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An Examination of Social Physique Anxiety with Regard to Sex and Level of Sport Involvement

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The primary purpose of this study was to investigate the difference in social physique anxiety among competitive athletes, exercisers and non-exercisers. The present study was also aimed to examine the sex differences in social physique anxiety between men and women. Two hundred and fifty-five exercisers, 261 competitive athletes and 350 non-exercisers voluntarily participated in this study. Social Physique Anxiety Scale (Hart, Leary and Rejeski, 1989) was used as the measure of social physique anxiety. Results of the present study indicated significant differences in social physique anxiety with regard to sex and level of sport involvement. Men had lower scores on social physique anxiety than women, and competitive athletes and exercisers had lower social physique anxiety scores than non-exercisers. Social physique anxiety of males and females did not differ with regard to level of sport involvement.

Key words: social physique anxiety, sex, sport involvement

Introduction

Self-presentation can be defined as the way in which people manage and control how they present themselves to others and how they are perceived by other people (Leary & Kowalski, 1990). In other words, it is an attempt by the individual to selectively present aspects of himself or herself or to omit self-relevant information to maximize the likelihood that positive social impressions will be generated, and undesirable impressions will be avoided (Leary & Kowalski, 1990; Leary, 1992).

In particular, cultural ideals and messages concerning the body shape may raise self-presentational concerns and individuals may try to present themselves as fit, thin, lean, and muscular. The nature of self-presentation has been the focus of research in exercise and sport. Self-presentation is an important determinant of behavior, cognition and affect in exercise and sport settings (Hausenblas, Brewer & Van Raalte, 2004) and exercise adherence (Crawford & Eklund, 1994).

Keeping in mind the significance of body within self-presentation, it is reasonable to argue that one self-presentational concern is social physique anxiety, which may result from self-consciousness concerning one's body (Hart, Leary & Rejeski, 1989). In other words, social physique anxiety is an affective response reflecting concern for how one's body is judged by others (Leary, 1992). Social physique anxiety is closely related to many psychological variables, such as global self-esteem, body dissatisfaction, physical attractiveness, eating attitudes, motives to exercise and exercise behavior patterns (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Amorose & Hollembeak, 2005). In addition, social physique anxiety may play an important role in

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determining where and with whom people exercise, individual's affective responses to exercise and level of effort and exertion put forth while exercising (Spink, 1992; Focht & Hausenblas, 2001).

Social physique anxiety is likely an important form of social anxiety in sport and exercise, because the body is so critical and salient to physical activity (Martin, Kliber, Kulinna, & Fahlman, 2006). In exercise and sport settings, individuals try to create a desired impression and they feel their physique is subject to evaluation by others and having the right body image is critical (Hart et al., 1989; Crawford & Eklund, 1994). Exercise classes and competitive sports are settings where there is pressure to conform to a certain body shape (Krane, Shipley, Waldron & Michalenok, 2001).

In competitive athletic settings, the need to maintain a certain body weight and body shape for optimal performance increases the social physique anxiety (Krane et al., 2001). A variety of physical and psychological characteristics are required for competitive sports. With regard to physique, certain type of body or leanness is believed to enhance performance and help athletes to be most successful in certain sports (Davis, 1992). In addition, athletes in certain sports, such as gymnastics and diving are subjected to greater external pressures to have particular physique (Hausenblas & Mack, 1999). On the other hand, in the exercise setting, focusing on ideal physical appearance and the possibility of judging one's physique by other class members in exercise classes may have an influence on the social physique anxiety (Krane et al., 2001). Especially for women, the atmosphere in exercise classes emphasizes development of a feminine body attaining ideal physique and the feeling of evaluation of physique by other participants create sort of rivalry about body shape and size (Maguire & Mansfield, 1998). Söderström stated that the cultural norms of fitness centers uphold a slim body ideal for women and a muscular body ideal for men (Eriksson, Baigi, Marklund & Lindgren, 2007). As reported by Katula, McAuley, Mihalko and Bane (1998), the aerobics environment is one in which the body is the central focus and exercisers often wear tight or revealing clothing in mirrored rooms, which can raise bodily awareness and also heighten social comparison and competition (Frederick & Shaw, 1995). On the other hand, people use exercise as a means to decrease their social physique anxiety through developing a fitter and more attractive physique (Hausenblas et al., 2004).

