A STUDY TO DETERMINE THE DEGREE OF SOCIAL PHYSIQUE ANXIETY AND PERCEIVED DIRECTIONALITY OF ITS IMPACT AMONG ELITE FEMALE FITNESS ATHLETES

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by

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Abstract

This study investigated the degree to which elite female fitness competitors experienced social physique anxiety and whether it was associated with facilitative or debilitative practices. The Social Physique Anxiety Scale (1989) and Hiscock Directionality Scale (2003) were administered during a 2003 international fitness competition held in a major Canadian city. Participants included 38 volunteers of 46 competitors. Results indicated competitors had a moderate degree of social physique anxiety ($M = 2.69$, $SD = .87$) and minimal degrees of perceived debilitation with responsibility ($M = 3.50$, $SD = 1.10$) and affect ($M = 3.02$, $SD = .74$). Debilitated affect was positively associated with increased social physique anxiety. Competitors appeared unsatisfied with their body image, desiring larger breast and less body fat, similar to the body image they perceived the judges desired. Many underwent or considered cosmetic surgery to enhance their image. The majority of participants trained primarily for physical appearance/sculpting reasons and consumed inadequate nutrition to meet their increased training volume. Forty-five percent had irregular/cessation of menstruation.

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CHAPTER 1

INTRODUCTION

Overview

In the contemporary Western world, concern over body image plays a vital role in many facets of people's lives; it affects decisions not only about exercise behaviour (Bain, Wilson, & Chaikind, 1989; Carron & Prapavessis, 1997; Crawford & Eklund, 1994; Frederick & Morrison, 1996; Hart, Leary, & Rejeski, 1989; Leary, Tchividjian, & Kraxberger, 1994; Spink, 1992; Leary, 1992; Yin, 2001), clothing preference (Carron & Prapavessis, 1997; Eklund & Crawford, 1994; Eklund, Mack, & Hart, 1996; Frederick, Roberts, Noll, Quinn, & Twenge, 1998; McAuley & Burman, 1993), and one's health (Cox, Lantz, & Mayhew, 1997; Haase & Prapavessis, 2001; Haase, Prapavessis, & Owens, 2002; Hayes & Ross, 1987; Marquez & McAuley, 2001; McLaren, Gauvin, & White, 2001; Pliner & Chaiken, 1990) but also psychological traits, such as self-esteem and confidence (Carron and Prapavessis, 1997; Martin & Mack, 1996; McAuley & Burman, 1994). All these factors influence attitudes about interacting and participating in physical activity. From time immemorial, humans have emphasized the importance of the human aesthetics, often influencing an array of societal standards. For example, during the early Olympic games the male Greek athletes participated in the nude, as they were "extremely proud of the beauty of their bodies, and the games provided an opportunity for public display of excellence of physique"(Polidoro, 2000, p. 7). From the Victorian era through to the early 1900's, women wore the corset apparel for the purpose of displaying a sculpted body illusion. Contemporarily, we need only to contrast the self-presentation

experienced when the Taliban forced all women in Afghanistan to hide their physiques when in public through the wearing of the burqa, to the freedom experienced at the topless beach.

The practiced standard of self-presentation varies from one culture to another. Yet within a culture, the comfort associated with presentation of the female body differs greatly by individual, even with similarly conditioned physiques. The reasons are intriguing as to why a woman may feel confident displaying her body with little or no clothing, while another may be debilitated by anxiety often causing her to avoid social situations and to hide her body, a phenomenon commonly referred to as *social physique anxiety*.

Studies conducted on social physique anxiety within the sport and exercise arena have revealed that athletes participating in individual-based sport and activity have greater social physique anxiety than those involved in group or team sports (Carron & Prapavessis, 1997; Leary, 1992). Conversely, athletes competing in aesthetic sports, such as gymnastics, where physique evaluation plays a role in the outcome, exhibit increased anxiety (McAuley & Burman, 1993). Likewise, studies have indicated a negative association between tight-fitting clothing/exercise settings that emphasize the physique and social physique anxiety (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Eklund et al, 1996; McAuley & Burman, 1993; Carron & Prapavessis, 1997).

One study examined social physique anxiety in the sport of bodybuilding where aesthetics is the primary component evaluated in determining competitive success (Schwerin, 1996). Given the emergence of female fitness competition in the late 1980's, a study regarding this area of the sport is appropriate and timely. Similar

to female bodybuilding, athletes within this sport compete individually, wear bikinis, and are evaluated on the aesthetic appearance of their physiques. Female fitness competitions include a physique component, which is worth 40% of the overall performance. Athletes are judged in a bikini on body shape, tone, symmetry, complexion, poise, presentation and overall body condition. Sixty percent (60%) of the overall evaluation includes a two-minute high-energy routine that demonstrates athletic coordination, style, personality and overall performance. Flashy, creative, form-fitting costumes are recommended, but aesthetic condition of the physique is not marked in this round.

To date, social physique anxiety has not been investigated in the sport of female fitness competition. Investigation of the degree of social physique anxiety, or the amount as quantified by low, moderate or high, in female fitness competition would add information to the literature available. The literature has reported on social physique anxiety within other aesthetic sports such as gymnastics, diving, figure skating, aerobics, and rowing, where appearance has a minimal influence toward evaluation (Eklund & Crawford, 1994; Haase & Prapavessis, 2001; Hausenblas & Mack, 1999; Hausenblas & Martin, 2000; Martin, Engels, Wirth, & Smith, 1997; McAuley & Burman, 1993), but not in a sport such as female fitness competition in which aesthetic appearance accounts for approximately half of the score.

Furthermore, perceived directionality, or the perception of whether social physique anxiety is associated with facilitative or debilitative practices, has not been studied in the sport of female fitness competition. Determining the degree to which female fitness competitors experience social physique anxiety and the inclusion of the fitness competitors' perceptions regarding directionality would add to the existing

literature. Findings may provide insight into the cognitive and affective dimensions of female fitness athletes, and indicate whether they have reflected and analyzed how social physique anxiety influences their thoughts, feelings, attitudes and behaviours about competing and about life in general.

Purpose of the Study

The literature indicated that social physique anxiety has not been studied in the sport of female fitness competition. Therefore, the purpose of this exploratory study was twofold. Foremost, the study attempted to determine the degree to which elite female fitness competitors experience social physique anxiety. Secondly, it investigated any perceived directionality; that is, whether the anxiety was associated with facilitative or debilitative practices. It is hoped that the study's findings will assist in raising awareness about, and possibly positively impacting the degree of, social physique anxiety for female fitness competitors, should it exist, with a long-term goal of effecting positive change in female fitness athletes' cognitive-emotional dimensions and state of holistic health.

Definition of Terms

Social physique anxiety is defined as "the degree to which people become anxious when others observe their physiques" (Weinberg & Gould, 1999, p. 79). *Perceived directionality* refers to whether social physique anxiety is perceived to be associated with facilitative or debilitative, that is healthy or unhealthy, practices.

Research Questions

This dissertation sought to investigate the following questions:

1. To what degree do elite female fitness competitors experience social physique anxiety?
2. Is social physique anxiety associated with facilitative or debilitative practices for female fitness competitors and if so, to what degree?

Justification for the Study

The reviewed literature indicated that social physique anxiety is greater in individual sports when aesthetic value is emphasized, when more of the body is displayed, and when athletes find it difficult to present the ideal image or doubt their ability to do so. In individual sports where evaluation results in excessive pressures for athletes to portray an ideal image, they often adhere to practices that may have negative consequences on their health, including such behaviours as over-training, disordered eating practices, using pharmacological aids, and undergoing cosmetic surgery in an attempt to feel and look better and/or to win. This study attempted to determine whether social physique anxiety exists in female fitness competitors. Conducting this study also assisted in determining whether social physique anxiety was associated with debilitative or facilitative practices. This study provided information regarding female fitness competitors' understanding of some of the potential anxiety sources. The results may be utilized to educate female fitness competitors about the fact that social physique anxiety is commonplace and shared by other fitness athletes. In turn, it may assist athletes in addressing and overcoming the impact social physique anxiety has on their lives.

Limitations of the Study

Female fitness competitors are a specialized group, as participants consisted solely of elite female, drug-free athletes competing in a particular international event. The results of the study are therefore, not generalizable. Due to the limited sample size of 38 participants, generalization of ethnicity was beyond the scope of this study.

Similar to the majority of studies on social physique anxiety, this study employed only a quantitative methodology to obtain the results. Qualitative methods, such as interviews, could have expanded our understanding of the degree and impact social physique anxiety had on this specialized group of athletes. However, due to time constraints at the event and the varied geographic location of the participants' residences, it was beyond the scope of the study to employ qualitative methods.

Body Mass Index (*BMI*), a ratio of total body weight to height, has been used as a measure in many studies of social physique anxiety. Plowman and Smith (1997) indicated that although BMI is a "commonly used standard for measuring acceptable body weight, overweight, and obesity in non-athletes", it is not suitable for accurate measures within the athletic world because "athletes often have body composition values below these standards"(p. 363). Many female fitness athletes would have BMI's that would be considered unhealthy due to increased muscle and decreased body fat, as compared with the non-athletic population, and therefore calculating the index may not produce valid data. Advanced fitness testing, such as taking the sum of five skin folds and waist girth measures, was beyond the scope of this study, again due to time constraints at the event.

The pilot study was also limited in its generalizability. The thesis study involved a specialized population that was not available for test-retest prior to the

international event, so competitive fitness models were selected for the pilot study. Competitive fitness models most closely resembled the participants within the sport of competitive fitness; the competitive female models were aesthetically evaluated wearing a bikini, fitness attire and evening clothes, but they did not have to perform an athletic routine. The pilot study results should be interpreted with caution as the sample consisted of only 11 subjects.

Assumptions

It was assumed that participants provided honest answers to all questions and that performance and/or trait anxiety did not interfere with their thought processes, given that they completed the questionnaire just one-and-a-half hours prior to competing.

Summary

A literature review suggests many individuals experience social physique anxiety. The purpose and justification for conducting this study, a definition of terms, and the research questions to be answered, have been outlined. This chapter concludes with limitations and assumptions. Chapter 2 reviews the literature on social physique anxiety and the theoretical framework employed in the discussion.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

With the increased emphasis on physical beauty in our Western society (McLaren, Gauvin, & White, 2001; Leit, Pope, & Gray, 2001), many individuals spend countless hours attempting to improve their outward appearance. It is intriguing that some individuals choose to display their body while others hide it. It is even more intriguing that some people feel confident displaying their physical selves, whereas others shy away and experience debilitating amounts of anxiety regarding their physique presentation. The literature is replete with research regarding the emerging study of social physique anxiety but emphasis here will be on specific areas of interest. These include the impact of social physique anxiety on exercise behaviour, on the physical self, and on one's health, as well as the impact of personality and environment on social physique anxiety. An overview of the theoretical framework, namely, Cognitive Behavioural Theory, utilized to discuss the study's findings is provided. This chapter concludes with a summary of the main issues related to social physique anxiety.

Impact of Social Physique Anxiety on Exercise Behaviour

The decision to engage in and adhere to physical activity or sport is often influenced by social physique anxiety and self-presentational motives. Many studies reveal that dissatisfaction regarding one's physique is a major motivator for exercise participation, while the anxiety caused by the presentation of one's physique may be

the primary deterrent (Crawford & Eklund, 1994; Hart et al., 1989; Leary et al., 1994; Spink, 1992).

Leary (1992) revealed that social physique anxiety cannot only affect one's motivation to engage in physical activity but also people's choices and the context of activity, quality of performance, and emotional reaction to engaging in sport and physical exercise. He indicated that the preconceived notion of how others will evaluate their bodies and skills results in refusal to participate in a group setting, such as a public swimming pool, and in turn the individuals either resort to exercising alone or not at all. Leary's study was supported by results obtained by others. Bain et al. (1989) suggested that the social circumstance of the exercise environment, such as being visible, embarrassed, and judged, is the most powerful influencer of exercise behaviour for many overweight women. One participant expressed, "The bigger I get, the more I don't want to be seen exercising" (p. 137). Similarly, Crawford and Eklund (1994)'s study on exercise setting preference reported that social physique anxiety was negatively associated with exercise settings that emphasize the salience of the physique and positively associated with exercise settings that minimize the salience of the physique. Likewise, Spink (1992) examined the exercise location preference of 37 nursing students and revealed that those women scoring high in social physique anxiety reported a preference for exercising privately rather than publicly. Finally, Yin (2001) examined the association between gender composition of the exercise environment and body appearance concerns of 81 female gym members. He concluded:

> Those who exercised in the women-only area reported more social physique anxiety and dissatisfaction with their body size and favoured exercising in areas exclusively reserved for women than women who exercised primarily in

> co-ed areas. The women-only area served as a protective environment for those who were heavier, anxious about their body appearances, and dissatisfied about their body images. These women also preferred to exercise in an exclusively female setting compared to women who used the co-ed area. (p. 851)

In contrast, Walton and Finkenberg (2002) found no significant difference in mean social physique anxiety scores between new female members exercising at all-female facilities and those at co-educational facilities. Likewise, Yin and Ryska (1999) found no significant difference in social physique anxiety, perceived competence, or psychomotor performance scores between all-female and mixed-gender high school physical education students. However, they reported females in mixed-gender groups reported significantly higher enjoyment of coordination and agility testing.

Studies indicated that social physique anxiety might also enhance performance and participation. Leary (1992) suggested that self-presentational concern facilitates exercise behaviour most commonly when physical appearance and social identity motives are involved. He found that individuals tend to exercise harder when they are being observed and when they believe their efforts will result in positive impressions by others. This is consistent with Crawford and Eklund's (1994) study involving 104 undergraduate college females. They concluded:

> It does appear that the reasons that women engage in exercise activities are differently associated with social physique anxiety. Reasons that can be constructed as self-presentational (Physical Attractiveness, Body Tone, and Weight Control) seem to be important and possibly associated with SPA. Reasons that are not as clearly self-presentational motives (Health, Enjoyment, Mood Enhancement, Fitness) do not seem to be associated with SPA… (p.80).

Social physique anxiety also influences one's choice to participate in group versus individual exercise activity or sport. Frederick and Morrison (1996)

concluded, "individuals with high scores on the social physique anxiety scale were more likely to engage in fitness-type activities than in team or individual sports" (p. 968). Carron and Prapavessis (1997) explained how social physique anxiety is reduced with group influence, in comparison to individual-based sport and activity. Four other sources of evidence by Carron and Prapavessis included: 1) as anonymity increases, self-awareness decreases; 2) other members act as a distraction from the self-presentational concerns; 3) diffusion of evaluation is minimized; and 4) the group creates a source of psychological security. An example would be the different experience for an individual participating in an aerobic class versus the experience of an individual engaging in weight training. Although both activities are performed in the presence of others, the aerobic participant would likely be experiencing more group cohesion due to the participants' common purpose for being in the class. This is a different experience than the weight-trainer whose focus is more individual and has differential tasks. On a similar note, Leary (1992) noted that social physique anxiety can result in individuals exercising alone or not at all, but self-presentational pressures are reduced in a group setting.

Diehl, Brewer, Van Raalte, Shaw, and Fiero (2001) investigated the relationship between social physique anxiety, social discomfort, and preferred number of exercise partners utilizing 97 female members of a university medical wellness centre. They concluded that females with high social discomfort preferred to exercise alone, whereas those with high social physique anxiety tended to prefer to exercise with the one consistent partner, rather than to exercise alone or with a group. However, when perceived social discomfort and social physique anxiety are high, the chance of selecting an exercise partner is reduced and there is a preference to be alone.

This is consistent with Carron and Prapavessis (1997) who found that social physique anxiety is reduced in the company of a best friend.

Clothing preference during an activity is another aspect of exercise behaviour strongly influenced by social physique anxiety. With a sample of 86 female aerobic participants, Brewer, Diehl, Cornelius, Joshua, and Van Raalte (2004) examined relations among social physique anxiety, BMI, and two forms of protective self-presentational exercise behaviour, namely wearing concealing exercise clothing and preference to stand away from the instructor. The subjects had low BMI and a moderate degree of social physique anxiety, a mean score of 25.15 (*SD* 7.33) on the 9-item scale. The results revealed that social physique anxiety was positively correlated with both the preference for clothing coverage and preferred exercise studio floor position; that is, participants high in social physique anxiety chose to wear more concealing attire to fitness classes and expressed a preference to stand further from the aerobics instructor. BMI, however, was a better predictor of clothing choice than was social physique anxiety.

A study by Eklund and Crawford (1994) of 94 females physical education students indicated, "Social physique anxiety was negatively associated with preference for participating in tight-fitting aerobic dance clothes and positively associated with preferences for loose-fitting aerobic clothing" (p. 443). Similar findings were reported in Crawford and Eklund's (1994) study with 104 undergraduate females. Using video manipulation to explore social physique anxiety, weight and body satisfaction, and reasons for exercise, the investigators concluded that a strong, negative correlation exists between social physique anxiety and the exercise setting that emphasizes the physique. Similarly, Sinden, Martin Ginis, and

Angove (2003) examined the effects of exercise attire on 81 older women's feelings regarding exercise groups and their self-presentational efficacy. Participants viewed a 2-minute videotape of an exercise group consisting of older adults wearing revealing attire (sleeveless tops and shorts) or non-revealing attire (short-sleeved t-shirts and long pants). The results indicated that social physique anxiety moderated the effects of attire on self-presentational efficacy; that is, there was a negative relationship between social physique anxiety and efficacy for those that viewed the revealing-attire group, and women with moderate to high physique anxiety who viewed the revealing-attire group had lower self-presentational efficacy than those individuals who viewed the non-revealing group. As well, the less active women preferred the non-revealing-attire group and had more negative feelings toward the revealing-attire group than more active participants.

A study of 186 male and female psychology and sport science students indicated that 39% felt physique anxiety most when wearing a bathing suit, 23% when exercising in a gym, 12% from being next to a person with a good physique, and 2% when purchasing clothing (Carron & Prapavessis, 1997). In addition, Frederick et al. (1998) found that putting women in revealing clothes such as swimwear, in comparison to sweaters, even when alone, resulted in increased body shame and restrained eating. Contrary to these studies, Krane, Stiles-Shipley, Waldron, and Michalenok (2001) divided 198 female aerobic exercisers and 204 female college athletes into categories based on how much of their body shape was displayed in their uniforms, which included revealing, baggy, and mixed. The results indicated that exercisers and athletes did not differ in social physique anxiety. Body dissatisfaction

and drive for thinness, however, were the strongest predictors of social physique anxiety in both exercisers and athletes.

Many people are aware of the various physical benefits of exercise. Exercise also has many psychosocial rewards, including reduced levels of social physique anxiety. McAuley, Marquez, Jerome, Blissmer, and Katula (2002) studied the effects of 6 months of aerobic or stretch and toning physical activity on the reduction of social physique anxiety in 174 older adults with follow-up after one year. The results indicated that scores for both groups decreased from the baseline to the 6-month mark, and the scores during the follow-up, 12 months after the study began, were still below the initial baseline scores. Improvements in self-efficacy and fitness were significant predictors of changes in social physique anxiety. Similarly, a study on the effectiveness of exercise in reducing body image concerns with 81 female college students showed a significant decrease in social physique anxiety and increase in body esteem by participating in aerobic activity, in comparison to those in the non-exercising group, during the course of a semester (Bartlewski, Van Raalte, & Brewer, 1996). Likewise, Hausenblas and Fallon (2002) examined the relationship between exercise behaviour, body image, BMI, and exercise dependence with 474 active university students. Exercise behaviour was reported to be the strongest negative predictor of social physique anxiety and body dissatisfaction for males; that is, males that reported increased exercise behaviour presented with higher body satisfaction and lower social physique anxiety. For females, however, BMI was the strongest positive predictor of social physique anxiety and body dissatisfaction.

Many other studies demonstrated the inverse relationship between social physique anxiety and exercise behaviour or commitment (Cramer-Hammann, Lutter,

Cornelius, Piontek, & Hardy, 1993; Finkenberg, DiNucci, McCune, Chenette, & McCoy, 1998; Lantz, Hardy, & Ainsworth, 1997; Ransdell, Wells, Manore, Swan, & Corbin, 1998), and Berry and Howe (2004) indicated that exercisers presented with less social physique anxiety compared to non-exercisers. Finally, Williams and Cash (2001) investigated the effects of a 6-week circuit weight-training program on body image changes in 39 university students. The class met for 3 hours per week, with focus on toning the entire body. Weight-trainers' body images improved on all four measures: social physique anxiety, appearance evaluation, body satisfaction and physical self-efficacy, with no changes reported by the control group. However, there were no group differences at post-test, likely because the exercisers had more initial body dissatisfaction.

With regard to competitive sport, Crocker, Snyder, Kowalski, and Hoar (2000) investigated the relationship between social physique anxiety and physical self-concept with 101 high performance Canadian adolescent female athletes from various sports. The results suggested that high performance athletes had positive global self-esteem and physical self-concept, low social physique anxiety, and that athletic coordination, an aspect of perceived physical competence, predicted the degree of social physique anxiety experienced. Furthermore, there was no significant difference in social physique anxiety between athletes in aesthetic versus non-aesthetic sports, but social physique anxiety was strongly related to physical self-concept, especially body fat.

The reason individuals engage in physical activity affects social physique anxiety and adherence. Eklund and Crawford (1994) indicated:

> Significant positive correlations were observed between social physique anxiety and self-presentational reasons for exercise - motives related to development or maintenance of easily observable physical qualities (body tone, physical attractiveness, weight control). Reasons for exercise that were relatively independent of self-presentation (fitness, mood enhancement, and enjoyment) were unrelated to social physique anxiety, with the interesting exception of health. Exercising for health was found to be significantly and negatively associated with social physique anxiety, indicating that a greater emphasis upon exercising for health related reasons was associated with lower levels of social physique anxiety (p.443).

Likewise, Frederick and Morrison (1996) studied the relationship between social physique anxiety and the exercise behaviours of 326 university fitness-centre participants. They concluded, "individuals who scored high were more likely to endorse extrinsic motives for exercise than individuals scoring low on the scale, and high scores were indicative of higher public body awareness" (p. 963). Similarly, in a study that examined correlates of social physique anxiety among 286 aerobic instructors, women who instructed for self-presentational reasons had significantly higher social physique anxiety than those who taught classes for leadership or mood enhancement (Hausenblas & Martin, 2000). Williams and Cash (2001) indicated that weight-trainers who exercised for appearance or weight management motives presented with increased body dissatisfaction at the beginning of a 6-week program, while socially motivated participants demonstrated greater reductions in social physique anxiety.

Finally, Harju, Twiddy, Cope, Eppler, and McCammon (2003) examined 144 university exercisers' motivational goals, namely mastery and performance, in relation to preference of instructors' styles and differences in optimism, social physique anxiety and fitness scores. Individuals employing mastery goals focus on incremental steps within a task and are concerned with internal standards of success, whereas

performance goals involve concern for external standards of success such as outcome of work and whether they appear competent. The results indicate that exercisers with dual motivational goals, mastery-performance and performance-mastery, preferred instructors that provided supportive and mastery responses, and presented with increased fitness levels compared to those who used primarily mastery goals or low levels of either. As well, performance-mastery groups displayed less optimism than other groups. Despite different motivational goal styles, there was no significant group difference on social physique anxiety, with all women reporting similarly low scores. The fact that these exercisers chose to exercise in this particular centre and presented with more revealing attire likely suggests that they were comfortable with self-presentation.

The question arose as to whether spending much time in a physique-salient environment would cause athletes to become desensitized, thereby feeling oblivious to the effects of social physique anxiety. Hausenblas and Martin (2000) discovered that the amount of exposure to the exercise setting, as determined by the number of years teaching or participating in aerobics, was unrelated to social physique anxiety. Contrary to their hypothesis, the repeated exposure to aerobic instructors' bodies did not desensitize the subjects to social physique concerns. Similarly, McNelis-Kline (2000) examined behaviours and attitudes, namely preoccupation with weight, body image, and social physique anxiety of 162 female and 16 male aerobic instructors, whose profession demanded leanness. The results indicated that the aerobic instructors experienced moderate to intense levels of social physique anxiety, and those with high levels experienced greater drive for thinness and more body dissatisfaction. Finally, McAuley, Bane, Rudolph, and Lox (1995) indicated body-

composition-physique anxiety relationships were stronger at the end of their 20-week aerobic exercise program than prior to the program onset, suggesting that an increased sensitivity to physique appearance had developed over the course of the program.

Impact of Social Physique Anxiety on the Physical Self

The importance of body image in today's society has resulted, for many people, in an often over-whelming emphasis on preparing and perfecting one's physical appearance. When compared with the apparently flawless models as presented in the media, many people may feel dissatisfied with their physical self and, in turn, experience a sense of anxiety regarding self-presentation. What is it then about the physical self that creates the most anxiety? Does weight, height, body proportions, or body composition affect the degree of anxiety experienced? What is the effect of age, gender, and ethnicity? Do those with a well-sculpted physical image experience social physique anxiety? This study seeks to answer these questions.

A great deal of literature suggested that physical dimensions are strongly correlated with social physique anxiety. Hart et al. (1989) disclosed that women scoring high in social physique anxiety were significantly heavier, taller, and had increased body fat - an average of 32% compared to 28%. Similar results were reported by Spink (1992) who revealed that there was no evident difference in height, but individuals scoring high in social physique anxiety weighed significantly more than those who scored lower, with mean weights of 64.5 versus 58.6 kilograms, respectively. Similarly, Hausenblas and Fallon (2002) indicated that BMI was the strongest positive predictor of body dissatisfaction and social physique anxiety for active, female university students. Kostanski and Gullone (1998) also studied

perceived body dissatisfaction in 516 adolescent aged male and females. They reported that actual body mass was positively correlated with body dissatisfaction, as where psychological variables of depression and anxiety. Likewise, a primary theme that emerged in a study by Bain et al. (1989) was that body size is a major issue, with most of their obese female participants expressing dissatisfaction with, and feeling devalued as a result of, their body size. Several other studies also concluded that persons with greater amounts of body fat are more likely to experience social physique anxiety than those with less body fat (Cox, Lantz, & Mayhew, 1997; Crawford & Eklund, 1994; Crocker et al., 2000; Ransdell et al., 1998).

