

An Examination of the Effects of Health Promotion and Appearance-Based Exercise Advertising on Exercise Attitudes, Self-presentation, Self-efficacy, and Decisional Balance

by

Tanya Rose Berry
B.Sc. University of Victoria, 1991
M.A. University of Victoria, 1997

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We accept this dissertation as conforming to the required standard

Dr. Bruce L. Howe, Supervisor (School of Physical Education)

Dr. Catherine Gaul, Departmental Member (School of Physical Education)

Dr. Patti-Jean Naylor, Additional Member (BC Ministry of Health Planning)

Dr. Holly Tuokko, Outside Member (Department of Psychology)

Dr. Lynne E. Young, Outside Member (School of Nursing)

Dr. Ronald C. Plotnikoff, External Examiner (Faculty of Physical Education and Recreation, University of Alberta)

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University of Victoria

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Supervisor: Dr. Bruce L. Howe

ABSTRACT

Two possible motivators for physical activity are health and appearance. The public sector focuses on health as the primary motivator when creating physical activity promotion campaigns, while the fitness industry uses appearance as its main motivator. Despite the call by some theorists that social marketers should include both health and appearance as motivators in physical activity campaigns, whether these factors can be successful independently, and how they may interact, remains to be determined. Therefore, the purpose of this dissertation was to examine whether televised health promotion exercise advertising had different effects on viewers than appearance-based exercise advertising. Four separate experiments examined this question. Experiment one used undergraduate participants (N=103) to examine whether the two types of exercise advertising would have different effects on three dependent variables: exercise attitudes, social physique anxiety and self-presentation in an exercise setting. Experiment two examined the same questions in a group of participants aged 44 to 67 years (N=29). Experiment three used an undergraduate sample (N=89) to test the effects of exercise advertising on the three dependent variables, but also included sociocultural attitudes towards appearance as an independent variable. Experiment four used an undergraduate sample (N=97) to test whether the two forms of exercise advertising had different effects on stages of behaviour change, self-efficacy for exercise, and decisional balance (from the transtheoretical model). All four experiments used a pre-test / post-test experimental design. Participants filled out pre-test questionnaires one week prior to viewing a

twenty-minute video on Japanese culture that made no reference to exercise or sport. Embedded into the video were advertising breaks that contained six neutral advertisements and three target advertisements. The target advertisements in one video were promoting physical activity for health. The second video contained exercise for appearance advertisements, and the third was a control video with three more neutral advertisements. After viewing a video, participants completed the post-test questionnaires. The main findings across the series of experiments were that health-based exercise advertising positively influenced exercisers and older participants; that appearance-based exercise advertising had negative effects on men only; and that there is a distinction between self-presentational concerns in a non-competitive exercise environment compared to a competitive exercise environment.

Examiners:

Dr. Bruce L. Howe, Supervisor (School of Physical Education)

Dr. Catherine Gaul, Departmental Member (School of Physical Education)

Dr. Patti-Jean Naylor, Additional Member (BC Ministry of Health Planning)

Dr. Holly Tuokko, Outside Member (Department of Psychology)

Dr. Lynne E. Young, Outside Member (School of Nursing)

Dr. Ronald C. Plotnikoff, External Examiner (Faculty of Physical Education and Recreation, University of Alberta)

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Definitions of Mentor (from the OED):

The friendly care and assistance of your Mentor (1750 CHESTERFIELD Lett. to Son)

The friend Sticks close, a Mentor worthy of his charge (1784).

In order to convince you that I can occasionally play the Mentor, ..., I am going to give you something very like a lecture.(1792 C. SMITH Desmond II. x. 113)

Also, thanks to my husband, David Sulz.

It occurred to me that such patience was the better part of love. Barbara Kingsolver

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Chapter 1

“Just 30 minutes a day can add years to your life!”

Hillary Commission (New Zealand) physical activity advertisement

“I’ve done aerobics for years and I’ve never had nice legs, especially this outer thigh area, but after doing thin thighs for 20 minutes a day, I can really see the difference!”

“Thin Thighs” advertisement - from the Beach Body Video Collection

Introduction

The fitness industry is a multi-billion dollar business in North America (Lindeman, 1999) and there are many stakeholders who want people of all ages and abilities to exercise (Brooks, 1998). These stakeholders include the government, public health professionals, gym owners, exercise equipment retailers, and book and video publishers. Some, such as the public sector and non-governmental and not-for-profit organizations, focus on health promotion advertising designed to increase physical activity for health, while others advertise exercise equipment and facilities for profit using appearance as the main motivator. The two quotes above represent the two forms – health versus product, and although both promote exercise, they approach the issue in very different ways. Relatively little is known about the effectiveness of either approach on motivation for physical activity.