Research examining sex differences in social physique anxiety have demonstrated that women had significantly higher social physique anxiety score than men (Hart et al., 1989; Frederick & Morrison, 1996; Martin & Mack, 1996; Kowalski, Mack, Crocker, Niefer & Fleming, 2006). A number of previous studies have demonstrated that women generally exercise more for weight control and physical appearance/bodily concerns than do men (McDonald & Thompson, 1992; Tiggemann & Williamson, 2000). Exercising for weight control, body tone, and attractiveness have increased body dissatisfaction, disturbed eating, and lower body-esteem in women. In contrast, functional reasons for exercise, such as health, enjoyment, or fitness have been associated with increased self-esteem and body esteem, as well as lower levels of body dissatisfaction (e.g., McDonald & Thompson, 1992; Tiggemann & Williamson, 2000; Strelan & Hargreaves, 2005).

Although the bulk of research has examined sex differences with social physique, there are few attempts to examine the differences in social physique anxiety among exercisers, competitive athletes and non-exercisers. Some of the previous research examined the effects of the type of sport on the experience of social physique anxiety and body dissatisfaction (Petrie, 1996; Hausenblas & Mack, 1999; Crocker, Synder, Kowalski & Hoar, 2000; Haase & Prapavessis, 2001). Generally, previous studies examined the type of sport differences in social physique anxiety by comparing athletes and non-athletes, or comparing athletes from lean sports and non-lean sport, or physique salient and non-physique salient sports. Contrary to previous studies, the present study aimed to compare social physique anxiety with the level of sport involvement, and also physical activity context. In the present study, competitive athletes, exercisers and non-exercisers were studied to represent the diversity of level of sport involvement and different physical activity context. Of interest, most of the studies on social physique anxiety were conducted in Western countries. As reported by Cusumano & Thompson (1997), sociocultural factors, especially the mass media, influenced peoples' feelings about their body due to mass media transmitting the idealized body shape of a thin and toned physique for women; a lean and muscular physique for men, which may negatively impact people's values, norms, and physique standards. From a self-presentational perspective, cultural ideals and messages concerning body image

portrayed by the media may give rise to self-presentational concerns and a tendency for individuals to try to present themselves as fit, thin, lean and muscular. Such culturally-accepted ideal stereotypes promulgated by the mass media in many European nations, regardless of cultural orientation, appears to reflect a "social obsession" with body shape, size, weight, virility and appearance of the body (Stice and Shaw, 1994). Based on this evidence, it would not be unreasonable to expect that people from different cultures will experience same level of social physique anxiety. Thus, the purpose of this study was to investigate sex and the level of sport involvement differences in the social physique anxiety in the non-Western country of Turkey. Beside rapid modernization and increased educational opportunities, traditionalism and Islamic values are still very prevalent and have substantial effects on social values in Turkey. The traditional social values and norms of Turkey are highly collectivistic and conservative. In some parts of this society, there is a tendency to preserve these traditional values, which often prescribe conservative approaches to physical appearance and presentation. This may include restrictions in dress code and limitations on physical presentation in the presence of others (Hagger et al., 2007). Based on the literature review and the purposes of the present study; two hypotheses were formulated: (1) Women would be more anxious about their physique than their men counterparts, (2) Competitive athletes and exercisers would report less social physique anxiety than non-exercisers.