Ransdell et al. indicated that fat distribution affected social physique anxiety in postmenopausal women, stating that those with the upper body fat distribution in the abdominal and trunkal areas had higher social physique anxiety than those with fat deposits in the lower body area, the gluteal region and thighs. McAuley et al. (1995) also concluded:

> Subjects with greater percentage body fat and larger hips and waist reported more social physique anxiety. When changes in body composition over time were correlated with post-program physique anxiety, subjects with greater reductions in abdominal, waist, and hips had lower physique anxiety. (p. 233)

Similarly, in their study of the relationship between age, social physique anxiety and body image dissatisfaction with 77 females, 7 to 12 years of age, Thompson and Chad (2002) concluded that post-pubescent participants, that is, those that were more physiologically developed with greater body fat, had higher social physique anxiety than those considered prepubescent. As well, social physique anxiety was a more significant correlate of body weight and shape concerns than was age, with those high in physique anxiety more likely to prefer a smaller body size and shape.

Contrary to these findings, however, a study examining anthropometric profiles (BMI, skin folds, and waist-to-hip ratio) and social physique anxiety in 182 male physical education professors from India indicated no significant relationship (Mookerjee, Singh, & Cash, 2002). The mean social physique anxiety score for the educators was 29.4, indicative of moderate anxiety, but there was no group difference between the normal and overweight groups. The investigators suggested, "the lack of a correlation between the anthropometric measures used in this study and the Social Physique Anxiety Scale scores may be due to the sensitivity of the inventory in accounting for age group, and cross-cultural differences" (p.52).

During their meta-analysis of athletes and non-athletes, Hausenblas and Symons Downs (2001) indicated that athletes reported a more positive body image than non-athletes, and suggested that this could possibly be because the athletic physique was similar to society's aesthetic ideal image and/or due to increases in positive psychological characteristics. Of particular interest, Lee and Owen (1986) revealed that exercisers who maintained their programs were leaner and lighter than those who dropped out, as determined by physique assessment prior to beginning exercise.

Although social physique anxiety affects a wide range of ages, the impact varies remarkably. For the elderly, there are numerous self-presentational issues that arise from changes in health and age associated with concerns about appearance, as well as others' perceptions of their competence and ability to be self-reliant. (Martin, Leary, & Rejeski, 2000). Other researchers reinforced this finding. Lichtenberger, Martin Ginis, MacKenzie, and McCartney (2003), examined the relationship between physiological functioning and psychosocial wellness among 72 men, ranging in age

between 51 and 84 years, involved in a maintenance cardiac rehabilitation exercise program. The results indicated that both functional capacity (clinician-reported diagnosis) and functional status (self-reported perception) explain significant variance in social physique anxiety, but only functional status predicted body appearance satisfaction. There was a negative relationship between functional status and social physique anxiety, but an unexpected positive relationship between functional capacity and social physique anxiety; that is, subjects with more positive perceptions of their functional status displayed less physique anxiety and had greater body satisfaction. Those men with greater peak power, however, experienced greater social physique anxiety. This is contrary to other studies and to the hypothesis. The investigators suggested that those men with high physique anxiety might have exercised more often to manage their self-presentational concerns.

Eklund et al. (1996) indicated, "middle-age females between the age of 45 and 54 appear to suffer from substantially greater physique anxiety than adolescents and college-aged females" (p. 282). Yet other research studies indicated a negative relationship between social physique anxiety and age in women (Hayes & Ross, 1987; Hausenblas & Martin, 2000; Treasure, Lox, & Lawton, 1998). Similarly, Ransdell et al. (1998) found that postmenopausal women, ages 50 to 79 years, had lower social physique anxiety scores than those reported in other studies, indicating that physique anxiety may be lower in older women than in college-age women. They suggested, "It is possible that older women, particularly those well past menopause, are more comfortable with their bodies" (p. 33). McAuley et al. (1995) studied the relationship among body composition, exercise participation and social physique anxiety with 114 middle-aged, formerly sedentary males and females prior to and following

participation in a 20-week aerobic exercise program. They reported that the older subjects, aged 55 to 64, had lower social physique anxiety than the younger participants, aged 45 to 54, during pre-program testing, but the younger subjects reduced their physique anxiety over time, whereas the older individuals' levels of physique anxiety remained unchanged during the 20-week program. Additionally, they reported:

> Further inspection of mean levels within age cohorts indicates that those individuals with highest levels of physique anxiety prior to the program beginning were those females in the 45-49-year old group ($M = 43.00$) and the 50-54-year-old group ($M = 41.5$) with levels that are higher (but not significantly so) then both undergraduate students and adolescent female gymnasts. (p. 232)

As a group, however, middle-aged females in this study were considered to be generally as physique-anxious pre-program ($M = 38.93$) and post-program ($M = 37.77$) as undergraduate ($M = 37.9$) and adolescent samples ($M = 40.31$).

Ethnicity also plays a role in social physique anxiety. Dawson (1988) examined the relationship between actual body weight, self-perceived weight, and attempts to lose weight among 17,000 women of three ethnic groups. She indicated:

> The proportion of women whose weight is 20 percent or more above the ideal body weight is about one-third for Black, one quarter for Hispanic and one-fifth for White. …At any given level of relative (actual compared to ideal) weight, a greater proportion of White than of Black women considers themselves to be overweight. …Hispanic women may not distinguish themselves from other White women in forming body weight norms. Rather, they may compare themselves to all White women and, being heavier on average then other White women, be the more likely to consider themselves overweight. …This finding suggests that women's perceptions of whether or not they are overweight are more strongly influenced by their weight relative to their peers than by their weight relative to an arbitrary, health-based standard. (p. 1328)

Likewise, Russell (2002)'s comparison of social physique anxiety across ethnic background demonstrated that African-American males had lower social

physique anxiety than Caucasian males, and that self-esteem and body dissatisfaction were the significant predictors. BMI was not a predictor of social physique anxiety for African-American males as it was for Caucasian males. Similarly, Russell and Cox (2003) examined the impact of female race on the body-image constructs of social physique anxiety, body dissatisfaction, and self-esteem, and whether these constructs could be predicted across ethnicity with objective body weight, self-reported weight discrepancy, and exercise frequency, controlling for BMI. Using 63 African-American and 105 Caucasian college-aged females, the study concluded that African-American women had lower social physique anxiety scores ($M = 35.87$) than Caucasian females ($M = 39.40$), as well as lower body dissatisfaction and higher self-esteem. In addition, perceived weight discrepancy was predictive of body dissatisfaction for both races, but was not predictive of social physique anxiety for African-American women. Perceived weight discrepancy was the only significant predictor of social physique anxiety and dissatisfaction for Caucasian subjects, when all other variables were controlled. The study indicated that individuals appraise their physiques differently based on race, with African-American women being less vulnerable to self-presentational concern, again possibly due to their larger personal and societal standards of ideal body images.

Social physique anxiety is reported to affect females more than males (Berry & Howe, 2004; Hausenblas, Symons Downs, Fleming, & Connaughton, 2002; Frederick & Morrison, 1996; Lantz et al., 1997; McAuley et al., 1995; McAuley, Marquez, Jerome, Blissmer, & Katula, 2002; Smith, 2004)). A study on the relationship between trait anxiety and physical self-presentation with 146 kinesiology students further confirmed that female participants report significantly greater social physique

anxiety then males, but no significant gender difference in trait anxiety or physical self-presentational confidence. However, social physique anxiety was negatively correlated with self-presentational confidence for both males and females (Martin & Mack, 1996). When considering just the issue of clothing selection by gender, it is not surprising that female athletes experience a greater degree of social physical anxiety than their male counterparts. The fitness attire on the market today tends to be thin, form-fitting material, such as spandex, for women, and bulkier, looser material for men. In many competitive sports female attire tends to display more of their physiques. For example, female athletes are currently expected to adhere to the form-fitting standards, such as bikini cut briefs in volleyball and short, tight dresses in figure skating that more readily display their physique, while the male athletes wear long shorts in volleyball and pants and shirts when skating.

This is not to suggest, however, that men too are not affected by body dissatisfaction and presentation of their bodies. In a study that examined the cognitive and behavioural effects of self-perceived weight (under, normal and overweight ratings) with 157 male psychology students, Holle (1999) indicated that 95% of the subjects experienced some degree of body dissatisfaction regarding size and shape, particularly regarding their muscular development. Self-perceived overweight men experienced the greatest amount of psychological distress, such as depression, social physique anxiety, fear of evaluation, negative cognition about appearance, appraisal of body parts, as well avoidance of social evaluation of their physique compared to the other two groups. The underweight males experienced more psychological distress than normal weight males. Unlike women who desired to have smaller images, 17% of the sampled males desired an increase in body size and shape.

The preference for ideal body image tends to change with time. For example, in the Victorian era the preferred body type was a voluptuous image, while in the 70's, the "Twiggy era", the very thin physique was viewed as ideal. Today, regardless of age, the "fitter" image is being sought. Many female athletes have developed their physiques to be strong, lean and muscular which is not considered feminine in today's Western society. Krane, Waldron, Michalenok, and Stiles-Shipley (2001) concluded, "The athletes' ideal body was dependent upon the social context. Their body satisfaction and concomitant mental states and self-presentation varied depending upon whether the athletes were considering their bodies as athletes or as culturally female" (p. 17). Furthermore, Markula (1995) (as cited in Krane et al., 2001) described the cultural ideal feminine body as "firm but shapely, fit but sexy, strong but thin" (p. 424). This may in fact present a paradox for many female athletes, particularly in aesthetic sports.

Williamson and Delin (2001) investigated the accuracy in reporting body size and gender difference in body size dissatisfaction with 195 children between ages 5 and 10 years. The female children preferred a smaller ideal shape than their current physique and expressed greater body size dissatisfaction than did the male subjects. Both genders identified the mesomorph figure to be socially desirable for both males and females. In a study that examined the possibility of a more restrictive thinness standard for females than males, Rand and Wright (2001) investigated the ideal male and female body size preference across a wide spectrum of ages using thinness-fatness dimensions. Using 1317 subjects, they sought to determine whether a more restrictive thinness standard existed for females than males. The results indicated that most subjects selected similar ideal body sizes for both genders. Of those participants

selecting different body sizes, 9 to 55% preferred a thinner female physique, compared with only 1 to 8% preferring a thinner male. In addition, with regard to age, the young adult group was most impressed with the thinner female physique at 55%, while only 37% of the adolescents, 30% of the middle-aged adults, and 25% of the children selected a thinner female figure as being ideal.

The aforementioned literature suggests that as weight increases, so too does one's social physique anxiety. Is it safe to assume this anxiety would be minimal for the individual with the ideal physical self? And would individuals with physical disabilities present with increased physique anxiety? To clarify this issue, Davis (1990) asserted that exercisers reported that their physical appearance was more important to their self-esteem than it was for the non-exercisers. However, it was suggested that one's perception affects the degree of social physique anxiety, not one's physical presence. Davis stated, "amongst physically active women, a concern with dieting and a critical approach to appearance is not influenced by actual body mass, but rather by how they think they look and, indeed, that reality and impression are not closely related" (p. 19).

Greenleaf (2004), examining physical appearance and weight pressures experienced by collegiate synchronized skaters, reinforced this concept. The ideal synchronized-skating body was described as tall, thin and strong, and the skaters desired to be one inch taller and 11 pounds lighter, on average, with 92% of the skaters indicating that appearance and body weight were important to them. The results indicated that the skaters with high social physique anxiety perceived more weight and physique-related pressures than skaters with low social physique anxiety. On average, subjects experienced moderate weight pressures related to skating, and

moderate degrees of social physique anxiety, with scores ranging from 21 to 58 (M = 38.56, SD = 9.06). Despite 11 years skating experience and it being a team sport, the physique anxiety scores were higher than those presented by other aesthetic athletes (Hausenblas & Mack, 1996; Reel & Gill, 1996). These studies indicated that this may be due to the social comparison process among the synchronized skaters.

The powerful effect of one's perception was also observed in other studies involving physically aesthetic athletes. In their study of 236 adolescent competitive female gymnasts, McAuley and Burman (1993) indicated a significant inverse relationship between the degree of social physique anxiety and physical efficacy, or perceived physical ability and physical self-presentational confidence. As a group, the gymnasts had moderate-high levels of social physique anxiety, with a mean score of 40.31. The older gymnasts in the lower competitive levels were more physique anxious. They concluded that in such an individual and aesthetic sport where physique evaluation plays a role in the outcome, social physique anxiety would be greater for athletes who find it difficult to present the required image or doubt their capability to do so. This was reinforced by Reel and Gill (1996) who studied the intense pressures in cheerleading to present an aesthetic appearance, including periodic weigh-ins, attempting to achieve and maintain very low body weight (109 to 112 pounds), and revealing attire. These athletes presented with high levels of body dissatisfaction and moderate levels of social physique anxiety, with mean scores of 38.4 and 33.0 for college and high-school-aged cheerleaders, respectively. Finally, McAuley et al. (1995) indicated that doubt of one's ability to appear physically attractive increases the potential for physique anxiety levels to be elevated.

Given the importance of perception, it would be understandable if athletes with physical disabilities were more greatly affected by social physique anxiety. Martin (1999) studied predictors of social physique anxiety in 57 adolescent swimmers with various physical disabilities, and revealed that self-esteem and self-identity were best predictors, versus gender, country or type of disability, which were not significant. However, the swimmers reported a slight to moderate degree of social physique anxiety, with a mean score of 31.8, compared to scores reported for non-disabled athletes (Crawford & Eklund, 1994; Martin, Engels, Wirth, & Smith, 1997). The swimmers presented with positive self-esteem and viewed themselves as athletes. Martin indicated, "athletes in this sample may not have reported high social physique anxiety and low self-esteem because they were not comparing their bodies to non-disabled individuals, accepting nondisabled bodies as the norm, and judging their bodies as inferior (p. 82)."

Impact of Social Physique Anxiety on Health

Preoccupation with physical appearance can have either a positive or negative impact on all aspects of health, including physical and psychological components, as well as eating behaviour. Conversely, concern over self-presentation and its related anxiety can motivate people to take care of themselves by following a healthy diet, a safe and adequate exercise regime, incorporating a balanced lifestyle, and avoiding drugs and dangerous behaviour. Eklund and Crawford (1994) indicated that the level of social physique anxiety is reduced when health promotion, such as participating in an exercise program for health gains, becomes the primary focus. On the contrary, the social anxiety caused by preoccupation with physique can have a devastating impact

of one's health. It is so powerful in fact that Marquez and McAuley (2001) indicated that social physique anxiety can override any influence of self-efficacy on *state anxiety* when in a highly threatening or evaluative situation. State anxiety is defined as "a temporary, ever-changing emotional state of subjective, consciously perceived feelings of apprehension and tension, associated with activation of the autonomic nervous system" (Weinberg and Gould, 1999, p. 73).

To optimize health, performance, and body composition, Plowman and Smith (1997) suggested that active individuals should consume 58 to 68% carbohydrate (8 to 10 grams per kilogram per day), 20 to 30% fat, and 12 to 15% protein (1.2 to 2 grams per kilogram per day) to balance caloric expenditure from training (p. 329). Similarly, McArdle, Katch and Katch (2000) indicated:

> For regular exercisers, carbohydrates should supply about 60% of total daily calories (400 to 600 grams) predominantly as unrefined, fibre-rich fruits, grains, and vegetables. This replenishes the carbohydrate that powered an increased physical activity level. During heavy training, carbohydrate intake should increase to 70% of total daily energy intake. (p. 46)

Despite the nutritional knowledge available, many individuals consume inadequate nutrition and engage in disordered eating behaviour. In fact, several studies have shown that social physique anxiety is positively related to disordered eating behaviour and/or risk for developing an eating disorder (Cox et al., 1997; Haase & Prapavessis, 2001; Haase et al., 2002; Thompson & Chad, 2002). Frederick and Morrison (1998) applied a model of eating disordered traits to 79 normal college women to determine whether social physique anxiety was related to the development of eating disorder tendencies. They concluded that scores on social physique anxiety were significantly predictive of scores for eating disordered behaviour, which were related to scores on eating disordered personality traits. Similarly, Sands (2000)

examined the nature of body image and drive for thinness as multidimensional constructs utilizing 111 adolescent girls, ages 11 to 13. They concluded that body dissatisfaction is a crucial contributor to an individual's drive for thinness, but that drive for thinness more likely results from a realization that one's actual body image differs from their ideal, and weight gain causes girls to appear less similar to the cultural thinness preference. They concluded that a combination of the three drive-for-thinness components, namely perceptual, attitudinal and behavioural (fitness and dieting), significantly predicted eating disorder practices. Attitudinal components, including social physique anxiety, contributed to 43% to the variance in the Eating Attitudes Test (EAT-26).

In a study with 160 female psychology students which examined the link between social physique anxiety and measures of eating disorder symptomatology to determine its usefulness in predicting eating disturbances, Diehl, Johnson, Rogers, and Petrie (1998) concluded, "physique anxiety, as measured by the social physique anxiety scale, is strongly related to bulimic symptomatology and moderately related to drive for thinness and should be considered as a possible risk factor in the development of eating disorders" (p. 4-5). They explained that social physique anxiety was a stronger predictor of bulimic, than anorexic symptoms, since bulimic individuals are generally more externally, than internally, focused. Likewise, Reel and Gill (1996) studied eating disorders and athletic pressures with 73 college-age and 84 high school female cheerleaders, and reported that cheerleaders disclosed pressure to lose or maintain low body weight and engaged in pathogenic weight-control methods, such as purging. Although both groups exhibited moderate levels of social physique anxiety, high school cheerleaders reported higher physique anxiety,

disordered eating, and body dissatisfaction than the college cheerleaders. The study suggested that this could be as a result of developmental issues for these adolescent athletes.

Hayes and Ross (1987) concluded that the emphasis on appearance in an attempt to be thin, results in detrimental health behaviours, such as starving themselves, using diet pills, and purging. In a study of eating behaviour by Pliner and Chaiken (1990), the need for women to appear feminine and for both genders to appear socially desirable affected the amount of food eaten while in the presence of an opposite sex partner. Finally, McLaren et al. (2001) suggested that self-presentation perfectionism and excessive commitment to exercise are good predictors of dietary restraint.

Self-presentational concerns often cause female athletes to push themselves too far, often engaging in restricted eating patterns, in addition to the heavy training regime. McArdle, Katch, and Katch (2000) indicated that disordered eating decreases the required energy, reduces muscle mass and body fat, leads to menstrual irregularity or cessation, and eventual osteoporosis, known as the *female athlete triad*. They further indicated that amenorrhoea is prevalent in aesthetic and weight-related sports, and compulsive and highly competitive behaviour, perfectionism, self-criticism, depression, and low self-esteem are common psychosocial traits associated with the triad state (pp. 77-78).

Brooks-Gunn, Warren, and Hamilton (1987) studied the relationship between eating disorders and amenorrhea in 55 adult national and regional ballet dancers, and examined the psychological measures of impulse control, emotional tone, body image and psychopathology. The study indicated that amenorrhoea in athletic groups may

be associated with eating problems and dieting behaviour, and one-third of the dancers reported having an eating problem. The study also indicated that amenorrhoeic dancers weighed less, were leaner, had weights below their ideal weight, and had higher psychopathology and lower emotional tone scores then dancers without amenorrhea. Nineteen percent (19%) of the sample reported being amenorrheic (missed at least five consecutive menstrual cycles in the last year), and 40% missed one to four cycles, defined as oligomenorrheic.

Similarly, Benson et al. (1996) explored the connection between menstrual dysfunction, athletic training and disordered eating behaviour. They suggested that amenorrhoea is usually determined by the loss of menstrual cycles for three to six consecutive months, and leads to numerous short and long-term health impacts, including partially irreversible and premature bone loss, scoliosis, increased cortisol, and increased risk of soft tissue injury and serious fractures. Of interest, they noted that loss of femoral adipose deposits, or the body fat found in the hips, buttocks, and thighs, which create the larger waist-to-hip ratio, is believed to lead to menstrual difficulty as the body believes it cannot sustain fertility. This small waist-to-hip ratio is often seen in aesthetic sports, such as gymnastics, ballet, figure skating, bodybuilding, and competitive fitness. Likewise, Putukian (1994) revealed, "Eating disorders and menstrual dysfunction have been shown to occur at an increased rate in athletes (p.345)". Johnson (1994) noted that the pressure and desire to lose weight and body fat to achieve peak performance, particularly when unsupervised and over a short duration, may result in disordered eating for many athletes. As well, she also indicated that sports in which subjective judging encourages lean appearance, body leanness for maximum performance is emphasized, and weight classification is

employed, place athletes at higher risk for development of disordered eating behaviour.

In a study of the cultural expectation of muscularity in men involving assessment of 115 Playgirl centrefold models, Leit, Harrison, and Gray (2001) suggested that the muscular expectation has increased over time, especially since the 1990's, reaching humanly unattainable proportions. They indicated that societal pressure might contribute to a decreased sense of self-esteem in men and even to the use of anabolic steroids. This was also a common theme discovered by Schrof (1992), who indicated that about one million Americans, half of whom are adolescents, utilize anabolic steroids, and over half start before the age of 16. Schrof suggested that the motivation for steroid use is primarily self-presentational; that is, to have a muscular physique that will enhance their social image and bring about desired rewards such as attention, respect, popularity, and increased self-esteem. However, she also indicated, "despite massive weight gains and sharply chiseled muscles, many steroid users are never quite happy with their physiques - a condition some researchers have labelled '*reverse anorexia*' (p.58)." Leary et al. (1994) suggested examples of behaviour that negatively impact on health as a result of self-presentational concerns and the need to present a desirable image; they include lack of condom use resulting in the risk of AIDS, increased sun tanning resulting in increased risk of skin cancer, and cosmetic surgery potentially resulting in muscle damage, blood and fat clots, and death. Another example is the use of alcohol, tobacco and illegal drugs in an attempt to convey autonomy or rebelliousness, reduce social anxiety in interpersonal situations, act as a self-handicap to create excuses for poor performance, and create a secondary effect of weight loss.

On the contrary, Schwerin et al. (1996) concluded that anabolic steroid-using bodybuilders, in comparison to non-using bodybuilders, athletically active exercisers, and non-exercisers, had lower levels of social physique anxiety and higher body esteem. They cautioned that decreased social physique anxiety with anabolic steroid use might prove to be a correlate, or moderator, rather than a causal relationship. As well, they noted that the steroid users had higher body dissatisfaction, and suggested that when the positive gains from the steroid use disappear, the positive body image may also disappear.

Recommendations for ceasing behaviours that negatively affect health include employing strategies that focus on physical self-presentation, rather than on health benefits. Hayes and Ross (1987) revealed that some advertisements to help adolescents stop smoking no longer mention the improved health benefits since people are more motivated by physical attractiveness to change. Instead, they suggested a more effective strategy would be to show an attractive, popular group that does not smoke. Leary et al. (1994) supported this stance stating, "when problems have consequences for both health and physical appearance, people may be more likely to be persuaded to change unhealthy behaviours when the risks to appearance are emphasized" (p. 467).

Impact of Personality and Environment on Social Physique Anxiety

The debate over whether personality or environment is more influential has been a controversial topic in the social and physical sciences for many years. Many investigators still argue about the origin of many diseases, psychosocial traits and

behaviours. Likewise, the literature offers an array of information on the influence of personality and environmental factors on social physique anxiety.

In describing personal sources of stress, Weinberg and Gould (1999) indicated that social physique anxiety, coupled with trait anxiety and self-esteem, are personality dispositions that relate to heightened state anxiety. Focht and Hausenblas (2003) examined the changes in state anxiety and perceived arousal during and following acute exercise in different environments using college students with high social physique anxiety, as measured by scores of 36 or greater on the 9-item Social Physique Anxiety scale. Thirty (30) female participants were randomly assigned to rest quietly, or to cycle for 20 minutes at 70-80% of their maximum heart rate in a naturalistic environment or in a laboratory environment. The results indicated that although perceived arousal increased during both exercise conditions, state anxiety was only elevated during exercise in the naturalistic condition, an environment that induced the greatest perceived threat of evaluation. As well, significant reductions in state anxiety were noted in both exercise environments from pre-exercise to 5 minutes after exercise. However, the anxiolytic effect remained for 2 hours following exercise in the laboratory environment, whereas state anxiety scores did not differ from baseline scores for individuals exercising in the naturalistic environment. The researchers concluded, "exercising in a setting where it is possible to minimize aspects of the environment that foster perceptions of evaluative threat may contribute to the affective benefits of exercise among women with high social physique anxiety (p. 140)." Focht (2001) obtained similar results when he replicated this study.

Several studies (Crocker et al., 2003; Gammage, 2002; Katula, McAuley, Mihalko, & Bane, 1998; Martin & Mack, 1996; McAuley & Burman, 1994) reported

an inverse relationship between characteristics such as perceived physical ability and/or self-presentational efficacy with social physique anxiety; that is, individuals with higher social physique anxiety report lower perceived physical ability and/or physical self-presentational confidence. Angove, Martin Ginis, and Sinden (2003) examined self-presentational efficacy as a moderator between social physique anxiety and physical activity with 81 elderly female participants. They concluded that social physique anxiety was negatively correlated with physical activity only for women with average to high self-presentational efficacy scores, but was unrelated to physical activity for women with low self-presentational efficacy scores. Furthermore, Carron and Prapavessis (1997) concluded, "a significant difference in social anxiety was found between respondents high versus low in the personality trait of social physique anxiety" (p. 511). In other words, the high social physique anxiety group demonstrated more social anxiety than those individuals in the low social physique anxiety group.

