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The Influence of Self-presentational Efficacy on Men's Social Anxiety in the Weight

Room

by

Karen E. Maini

A Thesis

Submitted to the Faculty of Graduate Studies
through the Faculty of Human Kinetics
in Partial Fulfillment of the Requirements for
the Degree of Master of Human Kinetics at the
University of Windsor

Windsor, Ontario, Canada

2010

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AUTHOR'S DECLARATION OF ORIGINALITY

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ABSTRACT

One barrier to exercise is the worry people have regarding their appearance while exercising (Leary, 1992). This self-presentational concern may lead to social anxiety (Treasure, Lox, & Lawton, 1998) and a decrease in or avoidance of exercise behaviour (Leary & Kowalski, 1995). Munroe-Chandler and Gammage (2008) found there are certain environmental characteristics that influence men's social anxiety in the weight room. Using these aspects, the study's purpose was to influence the social anxiety experienced by males in the weight room by manipulating their self-presentational efficacy. Although the high and low self-presentational efficacy groups did not differ on levels of self-presentational efficacy or social anxiety, they did differ on their task self-efficacy. Mechanisms that may have resulted in non-significant findings for self-presentational efficacy and social anxiety are discussed and future directions are provided. Through this research, environmental deterrents to weight training for men may be minimized thus increasing exercise participation rates.

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RESEARCH ARTICLE

Introduction

Despite the knowledge of the numerous health benefits gained from participation in regular physical activity, over half of the North American population remains inactive (Canadian Fitness and Lifestyle Institute, 2007; Gilmour, 2007; US Department of Health and Human Services, 1996). Because regular exercise provides people with physical, psychological, and social benefits (Warburton, Nicol, & Bredin, 2006), as well as reduces the risk of developing such health concerns as cardiovascular disease, cancer, obesity, hypertension, osteoporosis, and Type 2 diabetes mellitus (Haskell et al., 2007), it is important to examine the reasons why so many individuals fail to lead a physically active lifestyle. Research indicates that there are certain barriers that discourage people from engaging in regular exercise. One such barrier is the worry people have about their appearance when exercising (Leary, 1992) and that such self-presentational concern and the social anxiety it evokes (Treasure, Lox, & Lawton, 1998) impedes participation in physical activity. In an attempt to minimize the barriers, research has examined various physical and social aspects of the fitness environment that may deter exercise participation.

There is significant pressure on individuals to obtain what society deems to be the ideal body shape (Treasure, Lox, & Lawton, 1998). One strategy to attain this ideal body is to engage in exercise behaviour; however, Gray (1977) has suggested that the fitness environment evokes concerns about one's appearance because of its focus on the development of the physical self in a public setting. There are three processes that may

explain why the exercise environment can increase an individual's social anxiety: self-presentation theory, social comparison theory, and the drive for muscularity.

Self-presentation theory suggests that individuals attempt to control the impressions that others make of them (Leary & Kowalski, 1990; Schlenker, 1980). In doing so, people reveal only the aspects of themselves that will ensure others will perceive them positively and they will garner social approval (Leary, 1992). However, when individuals are concerned about the potential for interpersonal evaluation and doubt their ability to create a favourable impression, social anxiety may be experienced (Leary, Atherton, Hill, & Hur, 1986; Schlenker & Leary, 1982). Furthermore, one's self-presentational efficacy (i.e., one's belief in his or her ability to create a desirable impression; Maddux, Norton, & Leary, 1988) may influence whether or not they experience social anxiety. For example, self-presentational efficacy expectancy (i.e., the belief in one's own ability to perform a certain behaviour; Maddux, 1991) has been found to account for 12.4% of the variance in situational social physique anxiety (Gammage, Hall, & Martin, 2004), which is one type of social anxiety related to concern about others' evaluation of one's physique. Therefore, individuals may attempt to avoid an exercise environment that they perceive to be high in the potential for evaluative threat by others and that causes them social anxiety (Leary, 1992).

In addition, aspects of the environment that increase the threat of evaluation by others may also evoke evaluation by the self. According to social comparison theory (Festinger, 1954), people have an innate drive to evaluate their own abilities and characteristics and often make this appraisal through the comparison of the self to others. When the comparison is made to another who is superior in the characteristic of interest,

an upward comparison is made and is associated with a decrease in self-esteem (Major, Testa, & Bylsma, 1991). Research has shown exercise videos with instructors who wear physique revealing clothing to have a negative effect on female viewers' self-perceptions (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Martin Ginis, Prapavessis, & Hasse, 2008). A similar process might be experienced by males in the weight room who compare themselves to other weight trainers. For example, researchers have found that when men are exposed to images of muscular men, psychological disturbance occurs. For instance, Arbour and Martin Ginis (2006) found men who were high in muscularity dissatisfaction reported greater body dissatisfaction when exposed to men whose level of muscularity coincided with societal ideals of the male physique. Moreover, Leit, Gray, and Pope (2002) found men who had viewed images of muscular men reported a greater discrepancy between their current muscularity and their desired level of muscularity than men who had viewed neutral images. The negative psychological effects found in these studies may be attributed to upward social comparison.

Pressure on men to obtain the ideal mesomorphic body has resulted in men's dissatisfaction with their bodies (Mishkind, Rondin, Silberstein, & Striegel-Moore, 1986) and the desire to increase their muscle mass (Scott, Joyner, Czech, Munkasy, & Todd, 2009). This want of a highly developed musculature is termed the drive for muscularity (McCreary & Sasse, 2000). Possessing a high level of this drive has been correlated with lower appearance self-esteem in men (Morrison, Morrison, Hopkins, & Tyler Rowan, 2004). Given this link to low appearance self-esteem, it is not surprising that those who feel the need to obtain the ideal body have been identified as being at risk of experiencing anxiety with regards to their appearance (Grieve, 2007). Additionally, research has linked

the drive for muscularity with social physique anxiety (Duggan & McCreary, 2004; McCreary & Saucier, 2009; Peterson, 2008). As such, an individual's drive for muscularity may create the potential for the manifestation of social anxiety.

Previous exercise psychology research has revealed that there are certain aspects of the physical and social environment that evoke self-presentational concerns and result in social anxiety. Focht and Hausenblas (2003, 2004) conducted two studies in order to examine the effects of two environments on the experience of social anxiety. Females with low activity levels and high in social physique anxiety completed two sessions of physical activity; 1) in a natural setting (in front of a full length mirror in a fitness facility), and 2) in a laboratory setting (without mirrors or other exercisers). The findings revealed only the naturalistic setting elevated social anxiety. The authors attributed this result to the self-presentational aspects of the naturalistic setting. The presence of mirrors and other exercisers was thought to elevate participants' perceived evaluative threat and resultant anxiety. Katula et al. (1998) also found mirrors to bring attention to the appearance of one's physique. Male and female participants engaged in exercise in a laboratory setting with mirrors, without mirrors, and in a natural environment of the participants' choosing. In the mirror condition, women were found to have significantly lower exercise self-efficacy than in the other two conditions. As well, in the mirror condition, as social physique anxiety increased, self-efficacy decreased. These two studies suggest that mirrors and other exercisers may lead to the manifestation of social anxiety by increasing perceptions of evaluative threat.

A study by Gammage, Martin Ginis, and Hall (2004) also found various aspects of the environment to influence social anxiety. The researchers influenced female

participants' self-presentational efficacy through environmental manipulations. In the low self-presentational efficacy group, participants were lead to believe they would participate in a group fitness class. The room in which they would be exercising had windows leading to a public hallway that were left uncovered and floor to ceiling mirrors at the front of the room. Participants also believed they would be wearing name tags, would be videotaped by a camera at the front of the room and by a male confederate holding a handheld camera, and would be required to wear a spandex jog bra/cropped top and spandex shorts. In the high self-presentational efficacy group, participants were informed that for the upcoming group fitness class the mirrors and windows would be covered, no name tags were mentioned, two cameras at the front of the room would be present to obtain group shots only, and that they would be asked to wear a loose T-shirt and a pair of shorts. Those in the low self-presentational efficacy condition were found to score significantly higher on state social anxiety, social physique anxiety, physical appearance anxiety, and lower on how much they were looking forward to the upcoming group fitness session. These results indicated that manipulation of the exercise environment can influence females' social anxiety through imagined participation in the setting. The researchers even suggested that the effects may have been even stronger had the participants actually engaged in the group fitness class.

Modifications to some of the aforementioned aspects of the environment have since been used in the development of interventions to increase exercise participation (Yin, 2001). This is important given that it has been suggested that interventions aimed at decreasing social anxiety may aid in promoting exercise adoption and maintenance (Brunet & Sabiston, 2009). This proposition is supported by research that has found

social physique anxiety had the most influence over some individuals' willingness to exercise in public (Bain, Wilson, & Chaikind, 1989). As such, exercise preferences of those high in social physique anxiety also provide information pertinent to creating fitness environments conducive to encouraging exercise participation. Spink (1992), in an examination of preferences of social contexts for exercise, found that female students high in social physique anxiety preferred to exercise in private rather than in public settings. Yin researched the use of female-only areas of fitness facilities and found that those who exercised in these areas were higher in social physique anxiety than women who exercised in co-ed areas. Thus, it was suggested that female-only areas may serve as a protective environment for those high in physique-related anxiety. Brewer, Diehl, Cornelius, Joshua, and Van Raalte (2004) found that socially physique anxious female aerobics participants preferred floor positions away from the instructor and also reported wearing concealing clothing to classes. Finally, Crawford and Eklund (1994) focused their study on the influence of social physique anxiety on clothing preferences. Following the viewing of two videos of an aerobics class (one featuring class participants wearing tights and thong leotards, and the other wearing shorts and T-shirts over the tights and leotards), participants rated their favourability for the two exercise settings. The higher the participants were in social physique anxiety, the more favourable the shorts and T-shirts condition was over the tights and leotard condition. Understanding how and where those high in social physique anxiety prefer to exercise is an indication of what measures may be undertaken to prevent the experience of social anxiety when exercising.

Though the aforementioned studies provide support for the further examination and application of exercise environment manipulations, the majority of these studies

included only female participants (e.g., Brewer et al., 2004; Crawford & Eklund, 1994; Focht & Hausenblas, 2003, 2004; Gammage, Martin Ginis, & Hall, 2004; Spink, 1992; Yin, 2001). As such, there is a resultant gap in the literature of how men are influenced by the physical and social environment in an exercise context. According to research, females endure greater societal pressure to conform to the thin and toned female ideal, which has been shown to lead to body image disturbances (Grogan & Richards, 2002; Treasure et al., 1998). Females also report greater levels of social physique anxiety (Frederick & Morrison, 1996; Scott et al., 2009) and have lower activity rates than males (Jones et al., 1998; US Department of Health and Human Services, 1996). Given these findings, researchers have based their research on the effects of the exercise environment on females to the exclusion of half of the population. However, there is a growing body of literature indicating that societal pressure on males to conform to the muscular, inverted triangle body shape is increasing (Pope, Phillips, & Olivardia, 2000) along with an increase in male body image concerns (Grieve, Jackson, Reece, Marklin, & Delaney, 2008). In addition, research has indicated that high socially physique anxious males have greater body dissatisfaction and lower self-esteem (Russell, 2002). As such, males are an important target group that has been neglected in this area of exercise psychology.

In addition to the lack of research on males and the exercise environment, the majority of it has been conducted in group aerobic fitness classes, a context that may not be applicable to males. In a study by Burke, Carron, and Eys (2006), the structured exercise environment, which is most frequently aerobic in nature, was rated as the least preferred exercise environment by males. In addition, fitness classes are predominantly made up of female exercisers (Crawford & Eklund, 1994), whereas males dominate the

weight room (Burke et al.). Therefore, findings that males scored lower than females on measures of social physique anxiety may not be ecologically valid if performed in the fitness class setting. For this reason, examining males in an exercise setting more pertinent to the pursuit of the male body ideal is required. As such, the weight room may be a better setting to examine the effects of the physical and social environment in an exercise context.

Besides a change in the exercise setting, a change in the environmental aspects being manipulated may be imperative in determining what leads to males' social anxiety when in the weight room. As suggested, self-presentational efficacy (Gammage, Martin Ginis, & Hall, 2004), social physique anxiety (Carron & Prapavessis, 1997), and exercise behaviour (Dishman & Sallis, 1994) may be influenced by different factors for various populations. Therefore, manipulating factors such as clothing and the presence of mirrors may not be effective at influencing male social anxiety even though they were effective for females. A study by Laing (2006) confirmed this speculation as the manipulation of clothing, mirror presence, and name tags (aspects mimicked from Gammage, Martin Ginis, & Hall, 2004) with males in a weight lifting context was not effective at influencing males' social anxiety. Research has since investigated the situations that males report to be anxiety-provoking in the weight room. Munroe-Chandler and Gammage (2008) found that the most frequently cited situations causing anxiety for males in the weight room included someone hovering over them wanting to use the equipment, if a spotter had to rush to assist them with the weight, if someone commented on their appearance, if a trainer corrected their form, and being in the presence of an attractive female. Not surprisingly, each of the situations involves the presence of others.

This suggests that these situations may lead to social anxiety in males because they increase the potential for evaluation by others and therefore elicit self-presentational concerns. There is also the possibility that the presence of others induces social comparison processes. If those social comparisons are upward comparisons, a decrease in self-esteem and increase in social anxiety may result.

Therefore, the purpose of the current study was to examine the social anxiety experienced by men in the weight room by manipulating their self-presentational efficacy. This was accomplished through the manipulation of various characteristics of the social environment acknowledged by Munroe-Chandler and Gammage (2008) as anxiety-provoking for males in the weight room. Given that those who do not believe in their ability to make a desired impression experience social anxiety (Leary et al., 1986; Schlenker & Leary, 1982), it was hypothesized that the low self-presentational efficacy group would score higher in all three measures of social anxiety; state social anxiety, state social physique anxiety, and physical appearance anxiety, and would score lower in self-presentational efficacy and in how much they were looking forward to the upcoming weight training session than the high self-presentational efficacy group. By examining the environmental characteristics that affect male social anxiety in the weight room, interventions that reduce exercise deterrents and that encourage men to participate in weight training may be developed. Such interventions may ultimately lead to an increase in physical activity rates and a resultant decrease in the health complications associated with inactivity.

Method

Participants

The participants for this study included 69 males from a university sample ($M_{age} = 20.68$ years, $SD = 2.77$). Tabachnick and Fidell (2007) suggested this to be an acceptable sample size that will ensure robustness to nonnormality when comparing two groups on a few dependent variables. An age range between 17 and 40 years was used to ensure that any social comparisons at work were not confounded by an age discrepancy between participants. For example, an older participant may experience anxiety during the study because he is among younger, stronger others and not due to the environmental manipulations. Only males were recruited to participate given the study focused on the exercise-related anxiety experienced by men in the weight room.

Participants were recruited from various faculties within the university including the faculties of applied health sciences, business, mathematics and science, social sciences, and humanities. Caucasians were the highest represented race in the study (78.3%), followed by Chinese (7.2%), African-Canadian (5.8%), those described as Other (4.4%), and Indian (2.9%). One participant did not identify his race. Almost the entire sample identified themselves as heterosexual (98.6%) with one participant choosing not to identify his sexual orientation. As well, the sample had a mean body mass index (BMI) of 24.93 ($SD = 3.53$) and were a very active group as approximately half of the participants (49.3%) indicated they had engaged in weight training for one year or longer. The mean number of hours per week that participants engaged in weight training was 3.51 ($SD = 2.46$) and the mean number of hours per week that participants engaged in physical activity other than weight training was 5.01 ($SD = 3.89$).

Experimental Design

Participants were randomly assigned to one of two groups; a high self-presentational efficacy group ($n = 37$) or a low self-presentational efficacy group ($n = 32$). Both groups were informed that they were to complete a weight training session; however, the two groups received different instructional scenarios. The instructions for the self-presentational scenarios were derived from aspects of the social environment that were most frequently rated as anxiety-provoking by males in the Munroe-Chandler and Gammage (2008) study. The following five aspects were manipulated to create the high and low efficacy groups: someone hovering over them wanting to use the equipment; if a spotter had to rush to assist them with the weight; if someone commented on their appearance; if their form was corrected by a trainer; and in the presence of an attractive woman (see Table 1). It was expected that the manipulation of these environmental aspects within the scenarios would impact the self-presentational efficacy of the male participants.

Measures

Participants completed the following in order for the researcher to gain pertinent information on the individuals:

Demographics. Participants were asked to complete relevant demographic information, which included age, race, height, weight, university major, frequency and duration of lifting weights, years of weight training experience and frequency and duration of additional physical activities (Appendix A).

Drive for muscularity. Scores on the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000) were examined to ensure that participants in the two groups

did not differ on their levels of the drive for muscularity and to ensure that the groups were at least moderately driven to be muscular, thus social anxiety was possible. The DMS measures one's desire to achieve a more muscular physique (Appendix B). The 15-item scale is measured on a 6-point Likert scale ranging from 1 (*always*) to 6 (*never*) (McCreary, Sasse, Saucier, & Dorsch, 2004). An example of an item is "I think I would feel more confident if I had more muscle mass". Participants were to respond as to how characteristic these statements were of them. The current study found acceptable reliability of the scale with an alpha level of .75.

Health status. The Physical Activity Readiness Questionnaire (PAR-Q; 2002) is used to determine if a physician's approval is required before an individual (15-60 years) begins an exercise program (Appendix C). The questionnaire asks participants to answer yes or no to seven questions surrounding their health. Although participants were not going to be engaging in the weight training session, they were being led to believe that they would be participating in weight training. The inclusion of such a questionnaire adds strength to the study's validity.

The following covariates were utilized in the study and are consistent with those utilized by Gammage, Martin Ginis, and Hall (2004):

Task self-efficacy. The Task Self-Efficacy Scale for Weight Training assesses one's confidence that he can exercise within several different constraints. The two item scale is based on the task self-efficacy measure by Rodgers and Gauvin (1998) that has been used in previous exercise psychology research specific to aerobic exercise classes (Gammage, Martin Ginis, & Hall, 2004). Adapted for a weight training context (Appendix D), participants rated their confidence in their ability to complete several

aspects of the weight training session from 0 (*no confidence*) to 100 (*completely confident*). An example question asks participants to indicate “How confident are you that you could perform all the required movements?” Previous research has indicated the two items to be moderately correlated ($r = .51, p < .05$; Gammage, Martin Ginis, & Hall, 2004). As one’s confidence that he can complete the requirements for the weight training session may be related to his confidence in presenting himself desirably during the session (self-presentational efficacy), controlling for this variable was deemed important.