Materials & Methods

Participants

Two hundred and fifty-five exercisers (M_{age}= 22.89, SD= 4.21; n_{women}=102; n_{men}=153), 261 competitive athletes (M_{age}= 19.65, SD= 4.84; n_{women}=153; n_{men}=108) and 350 non-exercisers (M_{age}= 19.46, SD=3.37; n_{women}=213; n_{men}=137) voluntarily participated in this study. 468 of total participants were women and 398 were men. The exercisers were individuals who attended health related fitness activities at least 3 times per week (e.g., step dance, aerobics, yoga and squash) either in fitness and health clubs or university sport centers. These subjects had a mean of 2.67 years of exercise participation. Although the majority of exercisers were university students, the vocational status of the professionals consisted of highly qualified jobs, such as university staffs, lawyers and engineers.

The competitive athletes were from individual (e.g., gymnastics, tennis, swimming, teakwando and judo) and team (e.g., volleyball, football, handball and basketball) sports at the national level and competed in different sport leagues. The sporting experiences of athletes were measured by asking participants a series of questions related to their years of sport participation and sporting success. For individual sports, athletes were those who had placed at least third in a national competition, and for team sports, athletes were members of a team in the first or second league of the chosen sport in Turkey. Participation at a competitive level requires a greater degree of skill and training in skill development. The average number of years in competitive sports for these participants was 8.77 years.

The non-exercisers consisted of university students who "did not participate in any regular physical activity". They were selected from four different state universities in Ankara, the capital city of Turkey.

Instruments

The Social Physique Anxiety Scale (SPAS) was used as the measure of social physique anxiety (Hart et al., 1989). The original SPAS was a 12-item unidimensional scale designed to assess over-concern or anxiety when presenting the physique in evaluative contexts. Items are presented on a 5 point Likert scale, from 1=not at all true to 5=extremely true, with total scores ranging from 12-60 (Hart et al., 1989). There was considerable research into the validity, reliability, and structure of the SPAS, however, there was some controversy over its dimensionality and the appropriateness of some of the items. Although the SPAS was originally developed unidimensionally (Hart et. al., 1989), strong support for its multidimensionality (two factor structures) were reported by some researchers (Eklund, Kelley & Wilson, 1997; Eklund, Mack & Hart, 1996). On the other hand, a 7 or 9 item unidimensional model of SPAS has also been recently reported (Martin, Rejeski, Leary, McAuley, & Bane, 1997; Motl & Conroy, 2000; 2001; Isogai, Brewer, Cornelius, Komiya, Tokunaga, & Tokushima, 2001).

In this study, 7-item Turkish version Social Physique Anxiety Scale was used as suggested by the recent work of Hagger et al. (2007). The 7-item SPAS (excluding original items of 1, 5, 7, 8, 11) showed good fit indices (CFI=0.952, NNFI=0.929;

RMSEA=0.68) and factor loadings ranged from 0.42 to 0.71. Composite reliability coefficient of SPAS is 0.83 for the Turkish sample (Hagger et al., 2007). The internal consistency for the present sample was 0.72.

Procedure

Non-exercisers completed the SPAS in their classroom settings, whereas competitive athletes and exercisers were given the test during team meetings and in sport/fitness clubs. SPAS was given to participants and then collected by researchers. Participants were informed that completion of the inventory was voluntary and confidential.

Results

The social physique anxiety scores, with regard to sex and level of sport involvement (competitive athletes, exercisers, non-exercisers), are presented in Table 1.

A 3 x 2 (Competitive Athletes/Exercisers/Non-exercisers x Men/Women) Analysis of Variance revealed significant sex differences (F (1, 865) = 33.69; eta^2 = 0.04; $p < 0.01$) in social physique anxiety in favor of men. In other words, men had substantially lower scores on social physique anxiety than women. Our analysis also revealed a significant difference in social physique anxiety with regard to level of sport involvement (F (2,865) = 14.44; eta^2 = 0.03; $p < 0.01$). Follow up scheffe post hoc analysis indicated that competitive athletes and exercisers had lower social physique anxiety scores than non-participants. On the other hand, no significant Sex x Level of Sport Involvement interaction effect was obtained for social physique anxiety (F (2, 865)=1.02; eta^2 = 0.00; $p > 0.01$).