Gammage, Ginis, and Hall (2004) manipulated self-presentational efficacy in two groups, low and high efficacy, to examine its influence on three measures of social anxiety, namely social physique anxiety, physical appearance anxiety, and social anxiety in exercise classes. To create the low efficacy condition, mirrors in the front and back of the classroom and a window looking out into a public hallway were left uncovered. The participants were shown aerobic attire they were expected to wear, consisting of spandex bra/cropped top and short spandex shorts, and were told the male video camera operator would record both groups and individuals close-up. The high efficacy condition was created by covering the window and mirrors, showing participants loose-fitting t-shirts and shorts they would be expected to wear,

and that the cameras on tripods would videotape the group process. With 68 exercisers recruited from a kinesiology course expecting to partake in an aerobic class, the results indicated women in the low efficacy group showed higher levels of each social anxiety measure and looked less forward to participating in an upcoming aerobic class, compared to the high efficacy group. As the aerobic class did not actually occur, the researchers indicate that the results were achieved by mere anticipation. Their results suggest that social physique anxiety may be conceptualized as state-like, rather than a trait, as the situation at least temporarily increased the degree of social physique anxiety experienced.

Similarly, Katula, McAuley, Mihalko, and Bane (1998) examined how exercise environments, and the degree to which physiological, cognitive and social variables contribute to efficacy variation, influenced exercise self-efficacy with 34 undergraduate students. Using a standard laboratory, a laboratory with a full-length mirror placed in front of the exerciser, and an exercise location of choice, the results indicated that exercise self-efficacy declined for women in the mirrored-condition compared to men. As well, they concluded that social physique anxiety and physical self-efficacy, in addition to exercise history, aerobic power and gender, significantly predicted exercise self-efficacy in the mirrored condition only.

Other studies suggested a variety of personality attributes that influence anxiety. McLaren et al. (2001) suggested that excessive commitment to exercise and perfectionism, often as a result of unrealistic standards for appearance and body weight, contribute to the prediction of dietary restraint. They concluded that self-oriented perfectionism, or setting standards of perfectionism for oneself, socially prescribed perfectionism, or perceiving that others expect you to be perfect, and

perfectionist self-presentation, or the need to present a flawless image to others, are dimensions of perfectionism that influence behaviour and cognition. Likewise, Schlenker and Leary (1982) studied individual standards as a personality factor linked to the anxious state. They suggested:

> Individual differences in standards help to explain why people who are, as judged by outside observers, coming across well socially may still feel anxious. Given the same positive reactions from others, people with low standards may feel quite satisfied, whereas those with high standards might feel dissatisfied and socially anxious (p. 645).

Terry-Short, Owens, Slade, and Dewey (1995) further added to this concept in their investigation of positive and negative aspects of perfectionism with a sample of 281 females, composed of athletes, a depressed group, an eating disorder group and a control. They concluded that athletes showed a high ratio of positive perfectionism (achievement of positive consequences) to negative perfectionism (avoidance of negative consequences), compared to clinical groups. In addition, Haase, Prapavessis, and Owen (2002) studied the relationship between positive and negative perfectionism and social physique anxiety and the extent to which these variables predict disturbed eating in 316 elite athletes of various sports. They concluded that negative perfectionism is significantly related to social physique anxiety for both male and female athletes, and that these two variables combined, account for 41% of the variance of disturbed eating behaviour for females. Their results suggested that those female athletes with higher scores on social physique anxiety and negative perfectionism are more likely to exhibit disturbed eating behaviour, and that positive perfectionism was unrelated to social physique anxiety.

Tiggemann (2001) suggested that body image has been measured and conceptualized as a trait, or a stable component of one's personality, by many

investigators. In this study of the interaction between personal and situational variables in determining body satisfaction, she noted that while personal qualities, such as self-esteem, influence body satisfaction, so too, do a variety of environmental factors, including situations and location, BMI, and social comparison. In addition, she noted that self-esteem regarding the body varies across different situations more for the ideal weight individual than for those who are over or underweight, as "the body status of normal weight women is likely to be more ambiguous and therefore more responsive to situation context than that of their clearly thin or clearly overweight counterparts" (p. 69). Tiggemann concluded that participants rated themselves as more dissatisfied in the body-focused situation (beach and dressing room) than in the non-body-focused situations. Tiggemann (2001) also studied the effect of schools' gender compositions on body figure preferences, eating disorder symptomology, and role concerns, and concluded that females from both co-educational and single-gender environments desired to have slimmer physiques. However, what motivates this desire differed based on the environment in question; that is, in the co-education school, attractiveness was the main predictor of body preference, whereas academic achievement was the predictor in the single-gender school. Interestingly enough, achievement, or intelligence and professional success, was also associated with having a thin physique for the single-gender group.

The mass media is another environmental factor suggested as having an impact on one's body image and the degree of physique anxiety experienced. In their study on the impact of health and appearance-based advertising with 127 psychology students, Berry and Howe (2004) revealed that health-based advertising had positive effects on an exerciser's social physique anxiety and self-presentation, compared to

non-exercisers. On the other hand, appearance-based advertising had negative effects on a non-exerciser's exercise attitudes. As Featherstone, Hepworth, and Turner (1991) indicated, "Advertising helped to create a world in which individuals are made to become emotionally vulnerable, constantly monitoring themselves for bodily imperfections which could no longer be regarded as natural" (p. 175). The images portrayed on television and in magazines are often the result of illusion as a result of use of the wide-angle camera lens, positioning of the body, lighting, strict diet and diuretics, not to mention photo alteration, professionally applied make-up, bright lighting, and numerous poses in an attempt to capture the ideal image. Further, the models may have also undergone cosmetic surgery to perfect their image, including such procedures as botox and collagen injections, liposuction, facial reconstruction, and breast augmentation. As a result, when compared with the apparent "flawless" models as presented in the media, many individuals, including both athletes and non-athletes, may feel unsatisfied with their physical self and, in turn, experience a sense of anxiety regarding self-presentation.

Many studies have shown that exposure to media-portrayed idealized images resulted in one evaluating their appearance more negatively, a concept referred to as *contrast effects*. Lavin and Cash (2001) examined this effect by having 66 college women listen to either an audiotape of appearance stereotyping and discrimination or on the control topic of television violence and aggression. They found that the women reported a more negative body image following exposure to the appearance conditions than did the control group. Likewise, Thornton and Maurice (1997) found that women displayed decreased self-esteem and increased social physique anxiety, self-consciousness, and body dissatisfaction following exposure to photographs of models

displaying idealized thin physiques in their study involving 176 undergraduate psychology students.

The negative impact of viewing attractive, idealized models, as well as their moderating effects, were reported in other studies. Thornton and Maurice (1999) for example, concluded that negative contrast effects were more pronounced in women with high public self-consciousness and/or high public self-awareness, while Cameron and Ferraro (2004), reported that women with prior body dissatisfaction were particularly susceptible to further decreases in body satisfaction following just 15-minute exposure to health and fitness magazines. In addition, Henderson-King and Henderson-King (1997) indicated that there was a negative relationship between body weight and feelings about sexual attractiveness and body condition following exposure to ideal images, but no relationship following exposure to neutral images; that is, heavier women reported more negative self-evaluations, whereas thinner women reported more positive self-evaluations following exposure to ideal images. This negative effect of media images was also shown to be true for men. In their study of 67 homosexual and 29 heterosexual men to examine the relationship between exposure to muscle and fitness magazines and/or pornographic material and body satisfaction, Duggan and McCreary (2004) concluded that increased exposure to both types of magazines results in decreased body satisfaction for men of both sexual orientations. In addition, although both homosexual and heterosexual men exhibited considerable amounts of anxiety about displaying their physiques in public, pornographic exposure was positively correlated with social physique anxiety for homosexual men only. The investigators suggested that this might be as a result of

gay pornography placing increased emphasis on the physical attractiveness and close-up visuals of the male body, compared with heterosexual pornography.

As a result of media influence, many individuals desire a thinner body and, in turn, social physique anxiety and other concerns often increase. In their study of the effects of viewing media-portrayed idealized body images on eating, self-esteem, body image and mood among restrained and unrestrained eaters, Mills, Polivy, Herman, and Tiggemann (2002) demonstrated the paradoxical effect fashion and beauty magazines may have on the female consumer. In their three-part study, the investigators discovered that restrained eaters experienced self-enhancement, disinhibiting their food intake and rated their current and ideal body size as being smaller, following exposure to thin body images versus large body size or product only conditions. This suggested that they are susceptible to a "thin fantasy" as a result of viewing ideal body images. Study 2 indicated that differences in thinness attainability beliefs affect how the female reacts to ideal images; that is, females felt less self-presentational anxiety when viewing ideal images after reading that thinness is attainable through exercise and diet than those that believed thinness is determined by one's genetic make-up. In the third study, the investigators examined whether implied-demand characteristics affect moods. The subjects were asked to rate their mood after viewing thin versus neutral advertisements, and were told the mood measure was either part of the study (implied-demand) or unrelated to the study (minimized-demand). Participants reported feeling worse after viewing the thin versus neutral images when they knew their mood was being examined in response to viewing pictures. The implied demand condition also negatively affected the mood of restrained eaters, but not the unrestrained eater. The restrained eaters presented with

lower appearance-esteem and lower total state self-esteem than did unrestrained eaters.

Similarly, Murray, Touyz, and Beumont (1996) investigated the awareness of media body ideals of 80 eating disorder subjects diagnosed with either anorexia or bulimia nervosa and 151 controls. Seventy percent (70%) of the sample reported that the ideal images portrayed in magazines and newspapers caused them to desire to look like the ideal, with the eating disordered participants being significantly more influenced than the control subjects.

Studies suggested that society has an ideal body image. Murray et al. (1996) reported that 90% of 231 subjects believed that society has an ideal body shape for women. This conclusion was reinforced by the findings of Wiseman, Gray, Mosimann, and Ahrens (1992). Their study examined the preferred body image as displayed through an investigation of Playboy magazine centrefolds and Miss America contestants and discovered that the body size had decreased for these women over a 10-year period, with a significant decrease in hip size. Interestingly, they reported that 69% of the Playboy models and 60% of Miss America contestants weighed 15% less than that which is recommended according to the BMI. This was suggested to be indicative of a health concern. They further discovered a dramatic increase in the number of diet, exercise, and diet/exercise articles over a 30-year period, with the level of exercise articles surpassing the diet articles in 1981. They suggested that exercise and fitness for weight loss might be a trend, and state that the DSM-III-R indicates the use of excessive exercise as a method of purging oneself following a binge episode.

Despite negative media effects, the literature suggested that not all women are similarly affected by idealized female images due to moderating effects. Henderson-King and Henderson-King (1997) studied the effects of brief media exposure to ideal images versus neutral images containing only products and the effects of hearing a judgemental conversation about a friend's weight gain versus a recent move on women's body satisfaction. They concluded that thinner women more positively evaluated their sexual attractiveness, while heavier women reported more negative self-evaluations following exposure to ideal images. They also discovered that self-monitoring moderated both the effects of viewing ideal media and hearing judgemental conversations about attractiveness; a positive relationship exists between the degree of self-monitoring and feelings regarding physical conditioning following exposure to ideal visuals, and a negative relationship between degree of self-monitoring and feelings regarding body esteem following the judgemental conversation of attractiveness. The investigators defined high self-monitors as women with great self-presentational concern, who assessed social situations and made behavioural change based on perception, whereas low self-monitors are more concerned with congruence between inner feeling and values than their outward behaviour.

Wilcox and Laird (2000) indicated that media images affected women through a process of identification, or social comparison. In their study, 41 women were randomly assigned to view 10 pictures of slender or normal-sized models. They concluded that those women who were unresponsive to personal bodily cues had increased self-esteem and body satisfaction after looking at slender models due to identification, or imagining that she is, or could be, as slender and physically attractive

as the print model. On the other hand, women whose emotions were based on personal cues, or who employed social comparison processes, had reduced self-esteem and satisfaction with body weight following exposure to slender model images, as compared to those women who viewed larger models. Tiggemann and McGill (2004) also investigated the role of social comparison in women's responses to thin-idealized female images, and revealed that exposure to full-body images and body parts led to increased negative mood and body dissatisfaction, in comparison to product only images. They concluded that the amount of social comparison women engage in is an important predictor of body dissatisfaction, weight anxiety and negative mood.

Similarly, Halliwell, and Dittmar (2004) examined the impact of advertisements portraying thin models, average-size models, or landscape images containing no model, on women's body-focused anxiety. They indicated that participants' body-focused anxiety is moderated by the degree of internalization regarding sociocultural attitudes, thereby engaging in the process of social comparison. Their study concluded:

> Among participants reporting high levels of internalization, body-focused anxiety was lowest following exposure to no models, somewhat increased after viewing average-size models and peaked following exposure to thin models. For low internalizers, the image contrast failed to reach significance. (p. 116)

The study also examined the images on advertising effectiveness. On a positive note, they revealed that advertising was equally as effective regardless of model size, and concluded that use of attractive, average-size models could just as effectively sell products while preventing increased body anxiety concerns in many women. Finally, Slater and Tiggemann (2002) examined objectification theory and model components with 38 adolescent female recreational-level ballet students and 45 non-dancers.

Objectification, a process of constantly self-monitoring one's physical appearance, leads to increased appearance anxiety and body shame. Since dancers practiced and scrutinized their bodies in front of mirrors, it was hypothesized that the recreational dancers would score higher on self-objectification, body shame, appearance anxiety and disordered eating than the non-dancers. Although group differences were not evident, the findings indicated that self-objectification and consequences are pertinent to adolescent females as young as 12 years of age.

The literature proposed that environment and personality variables strongly influence one's esteem regarding body size, body image and physique anxiety. There are, however, also reports of incidents where people are not influenced so strongly. A study by Hausenblas and Mack (1999) looked at social physique anxiety and eating disorder correlates in 36 elite female divers, as compared to an athletic control group composed of 39 lacrosse, volleyball and soccer players and 39 non-athletes. The investigators concluded that neither differed significantly in eating disorder scores, but the divers had less physique anxiety ($M = 30.69$) than other athletic ($M = 37.53$) or non-athletic populations ($M = 38.84$). However, there were distinct differences in competitive levels; the divers competed provincially and nationally so were of a higher calibre than the athletic controls. Similarly, Hurst, Hale, Smith, and Collins (2000) concluded that experienced bodybuilders presented with less social physique anxiety and more exercise dependence, social support and bodybuilding identity than inexperienced bodybuilders and weightlifters. Again there were distinct differences in competitive and training experience. Experienced bodybuilders were competitive athletes with more than 2 years experience, versus less than 1 year of recreational experience for the other groups. Further, given that the experienced bodybuilders

were competing in a "major bodybuilding championship", they likely presented aesthetically pleasing physiques (lean, muscular, and symmetrical) compared to the inexperienced bodybuilders and weightlifters. As the methodology of this study was vague and it is unknown if the questionnaires were completed on site, independently, and voluntarily, the responses may or may not have been honest. As well, the percentage of participants that agreed to participate in the study is unknown; those with higher physique anxiety may have chosen not to participate.

A study by Martin, Engels, Wirth, and Smith (1997) examining predictors of social physique anxiety and sport differences in the assessed variables of 68 female youth athletes competing in figure skating, gymnastics or soccer, indicated that the gymnasts had lower social physique anxiety and higher self-esteem than the other two groups. These investigators suggested cautiously interpreting the results, as there were only 9 gymnasts in this study, they were all successful in their sport, and many may not have had identity issues from a changing body as a result of puberty due to the late onset of menarche for gymnasts - 15.3 years compared to 12.8 years for most young girls.

Haase and Prapavessis (2001) examined the relationship between social physique anxiety and disturbed eating attitudes, as well as group differences in social physique anxiety with 251 females representing one of four groups; aerobic competitors and divers (physique-salient athletes), rowers (weight-restricted athletes), soccer players (non-physique-salient athletes), and non-athlete students. The data indicated that the physique-salient group demonstrated greater disturbed eating behaviour than the non-physique-salient and non-athlete groups, but no significant difference compared to the weight-restricted group. As well, an ANOVA failed to

reach significance, suggesting that the four groups were similar in their level of social physique anxiety experienced. They concluded that the type of sport activity did not moderate relations between social physique anxiety and disordered eating behaviour. The group difference in response rate, however, was interesting to note; only 35% of the physique-salient athletes responded, versus 83% of the weight-restricted athletes, 67% of the non-physique salient athletes, and 48% of the non-athletes. It is possible that the large percentage of the physique-salient athletes chose not to respond due to high social physique anxiety.

Given that the literature indicated that social physique anxiety is common in individual aesthetic sports, it is intriguing to learn that these physique-salient participants were not so greatly affected. To further understand this phenomenon, it is vital to consider social physique anxiety and its areas of concern from a theoretical perspective.

Theoretical Framework

Theory presents assumptions or hypothesis that reflect a special view of the world and human nature; it also serves to interpret our results and give them meaning. Many theoretical frameworks exist that could be used as a lens to discuss the results regarding social physique anxiety. However, it was beyond the scope of this study to examine social physique anxiety from each theoretical context.

Cognitive Behavioural Theory, comprised of Rational Emotive Behavioural Therapy (Ellis) and Cognitive Therapy (Beck), was selected by this researcher as the theoretical lens to discuss the results regarding social physique anxiety. It was also chosen to assist in attempting to discuss the results of how the athletes' thoughts,

feelings, attitudes and behaviours both influence and are influenced by their participation in competition and everyday activities, their physical selves, physical and psychosocial health, environment and media, and their personalities. In other words, this theory was utilized to explain the interconnection between cognition, emotion, and action and one's social physique anxiety. To comprehend the concept and effects of social physique anxiety, individuals must first become aware of the issue as it related to their perception, their interpretation of external influences, affective response, and reactions. Only then can they proceed to restructure the cognition that so greatly affects their emotions and behaviour.

Cognitive Behavioural Theory

Body image and related concerns are multidimensional in nature, and reflect how we see, think, and feel about our bodies, as well as how we act. Cognitive Behavioural therapies, which first emerged in the early 1960's, view an individual's cognition, emotions and behaviours as reciprocally interacting in a cause-and-effect manner, and therefore is an applicable theory to comprehend the concept of social physique anxiety and its impact. According to Dobson (1988), there are 12 therapies published from 1962 to 1983 that share three underlying propositions: cognitive activity affects behaviour; cognitive activity may be monitored and altered; and desired behaviour change may be affected through cognitive change. The main concepts of Ellis's Rational Emotive Behavioural Therapy in conjunction with Beck's Cognitive Therapy have been selected, as they appear to be the most appropriate for comprehending the concept of social physique anxiety.

A key concept of Rational Emotive Behavioural Therapy (Ellis, 1967) is the belief in the *A-B-C-D-E* model to explain thought processes, emotional reactions and behavioural outcomes. Hill (2001) explained that the "A" represents the activating event or experience, which may be internal, external, real or imagined. The "B" signifies the irrational beliefs, which can be identified through the use of dogmatic demands (musts, absolutes and shoulds) as well as through awfulizing (its awful, terrible or horrible). The "C" epitomises the consequences, namely the unhealthy negative emotions such as anxiety or embarrassment. The "D" connotes the disputing of these irrational beliefs in an attempt to think more rationally and the "E" represents the new effect or emotion, as well as new constructive behaviours.

Beck (1967) contends that anxiety is a response produced by unrealistic evaluation of life events or distorted thinking and, in turn, the manner in which an individual structures her reality will create her affective state. The foundation of the Cognitive Therapy model is the view that *schemata*, or "cognitive structures that organize and process incoming information" (Dobson, 1988, p. 17), represent the thought patterns acquired early in life and influence how well adjusted an adult becomes. Schemata are the deep-seated beliefs that influence who we are and our fit in the world. As a result, two people can interpret the same event in two different ways based on their schemata. Hill (2001) suggested that many Cognitive therapists argue, "the cognitive agent's internal interpretation of external stimuli is a more powerful force than the external stimulus itself" (p. 63).

Cognitive Therapy postulates that individuals form internal representations of the external world and assign importance to the incoming data. The patterns of processing this information are referred to as *heuristics*, or automatic, repetitive

methods. When these become ingrained and reflective, they bias our information processing by valuing some data and ignoring others. As a result, our affective state and performance become altered. There are many faulty thinking patterns that often result in systematic, predictable errors in reasoning. Hill (2001) pointed out a number of faulty thinking patterns people acquire, including all-or-nothing thinking, overgeneralization, magnification, minimization, emotional reasoning, labelling, personalization, and confirmation bias (pp. 65-66). Porter and Foster (1990) suggested, however, that changing the conscious, or the automatic thoughts, results in change in the deeper structures. Porter and Foster, as well as McAuley and Rotella (1982), offered numerous psychological techniques, such as relaxation training, mental rehearsal, and cognitive restructuring, to bring about change in the behaviour or performance through change in the cognition and affective dimensions. Similarly, Dobson (1988) recommended teaching individuals to monitor their automatic thoughts, recognize the relationship between cognition, affect, and behaviour, and test the validity of their automatic thoughts, followed by substituting more realistic cognitions for the distorted thoughts, and learning to identify and alter the underlying assumptions or beliefs that predispose faulty thinking.

Many studies reinforced the effectiveness of Cognitive Behaviour Therapy for treating body image concern. A study by Cash and Hrabosky (2003) evaluated two components of cognitive-behavioural programs, namely psycho-education and self-monitoring, with 25 body-dissatisfied college students. The psycho-educational component involved information about the nature and norms of body image and its development in Western society. It also taught participants to identify how body image affects their quality of life, to trace their body image development from

childhood to the present, and to learn how daily events and situations activate thoughts, interpretations and conclusions that affect body-image emotions, coping strategies and behaviours. It enabled participants to understand their experiences and set goals for change. Self-monitoring involved teaching the participants to think about their thinking, emotion and behaviour through observing the activating events, cognitive processes, as well as emotional and behavioural reactions to positive and negative daily body-image experiences. Following 3 weeks of brief meetings and homework assignments, post-test results indicated increased appearance satisfaction, as well as less concern with body weight, body image dysphoria, and evaluation of self through physical appearance, resulting in improved self-esteem, lower social anxiety and better eating attitudes.

Duwyn (2003) explored possible coping strategies used to explain differential responding in her investigation of social comparison processes among female university students with high and low body dissatisfaction. The results indicated that self-perception and mood of body-satisfied participants, in comparison to body-dissatisfied females, were more negatively affected by viewing photographs of attractive, thin females. Similar results were found among restrained eaters. However, among unrestrained eaters, body-dissatisfied females were more negatively affected than body-satisfied participants. Interestingly, the results indicated that those less adversely affected by social comparison to the photo image employed greater use of self-affirmation, a cognitive behavioural technique. Finally, Prapavessis, Grove, and Eklund (2004) indicated that when people are concerned about what others think of them, it might affect their thoughts, feelings and behaviours. In their paper, the investigators critically reviewed self-presentational behaviour, cognition and affect in

the world of sport and competition. They highlighted the use of verbal and behavioural forms of self-handicapping strategies, or claims that trait-like qualities of temporary states might interfere with sport performance in athletics. They indicated that self-handicapping, a cognitive strategy, is employed as a form of impression management to enhance and/or protect one's public image as well as to enhance and/or protect one's self-perception of competence.

Summary

In a society that places emphasis on physical perfection, experiencing anxiety about one's physique and self-presentational ability appears to be commonplace for many individuals. The preceding chapter reviewed the literature related to various aspects of the social physique anxiety experienced within sport and the greater society. It has highlighted the impact social physique anxiety has on the physical self. Conclusions included that social physique anxiety was greater in individuals that were heavier, taller, larger, and had more body fat distribution around the mid-section, compared to those with fat deposits in the lower extremities. Social physique anxiety was also shown to be greater for women than men, and for Caucasian individuals rather than non-Caucasian, possibly due to the smaller body ideals. The literature also indicated that increased social physique anxiety tends to be more prevalent in aesthetic and individual sports than in non-aesthetic and group or team sports. Individuals with well-sculpted physiques, such as gymnasts, also demonstrated high social physique anxiety when they doubted their ability to present the desired image.

With regard to the impact of social physique anxiety on exercise behaviour and health, the literature indicated that emphasis on physical appearance can motivate a

person to focus on healthy practices, or can be a deterrent from exercising at all. Social physique anxiety affects the type of activity people choose to engage in, the choice of location, clothing preference, as well as emotional reactions. Social physique anxiety can enhance performance, as effort is increased, when exercise occurs for physical appearance or social identity reasons. On the contrary, social physique anxiety is greater in individuals who exercise for extrinsic and self-presentational reasons, compared to those who exercise for intrinsic, health, enjoyment or performance enhancement reasons. It can also cause a person to engage in debilitative practices, including over-training, under-eating, drug use, and cosmetic surgery, in an attempt to present the ideal image. Desiring an unrealistic image may lead to disordered eating patterns, which are associated with increased social physique anxiety. As a result of these unhealthy practices, many health problems occur, such as injury, decreased bone density, and amenorrhoea, which may have both short and long term adverse effects.

Studies have indicated that personality affects social physique anxiety. High standards, negative or neurotic perfectionism, and social anxiety are associated with increased social physique anxiety. Studies have also indicated that body image is a stable trait, whereas some believe that body image changes based on the environmental context, particularly for the ideal weight individual. Other studies suggested that environment has the greatest influence on social physique anxiety. Social physique anxiety tends to be lowest when with a best friend or in a group, as compared to when alone. As a result of mass media exposure, society has created ideal body images that are unrealistic for most people. This image tends to be very muscular for men and thin for most women. As a result, individuals may engage in

restrained and/or disordered eating and experience increased vulnerability and desire for thinness, resulting in increased social physique anxiety. Why some people are so influenced by the media and others are not may be understood by the degree of self-monitoring the person engages in and whether they identify with or socially compare themselves to the advertisement models.