Weight training experience. Taken from the demographic information provided by participants (Appendix A), previous years of weight training experience was used as a second covariate. As those who have previous experience weight training may be more confident in their ability to present themselves positively during the weight training session than those without experience weight training, it is an important variable for which to control.

To examine the success of the manipulation, the following independent variables were measured:

Self-presentation efficacy expectancy. The Self-Presentation Efficacy Expectancy Questionnaire (SPEEQ; Gammage, Hall, & Martin Ginis, 2004) consists of five items indicating how confident one is in presenting desired images or performing desired behaviours in an exercise context (Appendix E). Originally developed for an aerobic context, the items have been adapted for a weight training session and range on a scale from 0 (*no confidence*) to 100 (*complete confidence*). A sample item is “How confident are you that other people will think that you are in good shape?”. In this study, an alpha coefficient of .94 was found indicating an acceptable internal consistency.

How much participants were looking forward to the upcoming weight training session and the manifestation of social anxiety were assessed using the following dependent variables:

Looking forward to upcoming weight training session. Participants were asked to rate on a 10 point scale (1= *not at all* and 10= *very much so*) how much they were looking forward to the upcoming weight training session (Appendix F). A description of the session is provided in the procedure section.

State social anxiety. Leary (1992) outlined three potential sources of concern and embarrassment for individuals including one's coordination, physique, and physical condition. In order to measure the social anxiety experienced by individuals in a group exercise class, Martin and Fox (2001) developed the State Social Anxiety Scale (SAS-S) based on these three sources of concern. The scale, adapted for a weight training setting for the current study, asked participants to rate their worries about what the instructor and other participants will think of them while engaging in a weight training session (Appendix G). The measure included eight items which are rated on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). Acceptable reliability was found for the scale with a Cronbach's alpha of .95.

Social physique anxiety. The Social Physique Anxiety Scale-State (SPAS-S; Kruisselbrink, Dodge, Swanberg, & McLeod, 2004) assesses situational anxiety associated with others' evaluations of one's body (Appendix H). The 9-item instrument is rated on a 5-point Likert scale ranging from 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*). An example of an item on the SPAS-S is "In this

environment, I feel apprehensive about my physique/figure”. With the current sample, the SPAS-S was found to have acceptable reliability with an alpha of .84.

Physical appearance anxiety. The Physical Appearance State and Trait Anxiety Scale (PASTAS; Reed, Thompson, Brannick, & Sacco, 1991) assesses one’s anxiety related to parts of the body. The state version of the scale (Appendix I) utilized in this study asks how anxious they are right now about the appearance of 16 parts of the body (e.g., thighs, buttocks, waist, stomach/abdomen, muscle tone, etc.). The ratings are measured on a 5-point Likert scale anchored at 0 (*not at all anxious*) and 4 (*extremely anxious*). An example item includes “Right now, how anxious do you feel about the appearance of your thighs?” The internal consistency of the scale was found in this study to be acceptable with an alpha level of .84.

Following the re-consent process, participants were asked to complete the following weight training session awareness check (Appendix J):

Awareness check. Participants responded to two questions: which instructions from the hypothetical scenario they attended to (focused on) the most, and what was the most stressful aspect of the scenario. In addition, the low self-presentational efficacy group was asked to rate how attractive they thought the female personal trainer to be on a 10-point scale (1= *not at all attractive* and 10= *extremely attractive*).

Procedures

Once ethics clearances were obtained from both the University of Windsor and Brock University, participants were recruited in two ways; through the use of announcements in classrooms (Appendix K) upon permission of the instructors who were contacted through e-mail (Appendix L), and through the use of posters (Appendix M).

Males interested in weight training of any fitness level were welcomed to participate in a study on weight training beliefs and one repetition maximum bench press loads. Contact information for the researchers (email and phone number) was provided during the classroom presentations and within the poster in order for individuals to sign up as participants in the study.

Those who volunteered for the study were randomly assigned to one of two groups: low self-presentational efficacy or high self-presentational efficacy. Once assigned to a group, participants were informed of the date, time, and location the study would take place. On their specific day and time of testing, all participants (regardless of group) were informed that they would have to complete a weight training session, under the supervision of a trainer, upon the completion of several questionnaires. Participants were informed that the study's topic was weight training beliefs and one repetition maximum loads. The letter of information (Appendix N), consent form (Appendix O) and PAR-Q were provided at that time. Participants were then read one of two instructional scenarios (dependent upon their random grouping) by the male trainer. The trainer also directed the participants' attention to a poster-board (Appendix P), which highlighted the key instructions within the scenario.

Low self-presentational efficacy group scenario. Today you will be participating in a group weight training session. This session will entail a one repetition maximum test performed for the flat dumbbell bench press. For safety purposes, two certified personal trainers, (male trainer's name) and (female trainer's name), are here to conduct the testing, which will gauge the strength of your pectoral (chest) and bicep (arm) muscles. The trainers will pay close attention to your form and will correct any errors you make in

lifting technique as perfect form is essential to accurately determining your strength. Feet must remain flat on the floor, and the lower back and head must not be raised at any stage of the lift. Take the dumbbells from the trainer and be sure to push the dumbbells upward and slightly backward until the elbows are fully extended. Wrists should remain rigid and directly above the elbows. Keep forearms perpendicular to the floor and parallel with one another. Finally, the dumbbells must come down all the way to the chest to nipple height. Any errors in form detected by the trainers will require you to reattempt that lift. The trainers will determine a weight with which you will begin the testing based on their assessment of your physical appearance - both weight (see the scales) and musculature. Those that are expected to lift the least amount of weight will be tested first, followed by those that are anticipated to lift a greater load. Should you struggle to lift the weight selected for you, the trainers will quickly assist you with the dumbbells. Each group member will complete the one repetition maximum testing in the presence of the other group members in order to complete the testing in a timely fashion. An average 160 lbs. male is able to bench press 190 lbs, which is the equivalent of lifting a sofa bed. You are expected to complete a one repetition maximum at the equivalent for your weight in order for your data to be included in the study (see poster board; Appendix Q). As each group member completes the testing, one of the trainers will announce your one repetition maximum weight aloud so the researcher may record it. Before we begin the session, a questionnaire package aimed at measuring your beliefs about weight training must be completed.

High self-presentational efficacy group scenario. Today you will be participating in a weight training session. This session will entail a one repetition maximum test

performed for the flat dumbbell bench press. For safety purposes, a certified personal trainer, (male trainer's name), is here to conduct the testing which will gauge the strength of your pectoral (chest) and bicep (arm) muscles. The trainer will also spot you. Though perfect form will not be emphasized in this study, good form should be attempted for safety reasons. As some of you may be inexperienced at weight training, some tips on technique are provided. Try to keep feet flat on the floor, and the lower back and head in constant contact with the bench. Take the dumbbells from the trainer when you are ready and push the dumbbells upward and slightly backward until the elbows are fully extended. Try to remember to keep your wrists rigid and directly above the elbows and to keep your forearms perpendicular to the floor and parallel with one another. Finally, bring the dumbbells down all the way to the chest to nipple height. This will complete one repetition. If you have any questions regarding form, you may ask the personal trainer in private before beginning the testing. The weight at which you will begin testing will be 90 lbs. The trainer will increase the weight until you reach your one repetition maximum. Each group member will complete the one repetition maximum testing individually while the other group members wait in an alternate room. The order in which you will perform the testing will be determined alphabetically. An average 160 lbs. male is able to bench press 140 lbs. You are only required to perform the first lift at 90 lbs in order for your data to be included in the study. Lifting 90 lbs. is the equivalent of lifting a medium sized chair. The researcher will record your one repetition maximum weight on a data sheet and it will remain confidential. Before we begin the session, a questionnaire package aimed at measuring your beliefs about weight training must be completed.

Following the completion of the questionnaires, participants were informed that the study was complete and that they were not required to complete the weight training session. At this time participants were informed of the true purpose of the study, debriefed, and asked to re-consent (Appendix R) to participate in the study. It was also requested that participants refrain from discussing the study with or revealing the true purpose of the study to others until all groups had completed the study. As an incentive, participants were afforded the opportunity to enter into a raffle draw for one of two 50 dollar gift certificates to a local restaurant (Appendix S), to be credited for an hour of research participation credit, or to be provided ten dollars.

Results

Preliminary Analyses

Version 18.0 of the Predictive Analytics Software (PASW) was used for all analyses. Data were screened for both normality and outliers. Skewness and kurtosis values were examined for normality, and frequencies were analyzed in order to identify outliers and missing data. Standard error values of skewness and kurtosis fell below 1.96 and therefore data were considered to be normal (Tabachnick & Fidell, 2007). Missing data were replaced using the series mean method. The mean score of that participants' group, not the entire sample, was used to replace the missing value. Once outliers were identified, it was determined that they belonged in the population. For example, the participant who scored well below others in self-presentational efficacy also had the highest BMI at 37.72. As suggested by Tabachnick and Fidell, outliers that belonged in the population were not excluded; however, steps were taken to reduce their impact. The changes of scores method was used to minimize the influence of outliers by assigning the

outlying case a value that was one unit larger (if outlier was higher than other scores) or smaller (if the outlier was lower than other scores) than the next most extreme score on that variable (Tabachnick & Fidell).

Descriptive statistics for both the groups and the combined sample are presented in Table 2. A one-way ANOVA revealed that the two groups differed significantly ($p < .05$) in both how frequently they engaged in physical activities other than weight training per week ($F(1,68) = 4.074, p = .048$), and in their task self-efficacy to perform the required movements for the weight training session ($F(1,68) = 4.796, p = .032$). The high self-presentational efficacy group scored higher ($M = 3.71, SD = 2.02$) than the low self-presentational efficacy group ($M = 2.81, SD = 1.63$) on how frequently they engaged in other physical activities. The high group also scored higher ($88.65, SD = 18.28$) than the low group ($M = 79.81, SD = 15.68$) in their self-efficacy to perform the required movements. The two groups were similar in their ages, weight training behaviour, hours of physical activity per week, and BMI (see Table 2). BMI was operationalized as one's weight in kilograms divided by the square of one's height in meters. The mean BMI of the low self-presentational efficacy group was 25.68 ($SD = 4.12$) and the mean BMI of the high self-presentational efficacy group was 24.30 ($SD = 2.85$). According to the National Heart Lung and Blood Institute (n.d.), a BMI between 25 and 29.9 indicates an overweight individual and a BMI score of 30 or greater is indicative of an obese individual. However, because the calculation of BMI does not take into account fat free mass which weighs more than fat mass, these values should be interpreted with caution.

Bivariate correlations computed to examine relationships between the variables in the study are presented in Table 3. All three measures of social anxiety (SAS-S, SPAS-S,

PASTAS) had significant negative Pearson correlations with self-presentational efficacy. This indicates that as self-presentational efficacy increased, social anxiety decreased. Other important findings included significant negative Pearson correlations between BMI and how much they were looking forward to the upcoming weight training session as well self-presentational efficacy, indicating that as BMI increased, how much participants were looking forward to the upcoming weight training session and self-presentational efficacy decreased. Additionally, weight training frequency per week and number of weight training hours per week were both positively correlated with how much they were looking forward to the upcoming weight training session, and with self-presentational efficacy. Finally, a higher drive for muscularity was correlated with higher levels of self-presentational efficacy, increased frequency and hours of weight training per week, as well as with more enthusiasm for participating in the upcoming weight training session.

The two groups' scores on the DMS were examined in order to ensure that groups had a moderate drive to achieve a muscular physique and also to ensure that they did not significantly differ in their drive for muscularity. Scores of 4.06 ($SD = 0.81$) for the low self-presentational efficacy group, and 4.26 ($SD = 1.30$) for the high self-presentational efficacy group indicated that the participants reported a lower drive for muscularity than previously found in research (McCreary & Sasse, 2000; McCreary, Saucier, & Courtenay, 2005; McCreary et al., 2004; all reported a drive for muscularity score of < 3.5). A one-way ANOVA was conducted and revealed no differences between the two groups on their drive for muscularity ($F(1,68) = .595, p = .443$). It was important to confirm that there were no group differences in the drive for muscularity as a difference could influence the manifestation of social anxiety.

A one-way ANCOVA was used to determine if the environmental manipulations were successful in creating two groups that differed in self-presentational efficacy. Consistent with Gammage, Martin Ginis, and Hall (2004), both task self-efficacy items and years of previous experience weight training were entered as separate covariates. The analysis revealed no significant differences between the low and high self-presentational efficacy groups ($F(1,67) = .083, p = .774$). However, results were in the expected direction as the high self-presentational efficacy group ($M = 70.43, SD = 17.87$) scored slightly higher than the low group on self-presentational efficacy ($M = 69.50, SD = 19.30$).

Primary Analyses

A MANCOVA was performed in order to examine if significant differences were present between the low and high self-presentational efficacy groups on the three measures of social anxiety (SAS-S, SPAS-S, PASTAS) and how much they are looking forward to the upcoming weight training session. Again, the two task self-efficacy items and years of previous experience weight training were entered as the covariates. No significant differences were found between the groups on either the three social anxiety measures or on how much they were looking forward to the weight training session (Pillai's Trace $F(4,59) = .365, p = .833$). However, trends suggest that the results were in the hypothesized direction. The low self-presentational efficacy group scored higher than the low self-presentational efficacy group on all three measures of social anxiety and lower on how much they were looking forward to the upcoming training session (see Table 2).

Due to the fact that the environmental manipulations were unsuccessful at creating two distinct groups, further exploration of the differences between groups was warranted. Given that both the frequency and number of hours per week of engaging in weight training were found to be significantly correlated to self-presentational efficacy, the one-way ANCOVA that was used to determine if the environmental manipulations were successful in creating two groups that differ in self-presentational efficacy was re-run using number of times and hours weight training per week as covariates. Results indicated that controlling for current weight training behaviour yielded no significant differences between the high and low groups on self-presentational efficacy expectancy ($F(1,69) = .133, p = .717$).

Finally, data from the open-ended manipulation check questions were analyzed. In response to the first awareness check question, the low self-presentational efficacy group most frequently reported that they focused on the amount of weight to be lifted based on the chart (Appendix Q) (46% of responses), followed by the required technique (22% of responses), followed by the prospect of being ranked from weakest to strongest by the trainers (12% of responses). On the other hand, the top three cited instructions focused on by the high self-presentational efficacy group were the weight to be lifted (90 pounds; 36% of responses), followed by the required technique (31% of responses), and followed by the one repetition maximum instructions as a whole (21% of responses). In response to the second awareness check question, the low self-presentational efficacy group most frequently reported the amount of weight that had to be lifted and the presence of others as the most stressful aspect of the scenario (both at 21% of responses). The third most frequently reported stressful response was that nothing was stressful (18%

of responses). The high self-presentational efficacy group on the other hand most frequently cited the weight to be lifted as the most stressful aspect (29% of responses), followed by nothing to be stressful (26% of responses), and followed by the presence of others (14% of responses). The final awareness check question asked participants in the low self-presentational group to rate the attractiveness of the female trainer. The group rated her attractiveness at a mean score of 9.09 ($SD = 1.10$) out of 10.

Discussion

The current study examined various manipulations of the exercise environment on male participants' self-presentational efficacy and social anxiety. Although the manipulations were based on situations identified by men as being anxiety provoking in the weight room (Munroe-Chandler & Gammage, 2008), they were unsuccessful at influencing the self-presentational efficacy and social anxiety of the men in the present study. Although significant differences were not found between the two groups on self-presentational efficacy and social anxiety as hypothesized, trends suggested that the means were in the expected directions. That is, the high self-presentational efficacy group did score higher than the low group on self-presentational efficacy. The high group also scored higher on how much they were looking forward to the weight training session and lower on all three measures of social anxiety. This would seem to suggest that significant group differences may have emerged with a larger sample (i.e., stronger statistical power), thereby lending support for the environmental manipulations.

Furthermore, negative correlations were found between self-presentational efficacy and all three measures of social anxiety (state social anxiety, social physique anxiety, and physical appearance anxiety), supporting previous research indicating that as

self-presentational efficacy increases, social anxiety decreases (Leary & Kowalski, 1995; Schlenker & Leary, 1982). As such, when a man's belief in his ability to create an impression of being a weight trainer is heightened, he will experience less social anxiety in a gym setting. Therefore, future interventions may wish to target men with low self-presentational efficacy in order to reduce social anxiety in the weight room.

The high and low self-presentational efficacy groups were found to differ significantly on one aspect of task self-efficacy: their self-efficacy to perform all of the required movements. This indicates that the manipulations were successful at influencing confidence in performance with the low self-presentational efficacy group scoring lower. Given self-efficacy for a behaviour is likely to be related to one's self-presentational efficacy (c.f. Martin & Brawley, 2002), it would be expected that the groups should also have differed on their levels of self-presentational efficacy for the weight training session. However, this did not negatively influence their self-presentational efficacy or their social anxiety. A possible reason for this finding is that the participants may have been mentally preparing themselves for the task as a means to overcome their low self-efficacy. Boutcher et al. (1988) indicated that, "much of the response to exercise stimuli may actually be a response to motivational and emotional factors associated with the exercise environment" (p. 278). Indeed, participants indicated in the awareness check that they were motivated to do well, particularly those in the low self-presentational efficacy group. For example, a participant indicated on the awareness check questionnaire that he was, "really motivating myself mentally to do well", and a second participant cited "psyching myself up, as in mentally preparing to work out." As such, it appears participants may have been using mental skills, such as self-talk, to turn a negative

arousal (social anxiety) into a positive arousal state that would be facilitative for them during the weight training session.

A possibility as to why the low self-presentational efficacy group scored significantly lower in their self-efficacy to perform all of the required movements is that the task self-efficacy item specified efficacy for performing the necessary behaviour, while the measurements of self-presentation and social anxiety made reference to appearance. It may be that social anxiety for men is more closely related to ability to perform the behaviour than about their physical appearance while performing the behaviour. If this is indeed true, the SPAS-S and the PASTAS may not have been valid for the purposes of this study as they both assess concern about the appearance of one's physique. In addition, some items on the SPEEQ and the SAS also relate to one's appearance and therefore may not have been the most appropriate measure of men's psychological states in reference to an upcoming weight training session.