Discussion and Conclusion

The present study was designed to examine the sex differences in social physique anxiety, as well as differences in social physique anxiety among exercisers, competitive athletes and non-exercisers.

Consistent with past research in Western countries (Hart et al., 1989; Kowalski et al., 2006) and hypothesis of this study, women participants have been found to report higher social physique anxiety than men. Explanations of the consistent demonstrated sex differences have been linked to different cultural expectations of men and women with respect to body ideals (Hsu, 1989; Striegel-Moore, Silberstein & Rodin, 1989), and the fact that different images of men and women are disseminated and reinforced by media, such as images of strong, muscle-toned males and slender, underweight women (Davis, 1992). As reported by Brownell (1991), because of many current cultural obsessions for thinness and physical attractiveness in women, competitive sport, exercise participants and non-exercise participants might struggle with bodily perfection issues to a greater extent than their men counterparts. Aspiring towards attaining the cultural ideal, many women are dissatisfied with their body shape and preoccupied about fat on their bodies, and this may lead to negative affective states (Striegel-Moore, McAvay & Rodin, 1986; McAllister & Caltabiano, 1994). They may experience more anxiety about their physique if they fail to meet their high and unrealistic standards (Haase, Prapavessis & Owens, 2002). Moreover, women competitive athletes' uniforms may increase the perception of her body being evaluated, the more body shape that is discernible in one's uniform, the increased ability for her body to be judged by coaches/fitness leaders, other athletes/participants and spectators (Krane et al., 2001).

It was hypothesized that competitive athletes and exercisers would report less social physique anxiety than non-exercisers. The data obtained from this study provided strong evidence to support this hypothesis, since participants involved in competitive sport and exercise had lower social physique anxiety scores than non-exercisers. It would seem that both competitive athletes and exercisers would benefit from participation in sports and exercise and there-

Table 1

Social physique anxiety of exercisers, competitive athletes and non-exercisers

Social Physique Anxiety	Exercisers		Competitive Athletes		Non-Exercisers	
	M	SD	M	SD	M	SD
WOMEN	18.48	4.77	17.14	5.36	18.98	5.48
MEN	15.96	4.84	14.73	4.74	17.56	5.59
TOTAL	16.97	4.96	16.15	5.24	18.42	5.56

fore, participants (competitive and exercise) differ from non-participant counterparts with respect to self-presentational concerns about their physique. It may be said that competitive sport and regular exercise contribute to positive perceptions of body through improved physical fitness, functional status, increased muscle tone, stamina, and reduced body weight and fat content. Improved functional capacity or interactions of these changes may help individuals to view their bodies more positively, and thus, reduce negative body cognitions (Blinde & McClung, 1997; Russell & Cox, 2003). In addition, findings of two recent researches (Kowalski et al., 2006; Sabiston, Sedgwick, Crocker, Kowalski & Mack, 2007) provided strong support for differences between sport participants (exercise and competitive) and non-exercisers, in terms of social physique anxiety. These two studies indicated that exercise is commonly used in coping strategies related to negative body perceptions, which affect social physique anxiety among adolescents. Qualitatively, adolescent females in Sabiston et al. (2007)'s study reported health and appearance benefits of exercise for coping with social physique anxiety.

The differences in social physique anxiety among exercisers, competitive athletes and non-exercisers may also be explained by the findings of Hausenblas and Fallon's (2002) study, in which greater exercise participation was associated with lower social physique anxiety. Perhaps, competitive athletes, because of their high level of training and physical activity, may be closer to an 'ideal' athletic body, and thus, experience more positive body image and less social physique anxiety. Activity commitment may be another possible explanation for low social physique anxiety in competitive athletes and exercisers. The highest commitment to activity leads low anxiety scores about physique (Finkenberg, DiNucci, McCune, Chenette & McCoy, 1998).