Indeed, despite the efforts of health promotion advertisers, the majority of people still don’t engage in adequate amounts of physical activity (Dishman, 2001). Further, although people are buying fitness products (an \$8 billion US a year industry according to Dishman), this is not translating to increased exercise participation. Part

of the difficulty for exercise promoters may be that there is no universal motivator that works for all individuals (Buckworth, 2000). Researchers have identified a number of possible motivators for exercise including health, appearance, weight loss, social support, mood change, stress reduction, competition, and recognition (Davis, Fox, Brewer, & Ratusny, 1995; Heitmann, 1986; Gill & Overdorf, 1994). Despite this range of possibilities, the public sector has focused on health as the motivator in their campaigns. However, because of the potential importance of appearance as a motivator, Dishman (2001) emphasized that the focus of social marketers necessarily needs to expand beyond the health promotion aspect to include other possible motivators, such as appearance and weight-loss, that are prevalent in commercial exercise advertising. As Dishman (2001) wrote, “medicine and health promotion has continued to focus on health, virtually to the exclusion of other outcomes of participation in physical activity that are valued by people who choose to participate. Social marketing of physical activity must recognize that health and body image approaches can be melded” (Dishman, 2001, p. 283). However, whether these two motivators can be successful independently, and how they may interact, remains to be determined.

The goal of health promotion advertising on television is to motivate people to make positive health choices. Although they can reach a large audience at less cost than face to face interventions (Marcus, Owen, Forsyth, Cavill, & Fridinger, 1998), health promotion advertisements are not inexpensive to produce and show as evidenced by England’s *Active for Life* campaign that spent £2 million on producing and airing a 40 second advertisement, across multiple television channels, over a six-

week period (Hillsdon, Cavill, Nanchahal, Diamond, & White, 2001). Yet despite this, a literature review on physical activity promotion campaigns by Cavill (1998) found few systematic studies evaluating such campaigns and showed that although the campaigns may change levels of knowledge, they had little impact on actual behaviour or participation. Dishman (2001) claimed that with chance odds operating at every level of an intervention, for any target audience, 50% will be exposed, 25% will attend to the advertisement, and so on, with the end result that a mere 0.78% of a target audience will actually succeed in changing behaviour.

When we look closer at the product-based exercise advertising it seems that the focus is on appearance as the motivator to both buy the advertised product, and to start exercising in general. This perception was supported by a recent content analysis of fitness magazines. Berry and Lauzon (in press) found that for both men's and women's fitness magazines, the majority of articles focused on appearance or weight loss as the reason to exercise and a minority promoted exercise for health. The images also reinforced this focus with most of the female models categorized as very attractive and very thin, and the male models invariably categorized as very muscular. Similarly, Durham (1998) looked at the messages about physical fitness evident in young women's magazines and reported that articles about physical fitness focused on the need for girls to increase their attractiveness and sexual desirability through exercise rather than emphasizing potential health benefits. Wiseman, Gray, Mosimann, and Ahrens (1992) reported an increasing number of exercise and diet for weight loss articles in women's magazines and concluded that the culturally accepted thin look is now pursued through exercise as well as diet.

This focus on appearance warrants research because although body image has been cited as a factor in exercise motivation (Cash, Novy, & Grant, 1994), the link has not yet been made between media representations of exercisers, body image, and subsequent exercise behaviour. At the same time, media representations of thin women have been shown to negatively influence body image (Groesz, Levine, & Murnen, 2002), and there is evidence that there is an increasing cultural emphasis on muscular men as the ideal with the possible result for men being body image problems and associated disorders such as muscle dysmorphia (Pope, Olivardia, Gruber, & Borowiecki, 1999). The question remains as to whether images of very attractive people exercising positively motivate viewers to exercise, have a negative influence, or have no impact on actual exercise behaviour.

It is particularly important to look at the issue of health-based advertising in comparison to appearance-based advertising because although it is possible to change behaviour, change is most likely to occur when intervention is implemented at individual, social (e.g., family), organizational (e.g., work), and societal levels (Pellmar, Brandt, & Baird, 2002). As mentioned above, at a societal level, the mass media are aggressively spreading the message that it is thin women and muscular men who are attractive (Groesz et al., 2002), and it is unlikely that health promoters are able to match this amount of exposure.

Despite the evidence that the media can influence body image and that exercise is touted as a way to improve your appearance, there is little research that specifically examines the effects of appearance-based exercise advertising either alone or in comparison to health-based exercise advertising. What research that exists

has shown conflicting results. For example, researchers using written persuasive exercise messages, either health-based or appearance-based, showed that there was a positive effect on exercise attitudes for people that read the health message, but only for people who were low self-monitors; that is, for those who paid less attention to how others might be perceiving them (Rhodes & Courneya, 2001). Other researchers found that non-exercisers who watched an exercise video that emphasized appearance had the poorest body image, (Fleming & Martin, 2002). No research has looked specifically at television exercise advertising. Given this, research looking at possible effects of television-based exercise advertising on attitudes towards exercise is necessary.

Much of the research into advertising and body image has been with magazine advertising rather than television advertising (Groesz, Levine, & Murnen, 2002), and involved only advertising that was shown all at once. For example, Heinberg and Thompson (1995) showed participants ten minutes of images of thin women while Lavine, Sweeney and Wagner (1999) exposed their participants to 15 sexist advertisements and 5 non-sexist advertisements. Few experimental designs have included advertising in the middle of a television program as it might actually be viewed by people at home. This is problematic because conclusions are necessarily limited by the type of exposure that participants receive during such experiments. Research that tries to simulate the advertising and programming that people might see at home is necessary.