As hypothesized, the two groups did not differ significantly on their drive for muscularity. Therefore, one could be certain that any group differences found in social anxiety was not the result of one's desire to be more muscular. However, the groups' drive for muscularity scores were lower than has been reported in previous research (McCreary & Sasse, 2000; McCreary et al., 2005; McCreary et al., 2004). The current study's sample mean age (20.7 years) is slightly higher than those reported in previous drive for muscularity studies (McCreary & Sasse, $M_{\text{age}} = 18$ years; McCreary et al., 2004, $M_{\text{age}} = 17$ years). This is important to note as the younger samples may be targeted more by media emphasizing a muscular physique (McCreary, 2007). Also, the majority of participants from previous studies (McCreary & Sasse; McCreary et al., 2005; McCreary

et al., 2004) were either in secondary school, or in their first year of post-secondary education. In the school context, being popular among peers is important and one's appearance determines social status and popularity (Chase & Dummer, 1992), which may result in a greater value of the pursuit of a muscular, ideal body shape for young men. Although the disparity between current and past drive for muscularity scores may be explained, it is important to note that the current sample's low drive for muscularity may have resulted in a reduced likelihood for either group to experience social anxiety since research has indicated that the drive for muscularity is linked to higher levels of social physique anxiety (Duggan & McCreary, 2004; McCreary & Saucier, 2009; Peterson, 2008) and the pursuit of the muscular male ideal has been suggested to result in a higher risk for appearance anxiety (Grieve, 2007).

Contrary to the hypotheses, participants in the two groups did not significantly differ in their levels of self-presentational efficacy, how much they were looking forward to the upcoming weight training session, or in their social anxiety. However, based on societal emphasis on the ideal male physique (McCreary, 2007), it is unlikely that men do not experience any social anxiety with respect to the evaluation of their bodies. A possible reason for the lack of significant findings could be that males are reluctant to admit to experiencing anxiety in social situations. For example, Mishkind et al. (1986) noted that men have difficulty acknowledging concern about their appearance because bodily concerns have been stereotyped as a female concern. Additionally, in qualitative interviews with men, many had difficulty expressing emotions and concerns related to appearance (Adams, Turner, & Bucks, 2004). It was suggested that such difficulty would likely result in challenges to measuring body dissatisfaction in men (Adams et al.).

Therefore, it is not surprising that in the current study men did not reveal high anxiety in the low self-presentation group.

Another explanation for the non-significant findings between groups on self-presentational efficacy and social anxiety is the societal pressure on men to appear muscular and masculine (McCreary & Sasse, 2000). Regardless of experimental condition, the participants may not have reported low self-presentational efficacy or high levels of social anxiety possibly because it would not have been 'manly' to do so. Gender norms suggest that men should be strong and powerful and should not express emotion (Leary, 1996). In relation to exercise, it would follow that to be masculine is to build muscle through resistance training. Therefore, men may have responded to the questionnaires in a way that would allow them to self-present as a weight trainer and therefore construct an impression that would gain public approval. Previous research has found men to adjust responses to exercise to minimize the chances of being thought of by others as weak. Gammage and Gabriel (2009) conducted a study in which those who were concerned about being negatively evaluated by others exerted more force in a strength test than did men who were unafraid of social evaluation. A lack of differences between the high and low self-presentational efficacy groups may therefore have been due to social desirability responses by the men in the low self-presentational efficacy group as a way of compensating for any low efficacies or anxieties they were experiencing.

Other than trying to meet societal expectations for masculinity, participants may have been motivated to self-present positively in front of the two females in the study: the lead researcher and the female personal trainer. Previous research has suggested that the

researcher may influence the social aspects of a laboratory environment (Barnes & Rosenthal, 1985). This contention has been supported by subsequent research. During a heavy load cycling workout, men reported lower perceived exertion rates to a female experimenter than to a male experimenter when their physical symptoms (sweating and breathing rates) were most severe (Boutcher, Fleischer-Curtian, & Gines, 1988). The authors suggested that the men lowered their ratings of perceived exertion in order to make a good impression on the female researcher. Although in the current study the directions for the weight training task were provided by the male trainer, the participants were likely aware that their responses and success with the task would ultimately be examined by the female researcher. Additionally, the female trainer in the low self-presentational efficacy group may have had an opposite effect as to what was intended. It was expected that the presence of the attractive female trainer would lead to an elevation in social anxiety, which men have suggested is a cause for anxiety in the weight room (Munroe-Chandler & Gammage, 2008). The men in the current study rated the female personal trainer high on attractiveness (9.09 out of 10). This may have resulted in increased motivation to impress her. A naturalistic study by Worringham and Messick (1983) found that male runners ran faster when a female observer was placed along the jogging trail than when they ran alone. This acceleration of pace was attributed to the men attempting to look good in the presence of a female. By self-presenting as being efficacious at appearing to be a weight trainer and not being concerned about their appearance, the participants in the current study may have also been attempting to impress the females present for the study.

It is also plausible that the current study's participants may have been motivated by the competitive nature of the task. As suggested, men are traditionally socialized to demonstrate high achievement motivation with regards to attitudes about competition, and to demonstrate competitive success (Kane, 1982). Therefore, men may feel that exercise situations are more competitive than do women (Boutcher et al., 1988). The awareness check responses support the supposition that participants recognized the competitive potential for the weight training scenario. One participant indicated that the most stressful aspect of the weight training session was the "competitive aspect of doing the test with others," and another indicated that he "felt a little pressured to lift more than usual." Though the participants indicated the competitive nature of the task as stressful, it may have provided them with motivation to do well. For example, a participant wrote, "I assumed I was going to be deemed "weakest" due to my height, but...I would prove them wrong. Therefore all aspects were equally low stress."

The data gathered from the manipulation check may provide valuable information to aid in the understanding and application of the study's results. Both groups indicated that the top two aspects upon which they focused was the weight to be lifted and the technique required. These aspects appear to be the most salient to men when weight training and therefore may have the most potential to influence male social anxiety in the weight room. For this reason, they may also be the most important when creating interventions to encourage men to engage in weight training behaviour. Responses to the open-ended awareness check questions may also provide additional insight into the non-significant differences between the two groups on levels of anxiety. Most stressful to the low self-presentational efficacy group was the amount of weight that they were required

to lift. For example, one participant in the low self-presentational efficacy group stated, “I was afraid I couldn’t lift my own body weight.” However, most stressful to the high self-presentational efficacy group was the uncertainty associated with how much they could lift. Participants in the high self-presentational efficacy group also indicated that they felt pressure to lift a lot of weight even though they only had to lift 90 pounds. One participant noted “I was worried I would not be able to lift my personal best.” Therefore, both groups indicated being concerned about the weight to be lifted, albeit for different reasons.

Both groups also indicated the presence of others was also one of the stressful aspects of the scenario. The low self-presentational efficacy group indicated concern at failing in front of others. One participant from that group noted, “a room full of fit people watching me (an unfit person) fail at lifting weights” was most stressful. Despite directions that they would perform the one repetition maximum without the other group members present, participants in the high self-presentational efficacy group still indicated the presence of others as being the most stressful aspect of the scenario. It is unclear whether participants did not pay enough attention to the instructions, if the stress of the presence of others during the directions overrode the fact that they would do the task alone, or if it was the presence of the personal trainer or researcher that caused stress. One response to the awareness check indicated that it may have been performing the weight training task in front of a personal trainer that caused anxiety. The most stressful was “that I was going to have to prove myself in front of a personal trainer”. Therefore, the manipulation of the presence of others may not have been effectively executed between the two groups.

While the results revealed some important findings, limitations to the study should be recognized. Given the small sample size, the statistical power may have been affected. Additionally, the participants voluntarily partook in the study knowing that they would be required to participate in a weight training strength test. It is therefore possible that those who willingly agreed to take part in the study were at least somewhat confident in their ability to lift weights and self-present as a weight trainer. In support of this, approximately half of the participants indicated that they had been weight training for one or more years. In addition, several participants indicated on the awareness check that they were not anxious at all and were actually excited to participate. Furthermore, the manipulations in this study were based on anxiety provoking situations reported by men from private fitness facilities whereas this study incorporated men of all fitness levels from a public setting (university). A further limitation to the study is the use of paper and pencil questionnaires to capture men's social anxiety. As it was previously alluded to, men may show reluctance to reveal their anxieties and as such, instruments that measure the physiological symptoms (e.g., biofeedback) that often accompany the manifestation of anxiety may be used in future studies to complement findings through questionnaires. A final limitation to the study was the use of a hypothetical scenario to elicit men's social anxieties. Although the imagined participation in an exercise session was successfully employed with a female sample by Gammage, Martin Ginis, and Hall (2004), it may have been that imagining taking part in the weight training session was not a strong enough stimulus to influence social anxiety in men.

As researchers have noted, self-presentational efficacy (Gammage, Martin Ginis, & Hall, 2004) and social physique anxiety (Carron & Prapavessis, 1997) may be

influenced by different factors for different populations. Therefore, future research may benefit from an examination of the social anxieties experienced by exercising versus non-exercising males. Additionally, the current study examined the effect of several manipulations on male social anxiety. The knowledge of which specific environmental characteristics influence social anxiety in men would provide direction for future studies and for exercise interventions for men.

Given the only significant finding indicated that the manipulations affected self-efficacy to perform the required movements for the weight training scenarios, it is suggested that this may be the best avenue with which to develop exercise interventions for men in the weight room. Both groups indicated that they focused most on the weight to be lifted and on the use of proper technique on the open-ended awareness check questions. As such, it may be beneficial to provide men with opportunities to increase their self-efficacy for these behaviours. This could be applied in a fitness facility through mandatory orientation for weight training being provided for all new gym members. Strictly enforced orientation would ensure that all patrons, regardless of previous weight training experience, are introduced to the equipment available for their use, and are taught the proper technique and appropriate weight for a safe weight training session. By ensuring all members receive orientation, embarrassment for having to ask for help with equipment, technique, or weights may be alleviated, thereby reducing the likelihood of a man experiencing social anxiety in the weight room.

While fitness facilities have made some changes to the typical exercise environment (e.g., removal of some mirrors and women's only areas), there has been limited research to inform facilities of what could be changed to encourage exercise

participation and adherence in men. Although female-only areas have been found to provide a protective environment for women concerned about their appearance when exercising (Yin, 2001), these areas are exclusive to women. Men that may suffer from similar anxieties with respect to exercising do not have access to these protective environments. Therefore, it is suggested that fitness facilities provide new member or novice weight training areas that provide a supportive environment to learn how to weight train safely and to build confidence. This area may boast a higher personal trainer to member ratio and have personal trainers who are trained to specifically help patrons build weight training self-efficacy.

Bandura (1986, 1997) suggested that there are four primary sources of self-efficacy: mastery experiences, vicarious learning, verbal persuasion, and physiological and affective states. New member areas could ensure that novice weight trainers are provided an opportunity to practice many weight training exercises with different types of weight (e.g., free weights, machines) using proper form (mastery experiences), have the opportunity to watch a personal trainer or other club members first perform the behaviours (vicarious learning), are provided verbal encouragement and feedback (verbal persuasion), and are aware of the physical and emotional outcomes of exercise such as sore muscles and mood improvements (physiological and affective states). These initial steps may encourage men to begin engaging in weight training behaviour since they will have the self-efficacy to perform what is required.

As the current study found, weight training behaviour (frequency and number of hours per week) was positively correlated to self-presentational efficacy and how much they were looking forward to the weight training session. Getting men to initiate weight

training behaviour will likely have positive effects on their self-presentational efficacy and on their enthusiasm for partaking in weight training. As self-presentation was correlated to social anxiety, an increase in self-presentational efficacy may reduce anxiety in males and therefore reduce the likelihood that men will avoid weight training behaviour due to social anxiety.

References

- Adams, G., Turner, H., & Bucks, R. (2004). The experience of body dissatisfaction in men. *Body Image, 2*, 271-283.
- Arbour, K. P., & Martin Ginis, K. A. (2006). Effects of exposure to muscular and hypermuscular media images on young men's muscularity dissatisfaction and body dissatisfaction. *Body Image, 3*, 153-161.
- Bain, L. L., Wilson, T., & Chaikind, E. (1989). Participant perceptions of exercise programs for overweight women. *Research Quarterly for Exercise and Sport, 60*, 134-143.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company.
- Barnes, M. L., & Rosenthal, R. (1985). Interpersonal effects of experimenter attractiveness, attire, and gender. *Journal of Personality and Social Psychology, 48*, 435-446.
- Brewer, B. W., Diehl, N. S., Cornelius, A. E., Joshua, M. D., & Van Raalte, J. L. (2004). Exercising caution: Social physique anxiety and protective self-presentational behaviour. *Journal of Science & Medicine in Sport, 7*, 47-55.
- Brunet, J., & Sabiston, C. M. (2009). Social physique anxiety and physical activity: A self-determination theory perspective. *Psychology of Sport & Exercise, 10*, 329-335.
- Boutcher, S. H., Fleischer-Curtian, L. A., & Gines, S. D. (1988). The effects of self-

- presentation on perceived exertion. *Journal of Sport & Exercise Psychology*, *10*, 270-280.
- Burke, S. M., Carron, A. V., & Eys, M. A. (2006). Physical activity context: Preferences of university students. *Psychology of Sport & Exercise*, *7*, 1-13.
- Canadian Fitness and Lifestyle Research Institute (2007). *Physical activity monitor*. Ottawa, ON: Author.
- Carron, A. V., & Prapavessis, H. (1997). Self-presentation and group influence. *Small Group Research*, *28*, 500-516.
- Chase, M. A., & Dummer, G. M. (1992). The role of sports as a social status determinant for children. *Research Quarterly for Exercise & Sport*, *63*, 418-424.
- Crawford, S., & Eklund, R. C. (1994). Social physique anxiety, reasons for exercise, and attitudes toward exercise settings. *Journal of Sport & Exercise Psychology*, *16*, 70-82.
- Dishman, R. K., & Sallis, J. F. (1994). Determinants and interventions for physical activity and exercise. In C. Bouchard, R. J. Shephard, and T. Stephens (Eds.), *Physical activity, fitness, and health: International proceedings and consensus statement* (pp. 214-238). Champaign, IL: Human Kinetics Publishers.
- Duggan, S. J., & McCreary, D. R. (2004). Body image, eating disorders, and the drive for muscularity in gay and heterosexual men: The influence of media images. *Journal of Homosexuality*, *47*, 45-58.
- Eklund, R. C., & Crawford, S. (1994). Active women, social physique anxiety, and exercise. *Journal of Sport & Exercise Psychology*, *16*, 431-448.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*, 117-

140.

- Focht, B. C., & Hausenblas, H. A. (2003). State anxiety responses to acute exercise in women with high social physique anxiety. *Journal of Sport & Exercise Psychology, 25*, 123-144.
- Focht, B. C., & Hausenblas, H. A. (2004). Perceived evaluative threat and state anxiety during exercise in women with social physique anxiety. *Journal of Applied Sport Psychology, 16*, 361-368.
- Frederick, C. M., & Morrison, C. S. (1996). Social physique anxiety: Personality constructs, motivations, exercise attitudes, and behaviors. *Perceptual and Motor Skills, 82*, 963-972.
- Gammage, K. L., & Gabriel, D. A. (2009). Trait self-presentational concerns and performance in a maximal isometric strength test. *Journal of Strength & Conditioning Research, 23*, 1287-1291.
- Gammage, K. L., Hall, C. R., & Martin Ginis, K. A. (2004). Self-presentation in exercise contexts: Differences between high and low frequency exercisers. *Journal of Applied Social Psychology, 34*, 1638-1651.
- Gammage, K. L., Martin Ginis, K. A., & Hall, C. R. (2004). Self-presentational efficacy: Its influence on social anxiety in an exercise context. *Journal of Sport & Exercise Psychology, 26*, 179-190.
- Gilmour, J. (2007). Physically active Canadians. *Health Reports, 18*, 45-65.
- Gray, S. H. (1977). Social aspects of body image: perception of normalcy of weight and affect of college undergraduates. *Perceptual and Motor Skills, 45*, 1035-1040.
- Grieve, F. G. (2007). A conceptual model of factors contributing to the development of

muscle dysmorphia. *Eating Disorders*, 15, 63-80.

Grieve, F. G., Jackson, L., Reece, T., Marklin, L., & Delaney, A. (2008). Correlates of social physique anxiety in men. *Journal of Sport Behavior*, 31, 329-337.

Grogan, S., & Richards, H. (2002). Body image: Focus groups with boys and men. *Men and Masculinities*, 4, 219-232.

Hallsworth, L., Wade, T., & Tiggemann, M. (2005). Individual differences in male body-image: An examination of self-objectification in recreational body builders. *British Journal of Health Psychology*, 10, 453-465.

Haskell, W. L., Lee, I., Pate, R. R., Powell, K. E., Blair, S. N., Franklin, et al. (2007). Physical activity and public health: Updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Circulation: Journal of the American Heart Association*, 116, 1081-1093.

Retrieved September 3, 2009 from

<http://www.circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.107.185649v1>

Jones, D. A., Ainsworth, B. E., Croft, J. B., Macera, C. A., Lloyd, E. E., & Yusuf, H. R. (1998). Moderate leisure-time physical activity: Who is meeting the public health recommendations? A national cross-sectional study. *Archives of Family Medicine*, 7, 285-289.

Kane, M. J. (1982). The influence of level of sport participation and sex-role orientation on female professionalization of attitudes towards play. *Journal of Sport Psychology*, 4, 290-294.

Katula, J. A., McAuley, E., Mihalko, S. L., & Bane, S. M. (1998). Mirror, mirror on the

- wall...exercise environment influences on self-efficacy. *Journal of Social Behavior and Personality*, *13*, 319-332.
- Kruisselbrink, L. D., Dodge, A. M., Swanburg, S. L., & MacLeod, A. L. (2004). Influence of same-sex and mixed-sex exercise settings on the social physique anxiety and exercise intentions of males and females. *Journal of Sport & Exercise Psychology*, *26*, 616-622.
- Laing, N. A. (2006). The influence of self-presentational efficacy on social anxiety in a male weight lifting context. Unpublished master's thesis, University of Windsor, Windsor, Ontario, Canada.
- Leary, M. R. (1992). Self-presentational processes in exercise and sport. *Journal of Sport & Exercise Psychology*, *14*, 339-351.
- Leary, M. R. (1996). *Self-presentation: Impression management and interpersonal behaviour*. Boulder, CO: Westview Press.
- Leary, M. R., Atherton, S. C., Hill, S., & Hur, C. (1986). Attributional mediators of social inhibition and avoidance. *Journal of Personality*, *54*, 704-716.
- Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin*, *107*, 34-47.
- Leary, M. R., & Kowalski, R. M. (1995). *Social anxiety*. New York, NY: The Guilford Press.
- Leit, R. A., Gray, J. J., & Pope, H. G., Jr. (2002). The media's representation of the ideal male body: A cause for muscle dysmorphia? *International Journal of Eating Disorders*, *31*, 334-338.
- Maddux, J. E. (1991). Self-efficacy. In C. R. Snyder, & D. R. Forsyth (Eds.), *Handbook*

of social and clinical psychology: The health perspective (pp. 57-78). New York, NY: Pergamon Press.