Social physique anxiety results in a variety of effects. The effects, in turn, are as diverse as presented in the literature review. One person, for example, can interpret the same degree of social physique anxiety as facilitative, whereas another can view it as debilitative. This anxiety may deter one individual from participating in sport and pleasurable social activity and have a negative impact on his or her health and physical self. For another it may provide the incentive to make positive life changes to improve all dimensions of one's persona.

To understand why the impact varies so greatly from one individual to the next, theoretical consideration should be taken into account. This researcher incorporated Cognitive Behaviour Theory during discussion of the study's results to assist in understanding social physique anxiety and its impact. The media, the advertising industry, and other environmental factors may continue to have a strong impact on how individuals view themselves. However, Cognitive Behaviour Theory may enable individuals to explore and potentially change their inner thoughts, so that increased confidence and self-esteem and improved exercise and health behaviours are possible. People may continue to strive for perfection in the beautification of their physical bodies. If not addressed, however, social anxiety regarding one's physique may continue to be part and parcel of the athletic schema and possibly lead to continuous and/or increased debilitation in the future.

Given the association between social physique anxiety and exercise behaviour, the physical self, health, personality, and environment, a query emerges. Social physique anxiety is generally shown to be more prevalent in sports where aesthetic value is expected, such as gymnastics, synchronized skating, and figure skating. The question emerges about just how prevalent this anxiety is in a sport, such as female fitness competition, where the critique of the body is one of the main measures of success. Do individuals with a high degree of social physique anxiety tend to gravitate to such a sport in an attempt to improve their self-esteem? With experience, are they desensitized to the presence of the near perfected physique and, as a result, not so greatly affected? Or do perfectionism, unrealistic sociocultural standards, and self-awareness of their "less than perfect" physique cause increased levels of this anxiety?

Social physique anxiety and the perceived impact, either facilitative or debilitative, is an area that has not previously been explored within the aesthetic world of female fitness competition. The results will add to the literature available on social physique anxiety in sport, and in particular, to knowledge regarding individual, aesthetic sports in which competitive success is largely based on aesthetic evaluation of the physique. The following chapter discusses the methodology employed within this study.

CHAPTER 3

METHODOLOGY

Introduction

To study the perceived impact that social physique anxiety had on a group of elite fitness competitors, this study employed a one-group, one-observation research design. Using a two-scale survey, the study was descriptive in nature and should be viewed as exploratory.

The methodology is divided into sections: measures, pilot study, main study, data analysis, and coding. The "Measures" section encompasses a description of the instrument development, the Hiscock Directionality Scale (2003), as well as an overview of the Social Physique Anxiety Scale (1989). The "Pilot Study" and "Main Study" sections include descriptions of the participants and the research procedure employed together with the purpose and analysis of the pilot study.

Measures

This study included the administration of a survey composed of two instruments: the Social Physique Anxiety Scale (1989) and the Hiscock Directionality Scale (2003). Permission to conduct this study was granted by the Interdisciplinary Committee on Ethics in Human Research at Memorial University of Newfoundland (See Appendix A). Permission to administer the Social Physique Anxiety Scale (1989) was granted in July 2003 by Human Kinetics Publishers, Inc., with permission to reprint the scale from E.A. Hart, M.R. Leary, and W.J. Rejeski (See Appendix B). The two instruments are presented in Appendix C and D respectively.

Instrument Development

The Hiscock Directionality Scale (2003) was created to examine the perceived directionality of social physique anxiety on the athletes' practices, both during competition and everyday life. It was designed following extensive review of the literature on social physique anxiety through the emergence of several pertinent themes and recommended areas for future research. Themes included age (Eklund, Mack, & Hart, 1996; Hayes & Ross, 1987; Treasure, Lox, & Lawton, 1998), eating behaviour (Diehl, Johnson, Rogers, & Petrie, 1998; Reel & Gill, 1996; Sands, 2000), exercise behaviour (Crawford & Eklund, 1994; Hart, Leary, & Rejeski, 1989; Leary, 1992), clothing preference (Carron & Prapavessis, 1997; Eklund & Crawford, 1994; Sinden, Martin Ginis, & Angrove, 2003) health and menstrual state (Benson, Englebert-Fenton, & Eisenman, 1996; Hayes and Ross, 1987; Brooks-Gunn, Warren, & Hamilton, 1987), and emotional health, including self-esteem, confidence, and psychosocial wellness (Crocker, Snyder, Kowalski, & Hoar, 2000; Angove, Martin Ginis, & Sinden, 2003; Gammage, 2002; Martin & Mack, 1996). Size, shape and body composition (Hausenblas & Fallon, 2002; McAuley, Bane, Rudolph, & Lox, 1995; Ransdell, Wells, Manore, Swan, & Corbin, 1998) also emerged as common factors associated with social physique anxiety, as did the impact of the media (Berry & Howe, 2004; Featherstone, Hepworth, & Turner, 1991; Wilcox & Laird, 2000), society's ideal body image (Murray, Touyz, & Beumont, 1996), and exposure to a physique-salient environment (Hausenblas & Martin, 2000; McAuley, Bane, Rudolph & Lox, 1995; McNelis-Kline, 2000).

Possible areas for further study include investigation of the relationship between exercise-related cognition and behaviour and environment (Katula, McAuley,

Mikalko, & Bane, 1998), measuring beneficial versus maladaptive self-presentational tactics to determine health-risk behaviour (Martin, Leary, & Rejeski, 2000), muscularity index, dietary patterns, training volume, exercise reasons and experience (Russell, 2002), ethnicity (Dawson, 1988; Russell, 2002; Russell & Cox, 2003), and socio-economic status and nationality (Lantz, Hardy, & Ainsworth, 1997).

Based on the emerging pertinent concepts investigated, possible areas for future studies, and anecdotal evidence gathered during field experiences with female fitness competition, a 28-item survey using a self-report scale was designed with an additional variable answered by indicating yes, no, or unsure. The original scale was evaluated on a 7-point Likert Scale, by indicating from 1 for *significant negative impact* to 7 for *significant positive impact*. The original draft of the self-titled Hiscock Directionality Scale also included an additional 35 demographic and general exercise and eating behaviour questions.

The draft instrument was reviewed and edited by the supervisory committee, composed of professionals in the field with academic and sport expertise. A process of expert validation was employed to establish content validity based on Polit and Hungler (1997)'s observation that:

> The content validity of an instrument is necessarily based on judgement. There are no totally objective methods for ensuring the adequate content coverage of an instrument. Experts in the content area are often called on to analyze the item's adequacy in representing the hypothetical content universe in the correct proportions. It is also possible to calculate a content validity index that indicates the extent of agreement among the experts, but ultimately the experts' subjective judgements must be relied on. (pp. 300-301)

Upon expert review and recommendations, the scale was reduced to 24 items to enhance clarity, and the categories of *significant positive impact* and *significant negative impact* were eliminated due to redundancy. The variables of the Hiscock

Directionality Scale were then measured on a 5-point Likert scale, with 1 indicating *much negative impact* and a 5 signifying *much positive impact.* A lower score initially indicated much negative impact while a higher score was indicative of much positive impact for each variable. However, the variables were reverse-scored prior to data analysis so that a higher score was indicative of greater perceived debilitation. The additional variable answered with yes, no, or unsure remained in the study.

In addition, demographic and behavioural questions were reduced from 35 to 31 following recommendations from the experts. Included in the final version of the instrument were age, height, competition weight, ethnicity, nationality, student and employment status, marital status, and income, as well as years of competitive fitness and sport experience, reasons for training, and hours of training in the non-competition and competition seasons. Nutritional intake including caloric consumption and macronutrient composition, state of menstrual cycles, and the type and timing of cosmetic surgery performed or whether surgery was considered were also included variables. All questions were answered by fill-in-the-blanks or by multiple-choice responses. One question was answered by rank ordering level of importance using first, second, and third. Twelve (12) questions, which explored the perceived importance of the size and development of physical attributes, were rated on a 5-point Likert scale from 1 for *small* to 5 for *large* dimensions.

Social Physique Anxiety Scale (1989)

The Social Physique Anxiety Scale (1989) was used to investigate the degree of social physique anxiety experienced by the female fitness athletes. Hart, Leary and Rejeski (1989) developed this scale and originally included 30 self-reported items to

measure anxiety on a continuum from tension and nervousness to relaxation and comfort from having one's physique evaluated by others. Experts in the field following evaluation of clarity, content validity, and gender compatibility reduced the items from 30 to 22. Hart et al. (1989) further indicated:

> A principal components analysis (PCA) showed that 14 of the 22 items loaded greater than .60 on a single unrotated factor. Of these items, 3 were discarded due to redundancy and another was added. This 12-item scale was administered to 89 students, 46 female and 43 males. All items correlated at least .50 with the sum of all other items, and Cronbach's alpha coefficient was .90, indicating higher inter-item reliability. Eight week test-retest reliability was .82 (p.97).

Martin, Rejeski, Leary, McAuley, and Bane (1997) indicated that the final 12-item, unidimensional scale was created as a trait measure of self-presentational anxiety related to physique and assessed the anxiety individuals experience when they perceive their physique is being evaluated by others. This self-reported inventory employed a 5-point Likert scale to rate whether the statements were characteristic for the participant, with 1 indicating *not at all characteristic* and 5 implying *extremely characteristic*.

Although evidence has been reported for the reliability and validity of the Social Physique Anxiety Scale, much contention regarding the factorial structure and the need for additional psychometric testing has been documented. Many investigators indicated that item 2, "I would never worry about wearing clothes that might make me look too thin or overweight", was problematic, particularly due to the wording (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Eklund, Kelley, & Wilson, 1997). Martin et al. (1997) recommended deleting 3 items from the original 12-item scale; item 2 again due to its negative wording and items 1 and 5 since they are not socially evaluative. These investigators indicated that a single factor model of

the Social Physique Anxiety Scale is preferred over a two-factor model, namely negative evaluation and concerns regarding physique, since separating the two components would undermine the conceptual and operational relevance of the scale. Martin et al. concluded that reducing the scale to nine items improved the psychometric qualities, and did not affect the validity, reliability, or internal consistency of the scale; the reliability coefficient was now .89.

Given the lack of agreement regarding the Social Physique Anxiety Scale, it was decided to administer the 12-item scale during the main study so that all items could be analysed and the mean scores from the 12-item and the 9-item versions could be compared. As the reliability of the 9-item scale was slightly higher than the 12-item scale, the 9-item version of the Social Physique Anxiety Scale was utilized to analyze the results. It was beyond the scope of this study to analyze separately both subscales of the Scale, namely, expectations of negative evaluation by others and feelings of comfort about presentation of one's physique.

Pilot Study

Participants

Female fitness models competing in an international fitness and model search competition were chosen as subjects for the pilot study because the judging criteria most closely resembled those in female fitness competition. Although the fitness models were not required to perform an athletic routine, they were aesthetically judged while wearing a bikini, fitness attire, and evening wear. This competition took place in a major Canadian city in 2003, and was open to residents of Canada and the United States of America.

Procedure

Permission to conduct the pilot study during the fitness and model search was given by the event organizers in April 2003. Administration and discussion of the survey by the investigator followed the drug testing screening procedure, which occurred during registration, the evening prior to the competition. The fitness models appeared in their swimsuits in groups of 8 or 9 before the panel to respond to various questions and to be observed for suspicious signs of performance enhancing drug use. The head judge then introduced the investigator to each group of participants.

The athletes were invited to participate in the study following the explanation of the purpose and outlining the procedure of the study. Competitors were advised that the study was being conducted as part of a master thesis at Memorial University of Newfoundland and participation was voluntary. They were also advised that the study would require completion of two surveys requiring about 15 minutes. The Information Letter (See Appendix E) and the Hiscock Directionality Scale were given to 81 fitness models. All participants had reached the age of majority. Completion of the questionnaire implied consent.

The fitness models were instructed to complete the first survey independently, seal it in the attached envelope, and return it to the investigator at the event the following day. Twenty-three (23) participants returned their survey during the event, and were presented with the second survey at that time. The second survey was accompanied by an addressed, stamped envelope. The participants were instructed to complete this survey independently during the following week and mail it. Eleven (11) surveys were completed and returned. To ensure anonymity, participants were requested to indicate only their date of birth, which was used to match the pre and

post-surveys. As participants' names and addresses were not indicated, follow-up did not occur with those individuals who did not return their surveys.

Purpose and Analysis

The 24-item, self-reported Hiscock Directionality Scale and one nominal variable, along with the demographic/behavioural questionnaire, were piloted to determine the Scale's reliability using a test-retest method. Test-retest surveys were identified and matched by participants' birth dates. Analysis of the pilot study data using SPSS 11.5 for Windows involved determining and comparing the means and standard deviations from the pre- and post-test for each demographic question. Bivariate correlations produced coefficients for each question included in the Hiscock Directionality Scale when pre- and post-test scores were compared. The correlation coefficients determined the variables that had low, moderate and high reliability. Seven (7) of the 24 pilot study variables that demonstrated low reliability coefficients (< .50) were discarded from the main study prior to analysis. The Hiscock Directionality Scale retained 17 scale items and one nominal variable. The test-retest coefficients are presented in Chapter 4 (See Table 1).

Main Study

Participants

The participants included 38 of 46 athletes competing in an international female fitness competition. This competition was held in a major Canadian city in 2003 and was open to residents from Canada and the United States of America. The competitors included novice athletes; that is, first time national competitors and/or

those never placing in the top 20 at a national event, as well as open, or experienced, athletes; that is, competitors with prior experience and placing. Competitors ranged in age from 19 to 40 years.

The participants represented more than nine ethnic backgrounds and 11 nationalities. The majority of athletes were currently residing in Canada, with a number of American residents participating as well. The participants were required to qualify at a regional or state event prior to attending this international competition. Drug testing occurred randomly using urinalyses.

Procedure

Permission to conduct this study during this international competition was given by the event organizers in April 2003. Between the preliminary judging and final competition, the official choreographer introduced the investigator to the participants following the competitors' meeting and dance recital for the opening ceremonies. Of the 49 competitors, 46 were available and able to participate in this study; 2 had previously left the theatre and the investigator, also a competitor, was removed from the study. The investigator invited the 46 athletes to participate in the study following an explanation of the study's purpose and procedure. Thirty-eight (38) competitors chose to participate.

The investigator distributed the Information Letter (See Appendix F), in addition to the two-part survey: the Social Physique Anxiety Scale and the Hiscock Directionality Scale. Consent forms (See Appendix G) for athletes younger than the age of majority were not needed as all participants had reached the age of majority. Completion of the questionnaire implied consent.

The participants complied with the instruction to distance themselves from other participants during completion of the survey to ensure the privacy and confidentiality of their responses. They were requested to return their responses in a sealed, addressed stamped envelope to the investigator who was also available to answer inquiries. During completion of the survey, there were no inquiries by the participants. Most of the participants took approximately 15 minutes to complete the survey. Thirty-six (36) surveys were returned on-site in the sealed envelopes provided and two surveys were later forwarded in the addressed, stamped envelopes during the week following the event. The results of this study are based on a response rate of 83%, 38 of 46 participants.

Data Analysis

The Social Physique Anxiety Scale scores were measured from 12-60 for the 12-item scale and 9-45 for the 9-item scale, with higher scores indicating higher social physique anxiety. As per scoring instructions, questions 1, 2, 5, 8, and 11 were reverse-scored prior to data entry and analysis. With regard to the Hiscock Directionality Scale, the 17 variables were reverse-scored prior to data entry and analysis. Reverse-scoring was performed to make interpretation of results consistent with the Social Physique Anxiety Scale results; that is, a higher Hiscock Directionality Scale score is indicative of increased debilitation, just as a higher Social Physique Anxiety Scale score is indicative of increased social physique anxiety. Therefore, a higher Hiscock Directionality Scale score means a more debilitative impact and a lower score indicated less debilitative, or more facilitative, impact. The second part of the Hiscock Directionality Scale included 12 additional questions regarding current

and preferred body dimensions. These questions were rated from 1-5, with 1 indicating the *smallest size* and 5 indicating the *largest size* on four physical dimensions, namely, breast size, waist-to-hip ratio, muscular development, and amount of body fat. Participants were asked to rate their body dimensions for their current size, ideal size, and perceived judges' ideal size preference.

Responses from the Social Physique Anxiety Scale and the Hiscock Directionality Scale, including demographic information, behavioural questions, and body dimensions, were statistically analyzed through the use of the SPSS 11.5 for Windows program to display quantitative results. Demographic and behavioural variable responses from the Hiscock Directionality Scale, including age, height, weight, ethnicity, nationality, employment and student status, income, competition experience (fitness and sport), reasons for and hours of training, nutritional intake, menstrual cycles, and cosmetic surgery, as well as body dimension variables, were analyzed through descriptive statistics.

Internal consistency was determined for both the 9-item and 12-item versions of the scale through Cronbach Alpha coefficients. Bivariate correlation analysis was then performed on the means of both versions. Since the 9-item version had marginally higher internal consistency than the 12-item version, with Cronbach Alpha coefficients of .872 and .867 respectively, the study's results were based on the 9-item version of the Social Physique Anxiety Scale. Descriptive statistics were then calculated for the 9-item version of the Social Physique Anxiety Scale.

Additional statistical testing was performed on demographic, behavioural, and body dimension variables. Analysis of Variance (ANOVA) was performed to determine the significance of mean differences in social physique anxiety scores

between groups for the demographic and behavioural variables, with the exception of age, weight, and height. Correlations were performed to determine associations between social physique anxiety with age, weight and height variables. Descriptive statistics and the Wilcoxon Matched-Pairs Signed-Ranks test was conducted to compare mean scores and to determine if significant differences existed between perceived body dimensions, namely, current size as rated by the participants at the time surveys were administered, perceived desired size, and perceived size desired by the judges for each body dimension. These body dimensions included breast size, waist-to-hip ratio, muscular development, and body fat.

The 17 variables in the Hiscock Directionality Scale were arranged into three subscales, or groupings of similar concepts, namely responsibility, affect, and training/diet, based on logic and face validity. Higher scores indicated a more debilitative impact. Internal consistency of each subscale determined the coefficient of determination was acceptable for only two subscales, Responsibility and Affect, but not for Training and Diet. Confirmatory factor analysis was then utilized to confirm the logic, face validity and reliability for the Responsibility and Affect subscales within the Hiscock Directionality Scale. Descriptive statistics were then calculated for each subscale. Bivariate analysis was employed to look at the relationship between degree of social physique anxiety and the impact of each factorial structure subscale within the Hiscock Directionality Scale. An independent, third party statistician reviewed statistical tests and results.

Coding

Demographic questions 2 and 5 to 15 of the Hiscock Directionality Scale were coded with a numerical figure for each response. For example, responses for "marital status" were coded 1 for *single or divorced without children*, 2 for *single or divorced with children*, 3 for *married or common law without children* and 4 for *married or common law with children*. The six variables inquiring about training reasons were rank ordered. The responses were either entered as 0 for *not listed as one of three reasons to train*, 1 for *first most important reason to train*, 2 for *second most important reason to train*, and 3 for *third most important reason to train*. In addition, questions 1, 3, and 4 were coded with the actual value given. For example, question 4, "competition weight" was entered as weight in pounds as the participants had responded. Finally, the number 99 was entered for missing data. The data was entered by the investigator and rechecked for accuracy by an independent third party. The coding key for each variable is presented in Appendix H.

Summary

This chapter has outlined the measures employed and described the participants and the procedures followed during both the pilot and main studies. It has explained the process of data analysis and coding procedure for the data. Chapter 4 will present the results obtained from the thesis study. The two research questions previously identified will be answered, namely: to what degree does social physique anxiety affect elite, female fitness competitors and is social physique anxiety associated with facilitative or debilitative practices for these competitors and to what degree?

CHAPTER 4

RESULTS

Introduction

This chapter begins with a demographic description of the pilot study participants and the data related to the reliability of each of the scale items in the Hiscock Directionality Scale (2003). It also provides a description of the participants in the main study through discussion of the demographic variables, and presents descriptive statistics (means, standard deviations, and frequencies) for various behaviours explored, including training habits, eating behaviour, menstruation, preference for body dimensions, and attitudes regarding cosmetic surgery.

The degree of social physique anxiety that female fitness competitors experienced is reported with an explanation of why the 9-item version of the Social Physique Anxiety Scale was chosen over the 12-item version. Analysis of Variance and/or correlations between social physique anxiety and the demographic and behavioural variables are discussed. The chapter reports the internal consistency of the 9-item and 12-item versions of the Social Physique Anxiety Scale, examines the content validity, logic, and face validity for the subscales, namely Responsibility and Affect, within the Hiscock Directionality Scale through factor analysis, and reports the descriptive statistics and internal consistency for these subscales. The chapter concludes by presenting the associations between social physique anxiety and the perceived directionality of its impact.

Pilot Study

Demographic Variables

The participants consisted of 11 fitness models ranging in age from 21 to 38 years ($M = 29.7$, $SD = 5.7$). They ranged in height from 5'3" to 5'11" ($M = 5'6.5"$, $SD = 2.6$). Competition weight ranged from 117 to 138 pounds ($M = 128.8$, $SD = 5.9$). (See Appendix I, Table I1)

Of those models that responded, 55% ($n = 6$) were Caucasian and 9% ($n = 1$) were Black. Other ethnic backgrounds included Italian and Czechoslovakian (9%, $n = 1$), Italian and Greek (9%, $n = 1$), and mixed or European (18%, $n = 2$). Nationalities included Canadian (64%, $n = 7$), Italian (18%, $n = 2$) and Hungarian (18%, $n = 2$). Employment and student status included full-time employees (46%, $n = 5$), full-time students (18%, $n = 2$), and part-time employees (9%, $n = 1$). One participant (9%, $n = 1$) was a full-time student and a part-time employee, one participant (9%, $n = 1$) was a part-time student and a part-time employee, and one participant (9%, $n = 1$) was a part-time student and a full-time employee. The reported marital status included single/divorced without children (64%, $n = 7$), single/divorced with children (18%, $n = 2$), married/common law without children (9%, $n = 1$), and married/common law with children (9%, $n = 1$). Economic status included participants earning less than $12,000 (9%, $n = 1$), $13,000 to $20,000 (18%, $n = 2$), $21,000 to $30,000 (18%, $n = 2$), $31,000 to $41,000 (18%, $n = 2$), and $51,000 or more per annum (36%, $n = 4$). (See Appendix J, Tables J1-J5)

Many of the participants had little competitive fitness experience, with 55% ($n = 6$) stating that they had less than 1 year of experience. An additional 27% ($n = 3$) had 1 to 2 years experience, and 18% ($n = 2$) indicated that they had 3 to 4 years of

fitness experience. With regard to acquired experience from competitive sport in general, the participants reported a minimum of less than 1 year (27%, $n = 3$), 1 to 5 years (18%, $n = 2$), 6 to 12 years (27%, $n = 3$), and 13 or more years (18%, $n = 2$). (See Appendix K, Tables K1 & K2)

With regard to reasons fitness models trained, 91% ($n = 10$) reported that they trained for physical appearance or sculpting reasons. In addition, 73% ($n = 8$) trained for physical health, 54% ($n = 6$) for emotional health or stress reduction, 36% ($n = 4$) for performance enhancement, and 27% ($n = 3$) for other reasons, including a sense of accomplishment and recognition. (See Appendix K, Tables K3-K8)

The hours fitness models trained increased from non-competition season to competition season; 73% ($n = 8$) trained 12 or less hours while 27% ($n = 3$) trained 13 to 20 or more hours in the non-competition season. In the competition season, 45% ($n = 5$) trained 12 or fewer hours while 55% (n = 6) trained 13 to 20 or more hours. Of the 82% ($n = 9$) of fitness models that were aware of their caloric intake, 73% ($n = 8$) consumed 1200 to 2000 calories per day, with 9% ($n = 1$) consuming less than 1200. The majority (64%, $n = 7$) of fitness models had regular menstruation, with 36% ($n = 4$) having irregular cycles. No fitness models experienced cessation of menses. (See Appendix K, Tables K9-K13)

With regard to cosmetic surgery to enhance appearance, 27% ($n = 3$) of the fitness models underwent breast enhancement and 9% ($n = 1$) had collagen injection. The timing of procedures occurred prior to commencing fitness model search competitions for 36% ($n = 4$) of the fitness models and since beginning to compete for 18% ($n = 2$) of the model competitors. No models reported having breast reduction,

liposuction, face/nose surgery, botox injection, or other forms of cosmetic surgery. An additional 36% ($n = 4$) were considering breast augmentation, while 27% ($n = 3$) considered having collagen injection, nose/face surgery, or other forms of surgery. (See Appendix K, Tables K14-K16)

Hiscock Directionality Scale (2003)

The reliability test-retest indicated that 17 variables of the Hiscock Directionality Scale correlated at acceptable levels, with correlation coefficients between .50 and 1.0. Dyer (1995) provided approximate translations for values of correlation coefficients; that is, a correlation coefficient of .50 or .60 suggested some degree of correlation, a coefficient of .70 or .80 indicated strong correlation, a coefficient of .90 suggested very strong correlation, while a coefficient of 1.0 indicated a perfect correlation (p. 298). Seven items correlated less than .50, possibly due to the ambiguity of the item wording. Since correlations less than .50 were deemed weak and unacceptable, these seven items were removed from the scale and omitted prior to analyses of the main study. The bivariate correlations for the 24 test-retest variables of the Hiscock Directionality Scale are presented in Table 1.