Because of the existing questions about the efficacy of health promotion advertising and the possible negative effects of appearance-based advertising, the

purpose of this dissertation was to examine whether television advertisements promoting exercise for appearance will have a different effect on viewers than those emphasizing health. Four separate experiments examined this question; three used self-presentation theory and one used the transtheoretical model of behaviour change. The studies examined exercise advertising during advertisement breaks in a television program that simulated as much as possible what an individual would watch if viewing television at home. It is believed that the results will have implications for how exercise is promoted as a means for positively impacting viewer's health.

Experiment one used undergraduate participants to test the hypothesis that health-based and appearance-based exercise advertising would have different effects on viewers' attitudes towards exercise, social physique anxiety, and self-presentation in an exercise setting. Experiment two extended the findings of Experiment One by examining the same question in an older group of participants. Experiment three also used an undergraduate sample to test the effects of exercise advertising on attitudes towards exercise, social physique anxiety, and self-presentation in an exercise setting, but also included sociocultural attitudes towards appearance as an independent variable. Experiment four tested whether health-based and appearance-based exercise advertising would have different effects on viewer's stages of behavioural change, self-efficacy for exercise, and decisional balance – all aspects of the transtheoretical model (Prochaska & Velicer, 1997). Together, these four experiments should allow for a more complete picture of the potential effects of health-based and appearance-based exercise advertising. The structure of this dissertation is such that each

experiment is reported in a separate chapter with introduction, methods, results, and discussion. A full review of the literature is provided in Appendix A.

Chapter 2

Experiment 1

2.1 Introduction

Motivation and adherence to exercise is an ongoing problem in North America. The Canadian Fitness and Lifestyle Research Institute (CFLRI, 2001) reported that in the year 2001, 57% of Canadian adults were not active enough to achieve optimal health benefits, and that more women than men were inactive. The case has been made many times that despite the known benefits of exercise, including improved health, it is still difficult for many people to find the motivation to exercise (Dishman, 1994). There are many possible influences on exercise behaviour including variables such as weather, time (Dishman, 2001), and social support (Carron, Hausenblas, & Mack, 1996), through personality factors like self-efficacy (Bandura, 1997), and extroversion (Courneya & Hellsten, 1998). However, one area that has been neglected by researchers is the influence of exercise advertising on exercise behaviour.

Exercise advertising can be described as either health promotion or product-based (Dishman, 2001). As Dishman points out, health promotion advertising, or social marketing, tries to “sell” a change in health behaviour to those individuals who are most resistant. In contrast, product marketers focus their advertising on those individuals who are most likely to buy a product. However, buying an exercise product and actually using it are two different things. Further, although data is scarce, it would appear that exercise product marketers tend to focus on improving

appearance as the motivating factor for buying their exercise equipment, a goal that may be accepted, but not necessarily pursued, by many people in North America.

It is possible that appearance-based advertising may affect people by making them feel inadequate in terms of weight, fitness level, or age. Lavine, Sweeney, and Wagner (1999) reported that the media have influence in shaping an individual's self-concept. In their study they found that exposure to television advertising depicting women as sexual objects resulted in poor body image for both men and women.

Women desired a thinner physique, while men desired to be more muscular. With respect to exercise advertising, Brooks (1998) reported that individuals are drawn to active lifestyles when symbols of those lifestyles are congruent with individual self-concept. She found that there are six symbols of an active lifestyle and how these symbols relate to the average person can affect whether an individual adopts physical activity. These symbols are age representations, cardiovascular representations, athleticism, socio-economic status, physique, and gender. The symbols can define various lifestyles and can cause negative emotions if the symbols of an active lifestyle, such as age and athleticism, do not match an individual's self-concept.

Health promotion advertising generally tries to be inclusive of all types of people, but whether these representations are enough to change attitudes towards exercise in the face of large amounts of appearance-based advertising remains to be determined.

Indeed, most evidence to date indicates that health promotion advertising results in small shifts in knowledge but no increases in actual exercise behaviour (Cavill, 1998). Further, although recall of these campaigns is generally high, the changes in knowledge are small, perhaps because most people already know about the benefits

of physical activity before the start of a health promotion campaign (Marcus et al., 1998).

Because of the potential importance of health and appearance as motivators for physical activity, and the questions regarding the efficacy of exercise advertising, research is necessary to examine how appearance-based and health-based exercise advertising may affect exercise attitudes both independently and together. Self-presentation theory offers one way to approach this issue. Self-presentation refers to how people attempt to control the impressions they make on others (Leary & Kowalski, 1995). Theorists have presented a model that identifies all incidences of social anxiety as having a self-presentational source (Schlenker & Leary, 1982). These authors put forth the idea that social anxiety arises when a person is motivated to make a good impression but is unsure that it can be done. They further postulate that it is unlikely that an individual in a social situation will experience anxiety unless there is a self-presentational concern.

Self-presentation as a possible motivating factor in exercise behaviour has received relatively little research attention (Leary, 1992). However, self-presentation may be important in the exercise domain because it has been suggested that people often try to maintain exercise programs in order to make better impressions on people (Leary, Tchividjian, & Kraxberger, 1999). These authors speculate that there are probably people who need and want to exercise but do not because they are worried about the impression they might make while exercising. Self-presentation can play a role in exercise behaviour either through social physique anxiety, the fear that one's body will be negatively evaluated (Hart, Leary, & Rejeski, 1989), or because of

concerns that one does not have the skills or strength required and so will be unable to make a desired impression (Leary, 1992).