Maddux, J. E., Norton, L. W., & Leary, M. R. (1988). Cognitive components of social anxiety: An investigation of the integration of self-presentation theory and self-efficacy theory. *Journal of Social and Clinical Psychology, 6*, 180-190.

Major, B., Testa, M., & Bylsma, W. H. (1991). Responses to upward and downward social comparison: The impact of esteem-relevance and perceived control. In J. Suls, and T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 237-260). Hillsdale, NJ: Lawrence Erlbaum Associates.

Martin, K. A., & Fox, L. D. (2001). Group and leadership effects on social anxiety experienced during an exercise class. *Journal of Applied Social Psychology, 31*, 1000-1016.

Martin, K. A., & Brawley, L. R. (2002). Self-handicapping in physical achievement settings: The contributions of self-esteem and self-efficacy. *Self & Identity, 1*, 337-351.

Martin Ginis, K. A., Prapavessis, H., & Hasse, A. M. (2008). The effects of physique-salient and physique non-salient exercise videos on women's body image, self-presentational concerns, and exercise motivation. *Body Image, 5*, 164-172.

McCreary, D. R. (2007). The drive for muscularity scale: Description, psychometrics, and research findings. In J. K. Thompson and Cafri, G. (Eds.), *The muscular ideal: Psychological, social, and medical perspectives* (pp. 87-106). Washington, DC: American Psychological Association.

McCreary, D. R., & Sasse, D. K. (2000). An exploration of the drive for muscularity in

- adolescent boys and girls. *Journal of American College Health*, 48, 297-304.
- McCreary, D. R., Sasse, D. K., Saucier, D. M., & Dorsch, K. D. (2004). Measuring the drive for Muscularity: Factorial validity of the Drive for Muscularity Scale in men and women. *Psychology of Men & Masculinity*, 5, 49-58.
- McCreary, D.R., & Saucier, D. M. (2009). Drive for muscularity, body composition, and social physique anxiety in men and women. *Body Image*, 6, 24-30.
- McCreary, D. R., Saucier, D. M., & Courtenay, W. H. (2005). The drive for muscularity and masculinity: Testing the associations among gender-role traits, behaviours, attitudes, and conflict. *Psychology of Men & Masculinity*, 6, 83-94.
- Mishkind, M. E., Rondin, J., Silberstein, L. R., & Striegel-Moore, R. H. (1986). The embodiment of masculinity. *American Behavioral Scientist*, 29, 545-562.
- Morrison, T. G., Morrison, M. A., Hopkins, C., & Tyler Rowan, E. (2004). Muscle mania: Development of a new scale examining the drive for muscularity in Canadian males. *Psychology of Men & Masculinity*, 5, 30-39.
- Munroe-Chandler, K. J. , & Gammage, K. L. (2008). Men's social anxiety in the weight room. Paper presented at the Canadian Society for Psychomotor Learning and Sport Psychology conference, Banff, AB.
- National Heart Lung and Blood Institute. (n.d.). Obesity Education Initiative. Retrieved April 21, 2010 from <http://www.nhlbisupport.com/bmi>.
- Peterson, C. M. (2008). Body image in men: Drive for muscularity and social influences, body image evaluation and investment, and psychological wellbeing. *Dissertation Abstract International*, 68(9-B), 6329.
- Pope, H. G., Phillips, K. A., & Olivardia, R. (2000). *The Adonis complex: The secret*

crisis of male body obsession. New York, NY: Free Press.

Reed, D. L., Thompson, J. K., Brannick, M. T., & Sacco, W. P. (1991). Development and validation of the Physical Appearance State and Trait Anxiety Scale (PASTAS).

Journal of Anxiety Disorders, 5, 323-332.

Rodgers, W. M., & Gauvin, L. (1998). Heterogeneity of incentives for physical activity and self-efficacy in highly active and moderately active women exercisers.

Journal of Applied Social Psychology, 28, 1016-1029.

Russell, W. D. (2002). Comparison of self-esteem, body satisfaction, and social physique anxiety across males of different exercise frequency and racial background.

Journal of Sport Behavior, 25, 74-90.

Schlenker, B. R. (1980). *Impression management: The self-concept, social identity, and interpersonal relations*. Monterey, CA: Brooks/Cole Publishing Company.

Schlenker, B. R. & Leary, M. R. (1982). Social anxiety and self-presentation:

A conceptualization and model. *Psychological Bulletin, 92*, 641-669.

Scott, L. A., Joyner, A. B., Czech, D. R., Munkasy, B. A., & Todd, S. (2009). Effects of exercise and a brief education intervention on social physique anxiety in college students. *International Journal of Fitness, 5*, 9-17.

Spink, K. S. (1992). Relation of anxiety about social physique to location of participation in physical activity. *Perceptual and Motor Skills, 74*, 1075-1078.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th Ed.). Boston, MA: Pearson Education, Inc.

Treasure, D. C., Lox, C. L., & Lawton, B. R. (1998). Determinants of physical activity in

a sedentary, obese female population. *Journal of Sport & Exercise Psychology*, 20, 218-224.

US Department of Health and Human Services. (1996). *Physical activity and health: A report of the Surgeon General*. Atlanta, GA: Centers for Disease Control and Prevention, National Center of Chronic Disease Prevention and Health Promotion.

Warburton, D. E. R., Nicol, C. W., & Bredin, S. S. D. (2006). Health benefits of physical activity: The evidence. *Canadian Medical Association Journal*, 174, 801-809.

Worringham, C. J., & Messick, D. M. (1983). Social facilitation of running: An unobtrusive study. *The Journal of Social Psychology*, 121, 23-29.

Yin, Z. (2001). Setting for exercise and concerns about body appearance of women who exercise. *Perceptual and Motor Skills*, 93, 851-855.

Table 1

Manipulations to Weight Training Session Scenarios

Manipulation	Low Self-Presentational	High Self-Presentational
	Efficacy Group	Efficacy Group
Someone hovering	Whole group watching	Alone
Rush to assist	Unrealistic lifting expectations If you struggle, trainers will assist	Only need to lift 90 lbs.
Comment on appearance	In order of who appears weakest to strongest	In alphabetical order
Form corrected	Errors detected = redo that lift	Good form for safety, but not scrutinized
Presence of attractive woman	Female trainer present	Female trainer absent

Table 2

Descriptive Statistics for Demographic Variables and Questionnaire Scores

Variable	Low SPE		High SPE		Combined Sample	
	Mean	SD	Mean	SD	Mean	SD
Age	20.66	2.36	20.70	3.12	20.68	2.77
BMI	25.68	4.11	24.30	2.85	24.92	3.53
WTwk	2.74	1.29	2.67	1.91	2.70	1.64
WThrs	3.63	2.07	3.40	2.77	3.51	2.46
PAwk	2.81	1.63	3.71	2.02	3.29	1.89
PAhrs	4.11	2.78	5.79	4.54	5.01	3.89
Lookfwd	7.81	1.86	8.05	1.61	7.94	1.72
TSE1	79.81	15.68	88.65	18.28	84.55	17.57
TSE2	94.06	7.87	94.59	9.89	94.35	8.95
SPEEQ	69.50	19.30	70.43	17.87	70.00	18.42
SAS-S	1.89	0.93	1.60	0.73	1.73	0.84
SPAS-S	2.22	0.65	2.15	0.74	2.18	0.70
PASTAS	0.46	0.44	0.41	0.39	0.43	0.41
DMS	4.06	0.81	4.26	1.30	4.17	1.09

Note: BMI = body mass index; WTwk = weight training times per week; WThrs = weight training hours per week; PAwk = other physical activity times per week; PAhrs = other physical activities hours per week; Lookfwd = looking forward to upcoming weight training session; TSE1 = task self-efficacy question 1; TSE2 = task self-efficacy question 2; SPEEQ = Self-presentational Efficacy Expectancy Questionnaire; SAS-S = Social

Anxiety Scale - State; SPAS-S = Social Physique Anxiety Scale - State; PASTAS =
Physical Appearance State and Trait Anxiety Scale; DMS = Drive for Muscularity Scale.

Table 3

Bivariate Correlations for Variables

Variable	Age	BMI	WTwk	WThrs	PAwk	PAhrs	Lookfwd	TSE1	TSE2	SPEEQ	SAS-S	SPAS-S	PASTAS	DMS
Age		.031	-.105	-.112	-.030	-.003	-.303*	-.118	-.228	.101	.018	-.081	-.091	.198
BMI			.006	-.010	-.112	-.233	-.381**	-.093	.259*	.356**	.113	.166	.207	.191
WTwk				.873**	-.080	.049	.347**	.185	.139	.446**	-.244*	-.236	-.073	-.489**
WThrs					-.090	.061	.348**	.157	.042	.430**	-.155	-.237*	-.050	-.415**
PAwk						.684**	-.054	-.098	-.081	.016	-.034	-.131	-.037	.230
PAhrs							.073	-.048	-.139	.219	-.070	-.123	-.046	.087
Lookfwd								.364**	.212	.385**	-.200	-.209	-.139	-.329**
TSE1									.556**	.473**	-.140	-.051	-.122	-.219
TSE2										.178	-.158	-.084	-.167	-.022
SPEEQ											-.331**	-.404**	-.386**	-.254*
SAS-S												.740**	.601**	-.035
SPAS-S													.616**	-.147
PASTAS														-.143
DMS														

Note: BMI = body mass index; WTwk = weight training times per week; WThrs = weight training hours per week; PAwk = other physical activity times per week; PAhrs = other physical activities hours per week; Lookfwd = looking forward to upcoming weight training session; TSE1 = task self-efficacy question 1; TSE2 = task self-efficacy question 2; SPEEQ = Self-presentational Efficacy Expectancy Questionnaire; SAS-S = Social Anxiety Scale - State; SPAS-S = Social Physique Anxiety Scale - State; PASTAS = Physical Appearance State and Trait Anxiety Scale.

*Correlation is significant at the .05 level; **Correlation is significant at the .01 level.

LITERATURE REVIEW

Introduction

While it has become common knowledge that participation in regular physical activity provides numerous health benefits (including physical, psychological, and social benefits; Warburton, Nicol, & Bredin, 2006), people remain reluctant to lead an active lifestyle. Over 50 percent of North Americans do not engage in enough physical activity to reap the advantages to health that regular participation offers (Canadian Fitness and Lifestyle Institute, 2007; Gilmour, 2007; US Department of Health and Human Services, 1996). As such, exercise psychology research examining the ways in which individuals may be encouraged to partake in regular physical activity is a worthy and much needed endeavour.

The majority of the research that has examined the psychological motives and barriers to physical activity has been dominated by research on females. This has likely ensued for three reasons: society's obsession with thinness and the petite female as ideal (a physique unattainable to the majority of women) resulting in body image disturbances (Grogan & Richards, 2002; Treasure, Lox, & Lawton, 1998); findings that women typically score higher than men on measures of physique related anxiety (Frederick & Morrison, 1996; Scott, Joyner, Czech, Munkasy, & Todd, 2009); and findings that women are less physically active than men (Jones et al., 1998, US Department of Health & Human Services, 1996). As a result, there is a multitude of literature available that not only examines the psychological influences on physical activity (McCreary, Sasse, Saucier, & Dorsch, 2004), but also the effects of social and physical environmental factors that influence women's social anxieties and self-efficacy during exercise (Martin,

Rejeski, Leary, McAuley, & Bane, 1997). Researchers have made use of these findings to put forth manipulations to the exercise environment, such as the exclusion of mirrors (Focht & Hausenblas, 2003, 2004; Katula, McAuley, Mihalko, & Bane, 1998), women-only fitness facilities (Yin, 2001), and having exercisers wear loose fitting attire (Crawford & Eklund, 1994; Brewer, Diehl, Cornelius, Joshua, & Van Raalte, 2004), that may increase women's maintenance of an active lifestyle.

By portraying the body image plights of women as more important than those of men, there is a resultant notable deficiency in the knowledge of how psychological constructs influence male exercisers' attitudes and behaviour (Holle, 2004).

Concentrating almost solely on female participants has, however, been somewhat misguided. There is a plethora of research indicating that societal pressures on men to conform to muscular, V-shaped ideals are growing, resulting in increasing body image concerns in men (Grieve, Jackson, Reece, Marklin, & Delaney, 2008). In addition, those studies that have used male participants have successfully found that those high in physique-related anxiety have greater body dissatisfaction and lower self-esteem (Russell, 2002), making men an important group of individuals to include in exercise-related psychological research.

Furthermore, the studies that have found females to be higher in social anxiety while exercising have been limiting in their exercise setting, group aerobic fitness. Such settings are dominated by women (Crawford & Eklund, 1994); men, on the other hand, are found in greater numbers in the weight room (Burke, Carron, & Eys, 2006). In addition, exercising in structured exercise classes (which are most frequently aerobic in nature) was rated as the least preferred exercise context by men (Burke et al.). Therefore,

findings that men score lower on measures of social anxiety in aerobic settings may not be ecologically valid. As suggested by Ruland and Moore (2000), physical activity interventions are most beneficial at increasing exercise behaviour when they are tailored to individual preferences. As such, examining men in a setting more pertinent to achieving the ideal male body (e.g., weight rooms) is important. Due to a need for research investigating the manipulation of environmental factors on men's social anxiety and exercise behaviours, the purpose of the current study was to create weight training scenarios differing in certain environmental characteristics in order to manipulate men's self-presentational efficacy to examine its effect on the manifestation of social anxiety.

An examination of the theories and literature that contribute to the current study will ensue. Social anxiety will be defined and discussed, as well as one form of social anxiety that is particularly salient in an exercise context: social physique anxiety. The self-presentational framework will provide an explanation of why individuals may experience social anxiety in exercise settings. Discussion on the drive for muscularity will connect the concept with self-presentation theory and will consider reasons for male body dissatisfaction. The theory of self-efficacy will highlight how one's situational confidence (or lack thereof) for exercise is related to the experience of social anxiety and a contributor to physical activity participation. Finally, physical and social aspects of the exercise environment that have been found to influence social anxiety and self-efficacy will be highlighted.

Social Anxiety

Anxiety is a response to a situation that is noted by apprehension about a potentially negative outcome that one does not think can be avoided (Schlenker & Leary,

1982). Anxiety includes cognitive, somatic, behavioural, and affective aspects (Leary & Kowalski, 1995). Apprehensive thoughts and cognitions may be accompanied by physical symptoms such as sweaty palms and an increased heart rate and respiration rate, an attempt to avoid or withdraw from the situation, and unpleasant feelings such as nervousness or feeling tense (Leary & Kowalski, 1995). Though the term anxiety is an umbrella for several psychological disturbances, it is, more specifically, social anxiety that is of interest to this study as it may influence one's exercise behaviours.

Social anxiety is the “anxiety resulting from the prospect or presence of personal evaluation in real or imagined social situations” (Schlenker & Leary, 1982, p. 642). For example, a real situation would entail a weight trainer becoming anxious because a personal trainer is watching him lift weights as he worries that the trainer will think he is weak for not lifting a heavier load. An imagined situation may consist of a weight trainer imagining going to the gym and having others evaluate his strength or body composition negatively. In both of these situations, it is not just the presence of others, but the potential for (negative) interpersonal evaluation that is cause for concern. Regardless of whether the situation is real or imagined, it is this perceived evaluative component that distinguishes social anxiety from other forms of anxiety (Schlenker & Leary).

Anxiety-provoking situations. There are many situations in which social anxiety occurs. Among others, one may experience dating anxiety, test anxiety, public speaking anxiety, physique anxiety or competitive anxiety. What differs between each of these types of anxiety is the social context in which it takes place, but each essentially refers to the same experience (Leary & Kowalski, 1995). Leary (1983) discusses two classes of social anxiety based on the type of situation in which they occur. These include

interaction anxiety (due to contingent interactions in which an individual's responses are based on the responses of others), and audience anxiety (due to non-contingent interactions in which one's behaviour is planned or pre-determined). Additionally, Leary, Atherton, Hill, and Hur (1986) identified six dimensions of situations that produce anxiety. These include having no behavioural strategy, having a wrong behavioural strategy, aspects of the situation, characteristics of other people in the situation, personality factors, and ability. Within the exercise domain, these six may be exemplified by an individual entering the weight room not knowing what to do (no behavioural strategy), using the wrong technique for a particular exercise (wrong behavioural strategy), believing that wearing gym clothes makes everyone nervous (aspects of the situation), believing the other gym members to be extremely fit and strong (characteristics of other people in the situation), believing one is the kind of person that gets nervous at the gym (personality factors), and believing that one is not skilled at using weight training equipment (ability).

Social anxiety and exercise. Although social anxiety is experienced by almost everyone and has been found to occur across cultures (Leary & Kowalski, 1995), not everyone experiences social anxiety with the same frequency or to the same degree. Those who experience it often are thought to experience social anxiety as a personality trait (Crozier, 1979 in Leary & Kowalski, 1995); others sometimes experience it in relation to certain situations, called situational or state social anxiety. In addition, some people find their experience of social anxiety to be a minor inconvenience that puts a damper on social encounters, while others become so anxious that it affects their normal functioning (Leary & Kowalski, 1995). People often tend to become inhibited, hesitant

and avoidant when they feel nervous (Leary et al., 1986). This may result in individuals attempting to avoid or escape such situations by participating less, leaving, or altogether avoiding them (Leary & Kowalski, 1995). This is problematic from an exercise perspective because of the social aspect inherent in many forms of physical activity (e.g., group fitness classes, sports, running groups, and interacting with others using the same fitness facility). In exercise classes, one's physical abilities, fitness, and appearance are all publicly displayed, meaning that the potential for evaluation by others is high (Hausenblas & Martin, 2000; Martin & Hausenblas, 1998). Therefore, those who experience a high degree of social anxiety may limit the amount of time they participate in exercise or may refrain from exercising at all.