Table 1

Bivariate Correlations for Variables of the Hiscock Directionality Scale (2003)

Scale Items	Correlation Coefficient
Attention given to physical well-being	.723 (*)
Attention given to emotional well-being	**.334**
Comparing self to ideal image on self-esteem	.717 (*)
Comparing non-comp to comp physique on self-esteem	.781 (**)
Judge's ideal image on self-esteem	.825 (**)
Exposing more of your physique leads to better scores (nominal)	.907 (**)
Exposing more of your physique on self-esteem	.517
Observing/comparing others on self-esteem	.874 (**)
Effect of viewing fitness models on your emotional state	.944 (**)
Physique on interactions	**-.038**
Off-season training volume and emotional health	.909 (**)
Competition training volume on emotional health	**.490**
Diet on emotional well-being in non-competition season	.904 (**)
Diet and emotional well-being in competition season	.571
Competition diet and training on physical health	**.470**
Preparation time on work responsibility	.903 (**)
Preparation time on school responsibility	1.000 (**)
Preparation time on home responsibility	.903 (**)
Preparation time on other financial responsibility	.875 (**)
Preparation time on social events	.506
Physique emphasis on quality sexual relationships	.954 (**)
Altered body image and self-esteem in bikini round	.932 (**)
Temporarily altering appearance and self-esteem	**.338**
Surgery and perception about image	**.251**
New image from surgery and confidence	**.421**

$N = 11$
* $p < .05$, two-tailed
** $p < .01$, two-tailed
Bolded items indicate 7 items deleted

Demographic Variables

The participants consisted of 38 female fitness competitors ranging in age from 19 to 40 years ($M = 27.6$, $SD = 4.7$). Figure 1 indicates the percentage of participants of each age.

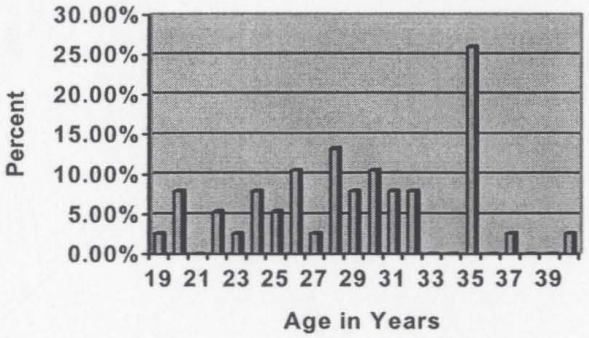

Figure 1. Percent of Participants by Age

The participants ranged in height from 4'11" to 5'8"($M = 5'3.5"$, $SD = 2.0$), and ranged in weight from 95 to 135 pounds ($M = 117.6$, $SD = 10.8$). (See Appendix L, Table L1) With regard to ethnicity, of those that indicated, 47% ($n = 18$) were Caucasian and 8% ($n = 3$) were Black. Twelve (32%) participants did not indicate their ethnicity. (See Table 2)

Table 2

Frequency, Percent, and Cumulative Percent for Ethnicity

Ethnicity	Frequency	Percent	Cumulative Percent
Caucasian	18	47.4	69.2
Black	3	7.9	80.8
Italian/Czech	1	2.6	84.6
Lebanese	1	2.6	88.5
Spanish	1	2.6	92.3
Dutch	1	2.6	96.2
Armenian	1	2.6	100.0
Subtotal	26	68.4	
Missing	12	31.6	
Total	38	100.0	

The majority of those who indicated nationality were Canadian (63%, $n = 24$) and American (13%, $n = 5$). One participant (3%) did not indicate her nationality. (See Table 3)

Table 3

Frequency and Percent for Nationality

Nationality	Frequency	Percent
Canadian	24	63.2
American	5	13.2
Italian	2	5.3
Trinidadian	1	2.6
Hungarian	2	5.3
German/Irish	1	2.6
South American	1	2.6
Czechoslovakian	1	2.6
Total	37	97.4
Missing	1	2.6

With reference to employment and school status, the majority of participants were either full-time employees (50%, $n = 19$) or full-time students (21%, n = 8). The remaining 29% of the participants were either part-time employees (5%, $n = 2$), some combination of student and employee (13%, $n = 5$), or no listed status was applicable (11%, $n = 4$). (See Table 4)

Table 4

Frequency and Percent for Employment and Student Status

Status	Frequency	Percent
Full-time student	8	21.1
Part-time employee	2	5.3
Full-time employee	19	50.0
Full-time student & part-time employee	2	5.3
Full-time student & full-time employee	1	2.6
Part-time student & part-time employee	1	2.6
Part-time student & full-time employee	1	2.6
Not Applicable	4	10.5
Total	38	100.0

The majority of the participants were either single or divorced without children (55%, $n = 21$) or married/common law without children (40%, $n = 15$). Only two participants had children; one was single or divorced with children (3%, $n = 1$) and one was married or common law with children (3%, $n = 1$). (See Appendix N, Table N3)

With regard to economic status, results were determined categorically. The participants' annual income ranged from less than $12,000 (24%, $n = 9$) to $51,000 or more (18%, $n = 7$). Others reported earning between $13,000 to $20,000 (5%, $n = 2$), $21,000 to $30,000 (13%, $n = 5$), $31,000 to $40,000 (18%, $n = 7$), and $41,000 to $50,000 (13%, $n = 5$). Eight percent ($n = 3$) did not indicate their gross annual income. (See Appendix M, Table M1)

Training Behaviour

The training behaviour explored included the number of hours participants trained each week in the non-competition season as well as during the competition season; that is, the 12 weeks prior to the competition. The reasons the participants trained and the three most important reasons they trained for competition were also explored in addition to the years of fitness competition and sport competition experience for novice and experienced competitors.

The number of hours the participants physically trained increased from the off-season to the competition season. In the non-competition season, the majority (69%, $n = 26$) trained 12 or fewer hours per week, whereas only 21% ($n = 8$) continued to train 12 or fewer hours in the competition season. In the non-competition season, 18% ($n = 7$) trained between 13 and 16 hours per week, while this number increased to 32% ($n = 12$) in the competition season. Finally, few participants (13%, $n = 5$) trained 17 or more hours per week in the non-competition season, while nearly half (47%, $n = 18$) reported their training increased to this extent during competition season. (See Appendix M, Tables M9 & M10)

Another aspect of training behaviour investigated was the reasons the participants gave for training. Nearly all participants (92%, $n = 35$) indicated that physical appearance or sculpting was one of three most important reasons they trained. However, performance enhancement was an important reason to train for only about half the participants (58%, $n = 22$). Other reasons to train in the 12 weeks prior to competition include physical health (84%, $n = 32$), emotional health or stress reduction (50%, $n = 19$), and social interaction (11%, $n = 4$). The participants did not

indicate any other reasons when ranking their three most important reasons to train for competition. (See Appendix M, Tables M4-M8)

With regard to frequency of importance ratings given to the three most important reasons to train, physical appearance/sculpting and physical health were equally rated as the first most important reason to train, each by 32% (n = 12) of the participants, and physical appearance/sculpting was also indicated most frequently as the second most important reason to train by 50% of participants (n = 19). In other words, physical appearance or sculpting was either the first or second most important reason to train for 82% (n = 31) of participants. Physical health was indicated most frequently as the third most important reason to train by 40% (n = 15) of participants. (See Appendix M, Tables M4 & M6)

Finally, regarding experience with female fitness competition, fewer than half (42%, n = 16) were considered novice, having had less than one-year competitive fitness experience, while more than half (58%, n = 22) were considered experienced, having had one or more years experience. With regard to competitive experience in other sports, a small number of the competitors (18%, n = 7) had less than one year other sport experience, while 24% (n = 9) had between 1 to 5 years experience. More than half the participants (58%, n = 22) had extensive competitive sport experience indicating the categories of 6 to 12 or 13 or more years of experience. (See Appendix M, Tables M2 & M3)

Eating Behaviour

The reported eating behaviour indicated that the majority of the competitors (79%, n = 30) ate less than 2000 calories per day, with 11% (n = 4) of these

consuming less than 1200 calories per day. A small number (8%, $n = 3$) of participants each consumed 2000 or greater calories per day. Others (13%, $n = 5$) were not aware of their caloric intake. (See *Figure 2*)

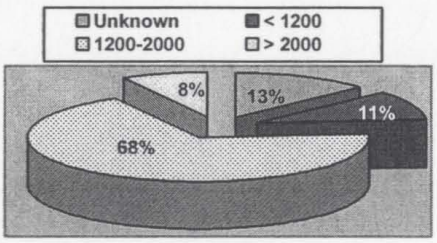

Figure 2. Breakdown of Caloric Intake

Caloric intake was further examined by macronutrient consumption; that is, percentage of protein, fats, and carbohydrates consumed. Of the 82% ($n = 31$) of participants that knew and reported their macronutrient intake, their diet was composed of 33-80% protein ($M = 50\%$, $SD = 13$). Fat intake was reported to range between 5-40% of their diet ($M = 17\%$, $SD = 8$), while carbohydrates were reported to account for between 10-50% of their diet ($M = 33\%$, $SD = 10$). (See *Figure 3* and Appendix L, Table L1)

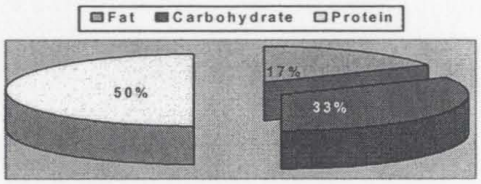

Figure 3. Mean Percentage of Macronutrient Consumption

Menstrual Patterns

The number of menstrual cycles the participants reported having during the previous year ranged from zero to 12 ($M = 9$, $SD = 4$). Approximately half (55%, $n = 21$) reported they continued to have a regular cycle through the competition and non-competition seasons. Some (18%, $n = 7$) reported having between nine to 11 monthly cycles per year. Others (24%, $n = 9$) indicated they had eight or fewer cycles per year, and a few (11%, $n = 4$) indicated that they no longer menstruate. (See *Figure 4*)

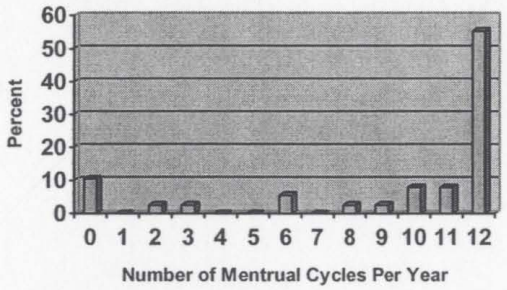

Figure 4. Patterns of Menstruation by Percentage

Body Dimension Preference

Body dimensions were explored to determine the mean scores for participants' current size, desired size, and perceived judges desired size. Body dimensions were measured on a 5-point Likert scale with 1 indicating *small body dimensions* and 5 indicating *large body dimensions*. (See Table 5)

Table 5

Mean Scores and Standard Deviations for Current Size, Desired Size, and Perceived Judges Desired Size for Body Dimensions

Body Dimension	Current Size		Desired Size		Perceived Judges Desired Size	
	M	*SD*	*M*	*SD*	*M*	*SD*
Breast Size	2.32	1.09	3.12	.81	3.38	.65
Muscular Development	2.76	1.03	3.08	.85	3.00	.76
Body Fat	2.38	.954	1.85	.93	1.88	.95
Waist-to-Hip Ratio	2.52	1.15	2.21	1.11	2.30	1.16

This data was then analyzed using the Wilcoxon Matched-Pairs Signed-Ranks test to determine if there were significant differences between these perceived body dimensions. (Table 6)

Table 6

Z Scores and Probability Scores for Current Size and Desired Size, Desired Size and Perceived Judges Desired Size, and Current Size and Perceived Judges Desired Size for Body Dimensions

Body Dimension	Current Size & Desired Size		Desired Size & Perceived Judges Desired Size		Current Size & Perceived Judges Desired Size	
	z	*p*	*z*	*p*	*z*	p
Breast Size	-3.70	**.00**	-1.97	.49	-4.07	**.05**
Muscular Development	-1.82	.07	-.79	.43	-1.57	.12
Body Fat	-3.12	**.00**	-.33	.74	-2.68	**.01**
Waist-to-Hip Ratio	-1.76	.08	-.81	.42	-1.13	.26

There were significant differences found between current size and desired size, as well as between current size and perceived judges desired size for both breast size and body fat. For the breast size dimension, there was a significant difference between current size and desired size ($z = 3.70$, $34 - 15 = 19$, $p = .000$, 2-tailed) and between current size and perceived judges desired size ($z = 1.97$, $34 - 19 = 15$, $p = .049$, 2-tailed). The mean scores indicated that participants perceived they had small-medium size breasts, but desired and perceived the judges desired them to have medium sized breasts. For the body fat dimension, there was also a significant difference between current size and desired size ($z = 3.12$, $34 - 17 = 17$, $p = .002$, 2-tailed) and between current size and perceived judges desired size ($z = 2.68$, $34 - 13 = 21$, $p = .007$, 2-tailed). The mean scores indicated that participants perceived they had small-medium amount of body fat, but desired and perceived the judges desired them to have a small amount of body fat.

Cosmetic Surgery

With regard to cosmetic surgery, the most frequently performed procedure was breast augmentation; 21% of the participants indicated they had breast augmentation and an additional 26% were considering having the procedure. Other procedures included collagen injection (3%) and face or nose surgery (3%), but no competitors indicated having had had breast reduction, liposuction, botox, or other forms of cosmetic surgery. Some participants indicated they were considering having collagen injection (3%), face or nose surgery (8%), liposuction (8%), botox injection (8%), and/or other enhancement procedure (3%). (See Appendix M, Tables 11-13)

Social Physique Anxiety

A reliability analysis was conducted on both versions of the Social Physique Anxiety Scale, due to contention in the literature regarding the construction of the 12-item versus 9-item scales. Both scales demonstrated high internal consistency with Cronbach Alpha coefficients of .867 for the 12-item version and .872 for the nine-item version. Bivariate correlation analysis between the mean scores of the 12-item and 9-item scales produced a high correlation coefficient ($r = .977$, $n = 38$, $p < .01$, two-tailed). Since the nine-item version had slightly higher internal consistency than the 12-item version, the 9-item version of the Social Physique Anxiety Scale was selected for this study.

The nine items of the Social Physique Anxiety Scale were then summed to produce a possible score ranging from 9, indicating *low social physique anxiety* to 45, indicating *high social physique anxiety*. The range in scores for the 9-item scale was then transformed into an equivalent score measured on a 5-point Likert scale, with 1 indicating *low social physique anxiety* and 5 indicating *high social physique anxiety*. The participants' social physique anxiety scores ranged between 1 and 4.67 ($M = 2.69$, $SD = .87$). The mean score indicates that, as a group, these elite female fitness competitors experience a moderate degree of social physique anxiety. (See Table 7)

Table 7

Range, Mean, and Standard Deviation for the 9-item Social Physique Anxiety Scale (1989)

Scale	*N*	Minimum	Maximum	Mean	Std. Deviation
9-Item Social Physique Anxiety Scale	38	1.00	4.67	2.69	.87

Analysis of Variance

An Analysis of Variance (ANOVA) was performed with social physique anxiety and each of the demographic variables, namely age, ethnicity, nationality, student/employee status, and annual gross income, but no significant differences were observed at the $p < .05$ level. An ANOVA could not be performed for height and weight because these were presented in the survey as open-ended questions and therefore each of these variables had fewer than two groups. An ANOVA performed with social physique anxiety and marital status revealed a significant difference ($F(3, 34) = 4.23$, $p < .05$, $\eta^2 = 0.27$); the mean score for social physique anxiety and marital status was highest for those participants who were single with children ($M = 4.33$) compared with those who were married/common law without children ($M = 2.21$, $SD = .74$). (See Appendix N, Tables N3 & N4)

With reference to social physique anxiety and behavioural variables, namely, training time in competition and non-competition seasons, reasons to train, and competitive fitness and competitive sport experience, ANOVA results indicated no significant difference at the $p < .05$ level. (See Appendix N, Tables N5-N17)

Correlations

During the examination of cosmetic surgery, bivariate correlations for social physique anxiety and cosmetic surgery performed did not reach significance. (See Table 8)

Table 8

Correlation Coefficients and Significance Levels for Type of Cosmetic Surgery Performed

Type of Surgery	Correlation Coefficient	Significance Level
Breast Augmentation Performed	-.05	.80
Liposuction Performed	.02	.93
Other Cosmetic Surgery Performed	.02	.93

With regard to cosmetic surgery considered, a correlation coefficient was significant at the $p < .05$ level for social physique anxiety and considering breast augmentation ($r = .40$, $N = 38$, p = .02, two-tailed), as was the correlation coefficient for social physique anxiety and considering liposuction ($r = +.46$, $N = 38$, $p = .01$, two-tailed). These correlations suggest that a weak, positive association exists between social physique anxiety and considering breast augmentation or liposuction surgeries. (See Table 9)

Table 9

Mean Social Physique Anxiety (SPA) Scores, Standard Deviations, Correlation Coefficients, and Significance Levels for Type of Surgery Considered or Not Considered

Type of Surgery Considered	Mean SPA Score	Standard Deviation	Correlation Coefficient	Significance Level
Breast Augmentation				
Considered	3.23	1.01	.40	.02
Not Considered	2.45	.78		
Liposuction				
Considered	4.00	.58	.46	.01
Not Considered	2.56	.84		
Other Cosmetic Surgery				
Considered	4.35	.92	.33	.07
Not Considered	2.65	.88		

Perceived Directionality of the Impact

Following the reduction of the Hiscock Directionality Scale from 24 Likert-scale items and one nominal variable to 17 Likert-scale items and one nominal variable as a result of unacceptable item reliability coefficients in the pilot study, the scale was analyzed to determine validity and internal consistency. The 17 Likert-scale items were arranged into three subscales, namely *Responsibility*, *Affect*, and *Training/Diet*, based on logic arising from themes in the literature review and on face validity. Face validity is defined as "the extent to which a measuring instrument looks as though it is measuring what it purports to measure" (Polit and Hungler, 1997, p. 300).

The subscales were then analyzed to statistically determine internal consistency. The 6-item *Responsibility* subscale produced high internal consistency, with a very strong Cronbach's Alpha coefficient of .91. The *Affect* subscale produced

a strong reliability coefficient of .79. The *Training/Diet* subscale produced a weak and unacceptable coefficient of .38. (See Table 10)

Table 10

Internal Consistency (Cronbach's Alpha Coefficient) for the subscales of the Hiscock Directionality Scale (2003)

Subscale Name	Cronbach's Alpha
Responsibility	.91
Affect	.79
Training and Diet	.38

As a result of the low coefficient, the *Training/Diet* subscale and its items were removed from the Hiscock Directionality Scale and excluded from further analysis. Two subscales, *Responsibility* and *Affect*, were then statistically tested through factor analysis.

According to Gardner (2001), there are two basic approaches to factor analysis:

> Exploratory factor analysis begins with the relationships among the indicator variables and strives to uncover the dimensions underlying them. Confirmatory factor analysis begins with a model or theory of the nature of the dimensions underlying a set of indicator variables and seeks to determine to what extent the dimensions explain the relationships among the variables. (p.238)

Confirmatory factor analysis was used as a secondary tool to previous statistical procedures on the speculation that three dimensions existed; namely *Responsibility*, *Affect*, and *Training/Diet*. The objective was to determine the extent to which these dimensions explained the relationships among the variables. However, sample size is

of concern with factor analysis given that it is a multivariate procedure. Gardner noted:

> Traditionally, it has been argued that sample size should be at least as large as 100 to 300 (cf. Cattell, 1978; Comrey, 1973). But you will find many factor analytic studies with samples smaller than this. Some researchers have proposed that the number of subjects should bear some relation to the number of variables. For example, Nunnally (1978) proposed a 10 to 1 subjects to variable ratio, but Guadagnoli and Velicer (1988) cite a series of references recommending ratios that vary from 2 to 1 to 20 to 1. (p. 243)

Caution should be used in the interpretation of the results, given the small sample and variable size of 38 subjects and 17 variables initially, a subject to variable ratio of 2:1. Confirmatory factor analysis determined that two factors existed, *Responsibility* and *Affective*, and contained a total of 13 variables.

Confirmatory factor analysis, using Varimax rotation, was then employed to confirm the logic, face validity, and reliability of the two remaining subscales. Factor analysis indicated that the items within the *Responsibility* and *Affect* subscales factored well together. Six items factored together to produce one subscale, *Responsibility*, which included questions regarding responsibilities within various aspects of the participants' lives. The additional seven items factored together to form the second subscale, entitled *Affect*, which consisted of self-esteem and emotional well-being questions. One item, *Impact of judge's ideal on self-esteem,* factored well with items on both subscales. However, it fit logically better with the *Affect* subscale, and therefore remained with the *Affect* subscale as initially proposed. Of the three stages of factor analysis, the third stage was most applicable for achieving this statistical procedure. Gardner indicated:

> Stage three is concerned with identifying factors that more parsimoniously (i.e., more simply) describe the relations among the variables. This is achieved by rotating the factors described in the initial factor matrix to

produce a more interpretable structure. The resultant matrix of associations of the variables with the rotated factors is the Rotated Factor Matrix. (p. 239)

The Rotated Component Matrix consisted of items factored together to form two components, the *Responsibility* and *Affect* subscales of the Hiscock Directionality Scale. Note that 12 of the 13 items had relatively large loadings, greater than or equal to .60. (See Table 11)

Table 11

Rotated Component Matrix for Responsibility and Affect Subscales

	Subscales	
Item Name	Responsibilty	Affect
Impact of time spent for competition prep on social life	.898	
Impact of competition prep time on home responsibilities	.850	
Impact of money for prep on financial responsibilities	.847	
Impact of competition prep time on school responsibilities	.769	
Impact of competition prep time on work responsibilities	.750	
Impact of competition prep on quality intimacy	.739	
Impact of judge's ideal on self-esteem	.561	.454
Impact of comparing self to ideal on self-esteem		.777
Impact of comparing non to comp physique on self-esteem		.687
Impact of exposing more of physique on self-esteem		.659
Impact of altered image in bikini round on self-esteem		.656
Impact of comparing other's physique to own on self-esteem		.618
Impact of exposing fitness models in ads on you		.614

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
A rotation converged in 3 iterations.

Factor analysis was employed since this statistical testing confirmed the Hiscock Directionality Scale consisted of two subscales. Descriptive statistics were

then employed to determine the range, mean, and standard deviation for each subscale. Frequency distribution was determined for the nominal variable, *Do you believe exposing more of your physique through wearing of a smaller costume or bikini will lead to better scores in the competition?,* as there were three options for the response: yes, no, or unsure. (See Table 12)

Table 12

Frequency Distribution for Responses on the Nominal Variable

Options	Frequency	Percent
Yes	8	21.1
Unsure	13	34.2
No	17	44.7
Total	38	100

Table 12 indicates that 45% of the respondents did not believe that exposing more of their physique through wearing a smaller costume or bikini led to better scores while 55% of the respondents believed it did or were unsure.

In the Hiscock Directionality Scale, the subscales' range indicated scores of 1 to 5 on the *Responsibility* subscale and from 1.57 to 5 on the *Affect* subscale. This demonstrated that participants perceived that their experiences varied from *much positive* to *much negative* impact. As a group, however, the means scores were 3.50 for the *Responsibility* subscale and 3.02 for the *Affect* subscale, scores that fell between the scale anchors *no impact* to *little negative impact.* These scores suggest that these female fitness competitors perceived they experienced minimal debilitation in areas of responsibility and affect. (See Table 13)

Table 13

Ranges, Means, and Standard Deviation for Responsibility and Affect Subscales

Subscale Name	*N*	Minimum	Maximum	Mean	Std. Deviation
Responsibility	31	1.00	5.00	3.50	1.10
Affect	35	1.57	5.00	3.02	.74
Valid N (list-wise)	31				

Bivariate correlations were performed to look at the association between social physique anxiety and the subscales. (See Table 14)

Table 14

Pearson Correlations, Coefficient of Determinations, and Significance Between Subscales and Social Physique Anxiety (SPA) Scale

Subscale Name	*N*	Pearson's r	r^2	Significance
Affect and SPA	35	.38 (*)	.142	.03
Responsibility and SPA	31	-.04	.001	.85

*$p < .05$ level, two-tailed

A Pearson correlation for the data revealed that social physique anxiety and affect were significantly related ($r = .38$, $N = 35$, $p = .03$, two-tailed). However, the coefficient of determination ($r^2 = .142$) was only 14.2%. The results indicate there was a weak, positive relationship between these scales, which suggests that social physique anxiety was positively associated with minimal debilitative affect these competitors perceived they experienced. (See *Figure 5*)

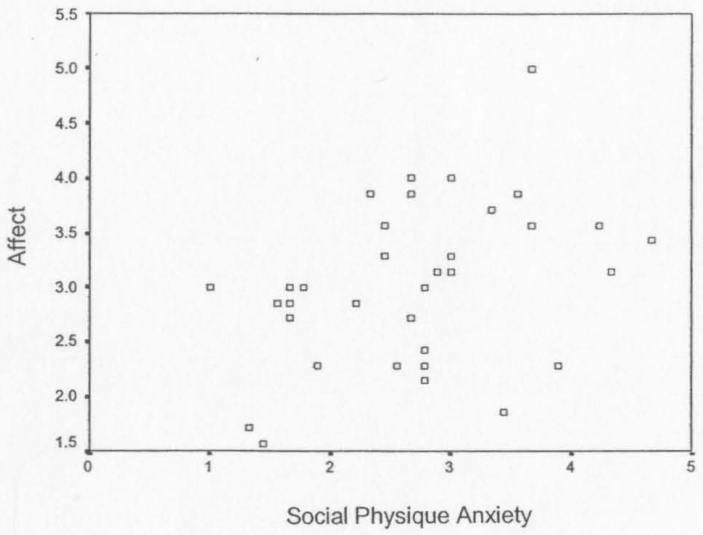

Figure 5. Scatter plot of Correlation Between Affect and Social Physique Anxiety

As indicated in Table 14, a Pearson correlation for the data revealed that social physique anxiety and responsibility were not significantly related ($r = -.04$, $N = 31$, $p = .85$, two-tailed). Furthermore, the coefficient of determination ($r^2 = .001$) was only .1%. The cluster of subjects' responses displayed in the scatter plot suggests there was no association between social physique anxiety and responsibility. (See *Figure 6*)

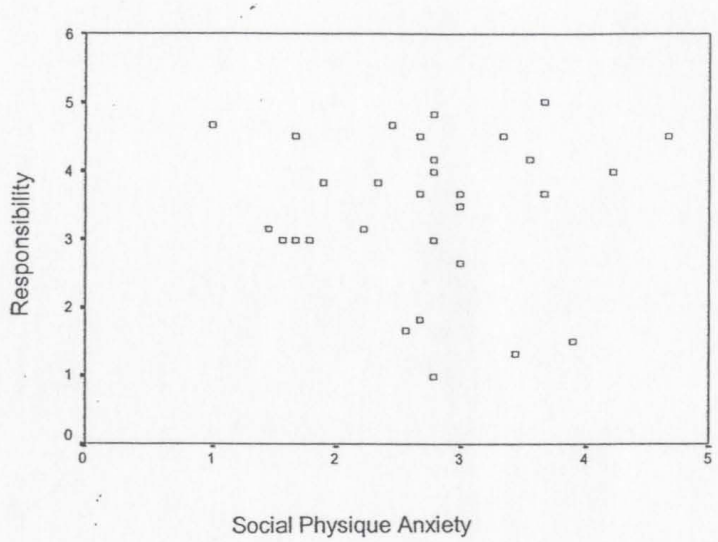

Figure 6. Scatter plot of the Correlation Between Responsibility and Social Physique Anxiety

Summary

This chapter highlighted the major findings from this study. It described the participants in the pilot study and the bivariate correlations for the test-retest of Hiscock Directionality Scale. Demographic statistics for the eating, training, behavioural, and preference results were presented through bar graphs, pie charts, tables, and in a narrative style. Analysis of Variance and/or bivariate correlations results were presented for social physique anxiety with demographic and behaviour variables. Internal consistency and descriptive statistics were reported for the subscales within the Hiscock Directionality Scale (2003). Because of the preliminary nature of the investigation, additional research will be required to further substantiate the scale's utility as a promising tool for examining the perceived directionality of its impact. The chapter concluded with the use of bivariate correlations indicating the association between social physique anxiety and perceived directionality of its impact.