Consistent with the research of Krane et al. (2001), exercisers and competitive athletes were found to be similar in social physique. Research findings which revealed significant association of participation in exercise and sports with low social physique anxiety (Wilkins, 1991; Diehl & Petrie, 1995) also supported the findings of the present study. It can be said that any type of physical activity may positively affect one's body. This finding is also consistent with previous research in comparing athletes and non-athletes, which revealed non-athletes to have greater body dissatisfaction (Petrie, 1996). As reported by previous studies (Crawford & Eklund, 1994; Frederick & Morrison, 1996; Kowalski, Crocker & Kowalski, 2001), the strong association of physical appearance motives for exercise with social physique anxiety may be the reason of low anxiety about physique with exercise participants. Furthermore, low anxiety level of exercise participants could be explained by Maguire and Mansfield (1998)'s study which examined the way social constraints and individual self-control interweave in the rationalized management of women's bodies in aerobics classes. They concluded that aerobics, as an important sporting practice for females in contemporary society, has an important role on normalizing the technique for the embodiment of feminine ideals.

On the other hand, similar social physique anxiety scores of exercise participants and competitive athletes were not in line with the meta analysis of Hausenblas and Symons Downs (2001) and the results of Van Raalte, Schmelzer, Smith and Brewer (1998), which reported less positive body image for collegiate athletes and less social physique anxiety for elite swimmers than recreational athletes and recreational swimmers, respectively. Given the lack of consistent findings, research which examined the role of competitive level athletes may be fruitful in providing both researchers and practitioners with a better understanding of how this contextual factor is related to body and weight concerns.

The limitations of the present study include the following: First, the findings may be relevant only for well-educated Turkish young men and women in urban settings, which limit the generalizability of the results. The nature of the data obtained in the present study can be considered a second limitation. Although our quantitative analysis serves mainly to describe the differences in social physique anxiety with regard to sex and level of sport involvement, it does not provide an explanation of underlying reasons. Therefore, in further inquiries, qualitative analysis should be used to explain underlying reasons within social and cultural contexts.

In conclusion, the findings of the present study contribute to the growing literature on social physique anxiety by focusing on sex differences and different level of sport involvement in the non-Western culture of Turkey. Remarkably, few researches have made explicit reference to the level of sport involvement when investigating social physique anxiety. Based on the findings reported here, the current study support the effect of sex and level of sport in-

volvement or physical activity contexts on social physique anxiety. Future studies should examine the cultural and social contexts in competitive and exercise settings, by focusing on masculinity and femininity relationships with bodily perceptions of women and men in different sport contexts. Future studies should also deal with feedback by coaches and fitness leaders, their leadership characteristics and perceived motivational climate in the exercise and sport context on self-presentational concern.

References

Amorose AJ, Hollembeak J. Examining the moderating effect of appearance impression motivation on the relationship between perceived physical appearance and social physique anxiety. Res Q Exercise Sport, 2005; 76: 507-513

Blinde EM, McClung LR. Enhancing the physical and social self through recreational activity: Accounts of individuals with physical disabilities. Adapted Physical Activity Journal, 1997; 14: 327-344

Brownell KD. Dieting and the search for the perfect body: Where physiology and culture collide? Behav Ther, 1991; 22: 1-12

Crawford S, Eklund RC. Social physique anxiety, reasons for exercise, and attitudes toward exercise settings. J Sport Exercise Psy, 1994İ 16: 70-82

Crocker PRE, Synder J, Kowalski KC, Hoar S. Don't let me be fat or physically incompetent! The relationship between physical self-concept and social physique anxiety in Canadian high performance female adolescent athletes. AVANTE, 2000; 6: 16-23

Cusumano DL, Thompson JK. Body image and body shape ideals in magazines: Exposure, awareness, and internalization. Sex Roles, 1997; 37: 701–721

Davis C. Body image, dieting behaviors and personality factors: A study of high performance female athletes. Int J Sport Psychol, 1992; 23: 179-192