As social anxiety has been identified as a barrier to exercise (Treasure et al., 1998), researchers have attempted to measure the effects of exercise environments on social anxiety. Martin and Fox (2001) developed an eight-item inventory to measure the social anxiety experienced by men and women during a group exercise class. The inventory was developed based on three potential sources of concern and embarrassment outlined by Leary (1992): one's coordination, physique, and physical condition. The scale asks participants to rate their worries about what the instructor and other participants thought of them while engaging in an exercise class. Responses are rated on a five point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*).

Martin and Fox's (2001) study examined the effects of environment and leadership style on social anxiety of male and female participants in an aerobics class. Participants experienced greater social anxiety in an enriched group environment (interactive) and lower social anxiety when the instructor used an enriched leadership

style (socially interactive and pleasant). The authors attributed the unexpected result that an enriched group environment resulted in greater anxiety to the fact that a situation that emphasizes interactions increases social attention and the opportunity for evaluation by others. The authors therefore suggest that the presence of others should be downplayed when exercise groups first meet in order to decrease the social anxiety experienced by participants. The finding that characteristics of the environment and instructor may influence levels of social anxiety are consistent with Leary et al.'s (1986) finding, which notes that aspects of the situation and characteristics of other people in the situation are two dimensions that comprise anxiety provoking situations. Additionally, a study conducted by Gammage, Martin Ginis, and Hall (2004) found that by manipulating such aspects of the exercise environment as mirrors and exercise attire, they were able to influence social anxiety in female participants. The thought of the presence of mirrors, close-up video-taping, and wearing tight fitting exercise clothing significantly increased the social anxiety experienced by participants. This finding supports Schlenker and Leary's (1982) definition of social anxiety that posits such anxiety may be experienced in imagined, not just real situations. By continuing to examine the aspects of exercise situations that may lead to social anxiety, strategies to reduce anxiety and encourage participation in physical activity may be achieved.

Social Physique Anxiety

In exercise psychology research, the most salient form of social anxiety is social physique anxiety. Defined as occurring "as a result of the prospect or the presence of interpersonal evaluation involving one's physique" (Hart, Leary, & Rejeski, 1989, p. 96), social physique anxiety is generally due to one's perception that others will evaluate

one's body unfavourably (Hart et al.; Kruisselbrink, Dodge, Swanburg, & MacLeod, 2004). Although concern surrounding one's physique may be a motivator for some individuals to engage in exercise to improve their physique, such concern may deter some from exercising because of the apprehension they feel about their body when others see them exercise (Hart et al., Leary, 1992). Unfortunately, it is those that are most in need of the health benefits regular exercise has to offer that often refrain from physical activity due to physique-related concerns (Hart et al.).

Measuring physique-related anxiety. In order to conduct research on social physique anxiety, the Social Physique Anxiety Scale (SPAS; Hart et al., 1989) was developed. Originally a 12-item unidimensional self-report scale, Eklund, Mack, and Hart (1996) suggested that the SPAS may be more appropriately conceptualized as a multidimensional scale including two factors: physique presentation comfort and expectations of negative physique evaluation. However, upon further examination, Martin et al.'s (1997) analysis of the SPAS resulted in the recommendation that a 9-item unidimensional scale was the most parsimonious. Rated on a five point Likert scale anchored at 1 (*not at all characteristic of me*) and 5 (*extremely characteristic of me*), the SPAS was initially employed to measure trait social physique anxiety, not situational or state social physique anxiety. However, Weinberg and Gould (2003) purport that state measures are better related to behaviour than personality trait measures because they take into account both personality and the situation at hand. As such, researchers have successfully utilized the SPAS as a state measure (Gammage et al., 2004; Kruisselbrink et al., 2004). In addition, although commonly used with samples consisting of solely women (Brewer et al., 2004; Crawford & Eklund, 1994; Eklund & Crawford, 1994;

Focht & Hausenblas, 2003, 2004; Hausenblas & Martin, 2000; Raedeke, Focht, & Scales, 2007; Russell & Cox, 2003; Sabiston, Crocker, & Munroe-Chandler, 2005; Spink, 1992; Treasure et al., 1998; Walton & Finkenbergh, 2002; Yin, 2001) the SPAS has been utilized in research involving both genders. These studies have each found that women score higher on the SPAS than men (Frederick & Morrison, 1996; Hart et al., 1989; Scott et al., 2009). For example, Scott et al. found that men scored lower than women on social physique anxiety, regardless of condition (exercise only, brief education plus exercise, and control). However, despite this gender difference, a confirmatory factor analysis found the SPAS was not gender sensitive (Eklund, Kelley, & Wilson, 1997), making it an appropriate tool to use with both genders.

Besides having a general concern over how others evaluate one's body as a whole (social physique anxiety), individuals may harbour concern over certain body parts or areas. The Physical Appearance State and Trait Anxiety Scale (PASTAS; Reed, Thompson, Brannick, & Sacco, 1991) was developed to examine body image anxiety. On a five point Likert scale ranging from 0 (*not at all anxious*) to 4 (*extremely anxious*), individuals rate how anxious they are right now (for the state measure) or in general (for the trait measure) about the appearance of 16 parts of their body (e.g., thighs, buttocks, waist, hands, etc.). Although suggested as a tool for researching body image and eating disturbance (Reed et al.), the PASTAS' measurement of anxiety surrounding one's body makes it a useful measurement of body image when examining exercise-related anxieties. For example, Checko (2007) made use of the PASTAS in order to examine the relationship between motivation for exercise, body image and the stages of behavioural change in male and female students.

Correlates of social physique anxiety. As research on social physique anxiety has progressed using the SPAS (Hart et al., 1989), it has been found to be associated with several psychosocial variables such as self-efficacy (McAuley, Bane, & Mihalko, 1995), weight control and body dissatisfaction (Crawford & Eklund, 1994), perceptions of body shape, size, and appearance (Sabiston et al., 2005), as well as exercise cognitions and behaviour (Crawford & Eklund; Frederick & Morrison, 1996). It is the relationship between social physique anxiety and the various aspects of exercise that is of importance to the current study. Social physique anxiety has been associated with exercise behaviour including low exercise rates (Crawford & Eklund; Eklund & Crawford, 1994; Lantz, Hardy, & Ainsworth, 1997), excessive exercise (Frederick & Morrison), exercise adherence (Bain, Wilson, & Chaikind, 1989; Spink, 1992; Treasure et al., 1998), exercise commitment (Finkenbergh, DiNucci, McCune, Chenette, & McCoy, 1998), preferred exercise settings (Crawford & Eklund; Spink), and motives for exercise (exercising for weight and appearance reasons; Crawford & Eklund; Eklund & Crawford; Frederick & Morrison; Greive et al., 2008; Sabiston et al.). Knowledge of the correlates of social physique anxiety is important as it may inform those that are interested in increasing levels of sport and exercise participation (Holle, 2004).

The nature of the exercise environment appears to be conducive to social physique anxiety for several reasons. Fitness environments (exercise classes, gyms) focus on the development of the physical self (Gray, 1977) thereby drawing attention to one's physique (Raedeke et al., 2007). These, combined with the public nature of exercise environments, result in numerous opportunities for evaluation of one's physique by others. For example, a study conducted by Focht and Hauseblas (2004) found that women

reported greater anxiety in a naturalistic setting than in a laboratory setting. This suggests that there are aspects about the exercising environment (e.g., mirrors, other exercisers) that heighten women's perceptions of evaluative threat. Self-presentation theory may be used to explain why exercise environments are considered to be associated with high evaluative threat and result in social anxiousness.

Self-Presentation

Self-presentation is the process by which people attempt to control the impressions others make of them (Leary & Kowalski, 1990; Schlenker, 1980). Goffman (1959), the first to take a scientific interest in self-presentation, wrote on the importance of self-presentation in defining one's position in the social order, setting the tone of one's interactions, and determining role-governed behaviour. By selecting which aspects of the self to share with others and which to conceal, individuals attempt to ensure that others perceive them in desired ways (Leary, 1992). Because the impressions one makes affect how others treat that individual, presenting oneself in certain ways ultimately allows the achievement of desired goals and in social approval (Leary & Kowalski, 1995). In addition, self-presentation affects how people develop and maintain social identities (Schlenker, 1980). Although people may sometimes neglect to divulge certain information about themselves, this is not done in an attempt to be deceptive. Leary and Kowalski (1990) explain that most self-presentations are consistent with one's self-concept and are merely an attempt to put one's "best foot forward".

A model put forth by Leary and Kowalski (1990) postulates that self-presentation, also called impression motivation, is composed of two components: impression motivation and impression construction. Impression motivation involves the level of

motivation one has to control the impressions others form of them, and impression construction includes the ways people actually alter their behaviours in order to influence others' perceptions of them (Leary & Kowalski, 1990). For example, one that is highly motivated to present oneself as a healthy individual because she knows that this impression is favourable to others would be high in impression motivation. If she decides to act on that motivation by purchasing and wearing athletic or exercise clothing in order to create the image of being an exerciser, she is engaging in impression construction. By conveying the "right" impression in a given situation, one will be successful in obtaining desired outcomes and will be able to avoid negative outcomes (Leary & Kowalski, 1990).

This model of self-presentation has the potential to explain why individuals experience social anxiety. When one is motivated to make a certain impression but does not believe in his or her ability to create that impression, social anxiety ensues (Leary et al., 1986; Schlenker & Leary, 1982). The greater the motivation to make an impression, and the more one doubts one's ability to make that impression, the more likely that individual is to experience social anxiety (Leary & Kowalski, 1995). Therefore, if the situation poses little potential for evaluation or threat, one will be less likely to be motivated to impress others and will not experience social anxiety (Leary et al.; Schlenker & Leary). This relates to exercise and the experience of social physique anxiety. Many people worry about how they will appear to others when they are exercising (Leary, 1992). Therefore, if an individual wishes to make a positive impression while exercising but thinks that others will evaluate their body negatively, social physique anxiety is experienced (Hart et al., 1989). For example, if a man that views himself as having underdeveloped muscles goes to the weight room to lift weights,

he may experience social physique anxiety because he thinks others will see him in an undesirable way: as weak or scrawny. As such, some people choose not to engage in exercise in order to avoid appearing unattractive. Importantly, in a given situation, regardless of whether the impression is successfully made or not, it is one's perceptions of whether or not the impression was successfully created that will determine the anxiety one experiences (Leary & Kowalski, 1995).

Self-presentation and exercise. While self-presentational concerns do inhibit some people from engaging in exercise behaviour, for others, it serves as a motivation. People exercise for various reasons (e.g., social benefits, health benefits), but there are two motives for exercising that are considered to be self-presentational in nature: exercising for physical appearance reasons and for social identity. Exercising for extrinsic motives (Frederick & Morrison, 1996; Frederick & Ryan, 1993), and for weight or appearance motives involving controlling weight and becoming more physically attractive (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Grieve et al., 2008; Sabiston et al., 2005) have been reported, especially by socially physique anxious individuals. In these instances, exercising is used as a self-presentational tactic for improving appearance (Leary, 1996). For example, a man may lift weights in order to become more muscular and reap the social benefits of a muscular physique. Additionally, those who maintain an exerciser or athletic identity may gain a considerable amount of social attention and praise (Leary, 1992).

The exerciser stereotype. Given society's emphasis on attaining a thin and toned (attractive) physique, it comes as no surprise that some individuals exercise for self-presentational motives rather than fitness or health reasons (Marquez & McAuley, 2001).

Moreover, given the fact that first impressions are often based on physical appearance (Leary, 1992), being physically attractive or an exerciser positively influences the impressions others form (Martin Ginis, Latimer, & Jung, 2003). Therefore, an individual's desire to exercise in order to improve appearance and attractiveness is by no means misplaced. In order to examine the self-presentational benefits and liabilities attributed to exercise status, Martin, Sinden, and Fleming (2000) conducted a study which asked participants to rate targets (described as an exerciser, a non-exerciser, or a control target which included no information on exercise habits) on both physical and personality characteristics. Exercisers were rated higher than non-exercisers on nearly all dimensions measured and more favourable than control targets on most of the dimensions. Results indicated that the self-presentational advantages of being an exerciser included being perceived as more attractive, fit, strong, muscular, and healthier than non-exercisers and controls. While it is not surprising that exercisers were rated higher on physical dimensions given the general knowledge of the health benefits to exercise, exercisers were interestingly also rated more favourably on psychological and social aspects such as braveness, confidence, self-control, independence, friendliness, number of friends, work ethic, happiness, intelligence, and sociability. Additionally, control targets were rated more favourably than non-exercisers on most physical and personality dimensions. Results suggest that there are not only self-presentational benefits to being an exerciser, but that there are also self-presentational liabilities for non-exercisers.

In an extension of Martin et al.'s (2000) study, Martin Ginis et al. (2003) examined whether or not the exerciser stereotype extended to excessive exercisers and

those who lead an active lifestyle. Results of the study indicated that the excessive exerciser, moderate exercisers and active-living targets were rated more favourably on physical attributes, but only the moderate exerciser and active-living targets were rated more favourably on the personality dimensions. As such, being an excessive exerciser appears to be beneficial in only the physical domain, not in psychological or social personality ratings. Additionally, the authors investigated whether or not one's own exercise status (self-described as either exerciser or non-exerciser) moderated the exerciser stereotype. Findings demonstrated that the rater's exercise status did not affect the generalizing of positive characteristics to those described as exercisers or as physically active.

In addition to exercisers, attractive individuals also benefit socially due to the impressions others form of them. In a study by Dion, Berscheid, and Walster (1972), attractive individuals were perceived as having more socially desirable personality traits, and having better lives (including holding more prestigious jobs, having happier marriages, being better parents, and leading happier lives) than their less attractive counterparts. The three aforementioned studies clearly illustrate that people hold stereotypes based on exercise habits and appearance. More specifically, these results reiterate the importance of being viewed as attractive and an exerciser, and why those who doubt their ability to make such an impression on others may experience social anxiety.

Self-presentational norms. In society, there are certain actions and behaviours that are expected of individuals. Although societal norms are generally implicit and unwritten, they indicate standards for action (Leary, 1996). Not only do norms dictate appropriate

behaviour in a given situation, they also signify which public images or impressions are appropriate to present (Leary, 1996). These norms, those dealing with what one should or should not convey to others, are known as self-presentational norms (Leary, 1996).

Because giving an impression inconsistent with societal norms may be damaging to one's public image, people attempt to self-present in a way that is consistent with the norms required in a specific situation (Leary & Kowalski, 1990). For this reason, people are unlikely to engage in activities that do not fit with social norms (Leary & Kowalski, 1990). A type of self-presentational norm that is important to the current study is gender norms. In society, gender norms specify that men and women should convey different impressions of themselves by displaying different types of behaviours (Leary, 1996).

Gender stereotypes may affect the impressions others form of someone who partakes in certain types of activities (Linder, Farrar, Sadalla, Sheets, & Bartholomew, 1992). Should one participate in an activity that is not deemed gender appropriate, being perceived in a negative way and being ridiculed may be risked. When examining the gender norms of society, it is clear that they are based on society's expectations of femininity and masculinity. For example, to be feminine, a woman should be expressive, nurturing, eat modest amounts, and wear makeup, whereas to be masculine is to be assertive, powerful, and not express emotion (Leary, 1996). In relation to exercise, it is feminine to "slim down" using aerobic exercise, and it is masculine to build muscle through resistance training. As suggested by Deaux and Major (1987), when gender is important in a situation, individuals who are high in self-presentational concerns will exhibit behaviour consistent with gender norms. Therefore, because gender norms dictate that a man should

be strong and powerful, men may desire to self-present as a weight trainer in order to construct an impression that will gain public approval.

The Drive for Muscularity

Researchers studying male body image have found evidence that many men are not satisfied with their bodies. Mishkind, Rondin, Silberstein, and Striegel-Moore (1986) found that over 70 percent of men studied reported a discrepancy between their current and ideal body size. Unlike females, however, this dissatisfaction does not appear to be related to one's thinness. Instead, research has shown that males' dissatisfaction lies in their level of musculature. Not only do males underestimate their amount of muscle mass and wish to gain 28 pounds (on average) of muscle, they often select the mesomorphic (muscular, inverted triangle) body type as their ideal (Pope et al., 2000). In addition, men cite that they wish to increase musculature of their pectorals, biceps and shoulders (Moore, 1990). It is not surprising that men would wish to bulk up in order to achieve the current ideal male body, which consists of broad shoulders and defined chest and arms (Grogan & Richards, 2002). This desire to obtain a highly developed musculature has been termed the drive for muscularity by McCreary and Sasse (2000).

Correlates of the drive for muscularity. It has been consistently found that males score higher in the drive for muscularity than do females (Kyrejto, Mosewich, Kowalski, Mack & Crocker, 2008; McCreary & Sasse, 2000; McCreary et al., 2004). As such, research on the drive for muscularity has focused on linking the drive to several psychosocial variables and to several behaviours aimed at altering one's appearance in men. Morrison, Morrison, Hopkins and Tyler Rowan (2004) found the drive for muscularity to be negatively correlated with one's appearance self-esteem and positively

correlated with one's level of vanity. Additionally, McCreary and Sasse found a high drive for muscularity to correlate with lower levels of self-esteem as well as with higher levels of depression in men. With regards to appearance altering behaviours, the drive for muscularity has been linked to weight training (McCreary & Sasse; Morrison et al., 2004), dieting to increase bulk (McCreary & Sasse; Morrison et al.), and the use of performance enhancing substances (Litt & Dodge, 2008). Once believed to exist only in females, it is clear that males are also concerned with their physiques and engage in behaviours that have the potential to improve their appearance.