Chapter five discusses the results and conclusions, reveals the limitations of the study, and makes recommendations for future research.

CHAPTER 5

SUMMARY AND DISCUSSION

Introduction

The preceding chapters presented an overview of social physique anxiety as reviewed in the literature, described the purpose and methodology of this thesis study, and provided the results. During the literature review one particular study (Schwerin, 1996) examined social physique anxiety in sport where aesthetics was the primary component evaluated in determining competitive success. The following chapter, therefore, discusses the results regarding social physique anxiety and its impact on aesthetic athletic participants competing in an international female fitness competition. Particular emphasis is given to the research questions, namely: 1) To what degree do female fitness competitors experience social physique anxiety? 2) Is social physique anxiety associated with facilitative or debilitative practices for female fitness competitors and if so, to what degree? The findings are discussed in the context of the degree of social physique anxiety, physical self, behaviour and practices, health, and the association between social physique anxiety and perceived impact. The chapter also includes a theoretical explanation from a Cognitive Behavioural perspective, recommendations, and a conclusion.

Variables

Degree of Social Physique Anxiety

A major purpose of this study was to determine the degree of social physique anxiety experienced by 38 elite female fitness competitors. The mean score indicated

that these elite athletes experienced a moderate degree of social physique anxiety. This is not surprising given that 40% of competitive success is based on subjective evaluation of aesthetic proportions of athletes' physiques while wearing bikinis. As a professional fitness competitor, Katie Utter, indicated, " You have to be tough to handle a fitness competition. Being judged on your physique and appearance can quickly get the best of you" (Hannam, December 2004, p. 115).

However, it is possible that fitness competitors with a high degree of social physique anxiety could have avoided competing in this competition due to fear of negative evaluation. Furthermore, this particular group was composed of elite, international level competitors. Those with higher social physique anxiety may have been eliminated from competing in this level based on previous competition results. As well, confidence/awareness of their athletic achievements and ability could have also accounted for reduced degrees of social physique anxiety.

Physical-Self

The literature review indicated that physical attributes are associated with social physique anxiety. In general, social physique anxiety is reported to be greater for women that are taller, heavier, and for those with increased body fat (Hart, Leary, & Rejeski, 1989), and for women with larger hips and waist (McAuley, Bane, Rudolph, & Lox, 1995). Results of this study indicated that physically, fitness competitors perceived they were athletically built, with moderately lean muscular physiques, small-to-medium sized breasts and medium waist-to-hip ratios. Body dimensions were self-reported since objective measurement was beyond the scope of this study. Also, the BMI was reported to be unsuitable for accurate measures of

healthy body weight with athletic physiques due to increased muscular development and reduced levels of body fat (Plowman & Smith, 1997). Significant differences in social physique anxiety were not found for other areas of physical self, including age, height, weight, nationality, student/employee status, or income for the fitness competitors within this study. As this study involved a small, specialized group of elite fitness athletes, homogeneity and little group difference was expected.

As previously indicated in the literature review, social physique anxiety was positively associated with preferences for loose-fitting aerobic clothing (Eklund and Crawford, 1994) or a preference for more concealing clothing (Brewer, Diehl, Correlius, Joshua & Van Raalte (2004). Question 6 of the Hiscock Directionality Scale inquired if participants believed that exposing more of their physiques through wearing a smaller costume or bikini would lead to better scores in competition. As indicated in Table 12, the frequency distribution for the responses on this nominal variable, nearly half the participants (45%) indicated that they did not believe exposing more of their physiques would lead to improved scores. Given that social physique anxiety is greater when individuals expose more of their physiques, this result may have been a means by which participants could unconsciously decrease their social physique anxiety.

With reference to ethnicity, the literature indicated that Black women have lower physique anxiety than Caucasian women due to Black women's larger personal and societal standards of ideal body images (Dawson, 1988; Russell, 2002; Russell & Cox, 2003). However, the ANOVA result for social physique anxiety and ethnicity for this study indicated no significant difference, and therefore conclusions cannot be made regarding ethnicity. ANOVA results for marital status and social physique

anxiety indicated a significant difference; single parent participants had higher social physique anxiety than married, childless competitors; childless married competitors had the least social physique anxiety, that is, a low-moderate level. However, single parent participants were largely under-represented, with just one competitor, while 95% ($n = 36$) of the sample was childless and 3% ($n = 1$) were married with children.

Due perhaps to the small, homogeneous sample, significant correlations were not found for social physique anxiety and age, height, and weight aspects of physical self. Furthermore, female fitness competitors appeared to be unsatisfied with their body image regarding breast size and body fat dimensions. They desired larger breasts and less body fat, similar to that which they perceived the judges desired. Significant differences were not found for muscular development and waist-to-hip ratio. These results suggested that participants possibly internalized the ideal aesthetic standard within the fitness industry, and engaged in a process of social comparison. Similarly, many investigators reported decreased body satisfaction as well as increased body-related anxiety from social comparison when exposed to ideal images (Halliwell & Dittmar, 2004; Wilcox & Laird, 2000; Tiggeman & McGill, 2004).

Behaviours and Practices

The desire for a leaner, smaller, bustier image may have been the driving force for many of the participants' behavioural patterns, including desire for cosmetic surgery, under-eating behaviour, intense training volume, and for their reasons to train. This section will discuss the debilitative impact demonstrated through the fitness athletes' behaviour and practices.

To review the findings, approximately half the competitors had or considered cosmetic surgery to enhance their appearance. Significant differences did not exist between social physique anxiety and those who had performed cosmetic surgery compared with those who had not. However, significant differences did exist between social physique anxiety for participants who considered versus those who did not consider cosmetic surgery; participants who considered cosmetic surgery had higher social physique anxiety than those who did not consider any cosmetic procedures. In addition, correlation coefficients for social physique anxiety and considering breast augmentation and liposuction were low and significant, while coefficients were low and approached significance for considering other forms of cosmetic surgery. This is indicative of a weak, positive correlation between social physique anxiety and considering cosmetic surgery, and suggested that as social physique anxiety increases, the likelihood of considering breast augmentation, liposuction and other forms of cosmetic surgery might also increase for these fitness participants.

With reference to eating behaviour, Plowman and Smith (1997) recommended that nutrition for active individuals consist of 12-15% protein, 20-30% fat, and 58-68% carbohydrate, with 8-10 grams of carbohydrate per kilogram of body weight. With a mean weight of 117.6 pounds (53.5 kilograms), the recommended daily caloric intake should have been between 2952 and 3147 calories for fitness competitors. The fitness athletes in this study appeared to consume too much protein, and insufficient fat, carbohydrate, and calories to meet their daily energy requirements and to optimize health and performance. This suggests the female fitness competitors engaged in unhealthy, and possibly disordered eating patterns, as do athletes in other aesthetic

sports (Brooks-Gunn, Warren, & Hamilton, 1987; Johnston, 1994; Reel and Gill, 1996).

In addition to inadequate nutritional consumption, the fitness competitors engaged in large training volumes, possibly an over-trained state for many. As reported, hours of training time greatly increased during the competition season. Hannam (2004, p. 116) reported a similar training volume for a professional fitness competitor, Ms. Katie Utter. Ms. Utter, the winner of the prestigious 2002 Fitness Universe Pageant and 2003 Ms. Bikini America, made the mistake of over-training and following a strict diet early in her fitness career. Ms. Utter indicated:

> I thought I would get stronger, only to find that I broke down, not able to make strength gains. It kept me exhausted and killed my positive attitude. That was the only time I didn't place in the top 15, and it was the hardest I ever worked out. I was devastated. (p. 116)

Nevertheless, the findings for social physique anxiety and frequency of training were not significant. This suggested training volume did not mediate social physique anxiety, as was similarly reported by other researchers (Crawford & Eklund, 1994; Krane, Waldon, Michalenok, & Stiles-Shipley, 2001; McAuley, Bane, Rudolph, & Lox, 1995; Russell, 2002).

The reasons these fitness participants trained and the large training volumes also demonstrated their desire for an enhanced image for competition purposes. As previously indicated, nearly all competitors (92%) trained for physical appearance/sculpting reasons, with 82% ranking it as first or second in importance to train for competition. Given that 40% of the judges' evaluation is based on the aesthetic appearance of the physique in accordance with World Natural Sports Organization's judging standards, this is not surprising. Only about half (58%)

trained for performance enhancement reasons. Since 60% of the evaluation is based on athletic performance, it was interesting to note that performance enhancement was not valued as one of three most important reasons to train for competition by 42% (n = 16) of the competitors. Studies have reported positive correlations between social physique anxiety and extrinsic reasons for exercising, such as self-presentation/appearance (Eklund & Crawford, 1994; Frederick & Morrison, 1996; William & Cash, 2001). Furthermore, Hausenblas and Martin (2000) reported that aerobic instructors who taught for self-presentational motives experienced higher social physique anxiety than those who taught for leadership or affect enhancement reasons. To determine if a similar finding was evidenced in this study, an ANOVA was conducted between social physique anxiety and reasons to train. However, the ANOVA result was not significant.

Hausenblas and Martin (2000) indicated, "repeated display of one's body in an exercise setting did not attenuate social physique anxiety" (p. 12). Similar findings were reported by other investigators in the literature (McAuley, Bane, Rudolph, & Lox, 1995); McNelis-Kline, 2000). In attempting to determine whether experience and repeated exposure in the physique-salient world of female fitness competition would desensitize the participants to, and/or decrease the effects of, social physique anxiety, ANOVAs were performed between social physique anxiety and competition experience. However, the ANOVA results for social physique anxiety and experience with both fitness competition and sport competition were not significant.

Health Impact

Studies have indicated that a heavy training regime and restricted eating patterns are often accompanied by menstrual dysfunction (Benson, Englebert-Fenton, & Eisenman, 1996; Brook-Gunn, Warren & Hamilton, 1987; Putukian, 1994). Only 55% of the participants in this study had regular menses. These results for such a largely aesthetic sport are not surprising given that McArdle, Katch, and Katch (2000) indicated:

> The prevalence of amenorrhoea among female athletes in weight-related sports (distance running, gymnastics, ballet, cheerleading, figure skating, body building) probably ranges from 25 and 65%, whereas no more than 5% of the general population experience this condition. (p. 77).

In addition, Benson, Englebert-Fenton, & Eisenman (1996) noted that amenorrhoea, or the loss of menstrual cycles for 3 to 6 consecutive months, leads to many short and long term debilitating health effects. The results of this investigation did not indicate whether the missed cycles occurred consecutively; however, many participants missed 3 to 12 menstrual cycles in the 12 months prior to the competition. As the eldest competitor was 40 years of age and the mean age was 27 years, it is unlikely that menopause is the cause of the menstruation cessation or irregularity. However, the study did not inquire whether participants utilized birth control pills or Depo-Provera injections, which can alter the timing or cause cessation of the menstrual cycle. As a result, we can speculate, but have no conclusive evidence, that menstruation was altered due to a physiological reponse to extensive training and diet.

In attempting to determine an answer to the research question *"Is social physique anxiety associated with facilitative or debilitative practices for female fitness competitors and if so, to what degree?"* the Hiscock Directionality Scale (2003)'s

results were analyzed. The mean scores for the *Affect* and *Responsibility* subscales suggested that the female fitness competitors who participated in this study perceived they experienced minimal debilitative affect and responsibility. These findings suggest for the *Affect* subscale that the participants perceived minimal debilitative impact on their self-esteem and emotional health at the time the scale was administered. Additionally, the mean score for the *Responsibility* subscale suggests that participants perceived they had minimal debilitative impact on their maintaining responsibilities at work, school, home, and in social settings due to time required for physique preparation. Furthermore, the mean score suggested that there was a minimal debilitative impact on the quality of their sexually intimate relationships and they were not maintaining their financial responsibilities. The Hiscock Directionality Scale (2003) was created to measure participants' perceived directionality of social physique anxiety, or whether it leads to positive or negative practices for fitness athletes. However, caution should be taken in the interpretation of the findings from the scale since there is no normative data available nor studies on its validity.

Association Between Social Physique Anxiety and Perceived Impact

This study determined that these female fitness athletes experienced a moderate degree of social physique anxiety and perceived minimal negative impact. It also examined whether social physique anxiety was associated with perceived debilitative affect. The correlation coefficient between social physique anxiety and affect was weak, but significant at the .05 level. The results indicated that the fitness competitors' social physique anxiety was positively associated with decreased affect, namely self-esteem and emotional wellness, which suggested that as social physique

anxiety increased, debilitating affect also increased somewhat. Simply stated, increased social physique anxiety was associated with decreased self-esteem and emotional wellness for the participants. This was not surprising and it is consistent with other studies. For example, Russell (2002) indicated, "Self-esteem was significantly negatively related to social physique anxiety (p. 87)", and Davis (1990) suggested, "Satisfaction with appearance becomes an integral part of one's emotional well-being and self-esteem (p. 20)".

As previously stated, the coefficient of determination ($r^2 = .142$) suggested that only 14.2% of the variability in the affect scores might be predicted from the relationship with social physique anxiety, suggesting that 85.8% of the debilitative impact on self-esteem was the result of one or more variables other than social physique anxiety. Given the debilitation in many areas of competitors' lives, including much time and energy spent on physique preparation and intense training volumes, together with under-eating behaviour and menstrual dysfunction, one can speculate that 85.8% of the debilitative impact on self-esteem could be explained by the possibility that female fitness competitors were physiologically and cognitively exhausted.

This study also examined whether social physique anxiety was associated with perceived debilitative responsibility. The correlation coefficient was low and not significant at the .05 level, indicating that social physique anxiety was not associated with the debilitative responsibility experienced by these fitness participants. Additionally, the coefficient of determination for the responsibility subscale was .001 (-.04), indicating that only .1% of the variability in the responsibility scores could be predicted from the relationship with social physique anxiety. The combination of the

unacceptable and non-significant correlation coefficient between social physique anxiety and responsibility and the 99.9% unexplained variance of the responsibility variables, suggested that there might be unaccounted factors associated with the debilitative responsibility that competitors experienced. Again, fitness competitors might have experienced physiological and cognitive exhaustion arising from the time and energy spent on physique preparation and increased training, together with inadequate nutritional and caloric consumption. Exhaustion may have affected their ability to adequately perform their responsibilities in other activities.

Theoretical Application

The reviewed literature suggested that Western society has an ideal image and accepted standard of physical beauty. Our Western society, coupled with the mass media images, have been influential in creating insecurities and enhancing the degree of social physique anxiety experienced by many men and women. Many theories, including Feminist Theory (Littlewood, 2004), could be employed to explain the degree and impact of social physique anxiety that these female fitness competitors experience, particularly from a macro level. However, it was the stated intention of this study to only use a Cognitive Behaviour orientation in an attempt to explain the results from a micro level perspective, considering the individuals' perceived psycho-social functioning.

Individuals form internal representations of their external world through social learning experiences commencing at a young age, through their educational system, within the family unit, from peer groups, and from media images and messages. These ideals, many of which include a standard of facial and body beauty often

unattainable by most individuals, become ingrained. They may influence an individual's thoughts, values, perceptions and beliefs about what it is to be female or male in today's Western world, as well as their emotions and their behaviours. Likewise, female fitness competitors are often employed as fitness models to sell physique-enhancing products and supplements within the fitness and health industry. The model athletes tend to present with flawless skin, long thick hair, long eyelashes and manicured nails, and lean muscular physiques with thin hips and large breasts. To the general populous, this sends an implied message that to be truly feminine one should look this way. The individual reader or audience spectator, unaware of the gruelling training, diet, and beautification procedures, including cosmetic surgery as well as stage preparations of make-up, body paint, and the athlete stance, may interpret what they see as reality and internalize these as ideal standards of beauty.

This cognitive process may be no different for the international level female fitness competitor. The mean scores indicated that participants scrutinized their body parts and were unsatisfied with their body image, desiring larger breasts and less body fat, similar dimensions to which they believed the judges desired. Although a competitor with smaller breasts or more body fat may at times win, many athletes perceived that the thinner, bustier body is the desired image for competitive success and recognition.

The interaction of their perceptions, their evaluation of their less-than-perfect physical self, and their doubt in their ability to present an ideal physical image, could have accounted for the unhealthy negative emotions experienced by this group of participants. This was indicated by a moderate degree of social physique anxiety. Additionally, they experienced minimal debilitative impact on self-esteem and

emotional health. The athletes indicated that their self-esteem was negatively impacted by a combination of factors, including their perception of the judge's ideal image, comparing their non-competition physique to their competition physique as well as their physical self to their ideal self, comparing their physiques to others, and viewing fitness models in magazines. For some athletes, the altered image they presented in the bikini round, through use of hair extensions, false nails and eye lashes, make up, and breast padding, also negatively affected their self-esteem.

As a result of their minimally debilitative affective state, the participants engaged in negative behaviours and practices, despite potential short and long-term impacts. These behaviours included consuming limited calories and an unbalanced diet, consisting of too little carbohydrates and fats and too much protein. Approximately half of the competitors also engaged in cosmetic surgery or considered the same in attempts to improve the appearance of their physical self and possibly enhance their self-esteem and sense of self-worth. Furthermore, they were driven to train extensive hours, many training an average of 2 to 3 hours per day to prepare for the few minutes under the spot light. The primary training focus was to sculpt the physique and enhance the physical appearance. Although 60% of the competition involved a gruelling demonstration of athletic ability, including strength, flexibility, coordination, cardiovascular and muscular endurance, and power, nearly all the athletes trained to enhance their physical appearance, whereas only a little more than half trained to enhance their athletic performance. This demonstrates their interpretation of what is valued for competitive success as well as the powerful impact the athletes' thoughts and emotions have on their training regime.

Their cognitive and affective states, coupled with inadequate food and intense training time, also likely affected their time spent attending to their responsibilities. These participants indicated that their home and social lives, their work and school, and the quality of sexual intimacy had been negatively affected. Many indicated concern with financial responsibility. Although short and long-term health risks are associated with many of these behaviours and practices, the only physiological impact determined at the time of this study was that the athletes' menstruation patterns had been altered for half the athletes. The reason for this could be speculated as being attributed to decreased levels of body fat from unhealthy eating and intense training behaviour.

The Cognitive Behavioural Theory postulates that there is an interconnection between athletes' thoughts, feelings, and behaviours. The following model will consider these fitness competitors' experiences from Ellis's A-B-C-D-E model of the Rational Emotional Behavioural Theory, a type of Cognitive Behaviour Theory. Participating in a fitness competition, including observing and comparing themselves with others' physiques, would be the *A*, the *activating event* or experience for these women. Whether real or imaged, internal or external, their cognitive interpretation that they must present with a very lean, muscular body with large breasts and small hips to be beautiful and/or to win the competition represents the *B*, or the *irrational belief*. The *C* or *consequences* include the moderate degree of social physique anxiety experienced by the fitness competitors, as well as the decreased self-esteem and emotional health. The *D* or *disputing the irrational beliefs* in an attempt to think more rationally, could occur through use of thought stoppage, positive self-talk, visualization, affirmation, body-image desensitization, and by engaging in cognitive

restructuring. They could learn to challenge the prescribed standard to beauty in society and in the fitness industry, or they could look at the positive attributes of their physique and abilities, rather than magnifying the imperfect aspects. Finally, the *E*, the *new effect*, could include new healthy emotions or constructive behaviours. The athletes could learn to accept their body as it appears at the moment in the competition, accepting the result as a moment in their journey. In turn, they could likely learn to feel comfortable about their physical selves, and present as more relaxed, with less social physique anxiety and increased self-esteem.

Recommendations

This study, similar to a majority of social physique anxiety studies, employed a quantitative methodology. Although this methodology was appropriate to measure the degree of anxiety experienced and the perceived directionality, it did not produce the full, extensive description than might have been discovered through qualitative means. Exploring the research questions through qualitative methodology is recommended for future studies.

Attempts were made to look at the influence of age, ethnicity, nationality, economic status, and student/employment status on the degree of social physique anxiety as these factors were limited in previous studies. However, difficulty arose in determining the full impact of their influence because of the small, homogenous sample. Repetition of this study is recommended with a larger sample of fitness athletes, such as an event held in Europe, Asia, or the United States where as many as 100 athletes would be in attendance.

The Social Physique Anxiety Scale was created as a trait measure of social physique anxiety. This study's results indicated that these fitness competitors experienced a moderate degree of physique anxiety at a moment in time when their physiques were likely most aesthetically sculpted. As many of these athletes lose significant body fat for the competition day, it would be interesting to measure their social physique anxiety periodically throughout the training year, particularly in the non-competition season when their weight is much heavier. Longitudinal studies employing quantitative measures of social physique anxiety would also be useful to determine if social physique anxiety is truly trait-like, or a state measure, with changes occurring over time. An in-depth phenomenological study would also provide insight into the longitudinal impact of social physique anxiety.

The Social Physique Anxiety Scale was administered an hour-and-a-half prior to the final event in hopes of getting a more accurate measure of social physique anxiety, or state measure of social physique anxiety. However, it is unknown whether the participants responded to the questions as they related to how they thought and felt while on the competition stage or whether they reflected about other times of their lives. More specifically, the wording in the Social Physique Anxiety Scale left it open to each individual's interpretation about what time frame should be taken into consideration. For example, item 11 of this instrument states, "I usually feel relaxed when it's obvious that others are looking at my physique or figure". Each of the participants may have attached different meaning to the time frame related to *usually*. Due to this ambiguity, it is a further recommendation of this study that future research create a state measure, rather than trait measure, of social physique anxiety. This study would have been further improved had competition state anxiety, as well as trait

anxiety, been measured. Weinberg and Gould (1999) indicated that social physique anxiety, as well as trait anxiety and self-esteem, relate to heightened state anxiety.

The literature indicated that one's motivational orientation and exercise motives influence social physique anxiety (Eklund & Crawford, 1994; Frederick & Morrison, 1996; Harju, Twiddy, Cope, Eppler, & McCammon, 2003; Hausenblas & Martin, 2000; Williams & Cash, 2001). Although this study determined that training for physical appearance and sculpting motives were most important for these athletes, it would have been interesting to determine if these athletes were more motivated by outcome (winning) goals versus process goals. Inquiry into the relationship between motivational orientation and social physique anxiety would add a valuable dimension to the published literature. In addition, being able to match the participants' performance outcome, that is, their final score or placing, with their social physique anxiety score would have shed some light on the association between social physique anxiety and competition success. By matching these scores, the investigator may also have been able to determine whether they perceived the anxiety as facilitative or debilitative. Inquiry into performance outcome is highly recommended for future studies.

The Hiscock Directionality Scale was pilot tested to fitness models, a group that most resembled fitness competitors, prior to its administration to female fitness competitors. This scale examined fitness competitors' perceptions in this exploratory study and added an understanding of the debilitating impact social physique anxiety had on their thoughts, feelings and behaviours. However, additional research is required to substantiate the scale's utility and validity as a promising tool for

measuring the perceived directionality of the impact of social physique anxiety with other groups of similar athletes.

It was not a stated intention of this study to directly measure cognition or cognitive processes. More particularly, this study did not assess Cognitive Behaviour theory's application to social physique anxiety. To accomplish this, it is further recommended that the Beck Depression or the Beck Anxiety inventory be administered in an attempt to assess Cognitive Behaviour Theory's application to social physique anxiety in future studies.

Conclusion

The human physique has permeated the thoughts and aspirations of millions of people around the world. Throughout history, a variety of standards have imbued our society. Similarly, in our contemporary Western society, an ideal standard of beauty has emerged through mass media images and messages: a tall, slim, busty image for women and a lean, muscular image for men. The result of this media influence has been individuals spending countless hours in attempts to improve their outward appearance. Unattainable for many, this standard has resulted in a social anxiety about one's physique, affecting the thoughts, feelings and behaviours of many people.