Individuals holding such beliefs might choose not to participate in a group sport but might exercise alone rather than risk appearing incompetent (Leary, 1992). Indeed, they may choose not to exercise at all. In a descriptive study of the health behaviours of Irish adolescents, researchers found that nonexercisers scored significantly higher on a measure of fear of negative evaluation than did regular exercisers (Martin, Leary, & O'Brien, 2001). They further found a strong positive relationship between teens' concern about others' evaluations and their avoidance of exercise because of concerns about appearance, strength, and coordination. One of the few experimental research papers to look at self-presentational aspects of exercise found that there are benefits to being perceived as an exerciser; fictitious descriptions of individuals described as physically active were rated as healthier, more attractive, more confident, to have greater self-control, kinder, happier, neater, braver, friendlier, more intelligent, more sociable, and to have more friends than fictitious individuals rated as non-exerciser (Martin, Sinden, & Fielding, 2000). However, whether these beliefs translate to avoidance of exercise settings remains to be determined.

Although the studies described offer promising results regarding the importance of self-presentation to exercise behaviour, overall, self-presentation has been inadequately researched in the exercise domain. As a motivator or demotivator for physical activity, the self-presentation premise is that people want to make good impressions while in an exercise setting, or, related to the findings by Martin et al. (2000), want to be known as an exerciser, and so will adjust their behaviour

accordingly. However, there are many possible motivators for physical activity, as outlined in the first chapter. Some of these motivators, in particular health, may have little to do with the desire to make a good impression and so may override any self-presentational concerns. This possibility has received little attention from self-presentational theorists and should be considered when examining self-presentation in an exercise setting. It also should be noted that the assumption is often made that competence necessarily involves comparison. However, including comparison as a factor of competence can confound the issue so as to make it impossible to measure (Ford, 1992). Further, avoidance of an exercise setting due to perceived incompetence might have nothing to do with comparisons to others and everything to do with comparison to oneself.

One aspect of self-presentation that has received experimental attention as a possible factor in predicting exercise behaviour is social physique anxiety. Frederick and Morrison (1996) found that women in an exercise setting showed more social physique anxiety than did men, and that heavier individuals also had higher social physique anxiety than lighter individuals. Other researchers found that scores on the social physique anxiety scale were negatively correlated with scores on a physical activity questionnaire indicating that people with higher levels of social physique anxiety were less likely to exercise (Lantz, Hardy, & Ainsworth, 1997). However, social physique anxiety was insufficient in predicting exercise behaviour, and the relationship was moderated by age and gender; older women with high social physique anxiety were the least likely to exercise.

Other researchers have reached similar conclusions: For social physique anxiety to influence exercise behaviour, it must be through mediating variables (Crawford & Eklund, 1994). They found that although social physique anxiety alone was not related to frequency or duration of exercise, social physique anxiety was worse after viewing exercise videos that emphasized the importance of physical appearance. A follow-up study found that there were no significant associations between social physique anxiety and the exercise video, but did find that participating in tight work-out clothes was negatively associated with social physique anxiety and working out in loose-fitting clothes was positively associated with social physique anxiety (Eklund & Crawford, 1994). These authors further found positive correlations between social physique anxiety and self-presentational motives to exercise, however they found that exercising for health was negatively correlated with social physique anxiety. Related to the criticism mentioned earlier, Kowalski, Crocker, and Kowalski (2001) found that one aspect of self-presentation, social physique anxiety, was not the most important variable in predicting physical activity, speculating that motivation to be physically active for health or appearance reasons, can be more powerful than anxiety resulting from self-presentational concerns in an exercise setting. These researchers point out that although there are many influences on exercise behaviour, the role of specific variables on motivation to participate in physical activity is a necessary area of research and social physique anxiety is one such variable.

Purpose

Self-presentation was used in the study to examine health-promotion and appearance-based exercise advertising. The purpose was to determine if televised

health promotion exercise advertising has a different effect than televised appearance-based exercise advertising on viewers' self-presentation in an exercise setting, social physique anxiety, or attitudes towards exercise.

It was hypothesized that:

1. Participants in the health condition would have a greater post-test attitude toward exercise and would be more likely to indicate wanting to exercise around others than participants in the appearance condition.
2. Participants in the appearance condition would have greater post-test social physique anxiety than participants in the health condition.
3. Exercisers would have better exercise attitudes, fewer self-presentational concerns in an exercise setting, and lower social physique anxiety than non-exercisers.
4. Women would have greater social physique anxiety than men.

Independent Variables

1. Condition – health, appearance, or control advertising.
2. Gender – male or female.
3. Physical Activity – exerciser or non-exerciser.

Dependent Variables

1. Exercise attitudes
2. Social Physique Anxiety (SPA)
3. Self-presentation in an exercise setting (SPEX)

Covariates

1. Pre-test scores for each dependent variable

2.2 Method

Participants

Participants were 127 students in an introductory psychology course who received credit points toward their final grade for participation. The data from 24 participants were not used because there was missing data (N=8), participants did not show up for the second session (N=12), or because participants' English skills were very poor and it was judged they would not understand the verbal messages in the videos (N=4). This left 103 participants in the final data set.