The drive for muscularity and self-presentation. Despite research indicating that men harbour a drive for muscularity due to overwhelming societal pressure to have the ideal body, it is not clear why men give in to such pressures and invest so much time in trying to live up to physique ideals. One possibility is that the drive for muscularity taps into men's self-presentational concerns. For instance, researchers have found that men perceive that women look for a high degree of muscularity in a man (Jacobi & Cash, 1994; O'Dea & Abraham, 1999; Pope et al., 2000). For example, participants in the Pope et al. study not only indicated that they wished to gain 28 pounds on average, but also indicated that they believed women on average want men to be 30 pounds more muscular than they were. In addition, men who were concerned about negative evaluation by others exerted more force in a strength test than men who did not harbour this fear likely in attempt to minimize the chances of being viewed as weak (Gammage & Gabriel, 2009). During focus groups conducted by Grogan and Richards (2002), adult males indicated that having a muscular physique was associated with feeling confident and powerful in social situations. These men also associated muscularity with health and fitness, but cited

social acceptance as the reason they wanted to obtain a muscular body. In addition, a study by Morrison et al. (2004) found a relationship between self-presentational concerns and the drive for muscularity. Men who scored high on the drive for muscularity also possessed higher levels of vanity (excessive pride in one's appearance) thus suggesting that men high in the drive for muscularity also want others to regard them as muscular. Indeed, Martin Ginis, Eng, Arbour, Hartman, and Phillips (2005) found that as men believed their bodies to be approximating the social ideal, their self-presentational anxieties decreased. The findings from these studies indicate that men are concerned with how muscular others (particularly women) perceive them to be.

The drive for muscularity and social comparison theory. Men's drive to live up to the socially proscribed ideal male body may also be influenced by processes of social comparison. Festinger's (1954) social comparison theory dictates that people have an innate drive to evaluate their own abilities and characteristics. This appraisal is often made through comparison of the self to others. The greater the similarity between the self and the other, the greater the strength of the social comparison and its effects on one's self-esteem. When one compares him or herself to others who are superior in the characteristic of interest, upward comparison occurs and is often associated with a decrease in self-esteem. Contrastingly, when one compares him or herself to others inferior in certain characteristics, a downward comparison ensues, which may be associated with an increase in self-esteem (Major, Testa, & Bylsma, 1991). As such, a young male weight trainer may compare himself to another young (more muscular) weight trainer and determine himself to be weak and lacking in muscle. However, if he

were to compare himself with an inactive peer, he may experience pride and satisfaction with his strength and muscular physique.

The theory of social comparison has been implicated in the reason socially idealistic media images are detrimental to one's self-esteem. For example, women who view models on television have been shown to negatively evaluate their own attractiveness in comparison to those models that epitomize the ideal physique (Tiggemann & Slater, 2004). Similar upward comparisons have been found to occur when women view exercise video instructors. Classes in which the instructor or exercisers wear physique revealing clothing have been shown to influence women's self-perceptions negatively (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Martin Ginis, Prapavessis, & Hasse, 2008). It is possible that such upward comparisons could also occur for men in the weight room when viewing others with physiques closer to the proscribed male ideal. Studies conducted by Leit, Gray, and Pope (2002), and Arbour and Martin Ginis (2006) may support this contention. In Leit et al.'s study, men viewed advertisements that included either images of muscular men or neutral images. Following this stimulus, the participants rated their current body's muscularity and how muscular they desired their body to be on a somatomorphic matrix. Those who viewed the muscular images had a significantly greater discrepancy between their current and ideal body. In Arbour and Martin Ginis's study, male participants signed up for seminar meetings and the authors randomly assigned the seminar groups to a muscular or hypermuscular condition. During the seminar on muscle building, images of hypermuscular (in the hypermuscular condition) or muscular (in the muscular condition) men were embedded. From pre- and post-testing, it was found that participants with high

levels of baseline muscularity dissatisfaction reported greater post-exposure body dissatisfaction in the muscular condition. There was no relationship found in the hypermuscular condition. The authors explained that the muscular condition (rather than the hypermuscular condition) housed photos of men similar to the media ideal male muscular physique. So it may be that exposure to ideal physiques is more influential over body image dissatisfaction than is exposure to muscular images inconsistent with ideals. Therefore, it was thought upward social comparisons to muscular images may account for the negative effect the muscular condition had on men who were already dissatisfied with their muscularity.

Gender norms. In addition to self-presentational concerns and social comparison processes, gender norms may also play a role in why men respond to pressures to conform to society's definition of an attractive male body with a drive for muscularity. As previously noted, norms are generally implicit and unwritten rules that indicate appropriate behaviour (Leary, 1996). Gender norms dictate gender appropriate behaviours in society. They imply that males should behave in ways that are consistent with perceptions of masculinity and that females should behave in ways that display their femininity. As such, the muscular body as the male ideal is reinforced through the link between muscularity and masculinity (McCreary & Sasse, 2000). Therefore, as proposed by Grogan and Richards (2002), the more muscular the man, the more masculine he is perceived to be.

Not only are men motivated to maintain their masculinity through a muscular appearance (or through behaviours that will lead to a muscular appearance), they are also motivated to avoid feminine stereotyped behaviours. For example, male participants in

the aforementioned focus groups indicated that although they felt pressured to have a muscular physique, exercising to improve body image was deemed a feminine behaviour in which they would not take part although they did consider exercising to avoid getting fat as an appropriate reason for men in which to take part (Grogan & Richards, 2002). Research has also indicated that men may have a higher drive for muscularity because they experience more pressure to conform to gender norms (McCreary, Newcomb, & Sadava, 1999; McCreary & Sasse, 2000) making it more acceptable for women to take part in male-typed behaviours than for men to take part in female-typed behaviours. For example, it is more socially acceptable for a woman to play football than for a man to participate in ballet.

Since the concept of muscularity is an unwritten societal norm, it is difficult to define and therefore difficult to measure in relation to the drive for muscularity. However, McCreary et al. (2005) conducted two studies in which they linked male-typed traits, behaviours, beliefs and conflict to the drive for muscularity. Their first study revealed the drive for muscularity to be significantly and positively correlated to three male-typed gender role dimensions including unmitigated agency (being focused on the self to the exclusion of others, socially desirable for neither gender but more stereotypical for men to possess), male-typed behaviours (equally desirable for both genders but more stereotypical of men), and male sex-specific behaviours (more desirable and stereotypical of one gender or the other). An example of a male-typed behaviour is playing basketball, whereas an example of a male sex-specific behaviour is going hunting. Their second study found a relationship between the drive for muscularity and several other masculine indices. Men higher in the drive for muscularity endorsed more traditional gender-typed

beliefs (such as taking risks, being self-sufficient, being strong, controlling one's emotions, and importance in avoiding feminine behaviours) and had greater gender-role conflict in two areas (success, power, and competition, and work and leisure conflict). These results imply that men who are more focused on building muscle are more masculine, and that by increasing one's muscularity, one's masculinity is also enhanced. Therefore, it is important for men to self-present as muscular in order to meet social expectations of masculinity.

Measuring the drive for muscularity. McCreary and Sasse (2000) developed the Drive for Muscularity Scale (DMS) in order to assess one's desire to increase their musculature. The scale taps into both attitudes and behaviours that reflect the drive for muscularity through two subscales; the muscle-oriented body image subscale and the muscle-oriented behaviour subscale (McCreary et al., 2004). However, the psychometric properties of the DMS do support its use as a unidimensional scale (McCreary et al., 2004). Based on measures of the drive for thinness, the DMS is a 15-item self-report scale rated on a 6-point Likert scale anchored at 1 (*always*) and 6 (*never*). The scale was found to have acceptable reliability based on alpha coefficients of .88 for the muscle-oriented body image subscale, .81 for the muscle-oriented behaviour subscale, and .87 for the full scale (McCreary et al., 2004).

Self-Efficacy

Previous research has linked self-efficacy to social anxiety and self-presentation (Gammage et al., 2004; Maddux, Norton, & Leary, 1988), making it an important variable to consider when conducting exercise psychology research. Self-efficacy is the belief that one has in one's ability to engage in behaviours that will lead to expected

outcomes (Bandura, 1997). Self-efficacy theory posits that these beliefs (cognitions and other personal factors), behaviour, and environmental factors all interact as determinants of one another (Bandura, 1986). In this social cognitive explanation of behaviour, both cognitive and personal factors, as well as the situation affect one's behaviour. Self-efficacy is also related to outcome expectancies in determining behaviour (Bandura, 1997). For example, if one has a high efficacy belief for lifting weights, it may or may not be motivation enough for him to engage in the behaviour. Should he also believe that engaging in weight lifting will result in others perceiving him as strong and attractive, he will be more likely to engage in the behaviour than if he does not think the behaviour will lead to a desired outcome.

Determinants of self-efficacy. Bandura (1986, 1997) suggests that there are four main sources of self-efficacy information. These include (previous) mastery experiences, vicarious learning, verbal persuasion, and physiological and affective states. Mastery experiences are considered to be the strongest determinant of self-efficacy. Previous successes serve to heighten one's self-efficacy beliefs that he is capable of completing a certain task and will be successful again in the future. Failures, on the other hand, tend to diminish one's self-efficacy. Vicarious experiences are able to affect one's self-efficacy through modeling. If an individual observes others perform a task successfully, he may believe that the task is possible to complete and may believe he also has the ability to be successful. However, if the observer sees another fail, his self-efficacy beliefs may decrease. The influence of vicarious experiences on self-efficacy is further influenced by the similarity of the model to the observer. The more similar one is to the model, the more likely one will be to believe he may perform a task in a similar way. Verbal

persuasion that one is able to complete a task is another source of efficacy beliefs. If important others believe in one's ability, and if their appraisals are within realistic bounds, one is more likely to sustain efforts towards a goal. Physiological and affective states are relied upon by individuals in order to judge their capabilities. Physiological arousal in stressful situations often results in fear and in self-doubts that one is able to be successful. However, if one does not experience such arousal, his efficacy beliefs will be heightened. One's affective state also may affect one's level of efficacy: positive affect will serve to increase efficacy beliefs, while negative affect will decrease efficacy beliefs (Lox, Martin, & Petruzzello, 2003).

Self-presentational efficacy. Three processes of self-efficacy theory, put forth by Maddux (1991), may be applied to the self-presentational framework. Self-presentational efficacy is considered to be one's belief in his or her ability to make a desirable impression on others (Maddux et al., 1988). The three processes, self-efficacy expectancy, outcome expectancy, and outcome value, affect the adoption and persistence of one's behaviour. Self-efficacy expectancy, the first of the processes, is the belief in one's ability to perform a given behaviour. An example is an individual who believes he can successfully complete 10 repetitions of the bench press at 180 pounds. Outcome expectancy, one's belief that engaging in that given behaviour will result in a certain outcome, is exemplified by one's belief that performing the bench press will define his chest muscles by increasing his muscle mass. Finally, outcome value is value that one places on the expected outcome. For example, an individual may highly value having a well defined chest. If an individual is high in all three of these processes, he will be more likely to engage in the given behaviour. If he does not believe in his ability to lift the

weight, does not believe lifting weights will lead to a better toned chest, or does not value having a toned chest, he will be less likely to participate in the bench press exercise (Maddux, 1991).

Measuring self-efficacy. Self-efficacy beliefs are thought to influence whether a certain behaviour, such as physical activity, will be adopted and maintained (Ryan & Dzewaltowski, 2002). In addition, self-efficacy is thought to influence several aspects of physical activity, including activity choice, time and effort put forth, and persistence in the face of obstacles (Bandura, 1977). For this reason, self-efficacy has repeatedly been examined in relation to physical activity and exercise. In exercise psychology research, self-efficacy is routinely examined by asking participants how confident they are in performing a targeted behaviour. The scale used to measure this confidence typically ranges from 0 to 100 percent confidence. Several types of self-efficacy have been identified in the literature. Task self-efficacy refers to the belief one has in one's ability to complete a target behaviour, whereas self-regulatory efficacy refers to one's belief in his ability to overcome the challenges inherent in performing certain behaviours such as efficacy to overcome barriers and scheduling efficacy (Maddux, 1995). The current study uses the Task Self-Efficacy Scale (based on the scale by Rodgers & Gauvin, 1998) to measure one's confidence in his ability to complete several parts of a main exercise task. Participants rate their confidence ranging from 0 (*no confidence*) to 100 (*completely confident*).

Manipulating the Exercise Environment

In order to examine ways in which physical activity rates may be increased, researchers have modified the physical environment resulting in such consideration when

developing interventions to increase participation in physical activities (Yin, 2001). Brunet and Sabiston (2009) have suggested that interventions aimed at decreasing social anxieties (such as social physique anxiety) may be helpful in promoting an active lifestyle. This position appears noteworthy as researchers have found concern about one's physique being evaluated by others to have the most influence over certain groups' willingness to exercise in a public setting (Bain et al., 1989). Therefore, an examination of previous research may be helpful in determining ways to modify the exercise experience in order to promote exercise adoption and maintenance.

Several researchers have examined the social contexts in which individuals prefer to exercise. Spink (1992) investigated the location for physical activity preferences of female students. Those low in social physique anxiety did not deviate from expected frequencies for location preference; however, women who scored high in social physique anxiety preferred to exercise in private exercise settings as opposed to public ones. It was also found that those high in social physique anxiety weighed significantly more than did those low in the trait. Carron and Prapavessis (1997) compared the anxiety of both male and female students based on the level of group support. Participants were asked to list an anxiety-provoking situation (23% listed exercise situations) and then rated how anxious they would feel in that situation alone, with a best friend, or with a group of friends. Experiencing an anxiety-provoking situation in the company of a best friend elicited the least social anxiety, followed by being with a group of friends. Being alone in such a situation resulted in the highest level of social anxiety. Yin (2001) researched female patrons at fitness facilities that provided women-only exercise areas. Those who used the women-only areas reported higher levels of social physique anxiety and body size

dissatisfaction than women who exercised in co-ed areas. It was concluded that female-only areas provided a protective environment for women with physique related concerns to engage in physical activity. These studies suggest that exercise may be an anxiety provoking situation and as such individuals may prefer not to exercise in the presence of others (particularly in front of those of the opposite sex for women); however, if they are in a public setting (those that did not list an exercise situation in Carron and Prapavessis listed other social situations such as being in a bathing suit or next to someone with a good physique) familiar others may be able to dampen the effects of the situation.

With the knowledge that exercise environments are a source of anxiety for many individuals, researchers have attempted to manipulate various aspects of the environment to determine their part in elevating social anxiety. Focht and Hausenblas (2003, 2004) conducted two studies with socially physique anxious women with low physical activity levels (exercised at moderate or vigorous levels two or fewer times per week). Participants completed two bouts of cycling, one in a natural setting (at a fitness facility in front of a full length mirror) and one in a laboratory setting (free of mirrors and other exercisers). Attire was controlled for by asking participants to wear shorts and T-shirts to each exercise session. Social anxiety was found to elevate only in the naturalistic condition, suggesting that certain aspects of the exercise setting (mirrors and other exercisers) increase perceptions of evaluative threat. Katula et al. (1998) examined the effects of three exercise conditions on exercise self-efficacy. Male and female students were required to exercise in a laboratory condition in which participants exercised on a treadmill, in a mirror condition in which participants exercised in front of a full-length mirror on a treadmill in the laboratory, and a natural environment condition in which

participants were allowed to choose the venue and mode of aerobic exercise. Findings indicated that women had statistically lower exercise self-efficacy in the mirror condition than men. In addition, social physique anxiety was a significant predictor of self-efficacy in the mirror condition; as social physique anxiety increased, self-efficacy for exercise was found to decrease. These results indicated that the presence of mirrors may negatively affect one's level of self-efficacy and may bring attention to one's physique. These studies indicate that mirrors and other exercisers are aspects of the environment that interventions may manipulate in order to increase exercise participation.

The use of group fitness settings has also been used to examine the social and environmental factors that may influence one's anxiety, self-efficacy and exercise behaviour. Brewer et al. (2004) examined female aerobics participants for their preferred studio floor position and clothing preference. Participants high in social physique anxiety favoured positions away from the instructor and reported that they generally wear concealing clothing to their aerobics classes. In a study by Raedeke et al. (2007), female students participated in a group exercise class and reported on affect and self-efficacy measures. Participants were assigned to one of two leadership conditions (health or appearance oriented) with mirrors either present or absent. In the appearance oriented class, the leader made comments to draw attention to one's appearance, whereas in the health oriented class, the leader made comments about getting healthier. Those in the health oriented condition reported more positive affect following the class, higher enjoyment, and stronger intentions to join a similar exercise class in the future than those in the appearance oriented condition. In this study, however, mirrors did not appear to impact participants' psychological responses to exercise. The researchers suggested that

the mirrors may have a more instructional value in an aerobic class than in single person aerobic exercise, and therefore may not create as high of evaluative threat. These two studies indicate the potential areas for manipulating group exercise classes to encourage greater participation.

Instead of having participants volunteer to participate in exercise sessions, some researchers have used other means to elicit changes in self-efficacy and social anxiety. Crawford and Eklund (1994) used videos of aerobics classes that manipulated exercise clothing to examine preferences of undergraduate women. The two videos were identical barring the type of clothing worn by the class participants. In the aerobics fashion attire condition, participants wore tights and thong leotards, whereas in the shorts and T-shirt condition, participants wore shorts and a T-shirt over their tights and leotards. Following the video presentations, participants were required to rate their favourability for each exercise setting. Results indicated that social physique anxiety was negatively associated with favourability for the aerobics fashion attire setting, and was positively associated with favourability for the shorts and T-shirt setting. Gammage et al., (2004) used deception in order to influence the self-presentational efficacy of participants. Female participants, under the impression that they were to take part in an aerobics class, were assigned to either a low or high efficacy condition. In the low condition, the mirrors and windows leading to a public hallway were left uncovered, and participants were informed that they would be videotaped by a camera in the front corner of the room and by a second camera that would be taken around the room by a male confederate in order to get close-up shots. Participants were also informed that they would wear name tags and a spandex jog bra/cropped top and short spandex shorts. In the high efficacy group, mirrors

and windows were covered, there were two cameras in the front of the room to take group shots, and participants were told that they would wear a loose T-shirt and a pair of shorts. There was no mention of name tags. Following the descriptions of the class, participants completed questionnaires measuring several social anxiety levels, after which they were informed that the study was complete and they did not have to complete the class. Those in the low self-presentational efficacy manipulation scored higher on exercise-related state social anxiety, social physique anxiety, physical appearance anxiety, and lower on how much they were looking forward to the upcoming aerobics class. These studies reveal it is not necessary to have participants take part in an exercise class; the imagined participation in certain exercise settings alone can affect one's levels of self-efficacy and social anxiety. By influencing certain aspects of the environment, one's self-awareness and the perceptions of evaluative threat by others are heightened, resulting in lower levels of self-efficacy and higher levels of social anxiety.