Social physique anxiety may deter some individuals from becoming active and visible, while motivating others to engage in exercise to enhance appearance. Social physique anxiety is shown to be greater for individuals that are heavier, taller, and larger, for those having more fat distribution about the mid-section, for athletes competing in individual and/or aesthetic sport versus team sports or group activity, and for athletes that doubt their ability to present the required image. For the

competitive female athlete, the desire to present the ideal image is often further compromised by the development of a muscular physique. Paradoxically, this athletic build enhances athletic performance, but is viewed by many as socially undesirable, and not feminine. In the sport of female fitness competition, the pressure to present a perfect feminine physique may have reached unhealthy heights.

In this study, 46 elite female fitness competitors at an international competition were informed of the purpose for and procedure of this study and were invited to participate. Thirty-eight athletes volunteered to complete a two-part survey one-and-a-half hours prior to the final event held in an arena in a major Canadian city. The study first sought to determine the degree of social physique anxiety female fitness competitors experienced. The results indicated that female fitness competitors experienced a moderate degree of social physique anxiety. These athletes appeared to view their physical selves as being flawed, doubted their ability to present the ideal image they believed the judges desired, and likely feared negative evaluation. As a group, fitness athletes were unsatisfied with their physical selves, desiring larger breasts and less body fat. However, social physique anxiety is often decreased with athletic ability, particularly coordination. Given that these athletes were elite in their sport, and able to perform coordinated routines often involving gymnastics, dance and extreme acts of flexibility, this finding is not surprising. In addition, potential female competitors with greater degrees of social physique anxiety may not have attended this event and therefore were not included in the sample.

This study also sought to determine whether the female fitness competitors perceived that their social physique anxiety was associated with facilitative or debilitative outcomes. The finding suggested that the impact was possibly to some

extent debilitating for the participants, including an awareness of minimally debilitated self-esteem and emotional health, and this affective state was positively correlated with the degree of social physique anxiety experienced. This may have resulted in many debilitative behaviours and practices, such as their inability to adequately complete responsibilities, including home, school, work, social, financial and quality intimate relationships. Other potentially debilitative practices include performing cosmetic surgery to enhance their body because of their perceptions of an imperfect appearance, or consideration of same, despite potential health risks. Participants engaged in intense training, consisting on average of 2 to 3 hours per day, primarily motivated by a desire to enhance their physical appearance and further sculpt their physiques. This desire for a thinner, more bustier appearance, coupled with unbalanced nutrition, possibly due to inadequate nutritional education, further resulted in many competitors not consuming adequate nutrition to fuel the body, preventing them from performing optiminally, and maintaining a healthy body weight. Physiologically, half of the participants experienced irregular menstruation.

Considering the debilitative practices identified by the participants, such as under-eating, high training volumes, and cessation of menstruation, it is recommended that the mass media and health and fitness industries scrutinize the impact their images and messages have on the athletes and consumers in general. Using attractive, average-sized models has been shown to sell products as effectively as using ultra-thin or lean models with unattainable proportions, while preventing increased body anxiety concerns (Halliwell & Dittmar, 2004). In addition, the female fitness competition organizations would help create a healthier industry if more emphasis was placed on athletic performance and health and less on physical

appearance or body aesthetics. A suggestion to reduce the score for, or eliminate, the bikini round, increase the score for the routine round, and possibly re-introduce an interview round to display health and fitness values and knowledge, could be considered by the female fitness competition organizers. Furthermore, allocation of educational seminars could possibly improve the health of the fitness competitors. Recommended areas include: 1) nutritional counselling regarding the optimal caloric and macronutrient consumption to offset the training volume and the impact of restriction on menstruation; 2) awareness and discussion regarding the influence of mass media and societal standards as well as the degree and debilitative impact of social physique anxiety for female fitness competitors; 3) sport psychology strategies to enhance the competitors' mental state, including cognitive restructuring to alter maladaptive body image thoughts and the resulting behaviours, and through use of strategies such as self-affirmation and positive self-talk, thought stoppage, relaxation technique, image desensitization, and visualization. Promotion of these events as a display of fit, healthy, intelligent women would likely result in an athletic population that is emotionally and physically healthy, physically skilled, and, at the same time, physically attractive.

It would be wise for fitness competitors to challenge the unhealthy perceived standards, focusing more on training to enhance performance and less on physical appearance. With adequate training and nutrition, these women would likely appear fit and healthy, and be able to maintain a balanced lifestyle. Cognitively, they could also shift their mind set, learning to think positively about themselves in the competition, engage in negative thought stoppage, affirmations and other forms of cognitive restructuring. This could enable competitors to recognize and appreciate

their positive attributes, rather than minimizing them and being self-critical of every detail. They may learn to accept their physical selves and abilities as they are, realizing that competition is part of the journey, not the destination, through life. Creating the possibility of self-acceptance and self-love would enhance all areas of their health, including physical, physiological, emotional, as well as social, sexual and spiritual domains. It could assist in preventing social physique anxiety from continuing to be part-and-parcel of the athletic schemas, thereby reducing, and possibly preventing, future debilitating effects that were explored in this study.

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APPENDICES

Memorial
University of Newfoundland

Appendix A

Office of Research

May 8, 2003

ICEHR No. 2002/03-063-PE

Ms. Melanie Hiscock
Human Kinetics and Recreation
Memorial University of Newfoundland

Dear Ms. Hiscock:

Thank you for submitting your proposal for the research project entitled *"A Study to Determine the Degree and Perceived Directionality of Social Physique Anxiety in Female Fitness Athletes"* in which you are listed as the principal investigator.

The Interdisciplinary Committee on Ethics in Human Research (ICEHR) has reviewed the proposal and is pleased to give its approval to the project subject to the following minor modifications:

1. Please ensure that you are in compliance with legal requirements regarding the consent of youth who wish to participate. As the Tri-Council Policy Statement advises: "The law on competence varies between jurisdictions. Researchers must comply with all applicable legislative requirements".

2. Your information letter should include a statement advising youth under the age of consent not to complete the survey unless their parent or legal guardian is available and willing to sign the consent form. You should also in your information letter advise those potential participants who will need to provide parental consent, that consent forms will be stored separately from the surveys in order to protect anonymity.

3. Your information letter should also make it explicit that a participant who decides to withdraw from the study after completing the survey will be able to have her data withdrawn from the study, and how you will accomplish this, since names will not be attached to the surveys.

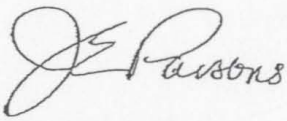
The ICEHR contact person for this review should you have any questions is Prof. Janice Parsons, School of Social Work.

If you should make any other changes either in the planning or during the conduct of the research that may affect ethical relations with human participants, these should be reported to the ICEHR in writing for further review.

This approval is valid for one year from the date on this letter: if the research should carry on for a longer period, it will be necessary for you to present to the Committee annual reports by the anniversaries of this date, describing the progress of the research and any changes that may affect ethical relations with human participants.

We wish you well with your research.

Yours sincerely,



Janice E. Parsons
Chair, Interdisciplinary Committee on
Ethics in Human Research

JEP/jjp

Appendix B

To: "M J Hiscock"
Sent: Tuesday, August 24, 2004 12:45 AM
Subject: FWD: permission inquiry

From: Retesha Thadison <
Date: Mon, 14 Jul 2003 19:13:07 -0500

Melanie Joy Hiscock
School of Human Kinetics and Recreation
Memorial University of Newfoundland
22 Chrisara Place
Portugal Cove
St. Phillips
Newfoundland A1M 2C1
Canada

Dear Ms. Hiscock:

Thank you for your inquiry concerning use of material published by Human Kinetics. We are pleased to grant you permission for use of Table 1 from the journal article referenced below in your master's thesis. This permission is for one-time use, for non-exclusive rights in all languages, based on the following condition: use of the designated credit line.

CREDIT LINE:

Reprinted, by permission, from E.A. Hart, M.R. Leary, and W.J. Rejeski, 1989, "The measurement of social physique anxiety," Journal of Sport & Exercise Psychology, 11 (1): 98.

FEE: Waived

Sincerely,

Retesha Thadison
Administrative Assistant-Permission Granter/Library Aid
Extension 2467

Human Kinetics Publishers
1607 North Market St.
P.O. Box 5076
Champaign, IL 61825-5076
(217) 351-5076 - Phone
(217) 351-2674 - Fax

Appendix C

The Social Physique Anxiety Scale (1989)

Instructions: **Read each item carefully and indicate how characteristic it is of you according to the following scale.**

1	2	3	4	5
Not at all characteristic of me	**Slightly characteristic of me**	**Moderately characteristic of me**	**Very characteristic of me**	**Extremely characteristic of me**

1. I am comfortable with the appearance of my physique or figure.	1 2 3 4 5
2. I would never worry about wearing clothes that might make me look too thin or overweight.	1 2 3 4 5
3. I wish I wasn't so uptight about my physique or figure.	1 2 3 4 5
4. There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively.	1 2 3 4 5
5. When I look in the mirror I feel good about my physique or figure.	1 2 3 4 5
6. Unattractive features of my physique or figure make me nervous in certain social settings.	1 2 3 4 5
7. In the presents of others, I feel apprehensive about my physique or figure.	1 2 3 4 5
8. I am comfortable with how fit my body appears to others.	1 2 3 4 5
9. It would make my uncomfortable to know others were evaluating my physique or figure.	1 2 3 4 5
10. When it comes to displaying my physique or figure to others, I am a shy person.	1 2 3 4 5
11. I usually feel relaxed when it's obvious that others are looking at my physique or figure.	1 2 3 4 5
12. When in a bathing suit, I often feel nervous about how well proportioned my body is.	1 2 3 4 5

Reprinted, by permission, from E.A. Hart, M.R. Leary, & W.J. Rejeski, 1989, "The Measurement of Social Physique Anxiety", Journal of Sport and Exercise Psychology, 11 (1), 98.

Appendix D

Demographic Information

1. **Date of Birth** (Year/Month/Day):
____/__/__

2. **Age:**
____ Less than 18 years
____ 18 to 20 years
____ 21 to 25 years
____ 26 to 30 years
____ 31 to 35 years
____ 36 + years

3. **Height:** _____

4. **Competition Weight:** _____

5. **Ethnicity:**_____

6. **Nationality:**_____

7. **Status:**
____ Part-time Student
____ Full-Time Student
____ Part-time Employee
____ Full-time Employee
____ Not Applicable

8. **Annual Gross Income:**
____ Less than $12,000
____ $13,000 to 20,000
____ $21,000 to 30,000
____ $31,000 to 40,000
____ $41,000 to 50,000
____ $51,000 +

9. **Marital Status:**
____ Single or Divorced Without Children
____ Single or Divorced With Children
____ Married or Common Law Without Children
____ Married or Common Law With Children

10. **Competitive Fitness Experience:**
____ Less than 1 year
____ 1 year to 2 years
____ 3 to 4 years

____ 5 or more years

11. **Competitive Sport Experience:**
____ Less than 1 year
____ 1 year to 5 years
____ 6-12 years
____ 13 or more years

12. **Reasons to Train:**
Please rank in order of importance (1 being most important, 2 being next most important, and 3 being third most important), the three main reasons you train during the 12 weeks prior to a competition:
____ Physical Health
____ Physical Appearance/Sculpting
____ Emotional Health/Stress Reduction
____ Performance Enhancement
____ Social Interaction
____ Other:_____

13. **Physical Training:**
(a) Indicate the number of hours you physically train per week during the non-competition season (the period prior to 12 weeks before the competition):
____ Less than 8
____ 9-12 hours
____ 13-16 hours
____ 17-20 hours
____ 20 + hours

(b) Indicate the number of hours you physically train per week during the competition season (12 weeks before the event):
____ Less than 8
____ 9-12 hours
____ 13-16 hours
____ 17-20 hours
____ 20 + hours

14. **Nutritional Intake:**
(a) Approximately how many calories do you consume on a daily basis during the competition season (12 weeks before the competition):
____ Less than 1200
____ 1200 to 2000
____ 2000 +
____ Unknown

(b) Of the caloric intake, what percentage of the following is being consumed on a daily basis during the competition season?
____ % Protein
____ % Fat
____ % Carbohydrates

____ Unknown

14. How many **menstrual cycles** have you had during the past 12 months?_____

15. **Cosmetic Surgery:**

(a) Please indicate whether you have or are considering permanently altering your appearance through any of the following cosmetic procedures:

Have Altered:	Currently Considering:
____ Breast Augmentation	____ Breast Augmentation
____ Breast reduction	____ Breast reduction
____ Liposuction	____ Liposuction
____ Collagen injection	____ Collagen injection
____ Botox treatment	____ Botox treatment
____ Nose/face surgery	____ Nose/face surgery
____ Other:_____	____ Other:_____

(b) If you answered YES to the above, indicate whether this procedure was performed prior to competing, or since you began competing in fitness competitions:

____ Prior to Competing

____ Since Beginning

The Hiscock Directionality Scale (2003)

Preamble: **This scale was created to measure the directionality of social physique anxiety, or whether it leads to positive or negative practices for fitness athletes.**

Instructions: **Read each item carefully and indicate the impact it has had on your life according to the following scale.**

	Much Negative Impact (1)	Little Negative Impact (2)	No Impact (3)	Little Positive Impact (4)	Much Positive Impact (5)
1. What impact has the attention you give your physique had on your physical well being?	1	2	3	4	5
2. What impact has the attention you give your physique had on your emotional well being?	1	2	3	4	5
3. What impact does comparing yourself to your ideal image have on your self-esteem?	1	2	3	4	5
4. What impact does comparing your non-competition physique to your competition physique affect your self-esteem?	1	2	3	4	5
5. What impact does the judge's ideal fitness image have on your self-esteem?	1	2	3	4	5
6. Do you believe exposing more of your physique through wearing of a smaller custom or bikini will lead to better scores in the competition? **__Yes __No __Unsure**					
7. What impact does exposing more of your physique have on your self-esteem?	1	2	3	4	5
8. What impact does observing and/or comparing other athlete's physiques to your own during competition have on your self-esteem?	1	2	3	4	5

	Much Negative Impact (1)	Little Negative Impact (2)	No Impact (3)	Little Positive Impact (4)	Much Positive Impact (5)
9. What impact does viewing fitness models in print advertisements and/or infomercials have on you?	1	2	3	4	5
10. What impact does your fitness physique have on your interactions outside of competition?	1	2	3	4	5
11. What impact does your off-season training volume have on your emotional health?	1	2	3	4	5
12. What impact does your competition training volume have on your emotional health?	1	2	3	4	5
13. What impact does diet have on your emotional well being in the non-competition season?	1	2	3	4	5
14. What impact does diet have on your emotional well being during the competition season?	1	2	3	4	5
15. What impact does your competition diet and training regime have on your physical health?	1	2	3	4	5
16. What impact does the time required for physique preparation during the competition season have on your responsibilities at work?	1	2	3	4	5
17. What impact does the time required for physique preparation during the competition season have on your responsibilities at school?	1	2	3	4	5

	Much Negative Impact (1)	Little Negative Impact (2)	No Impact (3)	Little Positive Impact (4)	Much Positive Impact (5)
18. What impact does the time required for physique preparation during the competition season have on your responsibilities at home?	1	2	3	4	5
19. What impact does the money you spend to prepare your physique for competition (i.e./ food, supplements, training, tanning, beautification, hair and nail care, etc) have on your other financial responsibilities?	1	2	3	4	5
20. What impact does the time you spend to prepare your body for competition have on your ability to have a balanced social life, enabling you to take part in activities/events unrelated to competition?	1	2	3	4	5
21. What impact does the emphasis you place on physique preparation have on the quality of sexually intimate relationships during the competition season?	1	2	3	4	5
22. What impact does temporarily altering your appearance for competition day through the use of such products as hair extensions, false eyelashes, false nails, or breast pads, etc, have on your self-esteem?	1	2	3	4	5
23. What impact does this temporarily altered body image have on your self-esteem when displaying your physique in the bikini round?	1	2	3	4	5
24. What impact do you believe having cosmetic surgery has or could have on your perception about your body image?	1	2	3	4	5
25. What impact do you believe a new image as a result of cosmetic surgery would have on your ability to confidently display your physique in the bikini round?	1	2	3	4	5

During the bikini portion of the competition, many dimensions of the physique are emphasized. Please indicate on a scale from one to five, one being "small" and five being "large", the size or development of the following physical aspects that you believe are important to the judges and to you. Indicate how you physically appear at the current time. Circle the number in each category that you believe is most applicable.

26.

Breast Size	**(1) Small**	**(2)**	**(3)Medium**	**(4)**	**(5) Large**
What the Judges Want	1	2	3	4	5
What I Want	1	2	3	4	5
What I Have	1	2	3	4	5

27.

Waist to Hip Ratio	**(1) Small**	**(2)**	**(3)Medium**	**(4)**	**(5) Large**
What the Judges Want	1	2	3	4	5
What I Want	1	2	3	4	5
What I Have	1	2	3	4	5

28.

Muscular Development	**(1) Small**	**(2)**	**(3)Medium**	**(4)**	**(5) Large**
What the Judges Want	1	2	3	4	5
What I Want	1	2	3	4	5
What I Have	1	2	3	4	5

29.

Amount of Body Fat	**(1) Small**	**(2)**	**(3)Medium**	**(4)**	**(5) Large**
What the Judges Want	1	2	3	4	5
What I Want	1	2	3	4	5
What I Have	1	2	3	4	5

THANK YOU FOR YOUR PARTICIPATION!

Appendix E

Information Letter

Melanie Hiscock
School of Human Kinetics and Recreation
Memorial University of Newfoundland
St. John's, Newfoundland, Canada
A1C-5S7

Dear Participant,

I am writing to invite you to participate in a research pilot study that will help determine the degree and impact of social physique anxiety that elite, female fitness athletes experience. This survey is being provided to all fitness models competing in the 2003 Fitness and Model Expo organized by the World Natural Sport Organization. This study is being conducted by researcher, Melanie Hiscock, as part of my master thesis at Memorial University of Newfoundland.

Implied Consent: By completing and returning this survey, you are agreeing to participate in this study.

Background Information: The purpose of this study is to gain a better understanding of the degree to which national calibre fitness athletes experience anxiety as a result of evaluation and display of their physiques and the impact this anxiety has on their lives and practices.

Procedure: Should you agree to participate, complete the attached survey and seal it in the enclosed envelop. You are not required to answer any questions you do not wish to complete. Do not write your name or other identifying information on the survey or envelope to ensure anonymity. The survey will take approximately fifteen (15) minutes to complete, and must be returned to the researcher during this competition. A second fitness survey will be hand delivered to each participant and you are asked to complete and return it to the researcher in the attached stamped envelop by May 12, 2003.

Risks and Benefits: The risks for participating in this survey are minimal. The benefits include increasing the knowledge available on this subject area, and providing information that the organizers could use to improve the sport of fitness.

Confidentiality: Survey responses will be kept confidential and maintained in a locked cabinet in the researcher's office. Upon completion of this study and in accordance with Memorial University of Newfoundland's guidelines for the retention of data, the surveys will be destroyed.

Voluntary Nature of the Study: Your decision not to participate in this survey will have no negative consequences for you in relation to the 2003 Fitness and Model Expo or the World Natural Sport Organization. This study is being completed independently. You may withdraw, without prejudice, at any point in the study.

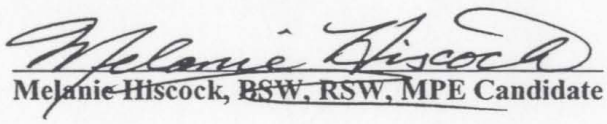
Publication of Results: The results of this research will be made public in thesis format at the Queen Elizabeth II Library in St. John's, Newfoundland, Canada. The research may be presented or publicized provincially, nationally, or internationally.

Contacts and Inquiries: Should you have any questions regarding this survey, you may contact the undersigned, Melanie Hiscock, at mjhiscock@roadrunner.nf.net, or her supervisor, Dr. Basil Kavanagh, by email at basilk@mun.ca.

Approval Process: The Interdisciplinary Committee on Ethics in Human Research at Memorial University of Newfoundland has approved the proposal for this research. If you have ethical concerns about the research that are not dealt with by the researcher, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 737-8368.

Trusting this is satisfactory.

Sincerely,



Melanie Hiscock, ~~BSW, RSW,~~ MPE Candidate

Appendix F

Information Letter

Melanie Hiscock
School of Human Kinetics and Recreation
Memorial University of Newfoundland
74 Laurelcrest Street
Brampton, Ontario, Canada
L6S-5W3

Dear Participant,

I am writing to invite you to participate in a research study to determine the degree and impact of social physique anxiety that elite, female fitness athletes experience. This survey is being provided to all fitness athletes competing in the 2003 Fitness Canada Pageant organized by the World Natural Sport Organization. This study is being conducted by researcher, Melanie Hiscock, as part of my master thesis at Memorial University of Newfoundland.

Implied Consent: By completing and returning this survey, you are agreeing to participate in this study. Any youth under the age of 19 years must have their parent or legal guardian available and willing to sign the accompanying consent form in order to participate in this study. The consent forms will be retained separately from the surveys in order to protect anonymity.

Background Information: The purpose of this study is to gain a better understanding of the degree to which national calibre fitness athletes experience anxiety as a result of evaluation and display of their physiques and the impact this anxiety has on their lives and practices.

Procedure: Should you agree to participate, complete the attached survey and seal it in the enclosed envelop. You are not required to answer any questions you do not wish to complete. Do not write your name or other identifying information on the survey or envelope to ensure anonymity. The survey will take approximately fifteen (15) minutes to complete, and must be returned to the researcher during or one week following this competition.

Risks and Benefits: The risks for participating in this survey are minimal. The benefits include increasing the knowledge available on this subject area, and providing information that the organizers could use to improve the sport of fitness.

Confidentiality: Survey responses will be kept confidential and maintained in a locked cabinet in the researcher's office. Upon completion of this study and in accordance with Memorial University of Newfoundland's guidelines for the retention of data, the surveys will be destroyed.

Voluntary Nature of the Study: Your decision not to participate in this survey will have no negative consequences for you in relation to the 2003 Fitness Canada Pageant or the World Natural Sport Organization. This study is being completed

independently. You may withdraw, without prejudice, at any point in the study. Should you decide to withdraw following completion of this survey, your data may be withdrawn from the study, based on your date of birth, upon written request to the researcher.

Publication of Results: The results of this research will be made public in thesis format at the Queen Elizabeth II Library in St. John's, Newfoundland, Canada. The research may be presented or publicized provincially, nationally, or internationally.

Contacts and Inquiries: Should you have any questions regarding this survey, you may contact the undersigned, Melanie Hiscock, at naturalflair@sympatico.ca, or her supervisor, Dr. Basil Kavanagh, by email at basilk@mun.ca.

Approval Process: The Interdisciplinary Committee on Ethics in Human Research at Memorial University of Newfoundland has approved the proposal for this research. If you have ethical concerns about the research that are not dealt with by the researcher, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 737-8368.

Trusting this is satisfactory.

Sincerely,

Melanie Hiscock, BSW, RSW, MPE Candidate

Appendix G

Consent To Participate

Title: A Study to Determine the Degree and Perceived Directionality of Social Physique Anxiety in Female Fitness Athletes

Researcher: Melanie Hiscock, BSW, RSW
The School of Human Kinetics and Recreation
Memorial University of Newfoundland
St. John's, NL
A1C-5S7

I,_____, the_____
(Name of Participant's Legal Guardian) (Relationship or Legal Status)

of _____, hereby certify that I have read and understood
(Participant's Name)

the purpose and all other information regarding this study as outlined in the attached

Information Letter.

I hereby freely consent to _____ taking part in this master thesis study.

_____ _____
Signature of Legally Authorized Representative Date

Appendix H

Demographic Information

CODING

1. **Date of Birth** (Year/Month/Day):
____/__/__

2. **Age:**

1 ____ Less than 18 years
2 ___ 18 to 20 years
3 ____ 21 to 25 years
4 ____ 26 to 30 years
5 ____ 31 to 35 years
6 ____ 36 + years

inches 3. **Height:** _____

pounds 4. **Competition Weight:** _____

5. **Ethnicity:**_____

1 White/Caucasian
2 Black
3 Italian/Czech
or Italian/Greek
4 Lebanese
5 Spanish
6 Dutch
7 Armenian
8 Mixed or European
99 Missing

6. **Nationality:**_____

1 Canadian
2 American
3Italian
4 Trinidadian
5 Jamacian
6 Hungarian
7German/Irish
8 Jewish
9 South American
10 Czechaslovakian
11 Mixed
99 Missing

7. **Status:**

1 ____ Part-time Student
2 ____ Full-Time Student
3 ____ Part-time Employee
4 ____ Full-time Employee
5 ____ Not Applicable
6 ____ Full-time Student/Part-time Employee
7 ____ Full-time Student/ Part-time Employee

8. **Annual Gross Income:**

1 ____ Less than $12,000
2 ____ $13,000 to 20,000
3 ____ $21,000 to 30,000
4 ____ $31,000 to 40,000
5 ____ $41,000 to 50,000
6 ____ $51,000 +

9. **Marital Status:**

1 ____ Single or Divorced Without Children
2 ____ Single or Divorced With Children
3 ____ Married or Common Law Without Children
4 ____ Married or Common Law With Children

10. **Competitive Fitness Experience:**

1 ____ Less than 1 year
2 ____ 1 year to 2 years
3 ____ 3 to 4 years
4 ____ 5 or more years

11. **Competitive Sport Experience:**

1 ____ Less than 1 year
2 ____ 1 year to 5 years
3 ____ 6-12 years
4 ____ 13 or more years

12. **Reasons to Train:**
Please rank in order of importance (1 being most important, 2 being next most important, and 3 being third most important), the three main reasons you train during the 12 weeks prior to a competition:

1 ____ Physical Health
2 ____ Physical Appearance/Sculpting
3 ____ Emotional Health/Stress Reduction
4 ____ Performance Enhancement
5 ____ Social Interaction
6 ____ Other:_____

13. **Physical Training:**
(a) Indicate the number of hours you physically train per week during the non-competition season (the period prior to 12 weeks before the competition):

1 ____ Less than 8
2 ____ 9-12 hours
3 ____ 13-16 hours
4 ____ 17-20 hours
5 ____ 20 + hours

(b) Indicate the number of hours you physically train per week during the competition season (12 weeks before the event):

1 ____ Less than 8
2 ____ 9-12 hours
3 ____ 13-16 hours
4 ____ 17-20 hours
5 ____ 20 + hours

14. **Nutritional Intake:**
(a) Approximately how many calories do you consume on a daily basis during the competition season (12 weeks before the competition):

1 ____ Less than 1200
2 ____ 1200 to 2000
3 ____ 2000 +
4 ____ Unknown

(b) Of the caloric intake, what percentage of the following is being consumed on a daily basis during the competition season?