2.1.2 Materials

Questionnaires

The pre-test questionnaires consisted of a demographic questionnaire that included a single question on exercise attitudes (see Appendix B for the full questionnaire), the Social Physique Anxiety Scale (see Appendix C), and the Self-presentation in an Exercise Setting Questionnaire (see Appendix D).

The post-test questionnaires consisted of a modified demographic questionnaire (see Appendix E), the Social Physique Anxiety Scale, the Self-presentation in an Exercise Setting Questionnaire, the TV Involvement Questionnaire (see Appendix F), the 7-day Physical Activity Recall (see Appendix G), and a 7-day Television Viewing Recall (see Appendix H).

Social Physique Anxiety (SPA) was measured with the Social Physique Anxiety Scale, a nine-item questionnaire designed to measure self-presentational anxiety related to physique (Martin, Rejeski, Leary, McAuley & Bane, 1997). Higher scores indicate more social physique anxiety. The range of scores is from 9 to 45 with

higher scores indicating greater anxiety. Originally developed as a unidimensional 12-item questionnaire by Hart et al. (1989), there is some debate over whether the Social Physique Anxiety Scale is, in fact, unidimensional. Martin et al. (1997) argued for the use of a revised 9-item unidimensional scale, and the revised scale was used in this study. The 9-item SPA has an internal reliability of 0.89 (Martin et al., 1997). This measure does not differ from results reported for the 12-item measure which has internal reliability ratings of 0.88 – 0.90 (cited in Martin et al., 1997). A 7-item version of the SPA has been validated with a male sample and it was found that observed variances and covariances, factor structure, factor loadings, factor variance, and item uniqueness were the same across gender (Motl & Conroy, 2001).

Self-presentation (SPEX) was measured using the Self-presentation in an Exercise Setting questionnaire (Berry & Howe, 2001) which consists of 24 questions that ask whether an individual would exercise around others who are of different skill levels, gender, age, or familiarity, friends or strangers. Questions were rated on a four point likert scale ranging from *very false for me*, *somewhat false for me*, *somewhat true for me*, and *very true for me*. Higher scores indicate that the participant is more likely to endorse exercising around other people. The SPEX has been validated for a population of university students and has good internal reliability (Cronbach's alpha = 0.89).

Physical Activity was measured with the seven-day physical activity recall (PAR) (Sallis, Haskell, Wood, Fortmann, Rogers, & Blair, 1985) which is designed as a measure of physical activity that estimates time spent in physical activity, strength, and flexibility activities for the seven days before the interview. It is widely

used in epidemiological, clinical, and physical activity research (Sallis, 1994). Sallis provides a review of reliability and validity studies of the PAR. Correlation coefficients ranging from .39 - .75 are reported for comparisons of the 7-day recall score with 7-day activity logs. Intensity of activity is categorized as moderate (equivalent to a walk), hard (intensity between walking and running), or very hard (equivalent to a run). For each hour spent in moderate activity interviewees receive 4 METs (metabolic rate index), for hard activity they receive 6 METs and, for very hard activity they receive 10 METs.

Television Involvement was measured with the Television Advertising Involvement Scale (TVIS), based on work by Moschis & Moore (1982) and Gould (1987). The purpose of the questionnaire is to ask about the frequency of viewing television advertising, as well as the motivations for watching. Lower scores indicate a greater involvement with television advertising. The first seven questions of the scale, taken from Moschis and Moore, were rated by participants on a four-point likert scale. The scale has a reliability quotient of 0.83 (Moschis & Moore, 1982). Also, these authors reported that their scale was significantly correlated with other measures of television viewing frequency (Moschis & Morre, 1982). Gould (1987) used a modified version of the questionnaire to assess differences in self-consciousness traits and advertising responses in North American adults. In Gould's study, the questionnaire was modified by adding three attitudinal items. All of the items used in the Gould study have high Lambda X scores (range: 0.587 – 0.736). Two of these additional items were used in this study; however, the third item was omitted because it seemed too difficult to interpret for the purposes of this study ("I

watch television advertisements to use TV commercials to express the “I” and “me” with myself).

Videos

Three twenty-minute videos were developed for this study; one for each for the two treatment conditions (physical activity for health promotion and physical activity for appearance) and one for a control condition. Each video contained a television program and advertising. The program used for all three videos was identical and portrayed aspects of Japanese culture including hotels, karaoke, a fire festival, and jobs but with no reference to exercise or sport.

Each video contained six identical neutral advertisements that made no reference to exercise or appearance, but rather advertised orange juice, headache medicine, a car, toilet paper, allergy medicine, and dog food. In addition, three advertisements each were selected specifically for the two treatment and control conditions. The physical activity promotion advertisements featured people of all ages, different ethnic groups, and both genders. The focus of these was on disease reduction and improved health through exercise. The appearance advertisements promoted a private fitness club, a “thin thighs” exercise video, and a nutritional supplement advertisement that featured an attractive female model in a fitness club who talked about “looking like me” through exercise with the help of the supplement. Both men and women were featured in two of these advertisements, and all models were young, attractive Caucasians. The control advertisements were for an Internet company, an airplane company, and a travellers’ cheque company.

