem was associated with lower levels of disordered eating, less body surveillance, and less body shame. Potential risk and protective factors for the development of eating pathology in female gymnasts are discussed.

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Introduction

Notwithstanding its positive relationships to physical activity, health, and fitness (Virus & Smirnova, 1995), participation in women's gymnastics is associated with increased rates of disordered eating, drive for thinness, dieting behaviors, and body dissatisfaction (Davis, 1992; de Bruin, Oudejans, & Bakker, 2007; Kerr, Berman, & de Souza, 2006; Nordin, Harris, & Cumming, 2003; Slater & Tiggemann, 2011). Although female athletes in general are at increased risk for the development of eating disorders relative to males and non-athletes (Davis, 1992; Hausenblas & Carron, 2002), many report that female gymnasts are at particularly high risk, given that the sport of gymnastics emphasizes both leanness and aestheticism, promotes subjective evaluations of the athlete based on bodily appearance, and fuels dieting pressure to improve both performance and appearance (Berry & Howe, 2000; Kerr et al., 2006; O'Connor & Lewis, 1997; Smolak, Murnen, & Ruble, 2000).

Research relating participation in gymnastics to body dissatisfaction and eating pathology, however, has yielded a literature beset by significant limitations. Extensive use of convenience samples has narrowed most research to populations of collegiate or

elite athletes (e.g., de Bruin et al., 2007; Kirk, Singh, & Getz, 2001; Krentz & Warschburger, 2011), severely delimiting the generalizability of results, as few athletes compete at an elite or collegiate level, and the college/elite sports environment may differ greatly from the sports environment for children and adolescents participating at a lower competitive level. Those studies that do examine non-collegiate/non-elite participants, such as children and adolescents, often focus more broadly on aesthetic sports in general (e.g., Davidson, Earnest, & Birch, 2002) or suffer from low response rates, resulting in small, potentially biased samples (e.g., Kerr et al., 2006; Nordin et al., 2003).

Limitations, too, arise in this literature with regard to investigation of risk and protective factors. A risk factor is a variable that prospectively predicts a pathological outcome, while a protective factor is a variable that can mitigate the detrimental effects of a risk factor (Stice, 2002). Although a number of risk factors for the development of eating pathology and body dissatisfaction—such as pubertal status (e.g., Negri, Fung, & Trickett, 2005), low self-esteem (e.g., Shariff & Yasin, 2005), and self-objectification (e.g., Slater & Tiggemann, 2002)—generally have been well-established, little is known about how these factors influence the development of disordered and pathological eating in female gymnasts, and even less is known about protective factors in this population. The present study was designed to begin addressing these limitations. Specifically, we sought in this cross-sectional study to identify and

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examine via a potential process model those candidate factors that may place gymnasts at risk for or protect them from body image disturbance and eating pathology, with the goal of informing future work directly targeting risk and protective factors via prospective or experimental designs. The candidate factors investigated in this study consisted of body surveillance, body shame, time spent training, pubertal development, and self-esteem.

Potential Risk Factors: Body Surveillance, Body Shame, and Time Spent Training

According to objectification theory, girls and young women learn from an early age that they are often evaluated based on their bodies, and many become socialized to view their own bodies as objects from an observer's perspective (Fredrickson & Roberts, 1997), experiencing their bodies in terms of what they look like instead of what they are capable of doing or feeling (McKinley & Hyde, 1996). As young women begin to internalize an observer's perspective, they engage in self-objectification (Fredrickson & Roberts, 1997) which entails marked proclivities toward *body surveillance*—viewing one's body as it looks to others—that, in turn, promotes *body shame*—feeling as though one's body does not measure up against internalized standards (Fredrickson & Roberts, 1997). Body shame is thought to be synonymous with body dissatisfaction (Tyłka, 2004). Self-objectification (which is often measured by levels of body-surveillance), has been linked to disordered eating cognitions and behaviors (Slater & Tiggemann, 2002; Tiggemann & Kuring, 2004), and to lower levels of body satisfaction and self-esteem (McKinley & Hyde, 1996; Strelan, Mehaffey, & Tiggemann, 2003). Noll and Fredrickson (1998) reported that body shame partially mediated the relationship between self-objectification and eating disorder symptomatology, in that self-objectification was linked to higher levels of body shame, which then was linked to higher eating disorder pathology, and these results have been replicated in other populations (Calogero, Davis, & Thompson, 2005; Slater & Tiggemann, 2002; Tiggemann & Kuring, 2004; Tiggemann & Slater, 2001).