Diehl N, Petrie T. A longitudinal investigation of the effects of different exercise modalities on social physique anxiety. J Appl Sport Psychol, 1995; 7: S55

Eklund RC, Crawford S. Active women, social physique anxiety, and exercise. J Sport Exercise Psy, 1994; 16: 431-448

Eklund RC, Kelley B, Wilson P. The social physique anxiety scale: Men, women, and the effects of the modifying item 2. J Sport Exercise Psy, 1997; 19: 188-196

Eklund RC, Mack D, Hart E. Factorial validity of the social physique anxiety scale for females. J Sport Exercise Psy, 1996; 18: 281-295

Eriksson L, Baigi A, Marklund, B, Lindgren EC. Social physique anxiety and sociocultural attitudes toward appearance impact on orthorexia test in fitness participants. Scand J Med Sci Spor, 2007; 18: 389-394

Finkenberg ME, DiNucci JM, McCune SL, Chenette T, McCoy P. Commitment to physical activity and anxiety about physique among college women. Percept Motor Skill, 1998; 87: 1393-1394

Focht BC, Hausenblas HA. Influence of quiet rest and aerobic exercise performed in the naturalistic environment on selected psychological responses. J Sport Exercise Psy, 2001; 23: 108-121

Frederick CM, Morrison CS. Social physique anxiety: Personality constructs, motivations, exercise attitudes and behaviors. Percept Motor Skill, 1996; 82: 963-972

Frederick C, Shaw S. Body image as a leisure constraint: Examining the experience of aerobic exercise classes for young women. Leisure Sci, 1995; 17: 57–73

Haase A, Prapavessis H. Social physique anxiety and eating attitudes in female athletic and non-athletic groups. Journal of Science and Medicine in Sport, 2001; 4: 396–405

Haase AM, Prapavessis H, Owens RG. Perfectionism, social physique anxiety and disordered eating: A comparison of male and female elite athletes. Psychology of Sport and Exercise, 2002; 3: 209-222

Hagger MS, Aşçı FH, Lindwall M, Hein V, Mülazimoğlu-Balli, Ö, Tarrant M, et al. Cross-cultural validity and measurement invariance of the social physique anxiety scale in five European nations. Scand J Med Sci Spor, 2007; 17: 703-719

Hart EA, Leary MR, Rejeski WJ. The measurement of social physique anxiety. J Sport Exercise Psy, 1989; 11: 94-104

Hausenblas HA, Brewer BW, Van Raalte JL. 2004 Self-presentation and exercise. J Appl Sport Psychol, 2004; 16: 3-18

Hausenblas HA, Fallon EA. Relationship among body image, exercise behavior, and exercise dependency symptoms. Int J Eet Disorder, 2002; 32: 179-185

Hausenblas HA, Mack DE. Social physique anxiety and eating disorder correlates among female athletic and nonathletic populations. Journal of Sport Behavior, 1999; 22: 502-513

Hausenblas HA, Symons Downs D. Comparison of body image between athletes and non-athletes. A meta-analytic review. J Appl Sport Psychol, 2001; 13: 323-339

Hsu LK. The gender gap in eating disorders: Why are the eating disorders more common among women? Clin Psychol Rev, 1989; 9: 393-407

Isogai H, Brewer BW, Cornelius AE, Komiya S, Tokunaga M, Tokushima S. Cross-cultural validation of the social physique anxiety scale. Int J Sport Psychol, 2001; 32: 76-87

Katula JA, McAuley E, Mihalko SL, Bane SM. Mirror, mirror on the wall:. Exercise environment influences on self-efficacy. J Soc Behav Pers, 1998; 13: 319–332

Kowalski N, Crocker P, Kowalski K. Physical self and physical activity relationship in college women: Does social physique anxiety moderate effects? Res Q Exercise Sport, 2001; 72: 55-62

Kowalski KC, Mack DE, Crocker PRE, Niefer CB, Fleming T. Coping with social physique anxiety in adolescence. J Adolescent Health, 2006; 39: 275e9-275e16