The advertisements were shown in groups of three during each of the three breaks in the program. Two of the advertisements were neutral and one was a treatment advertisement. They were yoked across the three conditions so that the presence and order of neutral and target advertisements appearing in the health, appearance, and control conditions were matched (i.e., the first advertisement after the first program segment was a target, then the headache medicine advertisement followed by the orange juice advertisement; the second advertising break showed the car advertisement, then a target, followed by the toilet paper advertisement; the third advertising break showed the allergy medicine advertisement first, then the dog food advertisement, and lastly the third target advertisement).

The neutral and exercise for appearance advertisements were selected from 96 hours of television recorded from three different channels - an American national network (NBC), a Canadian national network (CTV), and a small market station (TV12 - Bellingham). Each station was recorded on a rotating schedule for 8 hours on Monday, Wednesday, and Friday so that a full 24 hours was obtained for each channel (e.g. CTV was recorded on Monday from 12 a.m. to 8 a.m., on Wednesday from 8 a.m. to 4 p.m. and on Friday from 4 p.m. to 12 a.m., NBC was recorded on Monday from 8 a.m. to 4 p.m., on Wednesday from 4 p.m. to 12 a.m. etc...). Each station was also recorded for 8 hours on Saturday, from 8 a.m. to 4 p.m. This yielded twelve appearance-based exercise advertisements, of which three were selected for the video, based on quality of the advertisement. The public health advertisements were obtained on request from Participaction Canada, the Hillary Commission of New Zealand, and the Dairy Nutrition Council of Alberta.

Procedure

All participants volunteered for the experiment by signing up during set times posted on a psychology class website. The title of the experiment, as it appeared on the web-site was “TV Watching” and the description of the experiment that followed read “you will need to come in for two sessions, one week apart. During the 1st session (15 minutes), you will complete some questionnaires; in the 2nd session (40 minutes), you will view a TV show and answer some more questionnaires.” Up to five participants could sign-up for one time slot and participants were randomly assigned to a treatment condition of health, appearance, or control, in the order that they signed up. That is, if five participants signed up for time slot one, they were all in the health condition and viewed the health video together, participants in the next time slot were in the appearance condition and so on.

The first session took about fifteen minutes. Participants were invited to ask questions and to sign an informed consent (see Appendix I). After the consent forms were signed, the questionnaires, with participant numbers already on them, were handed out. As participants completed the questionnaires, they handed them to the researcher who recorded their participant number next to their names on a separate sheet of paper. At no time was it mentioned that the study had anything to do about exercise, nor was this mentioned in the informed consent. If participants asked about the nature of the questionnaires they were told that there would be a full explanation at the end of the second session.

During the second session participants were asked to view one of the three 20-minute videos that differed only in the treatment advertisements that were included.

Participants were told that the video contained both a program about Japanese culture and advertising, and were reminded to pay attention to both. After the video, they completed the second set of questionnaires, matched for each participant by pre-test code number. After completion of the questionnaires, they were told the purpose of the experiment (see Appendix J) and any questions were answered. Participants then completed the PAR and television recall questionnaire. The researcher explained the differences between moderate, hard, and very hard exercise, as defined by the PAR, answered all questions, and helped participants to complete the PAR as accurately as possible.

Analyses

All analyses were conducted using SPSS 10.1 for Windows. Pearson bivariate correlations were run between all the dependent variables. A 3 (condition: health, appearance, or control) x 2 (gender: male or female) Analysis of Covariance (ANCOVA) was performed for each dependent variable, with the corresponding pre-test scores as covariates. It was not possible to do a three-way ANCOVA because very few men were classified as non-exercisers, leaving very small numbers for some cells. Therefore, a second series of 3 (condition: health, appearance, or control) x 2 (physical activity: exerciser or non-exerciser) ANCOVAs was performed for each dependent variable, with the corresponding pre-test as covariate.

2.3 Results

Demographics

Demographic data are presented in Table 1. There were 36 participants in the health condition, 36 in the appearance condition, and 31 in the control condition. The

73 female and 30 male participants were also classified as either exercisers or non-exercisers. In order to be classified as exercisers, participants had to answer yes to the question “do you currently exercise for at least 30 minutes, three times a week,” receive a score of at least 9 on the 7-day physical activity recall, and indicate at least three days of exercise in the previous week. A score of 9 on the PAR indicated that they exercised at least two hours and fifteen minutes at a moderate intensity, or for an hour and a half at a hard intensity, in the previous week. In this way, 54 participants were classified as exercisers, and 49 as non-exercisers. Data were screened for outliers and none were found for pre-test or post-test scores on any of the three dependent variables.

The results of the correlations showed that attitudes towards to exercise and social physique anxiety (SPA) were not correlated ($r^2 = -0.07$), attitudes towards to exercise and self-presentation in an exercise setting (SPEX) were moderately correlated ($r^2 = 0.42, p < .05$), and SPA and SPEX were moderately negatively correlated ($r^2 = -.41, p < .05$).

Condition by Gender ANCOVAs

There were no significant differences at pre-test on condition or the interaction for any of the dependent variables (all $p > .5$). There were no significant differences between genders on exercise attitudes or SPEX, but there was a significant difference between genders, $F(1, 97) = 10.11, p < .005, \eta^2 = .09$, indicating that women had greater SPA than men..