Conclusion

As suggested and confirmed by Gammage et al. (2004), given self-presentational efficacy has been found to be a predictor of social anxiety, the manipulation of self-presentational efficacy is able to influence one's social anxiety. However, most of the previously discussed studies that were able to influence social anxiety or self-efficacy, including that by Gammage et al., included only female participants. There is a gap in the exercise psychology literature regarding how men are influenced by aspects of the physical and social environment during exercise. In an attempt to replicate Gammage et al.'s results with a sample of men, Laing (2006) used two weight lifting scenarios in order to manipulate self-presentational efficacy. The scenarios differed in the presence of

mirrors, attire to be worn, and the use of name tags, each similar to the manipulations used by Gammage et al., but were ineffective at influencing participants' social anxiety. This result is not surprising given the prevalence of gender differences in physical activities and exercise. As researchers have noted, self-presentational efficacy (Gammage et al.), social physique anxiety (Carron & Prapavessis, 1997), and exercise behaviour (Dishman & Sallis, 1994) may be influenced by different factors for different populations. This possibility therefore may be one explanation as to why Laing's study did not find significant results; men do not feel anxious over the same factors as do women when exercising. To remedy this problem, Munroe-Chandler and Gammage (2008), explored the situations that would be anxiety provoking for men in the weight room. The situations leading to anxiety in the weight room most frequently cited by participants included someone hovering over them wanting to use the equipment, if a spotter had to rush to assist them with the weight, if someone commented on their appearance, if their form was corrected by a trainer, and being in the presence of an attractive woman. Interestingly, each of these situations involve the presence others, suggesting that the reason these situations may elevate anxiety is because they bear the potential for evaluation by others and may therefore elicit self-presentational concerns. As these aspects to weight lifting may be more salient for men than mirrors, attire, and name tags, the current study is aimed at manipulating men's self-presentational efficacy using these situations in order to influence various measures of social anxiety.

References

- Arbour, K. P., & Martin Ginis, K. A. (2006). Effects of exposure to muscular and hypermuscular media images on young men's muscularity dissatisfaction and body dissatisfaction. *Body Image, 3*, 153-161.
- Bain, L. L., Wilson, T., & Chaikind, E. (1989). Participant perceptions of exercise programs for overweight women. *Research Quarterly for Exercise and Sport, 60*, 134-143.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review, 84*, 191-215.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company.
- Brewer, B. W., Diehl, N. S., Cornelius, A. E., Joshua, M. D., & Van Raalte, J. L. (2004). Exercising caution: Social physique anxiety and protective self-presentational behaviour. *Journal of Science & Medicine in Sport, 7*, 47-55.
- Brunet, J., & Sabiston, C. M. (2009). Social physique anxiety and physical activity: A self-determination theory perspective. *Psychology of Sport & Exercise, 10*, 329-335.
- Burke, S. M., Carron, A. V., & Eys, M. A. (2006). Physical activity context: Preferences of university students. *Psychology of Sport & Exercise, 7*, 1-13.
- Canadian Fitness and Lifestyle Research Institute (2007). *Physical activity monitor*.

Ottawa, ON: Author.

- Carron, A. V., & Prapavessis, H. (1997). Self-presentation and group influence. *Small Group Research, 28*, 500-516.
- Checko, E. R. (2007). Personal motivation, body image, health behavior and stage of exercising. *Dissertation Abstracts International, 69*(Suppl. B), 91.
- Crawford, S., & Eklund, R. C. (1994). Social physique anxiety, reasons for exercise, and attitudes toward exercise settings. *Journal of Sport & Exercise Psychology, 16*, 70-82.
- Deaux, K., & Major, B. (1987). Putting gender into context: An interactive model of gender-related behaviour. *Psychological Review, 94*, 369-389.
- Dion, K, Berscheid, E. & Walster, E. (1972). What is beautiful is good. *Journal of Personality and Social Psychology, 24*, 285-290.
- Dishman, R. K., & Sallis, J. F. (1994). Determinants and interventions for physical activity and exercise. In C. Bouchard, R. J. Shephard, and T. Stephens (Eds.), *Physical activity, fitness, and health: International proceedings and consensus statement* (pp. 214-238). Champaign, IL: Human Kinetics Publishers.
- Eklund, R. C., & Crawford, S. (1994). Active women, social physique anxiety, and exercise. *Journal of Sport & Exercise Psychology, 16*, 431-448.
- Eklund, R. C., Kelley, B., & Wilson, P. (1997). The Social Physique Anxiety Scale: Men, women, and the effects of modifying item 2. *Journal of Sport & Exercise Psychology, 19*, 188-196.
- Eklund, R. C., Mack, D., & Hart, E. (1996). Factorial validity of the Social Physique Anxiety Scale for Females. *Journal of Sport & Exercise Psychology, 18*, 281-295.

- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117-140.
- Finkenber, M. E., DiNucci, J. M., McCune, S. L., Chenette, T., & McCoy, P. (1998). Commitment to physical activity and anxiety about physique among college women. *Perceptual and Motor Skills*, 87, 1393-1394.
- Focht, B. C., & Hausenblas, H. A. (2003). State anxiety responses to acute exercise in women with high social physique anxiety. *Journal of Sport & Exercise Psychology*, 25, 123-144.
- Focht, B. C., & Hausenblas, H. A. (2004). Perceived evaluative threat and state anxiety during exercise in women with social physique anxiety. *Journal of Applied Sport Psychology*, 16, 361-368.
- Frederick, C. M., & Morrison, C. S. (1996). Social physique anxiety: Personality constructs, motivations, exercise attitudes, and behaviors. *Perceptual and Motor Skills*, 82, 963-972.
- Frederick, C. M., & Ryan, R. M. (1993). Differences in motivation for sport and exercise and their relations with participation and mental health. *Journal of Sport Behavior*, 16, 124-146.
- Gammage, K. L., & Gabriel, D. A. (2009). Trait self-presentational concerns and performance in a maximal isometric strength test. *Journal of Strength & Conditioning Research*, 23, 1287-1291.
- Gammage, K. L., Martin Ginis, K. A., & Hall, C. R. (2004). Self-presentational efficacy: Its influence on social anxiety in an exercise context. *Journal of Sport & Exercise Psychology*, 26, 179-190.

- Gilmour, J. (2007). Physically active Canadians. *Health Reports, 18*, 45-65.
- Goffman, E. (1959). *The presentation of self in everyday life*. New York, NY: Doubleday.
- Gray, S. H. (1977). Social aspects of body image: perception of normalcy of weight and affect of college undergraduates. *Perceptual and Motor Skills, 45*, 1035-1040.
- Grieve, F. G., Jackson, L., Reece, T., Marklin, L., & Delaney, A. (2008). Correlates of social physique anxiety in men. *Journal of Sport Behavior, 31*, 329-337.
- Grogan, S., & Richards, H. (2002). Body image: Focus groups with boys and men. *Men and Masculinities, 4*, 219-232.
- Hart, E. A., Leary, M. R., & Rejeski, W. J. (1989). The measurement of social physique anxiety. *Journal of Sport & Exercise Psychology, 11*, 94-104.
- Hausenblas, H. A., & Martin, K. A. (2000). Bodies on display: Female aerobic instructors and social physique anxiety. *Women in Sport & Physical Activity Journal, 9*, 1-14.
- Holle, C. (2004). Male body image: Self-perceived weight status and avoidance of body exposure. *Perceptual and Motor Skills, 99*, 853-860.
- Jacobi, L., & Cash, T. F. (1994). In pursuit of the perfect appearance: Discrepancies among self-ideal perceptions of multiple physical attributes. *Journal of Applied Social Psychology, 24*, 379-396.
- Jones, D. A., Ainsworth, B. E., Croft, J. B., Macera, C. A., Lloyd, E. E., & Yusuf, H. R. (1998). Moderate leisure-time physical activity: Who is meeting the public health recommendations? A national cross-sectional study. *Archives of Family Medicine, 7*, 285-289.

- Katula, J. A., McAuley, E., Mihalko, S. L., & Bane, S. M. (1998). Mirror, mirror on the wall...exercise environment influences on self-efficacy. *Journal of Social Behavior and Personality, 13*, 319-332.
- Kruisselbrink, L. D., Dodge, A. M., Swanburg, S. L., & MacLeod, A. L. (2004). Influence of same-sex and mixed-sex exercise settings on the social physique anxiety and exercise intentions of males and females. *Journal of Sport & Exercise Psychology, 26*, 616-622.
- Kyrejto, J. W., Mosewich, A. D., Kowalski, K. C., Mack, D. E., & Crocker, P. R. E. (2008). Men's and women's drive for muscularity: Gender differences and cognitive and behavioural correlates. *International Journal of Sport & Exercise Psychology, 6*, 69-84.
- Lantz, C. D., Hardy, C. J. & Ainsworth, B. E. (1997). Social physique anxiety and perceived exercise behavior. *Sport Behavior, 20*, 83-93.
- Laing, N. A. (2006). The influence of self-presentational efficacy on social anxiety in a male weight lifting context. Unpublished master's thesis, University of Windsor, Windsor, Ontario, Canada.
- Leary, M. R. (1983). Social anxiousness: The construct and its measurement. *Journal of Personality Assessment, 47*, 66-75.
- Leary, M. R. (1992). Self-presentational processes in exercise and sport. *Journal of Sport & Exercise Psychology, 14*, 339-351.
- Leary, M. R. (1996). *Self-presentation: Impression management and interpersonal behaviour*. Boulder, CO: Westview Press.
- Leary, M. R., Atherton, S. C., Hill, S., & Hur, C. (1986). Attributional mediators of social

- inhibition and avoidance. *Journal of Personality*, 54, 704-716.
- Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin*, 107, 34-47.
- Leary, M. R., & Kowalski, R. M. (1995). *Social anxiety*. New York, NY: The Guilford Press.
- Leit, R. A., Gray, J. J., & Pope, H. G., Jr. (2002). The media's representation of the ideal male body: A cause for muscle dysmorphia? *International Journal of Eating Disorders*, 31, 334-338.
- Linder, D. E., Farrar, D., Sadalla, E. K., Sheets, V., & Bartholomew, J. (1992). Stereotypes of female athletes. Paper presented at the North American Society for the Psychology of Sport and Physical Activity, Pittsburgh, PA.
- Litt, D., & Dodge, T. (2008). A longitudinal investigation of the Drive for Muscularity Scale: Predicting use of performance enhancing substances and weightlifting among males. *Body Image*, 5, 346-351.
- Lox, C. L., Martin, K. A., & Petruzzello S. J. (2003). *The psychology of exercise: Integrating theory and practice*. Scottsdale, Arizona: Holcomb Hathaway, Publishers, Inc.
- Maddux, J. E. (1991). Self-efficacy. In C. R. Snyder, & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology: The health perspective* (pp. 57-78). New York, NY: Pergamon Press.
- Maddux, J. E. (1995). Looking for common ground: A comment on Bandura and Kirsch. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 377-385). New York, NY: Plenum Press.

- Maddux, J. E., Norton, L. W., & Leary, M. R. (1988). Cognitive components of social anxiety: An investigation of the integration of self-presentation theory and self-efficacy theory. *Journal of Social and Clinical Psychology, 6*, 180-190.
- Major, B., Testa, M., & Bylsma, W. H. (1991). Responses to upward and downward social comparison: The impact of esteem-relevance and perceived control. In J. Suls, and T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 237-260). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Marquez, D. X., & McAuley, E. (2001). Physique anxiety and self-efficacy influences on perceptions of physical evaluation. *Social Behavior and Personality, 29*, 649-660.
- Martin, K. A., & Fox, L. D. (2001). Group and leadership effects on social anxiety experienced during an exercise class. *Journal of Applied Social Psychology, 31*, 1000-1016.
- Martin, K. A., & Hausenblas, H. A. (1998). Psychological commitment to exercise and eating disorder symptomatology among female aerobic instructors. *The Sport Psychologist, 12*, 180-190.
- Martin, K. A., Rejeski, W. J., Leary, M. R., McAuley, E., & Bane, S. (1997). Is the Social Physique Anxiety Scale really multidimensional? Conceptual and statistical arguments for a unidimensional model. *Journal of Sport & Exercise Psychology, 19*, 359-367.
- Martin, K. A., Sinden, A. R., & Fleming, J. C. (2000). Inactivity may be hazardous to your image: The effects of exercise participation on impression formation. *Journal of Sport & Exercise Psychology, 22*, 283-291.
- Martin Ginis, K. A., Eng, J. J., Arbour, K. P., Hartman, J. W., & Phillips, S. M. (2005).

Mind over muscle? Sex differences in the relationship between body image change and subjective and objective physical changes following a 12-week strength-training program. *Body Image*, 2, 363-372.

Martin Ginis, K. A., Latimer, A. E., & Jung, M. E. (2003). No pain no gain? Examining the generalizability of the exerciser stereotype to moderately active and excessively active targets. *Social Behavior and Personality*, 31, 283-290.

Martin Ginis, K. A., Prapavessis, H., & Hasse, A. M. (2008). The effects of physique-salient and physique non-salient exercise videos on women's body image, self-presentational concerns, and exercise motivation. *Body Image*, 5, 164-172.

McAuley, E., Bane, S. M., & Mihalko, S. L. (1995). Exercise in middle-aged adults: Self-efficacy and self-presentational outcomes. *Preventive Medicine*, 24, 319-328.

McCreary, D. R., Newcomb, M. D., & Sadava, S. W. (1999). The male role, alcohol use, and alcohol problems: A structural modeling examination in adult women and men. *Journal of Counseling Psychology*, 46, 109-124.

McCreary, D. R., & Sasse, D. K. (2000). An exploration of the drive for muscularity in adolescent boys and girls. *Journal of American College Health*, 48, 297-304.

McCreary, D. R., Sasse, D. K., Saucier, D. M., & Dorsch, K. D. (2004). Measuring the drive for Muscularity: Factorial validity of the Drive for Muscularity Scale in men and women. *Psychology of Men & Masculinity*, 5, 49-58.

McCreary, D. R., Saucier, D. M., & Courtenay, W. H. (2005). The drive for muscularity and masculinity: Testing the associations among gender-role traits, behaviours, attitudes, and conflict. *Psychology of Men & Masculinity*, 6, 83-94.

Mishkind, M. E., Rondin, J., Silberstein, L. R., & Striegel-Moore, R. H. (1986). The

- embodiment of masculinity. *American Behavioral Scientist*, 29, 545-562.
- Moore, D. C. (1990). Body image and eating behaviour in adolescent boys. *American Journal of Diseases of Children*, 144, 475-479.
- Morrison, T. G., Morrison, M. A., Hopkins, C., & Tyler Rowan, E. (2004). Muscle mania: Development of a new scale examining the drive for muscularity in Canadian males. *Psychology of Men & Masculinity*, 5, 30-39.
- Munroe-Chandler, K. J. , & Gammage, K. L. (2008). Men's social anxiety in the weight room. Paper presented at the Canadian Society for Psychomotor Learning and Sport Psychology conference, Banff, AB.
- O'Dea, J. A., & Abraham, S. (1999). Onset of disordered eating attitudes and behaviors in early adolescence: Interplay of pubertal status, gender, weight, and age. *Adolescence*, 34, 671-679.
- Pope, H. G., Gruber, A. J., Mangweth, B., Bureau, B, deCol, C., Jouvent, R. & Hudson, J. I. (2000). Body image perception among men in three countries. *American Journal of Psychiatry*, 157, 1297-1301.
- Raedeke, T. D., Focht, B. C., & Scales, D. (2007). Social environmental factors and psychological responses to acute exercise for socially physique anxious females. *Psychology of Sport & Exercise*, 8, 463-476.
- Reed, D. L., Thompson, J. K., Brannick, M. T., & Sacco, W. P. (1991). Development and validation of the Physical Appearance State and Trait Anxiety Scale (PASTAS). *Journal of Anxiety Disorders*, 5, 323-332.
- Rodgers, W. M., & Gauvin, L. (1998). Heterogeneity of incentives for physical activity and self-efficacy in highly active and moderately active women exercisers.

Journal of Applied Social Psychology, 28, 1016-1029.

- Ruland, C. M., & Moore, S. M. (2000). Eliciting exercise preferences in cardiac rehabilitation: Initial evaluation of a new strategy. *Patient Education & Counseling, 1444, 1-9.*
- Russell, W. D. (2002). Comparison of self-esteem, body satisfaction, and social physique anxiety across males of different exercise frequency and racial background. *Journal of Sport Behavior, 25, 74-90.*
- Russell, W. D., & Cox, R. H. (2003). Social physique anxiety, body dissatisfaction, and self-esteem in college females of differing exercise frequency, perceived weight discrepancy, and race. *Journal of Sport Behavior, 26, 298-318.*
- Ryan, G. J., & Dzewaltowski, D. A. (2002). Comparing the relationships between different types of self-efficacy and physical activity in youth. *Health Education and Behavior, 29, 491-504.*
- Sabiston, C. M., Crocker, P. R. E., & Munroe-Chandler, K. J. (2005). Examining current-ideal discrepancy scores and exercise motivations as predictors of social physique anxiety in exercising females. *Journal of Sport Behavior, 28, 68-85.*
- Schlenker, B. R. (1980). *Impression management: The self-concept, social identity, and interpersonal relations.* Monterey, CA: Brooks/Cole Publishing Company.
- Schlenker, B. R. & Leary, M. R. (1982). Social anxiety and self-presentation: A conceptualization and model. *Psychological Bulletin, 92, 641-669.*
- Scott, L. A., Joyner, A. B., Czech, D. R., Munkasy, B. A., & Todd, S. (2009). Effects of exercise and a brief education intervention on social physique anxiety in college students. *International Journal of Fitness, 5, 9-17.*

- Spink, K. S. (1992). Relation of anxiety about social physique to location of participation in physical activity. *Perceptual and Motor Skills, 74*, 1075-1078.
- Tiggemann, M., & Slater, A. (2004). Thin ideals in music television: A source of social comparison and body dissatisfaction. *International Journal of Eating Disorders, 35*, 48-58.
- Treasure, D. C., Lox, C. L., & Lawton, B. R. (1998). Determinants of physical activity in a sedentary, obese female population. *Journal of Sport & Exercise Psychology, 20*, 218-224.
- US Department of Health and Human Services. (1996). *Physical activity and health: A report of the Surgeon General*. Atlanta, GA: Centers for Disease Control and Prevention, National Center of Chronic Disease Prevention and Health Promotion.
- Walton, V. R., & Finkenber, M. E. (2002). Women's anxiety about social and exercise settings. *Perceptual and Motor Skills, 94*, 700-702.
- Warburton, D. E. R., Nicol, C. W., & Bredin, S. S. D. (2006). Health benefits of physical activity: The evidence. *Canadian Medical Association Journal, 174*, 801-809.
- Weinberg, R. S., & Gould, D. (2003). *Foundations of sport and exercise psychology* (3rd ed.). Champaign, IL: Human Kinetics.
- Yin, Z. (2001). Setting for exercise and concerns about body appearance of women who exercise. *Perceptual and Motor Skills, 93*, 851-855.