Few studies have examined physical activity—and even fewer have examined participation in sports—in relation to self-objectification. For those studies that have examined this relation, results vary across studies, as some research indicates a relation between self-objectification and physical activity (Greenleaf, 2005; Parsons & Betz, 2001; Strelan et al., 2003; Tiggemann & Slater, 2001) while other research does not (Fredrickson & Roberts, 1997; Williams & Cash, 2001). With regard to self-objectification in the context of sports participation, Parsons and Betz (2001) found that former high school athletes reported significantly higher levels of body shame (but not body surveillance) than non-athletes and that body shame was related to more “objectified sports” (e.g., gymnastics, dancing, cheerleading, synchronized swimming) as opposed to less objectified sports (e.g., golf, soccer, basketball). As compared to non-dancers, Tiggemann and Slater (2001) found higher levels of body surveillance, body shame and disordered eating in a group of female former ballet dancers. They reasoned that the milieu of ballet—which entails practicing for hours in front of a mirror, body scrutinizing by observers, and high incidences of disordered eating—promotes the “. . . internalization of an outsider's perspective (which) may become the habitual and enduring way of perceiving the self” (Tiggemann & Slater, 2001, p. 58). No research to date has examined body surveillance and body shame in female gymnasts, but given marked similarities between the sports of gymnastics and ballet dancing, Tiggemann and Slater's (2001) work holds particular relevance for the study of female gymnasts. Gymnasts are essentially taught to practice body surveillance by their coaches. More specifically, gymnasts often practice in front of a mirror in their leotards; they anticipate being scrutinized by judges,

coaches, and spectators; they are told that their performance and resulting score is based on how well their body performs; and a high incidence of eating pathology has been reported in this group (Kerr et al., 2006; Nordin et al., 2003).

Consistent with previous literature (Calogero et al., 2005; Noll & Fredrickson, 1998; Slater & Tiggemann, 2002; Tiggemann & Kuring, 2004; Tiggemann & Slater, 2001), we hypothesized that time spent training in gymnastics would facilitate higher levels of body surveillance, that body surveillance would be associated with higher levels of body shame, and that these relations would be reflected in more eating pathology. While aspects of such a process have been demonstrated in both cross-sectional and longitudinal research (for a review of the literature, see Moradi & Huang, 2008), these factors and their interrelations have yet to be examined in female gymnasts. In addition, taking into account Parsons and Betz's (2001) findings that “objectified” sport participation was linked to body shame but not body surveillance, we also examined the direct relation between time spent training and body shame.

Potential Risk Factors: Pubertal Development

A strong predictor of body dissatisfaction and subsequent eating pathology among girls is pubertal status. With the development of pubertal changes in body composition (i.e., an increase in body fat and broadening of hips that distance females from modern Westernized ideals of body size for women), many girls report increased levels of body dissatisfaction (Keel, Fulkerson, & Leon, 1997; McNicholas, Dooley, McNamara, & Lennon, 2012). Relative to boys who typically view pubertal changes as more positive (McCabe, Ricciardelli, & Banfield, 2001), pubertal development in girls is associated with a poorer self-image (Swarr & Richards, 1996) and higher likelihood of developing maladaptive strategies for dealing with such changes (e.g., extreme dieting). Though pubertal changes in adolescence establish this developmental period as one in which young females face higher risk for body surveillance (Lindberg, Hyde, & McKinley, 2006), as well as eating pathology and negative body image (Keel et al., 1997), these developmental changes have not figured prominently in work pertaining to female gymnasts and disordered eating. In fact, studies with female gymnasts often fail to index pubertal status in their participants and rely instead on the general index of age (Francisco, Alarcao, & Narciso, 2012; Nordin et al., 2003) or collapse across age entirely, treating adolescence as a uniform period rather than as a period of significant developmental transition (Kerr et al., 2006). Tiggemann and Slater (2001), in their research on former dancers, also discuss the importance of future examination of the relationship between puberty and the development of self-objectification. Given that pubertal changes such as increased weight, fat redistribution, and breast development can have real (or imagined) impacts on gymnastic performance, it stands to reason that the impact of pubertal development on the development of gymnasts might be particularly pronounced.

Although body surveillance and body shame have been theorized to develop in adolescence as a female undergoes pubertal development (Fredrickson & Roberts, 1997), only one study has explicitly tested this theory. Lindberg, Grabe, and Hyde (2007) found that pubertal development was in fact related to higher body surveillance and body shame. Therefore, we hypothesized that pubertal development, like time spent training in gymnastics, would facilitate higher levels of body surveillance, contributing to body shame and subsequently higher levels of eating pathology. Again, given Parsons and Betz's (2001) findings that “objectified” sport participation was linked to body shame but not body surveillance, we also examined the direct path from pubertal development to body shame.

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