- *Exercise Attitudes* - The results of the ANCOVA on exercise attitudes showed that pre-test exercise attitudes, $F(1, 95) = 121.13, p < .001$, significantly adjusted

the DV scores. After adjustment for the covariate, exercise attitudes did not differ significantly between conditions or genders, nor was there an interaction.

- *SPEX* - The results of the ANCOVA on SPEX showed that pre-test SPEX, $F(1, 95) = 348.88, p < .001$, significantly adjusted the DV scores. After adjustment for the covariate, SPEX did not differ significantly between conditions or genders, nor was there an interaction.
- *SPA* - The results of the ANCOVA on SPA showed that pre-test SPA, $F(1, 95) = 239.10, p < .001$, significantly adjusted the DV scores. After adjustment for the covariate, SPA did not differ significantly between conditions or genders, nor was there an interaction.

Condition by Amount of Physical Activity ANCOVAs

There were no significant differences at pre-test on condition or the interaction for any of the dependent variables (all $p > .3$). There were no significant differences between exercisers and non-exercisers on SPA, but there were significant differences on exercise attitudes, $F(1, 97) = 15.21, p < .001, \eta^2 = .13$, indicating that exercisers had better exercise attitudes than non-exercisers, and SPEX, $F(1, 97) = 15.54, p < .001, \eta^2 = .12$, indicating that exercisers were more likely to endorse exercising around other people than non-exercisers.

- *Exercise Attitudes* - For the second set of analyses, the results of the ANCOVA on exercise attitudes showed that pre-test attitudes significantly adjusted the DV scores, $F(1, 96) = 123.74, p < .001$. There were no significant differences between conditions or physical activity. There was a modest interaction effect, $F(2, 96) = 2.71, p = .07, \eta^2 = .13$. Follow-up ANCOVA with a Bonferroni

adjustment for multiple comparisons showed that non-exercisers in the appearance condition had poorer exercise attitudes than exercisers in the appearance condition, $F(1,33) = 3.31, p=.07$. Figure 1 shows the means.

- *SPEX* - The results of the ANCOVA on SPEX showed that pre-test SPEX significantly adjusted the DV scores, $F(1, 96) = 386.42, p<.001$. There was no significant difference between conditions. There was a significant difference between exercisers and non-exercisers, $F(1, 96) = 4.88, p<.05, \eta^2=.03$, indicating that exercisers were more likely to indicate wanting to exercise around others than non-exercisers. There was also a significant interaction, $F(2, 96) = 4.80, p=.01, \eta^2=.09$. Follow-up ANCOVAs with a Bonferroni adjustment for multiple comparisons showed that exercisers in the health condition had higher SPEX scores than non-exercisers, as did exercisers in the control condition when compared to non-exercisers. Figure 2 shows the means.
- *SPA* - The results of the ANCOVA on SPA showed that pre-test SPA significantly adjusted the DV scores, $F(1, 96) = 278.81, p<.001$. There were no significant differences between conditions, nor was there an interaction. There was a significant difference between exercisers and non-exercisers, $F(1, 96) = 4.62, p<.05, \eta^2=.05$, indicating that exercisers had less SPA than non-exercisers.

Post-hoc Analyses

1. *Adjusting for amount of television watched* – Because of the potential relationship between media exposure and body image disturbance (Heinberg & Thompson, 1995), it was decided to see if amount of television watched had an effect on exposure to television advertising and any of the dependent variables. Of the 103 participants,

eighty-three provided information on how much television they watched (total minutes per week). Preliminary tests showed four outliers with more than 1200 minutes of television watching per week. These participants were deleted, leaving 79 participants in the data set. A median split was obtained on the number of minutes of television watched and using this split, the participants were divided into high television watchers (more than 180 minutes per week) and low television watchers (less than 180 minutes per week). There were no significant differences between conditions on the amount of television watched, $F(2, 76) = 2.34, p > .1$, or on scores on the TV Involvement Scale, $F(2, 76) = .550, p > .1$.

Using these data, another series of 3 (condition) X 2 (physical activity) ANCOVAs was performed with pre-test scores, amount of television (TVAMT) viewed, and scores on the TV involvement scale (TVIS) as covariates. Results showed that for exercise attitudes and SPEX, neither TVAMT nor TVIS significantly adjusted the dependent variable. The results for the ANCOVA on SPA showed that all covariates significantly adjusted post-test SPA scores (pre-spa score: $F(1, 74) = 207.55, p < .001$; TVAMT: $F(1, 74) = 11.40, p = .001$; TVIS: $F(1, 74) = 4.97, p < .03$. After adjustment for the covariates there was no main effect for condition, but there was a main effect for physical activity, $F(1, 70) = 4.45, p < .05, \eta^2 = .05$, indicating that exercisers had less SPA than non-exercisers. There was also a significant interaction, $F(2, 70) = 3.20, p < .05$. Follow up univariate F tests showed that exercisers in the health condition had significantly less SPA than non-exercisers, $F(1, 22) = 7.72, p = .01, \eta^2 = 0.26$. Figure 3 shows the means for this analysis.