Scored by % ____ % Protein
____ % Fat
____ % Carbohydrates

0 = N/A
99 = Missing

____ Unknown

# of Cycles

14. How many **menstrual cycles** have you had during the past 12months?_____

15. **Cosmetic Surgery:**
(a) Please indicate whether you have or are considering permanently altering your appearance through any of the following cosmetic procedures:
Have Altered:

0 = N/A
1 = Yes
99 = Missing

____ Breast Augmentation
____ Breast reduction
____ Liposuction
____ Collagen injection
____ Botox treatment
____ Nose/face surgery
____ Other:_____

Currently Considering:

0 = N/A
1 = Yes
99 = Missing

____ Breast Augmentation
____ Breast reduction
____ Liposuction
____ Collagen injection
____ Botox treatment
____ Nose/face surgery
____ Other:_____

(b) If you answered YES to the above, indicate whether this procedure was performed prior to competing, or since you began competing in fitness competitions:

1
2
99 = Missing

____ Prior to Competing
____ Since Beginning

1 = Yes
2 = Unsure
3 = No

Hiscock Directionality Scale (2003)
Nominal Variable (Question # 6)
Do you believe exposing more of your physique through wearing of a smaller costume or bikini will lead to better scores in the competition?

Appendix I

Table I1

Descriptive Statistics (Ranges, Means, and Standard Deviations) for Age, Height, Weight, Macronutrient Composition, and Body Dimensions Variables of the Hiscock Directionality Scale (2003) for the Pilot Study

Variable	*N*	Minimum	Maximum	Mean	Std. Deviation
Age (Years)	11	21	38	29.73	5.658
Height (Inches)	11	63	71	66.55	2.554
Competition Weight (Lbs)	11	117	138	128.82	5.913
Percentage of Protein Consumed Daily	9	30	80	56.11	19.965
Percentage of Fat Consumed Daily	9	0	30	13.89	9.610
Percentage of Daily Carbohydrates Consumed	9	10	50	30.00	16.394
Number of Menstrual Cycles in the Past 12 Months	11	6	12	10.45	2.423
Breast Size Judges Want	9	3	4	3.56	.527
Breast Size Participant Wants	11	2	5	3.36	.809
Breast Size Participant Has	11	1	4	2.36	1.206
Waist-to-Hip Ratio Judges Want	9	1	4	2.44	1.014
Waist-to-Hip Ratio Participant Wants	11	1	3	2.45	.688
Waist-to-Hip Ratio Participant Has	11	1	4	2.64	1.027
Muscle Development Judges Want	9	2	3	2.89	.333
Muscle Development Participant Wants	11	2	4	3.00	.447
Muscle Development Participant Has	11	2	5	3.14	.778
Fat Amount Judges Want	9	1	3	1.78	.833
Fat Amount Participant Wants	11	1	3	2.09	.701
Fat Amount Participant Has	11	1	4	2.55	.820
Valid N (list-wise)	8				

Appendix J

Table J1

Frequency Distribution for Ethnicity of Subjects in the Pilot Study

Ethnicity	Frequency	Percent
Caucasian	6	54.5
Black	1	9.1
Italian/Czech Italian/Greek	1	9.1
Mixed or European	2	18.2
Subtotal	10	90.9
Missing	1	9.1
Total	11	100.0

Table J2

Frequency Distribution for Nationality of Subjects in the Pilot Study

Nationality	Frequency	Percent
Canadian	7	63.6
Italian	2	18.2
Hungarian	2	18.2
Total	11	100.0

Table J3

Frequency Distribution for Employment and Student Status in the Pilot Study

Student/Employee Status	Frequency	Percent
Full-Time Student	2	18.2
Part-Time Employee	1	9.1
Full-Time Employee	5	45.5
Full-Time Student & Part-Time Employee	1	9.1
Part-Time Student & Part-Time Employee	1	9.1
Part-Time Student & Full-Time Employee	1	9.1
Total	11	100.0

Table J4

Frequency Distribution for Annual Gross Income in the Pilot Study

Income	Frequency	Percent
Less Than $12,000	1	9.1
$13,000 to $20,000	2	18.2
$21,000 to $30,000	2	18.2
$31,000 to $40,000	2	18.2
$51,000 +	4	36.4
Total	11	100.0

Table J5

Frequency Distribution for Marital Status in the Pilot Study

Marital Status	Frequency	Percent
Single/Divorced (Without Children)	7	63.6
Single/Divorced (With Children)	2	18.2
Married/Common Law (Without Children)	1	9.1
Married/Common Law (With Children)	1	9.1
Total	11	100.0

Appendix K

Table K1

Frequency Distribution for Competitive Fitness Experience in the Pilot Study

Fitness Experience	Frequency	Percent
Less than 1 Year	6	54.5
1 to 2 Years	3	27.3
3 to 4 Years	2	18.2
Total	11	100.0

Table K2

Frequency Distribution for Competitive Sport Experience in the Pilot Study

Sport Experience	Frequency	Percent
Less than 1 Year	3	27.3
1 to 5 Years	2	18.2
6 to 12 Years	3	27.3
13 or more Years	2	18.2
Subtotal	10	90.9
Missing	1	9.1
Total	11	100.0

Table K3

Frequency Distribution for "Physical Appearance/ Sculpting" Reason to Train for Competition in the Pilot Study

Importance Ranking	Frequency	Percent
Not Listed as 1 of 3 Reasons	1	9.1
First Most Important Reason	6	54.5
Second Most Importance Reason	3	27.3
Third Most Important Reason	1	9.1
Total	11	100.0

Table K4

Frequency Distribution for "Physical Health" Reason to Train for Competition in the Pilot Study

Importance Ranking	Frequency	Percent
Not Given as 1 of 3 Reasons	3	27.3
First Most Important Reason	1	9.1
Second Most Important Reason	2	18.2
Third Most Important Reason	5	45.5
Total	11	100.0

Table K5

Frequency Distribution for "Emotional Health/Stress Reduction" Reason to Train in the Pilot Study

Importance Ranking	Frequency	Percent
Not Listed as 1 of 3 Reasons	5	45.5
Second Most Important Reason	3	27.3
Third Most Important Reason	3	27.3
Total	11	100.0

Table K6

Frequency Distribution for "Performance Enhancement" Reason to Train in the Pilot Study

Importance Ranking	Frequency	Percent
Not Listed As 1 of 3 Reasons	7	63.6
Second Most Important Reason To Train	4	36.4
Total	11	100.0

Table K7

Frequency Distribution for "Social Interaction" Reason to Train in the Pilot Study

Importance Rating	Frequency	Percent
Not Listed as 1 of 3 Reasons	11	100.0

Table K8

Frequency Distribution for "Other" (Accomplishment and Recognition) Reasons to Train in the Pilot Study

Importance Ranking	Frequency	Percent
Not Listed As 1 of 3 Reasons	8	72.7
First Most Important Reason	2	18.2
Second Most Important Reason	1	9.1
Total	11	100.0

Table K9

Frequency Distribution for Hours of Physical Training in Non-Competition Season in the Pilot Study

Hours Per Week	Frequency	Percent
Less than 8	4	36.4
9 to 12	4	36.4
13 to 16	2	18.2
20+	1	9.1
Total	11	100.0

Table K10

Frequency Distribution for Hours of Physical Training in Competition Season in the Pilot Study

Hours Per Week	Frequency	Percent
Less Than 8	2	18.2
9 to 12	3	27.3
13 to 16	1	9.1
17 to 20	4	36.4
20+	1	9.1
Total	11	100.0

Table K11

Frequency Distribution for Macronutrient Breakdown Unknown for Pilot Study

Diet Composition	Frequency	Percent
Unknown	2	18.2
Known	9	81.8
Total	11	100.0

Table K12

Frequency Distribution for Nutritional Intake in the Pilot Study

Daily Calories	Frequency	Percent
Less Than 1200	1	9.1
1200 - 2000 Calories	8	72.7
Unknown	2	18.2
Total	11	100.0

Table K13

Number of Menstrual Cycles in the Past 12 Months for Pilot Study

Cycles/ Year	Frequency	Percent
Six	2	18.2
Nine	1	9.1
Ten	1	9.1
Twelve	7	63.6
Total	11	100.0

Table K14

Frequency and Percentage of Cosmetic Surgery Performed In the Pilot Study

Cosmetic Surgery	Frequency	Percentage
Breast Implants		
Performed	3	27.3
Not Performed	8	72.7
Breast Reduction		
Performed	0	0
Not Performed	11	100
Liposuction		
Performed	0	0
Not Performed	11	100
Collagen		
Performed	1	9.1
Not Performed	10	90.9
Botox Injections		
Performed	0	0
Not Performed	11	100
Nose/Face Surgery		
Performed	0	0
Not Performed	11	100
Other Cosmetic Surgery		
Performed	0	0
Not Performed	11	100

Table K15

Frequency and Percentage of Timing of Cosmetic Surgery in the Pilot Study

Timing of Procedure	Frequency	Percent
Not Applicable	3	27.3
Prior To Competing	4	36.4
Since Beginning Competing	2	18.2
Subtotal	9	81.8
Missing	2	18.2
Total	11	100.0

Table K16

Frequency and Percentage of Cosmetic Surgery Considered in the Pilot Study

Cosmetic Procedure	Frequency	Percentage
Breast Implants		
Considered	4	36.4
Not Considered	7	63.6
Breast Reduction		
Considered	0	0
Not Considered	11	100
Liposuction		
Considered	0	0
Not Considered	11	100
Collagen		
Considered	1	9.1
Not Considered	10	90.9
Botox Injections		
Considered	0	0
Not Considered	11	100
Nose/Face Surgery		
Considered	1	9.1
Not Considered	10	90.9
Other Cosmetic Surgery		
Considered	1	9.1
Not Considered	10	90.9

Appendix L

Table L1

Ranges, Means, and Standard Deviations for Age, Height, Weight, Macronutrient Composition, and Body Dimensions in the Main Study

Variable	*N*	Minimum	Maximum	Mean	Std. Deviation
Age (Years)	38	19	40	27.55	4.689
Height (Inches)	36	59.00	68.00	63.7222	2.04396
Competition Weight (lbs)	38	95	135	117.55	10.812
Percentage of Protein Consumed Daily	31	33	80	49.82	13.227
Percentage of Fat Consumed Daily	31	5	40	17.35	8.321
Percentage of Carbohydrates Consumed Daily	31	10	50	33.45	10.142
Number of Menstrual Cycles in the Past 12 Months	37	0	12	9.43	4.167
Breast Size Judges Want	34	2	5	3.38	.652
Breast Size Participant Want	34	1	5	3.12	.808
Breast Size Participant Has	34	1	5	2.32	1.093
Waist-to-Hip Ratio Judges Want	33	1	5	2.30	1.159
Waist-to-Hip Ratio Participant Wants	33	1	5	2.21	1.111
Waist-to-Hip Ratio Participant Has	33	1	5	2.52	1.149
Muscular Development Judges Want	32	2	5	3.00	.762
Muscular Development Participant Wants	33	1	5	3.08	.849
Muscular Development Participant Has	33	1	5	2.76	1.032
Body Fat Judges Want	34	1	5	1.88	.946
Body Fat Participants Want	34	1	5	1.85	.925
Body Fat Participant Has	34	1	5	2.38	.954
Valid N (list-wise)	23				

Table L2

Descriptive Statistics (Ranges, Means, and Standard Deviations) for 12 items of the Social Physique Anxiety Scale (1989) in the Main Study

Variable Name	*N*	Minimum	Maximum	Mean	Std. Deviation
Comfort with appearance of physique	38	1	5	2.53	.979
Never worry about clothes making me too thin or overweight	38	1	5	3.58	1.081
Wish I wasn't so uptight about physique	38	1	5	2.97	1.442
Bothered by thoughts of being evaluated negatively	38	1	5	3.42	1.130
Feel good about physique when look in mirror	38	1	5	2.42	1.030
Unattractive features make me nervous in social settings	38	1	5	2.45	1.245
Feel apprehensive about physique in presence of others	38	1	5	2.24	1.218
Comfortable with how fit body appears to others	38	1	5	2.32	1.210
Would make me uncomfortable if evaluated by others	38	1	5	2.39	1.242
Shy when displaying my physique	38	1	5	2.26	1.155
Usually feel relaxed when others look at my physique	38	1	5	3.37	1.101
Feel nervous about my proportions when in a bathing suit	38	1	5	2.79	1.379
Valid N (list-wise)	38				

Table L3

Descriptive Statistics (Ranges, Means, and Standard Deviations) for the 9 and 12-item Versions of the Social Physique Anxiety Scale (1989) in the Main Study

Scale	*N*	Minimum	Maximum	Mean	Std. Deviation
Social Physique Anxiety Scale (12-item Version)	38	15.00	54.00	32.7368	9.11691
Social Physique Anxiety Scale (12-item Version scored from 1 to 5)	38	1.25	4.50	2.7281	.75974
Social Physique Anxiety Scale (9-item Version)	38	9.00	42.00	24.2105	7.85049
Social Physique Anxiety Scale (9-item Version Scored from 1 to 5)	38	1.00	4.67	2.6901	.87228

Table L4

Descriptive Statistics (Ranges, Means, and Standard Deviations) for Variables of the Hiscock Directionality Scale (2003) in the Main Study

Variable Name	*N*	Minimum	Maximum	Mean	Std. Deviation
Impact attention has on physical well-being	38	1	5	3.71	1.412
Impact of comparing self to ideal on self-esteem	37	1	5	3.00	1.179
Impact of comparing non to comp physique on self-esteem	38	1	5	2.37	1.195
Impact of judge's ideal on self-esteem	37	1	5	2.62	.953
Impact of exposing more of physique on self-esteem	38	1	4	2.89	.798
Impact of comparing other's physique to own on self-esteem	37	1	5	2.73	1.194
Impact of exposing fitness models in ads on you	38	1	5	3.42	1.130
Impact of off-season training on emotional health	38	1	5	3.61	1.242
Impact of diet on emotional well-being in non-season	38	1	5	2.89	1.203
Impact of diet on emotional well-being in comp season	38	1	5	2.26	1.245
Impact of competition prep time on work responsibilities	38	1	5	2.63	1.239
Impact of competition prep time on school responsibilities	32	1	5	2.81	1.176
Impact of competition prep time on home responsibilities	37	1	5	2.54	1.325
Impact of money for prep on financial responsibilities	37	1	5	1.95	1.393
Impact of time spent for comp prep have on social life	37	1	5	2.30	1.351
Impact of competition prep on quality intimacy	37	1	5	2.57	1.094
Impact of altered image on self-esteem in bikini round	36	1	5	3.83	1.108
Valid N (list-wise)	31				

Appendix M

Table M1

Frequency Distribution for Annual Gross Income in the Main Study

Annual Income	Frequency	Percent
Less than $12,000	9	23.7
$13,000 to $20,000	2	5.3
$21,000 to $30,000	5	13.2
$31,000 to $40,000	7	18.4
$41,000 to $50,000	5	13.2
$51,000 +	7	18.4
Sub total	35	92.1
Missing	3	7.9
Total	38	100.0

Table M2

Frequency Distribution for Competitive Sport Experience in the Main Study

Years of Sport Experience	Percent	Frequency
Less Than 1	7	18.4
1 to 5	9	23.7
6 to 12	9	23.7
13 or More	13	34.2
Total	38	100.0

Table M3

Frequency Distribution for Competitive Fitness Experience in the Main Study

Years of Fitness Experience	Frequency	Percent
Less Than 1	16	42.1
1 to 2	6	15.8
3 to 4	10	26.3
5 or More	6	15.8
Total	38	100.0

Table M4

Frequency Distribution for "Physical Appearance/ Sculpting" Reason to Train for Competition in the Main Study

Importance Ranking	Frequency	Percent
Not Listed as 1 of 3 Reasons	3	7.9
First Most Important Reason	12	31.6
Second Most Important Reason	19	50.0
Third Most Important Reason	4	10.5
Total	38	100.0

Table M5

Frequency Distribution for "Performance Enhancement" Reason to Train for Competition in the Main Study

Importance Ranking	Frequency	Percent
Not Listed a 1 of 3 Reasons	16	42.1
First Most Important Reason	9	23.7
Second Most Important Reason	9	23.7
Third Most Important Reason	4	10.5
Total	38	100.0

Table M6

Frequency Distribution for "Physical Health" Reason to Train for Competition in the Main Study

Importance Ranking	Frequency	Percent
Not listed as 1 of 3 Reasons	6	15.8
First Most Important Reason	12	31.6
Second Most Important Reason	5	13.2
Third Most Important Reason	15	39.5
Total	38	100.0

Table M7

Frequency Distribution for "Emotional Health/ Stress Reduction" Reason to Train for Competition in the Main Study

Importance Ranking	Frequency	Percent
Not Listed as 1 of 3 Reasons	19	50.0
First Most Important Reason	2	5.3
Second Most Important Reason	9	23.7
Third Most Important Reason	8	21.1
Total	38	100.0

Table M8

Frequency Distribution for "Social Interaction" Reason to Train for Competition in the Main Study

Importance Ranking	Frequency	Percent
Not Listed as 1 of 3 Reasons	34	89.5
Second Most Important Reason	4	10.5
Total	38	100.0

Table M9

Frequency Distribution for Hours of Physical Training in Non-Competition Season in the Main Study

Training Hours	Frequency	Percent
Less Than 8	5	13.2
9 to 12	21	55.3
13 to 16	7	18.4
17 to 20	4	10.5
20+ Hours	1	2.6
Total	38	100.0

Table M10

Frequency Distribution for Hours of Physical Training in Competition Season in the Main Study

Training Hours	Frequency	Percent
9 to 12	8	21.1
13 to 16	12	31.6
17 to 20	11	28.9
20+	7	18.4
Total	38	100.0

Table M11

Frequency and Percentage of Cosmetic Surgery Performed in the Main Study

Cosmetic Surgery	Frequency	Percentage
Breast Implants		
Performed	8	21.1
Not Performed	24	63.2
Missing	6	15.8
Breast Reduction		
Performed	0	0
Not Performed	32	84.2
Missing	6	15.8
Liposuction		
Performed	0	0
Not Performed	32	84.2
Missing	6	15.8
Collagen		
Performed	1	2.6
Not Performed	32	84.2
Missing	6	15.8
Botox Injections		
Performed	0	0
Not Performed	32	84.2
Missing	6	15.8
Nose/Face Surgery		
Performed	1	2.6
Not Performed	31	81.6
Missing	6	15.8
Other Cosmetic Surgery		
Performed	0	0
Not Performed	32	84.2
Missing	6	15.8

Table M12

Frequency and Percentage of Timing of Cosmetic Surgery in the Main Study

Timing of Procedure	Frequency	Percent
Not Applicable	18	47.4
Prior To Competing	8	21.1
Since Beginning Competing	6	15.8
Subtotal	32	84.2
Missing	6	15.8
Total	38	100.0

Table M13

Frequency and Percentage of Cosmetic Surgery Considered in the Main Study

Cosmetic Procedure	Frequency	Percentage
Breast Implants		
Considered	10	26.3
Not Considered	22	57.9
Missing	6	15.8
Breast Reduction		
Considered	0	0
Not Considered	32	84.2
Missing	6	15.8
Liposuction		
Considered	3	7.9
Not Considered	29	76.3
Missing	6	15.8
Collagen		
Considered	1	2.6
Not Considered	31	81.6
Missing	6	15.8
Botox Injections		
Considered	3	7.9
Not Considered	29	76.3
Missing	6	15.8
Nose/Face Surgery		
Considered	3	7.9
Not Considered	29	76.3
Missing	6	15.8
Other Cosmetic Surgery		
Considered	1	2.6
Not Considered	31	81.6
Missing	6	15.8

Appendix N

Table N1

Means, Standard Deviations, and Standard Errors for Social Physique Anxiety and Ethnicity in the Main Study

Ethnicity	*N*	Mean	Std. Deviation	Std. Error
Caucasian	18	2.51	.82	.19
Black	3	3.41	.65	.38
Italian/Czech	1	4.22	.	.
Lebanese	1	2.67	.	.
Spanish	1	1.78	.	.
Dutch	1	1.78	.	.
Armenian	1	2.22	.	.
Subtotal	26	2.62	.86	.17
Missing	12			
Total	38			

Table N2

Analysis of Variance for Social Physique Anxiety and Ethnicity for Main Study

Variance	Sum of Squares	*Df*	Mean Square	*F*	$\eta 2$	*p*
Between Groups	6.24	6	1.04	1.62	.34	.20
Within Groups	12.21	19	.64			
Total	18.45	25				

Table N3

Means, Standard Deviations, and Standard Errors for Social Physique Anxiety and Marital Status in the Main Study

Marital Status	*N*	Mean	Std. Deviation	Std. Error
Single/Divorced (Without Children)	21	2.95	.80	.17
Single/Divorced (With Children)	1	4.33	.	.
Married/Common law (Without Children)	15	2.21	.74	.19
Married/Common law (With Children)	1	2.78	.	.
Total	38	2.69	.87	.14

Table N4

Analysis of Variance for Social Physique Anxiety and Marital Status in the Main Study

	Sum of Squares	*df*	Mean Square	*F*	$\eta 2$	*p*
Between Groups	7.65	3	2.55	4.23	.27	.01
Within Groups	20.50	34	.60			
Total	28.15	37				

Table N5

Analysis of Variance for Social Physique Anxiety and Hours of Physical Training in Competition Season in the Main Study

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	25.011	23	1.087	1.058	.469
Within Groups	14.383	14	1.027		
Total	39.395	37			

Table N6

Analysis of Variance for Social Physique Anxiety and Hours of Physical Training in Non-Competition Season in the Main Study

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	16.719	23	.727	.643	.832
Within Groups	15.833	14	1.131		
Total	32.553	37			

Table N7

Analysis of Variance for Social Physique Anxiety and "Physical Health" Reason to Train in the Main Study

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	29.502	23	1.283	.927	.577
Within Groups	19.367	14	1.383		
Total	48.868	37			

Table N8

Analysis of Variance for Social Physique Anxiety and "Emotional Health/Stress Reduction" Reason to Train in the Main Study

	Sum of Squares	*Df*	Mean Square	*F*	*p*
Between Groups	37.136	23	1.615	1.031	.490
Within Groups	21.917	14	1.565		
Total	59.053	37			

Table N9

Analysis of Variance for Social Physique Anxiety and "Social Interaction" Reason to Train in the Main Study

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	11.649	23	.506	2.659	.031
Within Groups	2.667	14	.190		
Total	14.316	37			

Table N10

Means, Standard Deviations, and Standard Error for Social Physique Anxiety and "Performance Enhancement" Reason to Train in the Main Study

Rating of Reason	*N*	Mean	Std. Deviation	Std. Error
Not Listed as 1 of 3 Reasons	16	2.50	.82	.20
First Most Important Reason	9	2.36	.77	.26
Second Most Important Reason	9	3.07	.97	.32
Third Most Important Reason	4	3.33	.67	.34
Total	38	2.69	.87	.14

Table N11

Analysis of Variance for Social Physique Anxiety and "Performance Enhancement" Reason to Train in the Main Study

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	4.553	3	1.518	2.186	.108
Within Groups	23.599	34	.694		
Total	28.152	37			

Table N12

Means, Standard Deviations, and Standard Errors for Social Physique Anxiety and "Physical Appearance/ Sculpting" *Reason to Train in the Main Study*

Rating of Reason	*N*	Mean	Std. Deviation	Std. Error
Not Listed as 1 of 3 Reasons	3	2.40	.76	.44
First Most Important Reason	12	2.87	.86	.25
Second Most Important Reason	19	2.67	.97	.22
Third Most Important Reason	4	2.44	.55	.28
Total	38	2.69	.87	.14

Table N13

Analysis of Variance for Social Physique Anxiety and "Physical Appearance/ Sculpting"*Reason to Train to Train in the Main Study*

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	.877	3	.292	.364	.779
Within Groups	27.275	34	.802		
Total	28.152	37			

Table N14

Means, Standard Deviations, and Standard Errors for Social Physique Anxiety and Competitive Fitness Experience (Novice/Experienced) in the Main Study

	N	Mean	Std. Deviation	Std. Error
Novice	16	2.40	1.01	.25
Experienced	22	2.90	.71	.15
Total	38	2.69	.87	.14

Table N15

Analysis of Variance for Social Physique Anxiety and Competitive Fitness Experience (Novice/Experienced) in the Main Study

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	2.39	1	2.39	3.34	.08
Within Groups	25.76	36	.72		
Total	28.15	37			

Table N16

Numbers, Means, and Standard Deviations for Social Physique Anxiety and Competitive Sport Experience in the Main Study

Competitive Sport Experience in Years	*N*	Mean	Std. Deviation
Less Than 1	7	2.1111	.94933
1 to 5	9	2.4691	.85847
6 to 12	9	3.1975	.92259
13 or More	13	2.8034	.63043
Total	38	2.6901	.87228

Table N17

Analysis of Variance for Social Physique Anxiety and Competitive Sport Experience in the Main Study

	Sum of Squares	*df*	Mean Square	*F*	*p*
Between Groups	5.270	3	1.757	2.610	.067
Within Groups	22.882	34	.673		
Total	28.152	37			