APPENDIX A

Demographic Information

Age: _____

Weight: _____

Height: _____

University Major: _____

Race (please circle one):

Caucasian African-Canadian Chinese Native Indian Other

How many times a week do you weight train? _____

How many hours per week do you weight train? _____

How long have you been weight training (please circle):

0-3 months 4-6 months 7-12 months 1-5 years more than 5 years

How many times per week do you do physical activity, other than weight training?

How many hours per week do you do physical activity, other than weight training?

APPENDIX B

Drive for Muscularity Scale

Please read each item carefully then, for each statement, circle the number that best applies to you.

	1	2	3	4	5	6
	Always	Very Often	Often	Sometimes	Rarely	Never
1. I wish that I were more muscular	1	2	3	4	5	6
2. I lift weights to build up muscle	1	2	3	4	5	6
3. I use protein or energy supplements	1	2	3	4	5	6
4. I drink weight gain or protein shakes	1	2	3	4	5	6
5. I try to consume as many calories as I can in a day	1	2	3	4	5	6
6. I feel guilty if I miss a weight training session	1	2	3	4	5	6
7. I think I would feel more confident if I had more muscle mass	1	2	3	4	5	6
8. Other people think I work out with weights too often	1	2	3	4	5	6
9. I think that I would look better if I gained 10 pounds in bulk	1	2	3	4	5	6
10. I think about taking anabolic steroids	1	2	3	4	5	6
11. I think that I would feel stronger if I gained a little more muscle mass	1	2	3	4	5	6
12. I think that my weight training schedule interferes with other aspects of my life	1	2	3	4	5	6
13. I think that my arms are not muscular enough	1	2	3	4	5	6
14. I think that my chest is not muscular enough	1	2	3	4	5	6
15. I think my legs are not muscular enough	1	2	3	4	5	6

Physical Activity Readiness
Questionnaire - PAR-Q
(revised 2002)

APPENDIX C

PAR-Q & YOU

(A Questionnaire for People Aged 15 to 69)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	1. Has your doctor ever said that you have a heart condition <u>and</u> that you should only do physical activity recommended by a doctor?
<input type="checkbox"/>	<input type="checkbox"/>	2. Do you feel pain in your chest when you do physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	3. In the past month, have you had chest pain when you were not doing physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	4. Do you lose your balance because of dizziness or do you ever lose consciousness?
<input type="checkbox"/>	<input type="checkbox"/>	5. Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
<input type="checkbox"/>	<input type="checkbox"/>	7. Do you know of <u>any other reason</u> why you should not do physical activity?

If
you
answered

YES to one or more questions

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want — as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

NO to all questions

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:

- start becoming much more physically active — begin slowly and build up gradually. This is the safest and easiest way to go.
- take part in a fitness appraisal — this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 144/94, talk with your doctor before you start becoming much more physically active.

DELAY BECOMING MUCH MORE ACTIVE:

- if you are not feeling well because of a temporary illness such as a cold or a fever — wait until you feel better; or
- if you are or may be pregnant — talk to your doctor before you start becoming more active.

PLEASE NOTE: If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

Informed Use of the PAR-Q: The Canadian Society for Exercise Physiology, Health Canada, and their agents assume no liability for persons who undertake physical activity, and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.

NOTE: If the PAR-Q is being given to a person before he or she participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

"I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction."

NAME _____

SIGNATURE _____

DATE _____

SIGNATURE OF PARENT _____
or GUARDIAN (for participants under the age of majority)

WITNESS _____

Note: This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if your condition changes so that you would answer YES to any of the seven questions.



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APPENDIX G

State Social Anxiety in a Weight Training Session

Read each of the following statements carefully and indicate the degree to which the statement is characteristic or true of you as you think of **today's** weight lifting session. Use the following scale for your ratings:

1	2	3	4	5
Not at all a Concern	Slightly a Concern	Average Concern	Above Average Concern	Extreme Concern

1. I am concerned about looking uncoordinated in front of the personal trainer	1	2	3	4	5
2. I am concerned about looking uncoordinated in front of the other participants	1	2	3	4	5
3. Throughout the weight training session, I will be worried about embarrassing myself in front of the personal trainer	1	2	3	4	5
4. Throughout the weight training session, I will be worried about embarrassing myself in front of the other participants.	1	2	3	4	5
5. During the weight training session, I am worried the personal trainer will be evaluating my physique/figure.	1	2	3	4	5
6. During the weight training session, I am worried that the other participants will be evaluating my physique/figure.	1	2	3	4	5
7. I am concerned that the personal trainer will think that I am in poor physical condition	1	2	3	4	5
8. I am concerned that the other participants will think that I am in poor physical condition	1	2	3	4	5

APPENDIX H

Social Physique Anxiety Scale - State

Read each of the following statements carefully and indicate the degree to which the statement is characteristic or true of you **in this situation**. Use the following scale. Circle the appropriate value following each statement.

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

1. I feel uptight about my physique/figure.	1	2	3	4	5
2. I am bothered by thoughts that the other people in the room are evaluating my weight or muscular development negatively.	1	2	3	4	5
3. Unattractive features of my physique/figure make me nervous in this setting.	1	2	3	4	5
4. In this environment, I feel apprehensive about my physique/figure.	1	2	3	4	5
5. I am comfortable with how fit my body appears to the others.	1	2	3	4	5
6. It would make me uncomfortable to know that other people in the room were evaluating my physique/figure.	1	2	3	4	5
7. When it comes to displaying my physique/figure in this setting, I feel shy.	1	2	3	4	5
8. Sitting here in my workout clothes, I feel nervous about the shape of my body.	1	2	3	4	5
9. I feel relaxed when it is obvious that others are looking at my physique/figure.	1	2	3	4	5

APPENDIX I

Physical Appearance State and Trait Anxiety Scale - State

Please use this scale to indicate how anxious you feel RIGHT NOW about different aspects of your appearance?

0	1	2	3	4
not at all anxious	slightly anxious	moderately anxious	very anxious	extremely anxious

Right now, how anxious do you feel about the appearance of your....

1. thighs	0	1	2	3	4
2. buttocks	0	1	2	3	4
3. hips	0	1	2	3	4
4. stomach/abdomen	0	1	2	3	4
5. legs	0	1	2	3	4
6. waist	0	1	2	3	4
7. muscle tone	0	1	2	3	4
8. the extent to which you look overweight	0	1	2	3	4
9. ears	0	1	2	3	4
10. lips	0	1	2	3	4
11. wrists	0	1	2	3	4
12. hands	0	1	2	3	4
13. forehead	0	1	2	3	4
14. neck	0	1	2	3	4
15. chin	0	1	2	3	4
16. feet	0	1	2	3	4

APPENDIX K

Announcement in the Classroom

Good morning/afternoon/evening,

I am a graduate student in the Human Kinetics Program at the University of Windsor and am currently conducting a study with Dr. Krista Chandler at the University of Windsor, and Dr. Kim Gammage at Brock University on weight lifting beliefs and one repetition maximum loads. I am currently looking for male research participants 17 years and older who are interested in weight lifting. All fitness levels are welcome. If you volunteer to participate, you will be asked to meet with a group for one hour here at Brock during which you will complete a series of questionnaires assessing your beliefs about weight lifting. Following the completion of the questionnaires, you will complete a weight lifting session under the supervision of a certified personal trainer. If you are interested in participating, you may contact me at mainik@uwindsor.ca. Thank-you for your time.

APPENDIX L

Sample Email Requesting Instructor Permission to Recruit Participants in the Classroom

Dear (Insert instructor title and surname).

I am a graduate student in the Human Kinetics Program at the University of Windsor and am currently conducting a study with Dr. Krista Chandler at the University of Windsor, and Dr. Kim Gammage at Brock University on weight lifting beliefs and one repetition maximum loads. I am currently looking for male research participants 17 years and older, and hope you may allow me to recruit participants from your class. I was wondering if you would allow me to attend your (insert course title) class on (insert date) to ask for student volunteers. The students would need to indicate their interest and I would contact them via email or phone at a later date. If you are agreeable, I could come at the beginning or the end of your class. I look forward to your response. If you have any questions please feel free to contact myself at the address below.

Thank you for your time.

Signature

Date

Karen Maini,
Masters of Human Kinetics Candidate
Email: mainik@uwindsor.ca, phone: 519-253-3000 ext. 4273

Dr. Krista Chandler,
Associate Professor, Faculty of Human Kinetics
email: chandler@uwindsor.ca, phone: 519-253-3000 ext. 2446

Dr. Kim Gammage,
Associate Professor, Brock University
email: kgammage@brocku.ca, phone: 905-688-5550 ext. 3772

APPENDIX N

**LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN
RESEARCH- Phase 2****Weight Training Beliefs and One Repetition Maximum Loads**

You are asked to participate in a research study conducted by Dr. Krista Chandler and Karen Maini from the University of Windsor and Dr. Kimberley Gammage at Brock University.

If you have any questions or concerns about the research, please feel to contact Dr. Chandler at 519-253-3000 ext. 2446 or via email at chandler@uwindsor.ca, Karen Maini at 519-253-3000 ext. 4273 or via email at mainik@uwindsor.ca or Dr. Gammage at 905 688 5550 ext 3772 or via email at kgammage@brocku.ca.

PURPOSE OF THE STUDY

The purpose of this study is to examine the beliefs individuals hold about weight training as well as have you complete a weight lifting session under the supervision of a certified personal trainer.

PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

You will meet as a group with the lead investigator for one hour. Subjects will be provided verbal instructions of the study and you will be asked to complete a series of questionnaires assessing your beliefs about weight lifting prior to the workout session. The questionnaires will be completed in the sport and exercise psychology lab.

You will be asked to fill our relevant demographic information, such as age, gender, frequency and duration of lifting weights, years of weight lifting experience, and additional physical activity participation.

POTENTIAL RISKS AND DISCOMFORTS

There are no known or anticipated risks from participating in this study. Possible physical discomforts may appear in the form of muscle soreness, fatigue, or muscle weakness as a result of your participation in a weight training session.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

The researchers may gain valuable insight regarding exercisers' beliefs about weight lifting and one repetition maximum loads

PAYMENT FOR PARTICIPATION

With your participation in this study you will be eligible to win one of two gift certificates of \$50 value to Boston Pizza.

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission.

The results obtained from the questionnaire will be used in the report for the primary investigator's research program.

The completed questionnaires will be kept in a locked cabinet that is accessible only by the investigator. Once the data have been extracted, the questionnaires will be destroyed.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

If subjects would like to receive feedback from the study, they can contact Dr. Chandler at chandler@uwindsor.ca or visit the REB website at the University of Windsor.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Research findings will be available to subjects through the University of Windsor Research Ethics Board website.

Web address: www.uwindsor.ca/reb

Date when results are available: September 2010

SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study "**Weight Training Beliefs and One Repetition Maximum Loads**" as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

Name of Subject

Signature of Subject

Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Signature of Investigator

Date

APPENDIX O

**CONSENT TO PARTICIPATE IN RESEARCH- Phase 2****Weight Training Beliefs and One Repetition Maximum Loads**

You are asked to participate in a research study conducted by Dr. Krista Chandler and Karen Maini from the University of Windsor and Dr. Kimberley Gammage at Brock University.

If you have any questions or concerns about the research, please feel to contact Dr. Chandler at 519-253-3000 ext. 2446 or via email at chandler@uwindsor.ca, Karen Maini at 519-253-3000 ext. 4273 or via email at mainik@uwindsor.ca or Dr. Gammage at 905 688 5550 ext 3772 or via email at kgammage@brocku.ca.

PURPOSE OF THE STUDY

The purpose of this study is to examine the beliefs individuals hold about weight training as well as have you complete a weight lifting session under the supervision of a certified personal trainer.

PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

You will meet as a group with the lead investigator for one hour. Subjects will be provided verbal instructions of the study and you will be asked to complete a series of questionnaires assessing your beliefs about weight lifting prior to the workout session. The questionnaires will be completed in the sport and exercise psychology lab.

You will be asked to fill our relevant demographic information, such as age, gender, frequency and duration of lifting weights, years of weight lifting experience, and additional physical activity participation.

POTENTIAL RISKS AND DISCOMFORTS

There are no known or anticipated risks from participating in this study. Possible physical discomforts may appear in the form of muscle soreness, fatigue, or muscle weakness as a result of your participation in a weight training session.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

The researchers may gain valuable insight regarding exercisers' beliefs about weight lifting and one repetition maximum loads.

PAYMENT FOR PARTICIPATION

With your participation in this study you will be eligible to win one of two gift certificates of \$50 value to Boston Pizza.

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission.

The results obtained from the questionnaire will be used in the report for the primary investigator's research program.

The completed questionnaires will be kept in a locked cabinet that is accessible only by the investigators. Once the data have been extracted, the questionnaires will be destroyed.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

If subjects would like to receive feedback from the study, they can contact Dr. Chandler at chandler@uwindsor.ca or visit the REB website at the University of Windsor.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Research findings will be available to subjects through the University of Windsor Research Ethics Board website.

Web address: www.uwindsor.ca/reb

Date when results are available: September 2010

SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study "**Weight Training Beliefs and One Repetition Maximum Loads**" as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

Name of Subject

Signature of Subject

Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Signature of Investigator

Date

APPENDIX P

Poster-board of Scenario Directions

Low self-presentational efficacy group:

- Perform a 1RM flat dumbbell bench press test
- Determine chest and arm strength
- Form tips:
 - feet flat on floor
 - lower back and head on bench
 - elbows fully extended
 - rigid wrists
 - forearms parallel to one another
 - forearms perpendicular to floor
 - dumbbells down to nipple height
- Any error in form detected, will have to redo lift
- Tested in order of weakest to strongest (determined by trainers)
- Trainers will assist you if you struggle
- Complete testing in front of other participants
- Must lift at least average amount for your body weight
- Trainer will announce weight lifted to be recorded

High self-presentational efficacy group:

- Perform a 1RM flat dumbbell bench press test
- Determine chest and arm strength
- Attempt good form for safety
- Form tips:
 - feet flat on floor
 - lower back and head on bench
 - elbows fully extended
 - rigid wrists
 - forearms parallel to one another
 - forearms perpendicular to floor
 - dumbbells down to nipple height
- May ask questions in private
- Complete testing individually
- Tested in alphabetical order
- Must lift at least 90 lbs.
- Weight lifted will be recorded and kept confidential

APPENDIX Q

Expected Weight to be Lifted

Body Weight (lbs.)	Expected Lift Weight (lbs.)
120	150
140	170
160	190
180	210
200	230
220	250
240	270
260	290
280	310
300	330

APPENDIX R

**Re-Consent and Debriefing**

Men's Social Anxiety in the Weight Room

You have just participated in a research study conducted by Dr. Chandler and Karen Maini from the faculty of Human Kinetics at the University of Windsor and Dr. Kimberley Gammage from Brock University.

If you have any questions or concerns about the research, please feel to contact Dr. Krista Chandler, at 519-253-3000, extension 2446, Karen Maini at 519-253-3000 ext. 4273 or via email at mainik@uwindsor.ca, or Dr. Gammage at 905 688 5550 ext 3772 or via email at kgammage@brocku.ca.

PURPOSE OF THE STUDY

The purpose of the proposed study is to manipulate aspects of the social environment with males in a weight lifting context.

DEBRIEFING

In an attempt to reduce subjects' biased responses, deception was used. You were led to believe that we were investigating peoples' beliefs of weight training and providing tips on weight training. However, the hypothetical situation that you were described was used to manipulate your confidence in your ability to create a desired impression or perform a desired behaviour. This is known as self-presentation efficacy. Prior research has shown that by manipulating self-presentation efficacy, social anxiety can be increased or decreased in an aerobics environment. The purpose of this research is to replicate those findings with men in a weight lifting environment. It is the belief of the investigators that prior knowledge of the study's purpose would have increased the likelihood of biased responses by the subjects. If you have any questions or concerns about the research, please feel to contact Dr. Krista Chandler or Dr. Kimberley Gammage at the contact number below. In thanks for your participation, we invite you to take a weight lifting tip sheet for your reference. The tip sheet includes information on proper technique, core stability and beneficial exercises. Increased participation in weight lifting exercise can increase health as well as self-esteem.

POTENTIAL RISKS AND DISCOMFORTS

There are no known or anticipated risks from participating in this study.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

The researchers may gain valuable insight regarding the possible influence of weight lifters' self-presentation efficacy expectancy on reducing social anxiety. Subjects may also learn possible tactics to increase self-presentation efficacy and reduce social anxiety in a weight lifting context.

PAYMENT FOR PARTICIPATION

With your participation in this study you will be eligible to win one of two gift certificates of \$50 value to Boston Pizza.

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission.

Questionnaires will not be identifiable, or connected to the participant in any manner, in order to ensure anonymity. Further, all consent forms will be stored separately from completed questionnaires. All data will be stored in a locked filing cabinet to ensure confidentiality. There is no access to this cabinet by anyone other than the investigators. Once the data have been extracted, the questionnaires will be destroyed.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you choose to withdraw your data, it will be withdrawn by the investigator and destroyed.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Research findings will be available to subjects through the University of Windsor Research Ethics Board website.

Web address: www.uwindsor.ca/reb

Date when results are available: September 2010

SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study. The influence of self-presentational efficacy expectancy on social anxiety in a weight lifting context as described herein. My questions have

been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

Name of Subject

Signature of Subject

Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Signature of Investigator

Date

APPENDIX S

Entry Form for Incentive Raffle

Draw Entry:

If you would like to be included in a raffle draw for one of two \$50 gift certificates to your choice of Boston Pizza or Sport Chek, please complete the following information and submit to the raffle box.

Name: _____

Email: _____

Phone #: _____

VITA AUCTORIS

NAME: Karen E. Maini

PLACE OF BIRTH: Windsor, Ontario

YEAR OF BIRTH: 1984

EDUCATION: University of Windsor, Windsor, Ontario
2008-2010 M.H.K.

Brock University, St. Catharines, Ontario
2003-2008 B.PhEd., B.Ed.

Sandwich Secondary School, LaSalle, Ontario
1998-2003