Krane V, Shipley JA, Waldron J, Michalenok J. Relationship among body satisfaction, social physique anxiety, and eating behaviors in female athletes and exercisers. Journal of Sport Behavior, 2001; 24: 247-264

Leary ML. Self-presentational process in exercise and sport. J Sport Exercise Psy, 1992; 14: 339-351

Leary MR, Kowalski RM. Impression management: A literature review and two-component model. Psychol Bull, 1990; 107: 34-47

Maguire J, Mansfield L. "No body's perfect": Women, aerobics, and the body beautiful. Sociol Sport J, 1998; 15: 109-137

Martin JJ, Kliber A, Kulinna PH, Fahlman M. Social physique anxiety and muscularity and appearance cognitions in college men. Sex Roles, 2006; 55: 151–158

Martin, KA, Mack D. Relationships between physical self-presentation and sport competition trait anxiety: A preliminary study. J Sport Exercise Psy, 1996; 18: 75-82

Martin KA, Rejeski WJ, Leary MR, McAuley E, Bane S. Is the social physique anxiety scale really multidimensional? Conceptual and statistical arguments for unidimentional model. J Sport Exercise Psy, 1997; 19: 359-367

McAllister R, Caltabiano ML. Self-esteem, body image and weight in noneating-disordered women. Psychol Rep, 1994; 75: 1339-1343

McDonald K, Thompson JK. Eating disturbance, body image dissatisfaction, and reasons for exercising: Gender differences and correlational findings. Int J Eat Disorder, 1992; 11: 289-292.

Motl RW, Conroy DE. Validity and factorial invariance of the social physique anxiety scale. Psychology and Social Sciences, 2000; 32: 1007-1017

Motl RW, Conroy DE. The social physique anxiety scale: Cross validation, factorial invariance, and latent mean structure. Measurement in Physical Education and Exercise Science, 2001. 5: 81-95

Petrie TA. Differences between male and female college lean sport athletes, non-lean sport athletes and non-athletes on behavioral and psychological indices of eating disorders. J Appl Sport Psychol, 1996; 8: 218-230

Russell WD, Cox RH. Social physique anxiety, body dissatisfaction, and self-esteem in college females of differing exercise frequency, perceived weight discrepancy, and race. Journal of Sport Behavior, 2003; 26: 298-319

Sabiston CM, Sedgwick WA, Crocker, PRE, Kowalski KC, Mack DE. Social physique anxiety in adolescence: An exploration of influences, coping strategies, and health behaviors. J Adolescent Res, 2007; 22: 78-101

Spink KS. Relation of anxiety about social physique to location of participation in physical activity. Percept Motor Skill, 1992; 74: 1075-1078

Stice E, Shaw HE. Adverse effects of the media portrayed thin-ideal on women and linkages to bulimic symptomatology. J Soc Clin Psychol, 1994; 13: 288-308

Strelan P, Hargreaves D. Reasons for exercise and body esteem: Men's responses to self-objectification . Sex Roles, 2005; 53: 495-503

Striegel-Moore RH, McAvay G, Rodin J. Psychological and behavioral correlates of feeling fat in women. Int J Eat Disorder, 1986; 5: 935-947

Striegel-Moore RH, Silberstein LR, Rodin J. A prospective study of disordered eating among college students. Int J Eat Disorder, 1989; 8: 499-509

Tiggemann M, Williamson S. The effect of exercise on body satisfaction and self-esteem as a function of gender and age. Sex Roles, 2000; 43: 119-127

Van Raalte JL, Schmelzer GL, Smith CC, Brewer BW. Social physique anxiety in competitive women athletes. Journal of Gender, Culture and Health, 1998; 3: 111-120

Wilkins JA. A comparison of male and female university athletes and non-athletes on eating disorder indices: Are athletes protected? Journal of Sport Behavior, 1991; 14: 129-143

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