A post-hoc test on TVAMT found that high television watchers had significantly higher SPA than low television watchers, $F(1, 74) = 8.47, p < .001$. There were no gender differences in the amount of television watched, nor were there differences between exercisers and non-exercisers in the amount of television watched. Exercise attitudes and SPEX were not affected by the amount of television watched.

2. Psychometric evaluation of questionnaires.

Participants from Experiment One and Experiment Three (N=85), also an undergraduate sample, were pooled to give an N of 188. Using the pre-test data for the Social Physique Anxiety Scale and Self-Presentation in an Exerciser Setting Questionnaire, and post-test data for the Television Viewing Involvement Scale, psychometric evaluations were performed. Based on the recommendations of Russell (2002), principal axis factoring was used as the factor extraction procedure.

- *SPA* – Results supported the uni-dimensional nature of the scale. There was one factor with an eigen value greater than one (4.815) accounting for 53.50% of the variance. The reliability was .89. Previous research has not looked at the reliability of this scale with men, however when only the data from male participants was used (N = 61) similar results were obtained: There was one factor with an eigen value greater than one (4.520) accounting for 50.22% of the variance, and a reliability of .87. Although these results are promising, it is a small N for this type of analysis and future research is needed to validate this instrument with men.

- *Television Involvement Scale* - Results supported the uni-dimensional nature of the scale. There was one factor with an eigen value greater than one (4.107) accounting for 51.34% of the variance. The reliability was .86.
- *Self-presentation in an exercise setting questionnaire*. Results revealed five factors with eigenvalues greater than 1. However, examination of the scree plot revealed two factors that should be retained. Factor 1 had an eigen-value of 6.35 accounting for 26.45% of the variance. Factor 2, whose questions all had to do with competitive sport situations, had an eigen-value of 2.33 accounting for 9.72% of the variance. Based on these results, a two-factor varimax rotation was performed. Five questions did not load on any factor. Ten questions were retained for the first factor. All these questions related to non-competitive exercise situations. Reliability for the items retained for factor 1 was .84. Nine questions were retained for the second factor. All these questions related to competitive situations where one might be judged. Reliability for the items retained for factor 2 was .77. The factor loadings for the rotated solution are shown in Table 2. The correlation between the two factors was $r^2=.383$.

ANCOVA for SPEX (non-competitive) and SPEX (competitive)

Based on the psychometric results for the SPEX scale, an ANCOVA was performed on the two new factors with the corresponding pre-test score for that factor as the covariate. Initial search for outliers revealed no outliers on pre or post test scores for either of the two factors. There were also no significant differences at pre-test between the three conditions or on the interaction for either factor ($p>.28$). There was a significant difference at pre-test for SPEX (non-competitive), $F(1, 97) = 17.22$,

$p < .001$, $\eta^2 = 0.15$, indicating that exercisers were more likely to endorse exercising around other than non-exercisers. There was no difference between exercisers and non-exercisers on SPEX (competitive). After adjustment for the covariate, there were no significant main effects for condition or physical activity for SPEX (non-competitive), nor was there an interaction.

Results for SPEX (competitive) showed that after adjustment for the covariate, there was a significant main effect for condition, $F(2, 96) = 5.36$, $p = .006$, $\eta^2 = .10$. Follow-up tests with a Bonferroni adjustment for multiple comparisons showed that participants in the appearance condition had significantly higher scores than participants in the control condition (indicating they were more likely to endorse participating in sport situations). Results are shown in Figure 4. There were no significant differences between exercisers and non-exercisers. There was a significant interaction between condition and physical activity, $F(2, 96) = 3.09$, $p = .05$, $\eta^2 = .06$. Follow-up univariate F tests with a Bonferroni adjustment for multiple comparisons showed that exercisers in the health condition had significantly higher scores than non-exercisers in the health condition. Also, similar tests showed that non-exercisers in the appearance condition had significantly higher scores than non-exercisers in the control condition. Results are shown in Figure 5.

Table 1

Demographic Information for Participants in Experiment One

Variable	Health	Appearance	Control	Total
Male (N)	12	10	8	30
Female (N)	24	26	23	73
Exerciser (N)	15	20	19	54
Non-exerciser (N)	21	16	12	49
Age in years(mean)	19.39	20.50	19.90	
TV Involvement (mean/s.d.)	34.17 (4.07)	35.06 (5.41)	34.32 (4.77)	
Minutes TV/week (mean)	313.7 (N=27)	163.21 (N=28)	235.21 (N=24)	

Table 2. Factor Loadings for Self-Presentation in an Exercise Setting Questionnaire

	Factor 1	Factor 2
Q1**	.188	.693
Q2*	.751	.060
Q3*	.467	.103
Q4**	.108	.601
Q5**	.079	.318
Q6**	.061	.431
Q7*	.679	.010
Q8**	.019	.676
Q9**	.083	.331
Q10**	.227	.463
Q11	.389	.333
Q12*	.549	.301
Q13*	.490	.300
Q14*	.587	.104
Q15	.304	.321
Q16**	.370	.499
Q17*	.593	.184
Q18*	.486	.071
Q19	.349	.341
Q20	.176	.288
Q21	.129	.235
Q22**	.055	.591
Q23*	.633	.387
Q24*	.485	.152

* Questions retained in factor 1 (non-competitive situation)

** Questions retained in factor 2 (competitive situation)

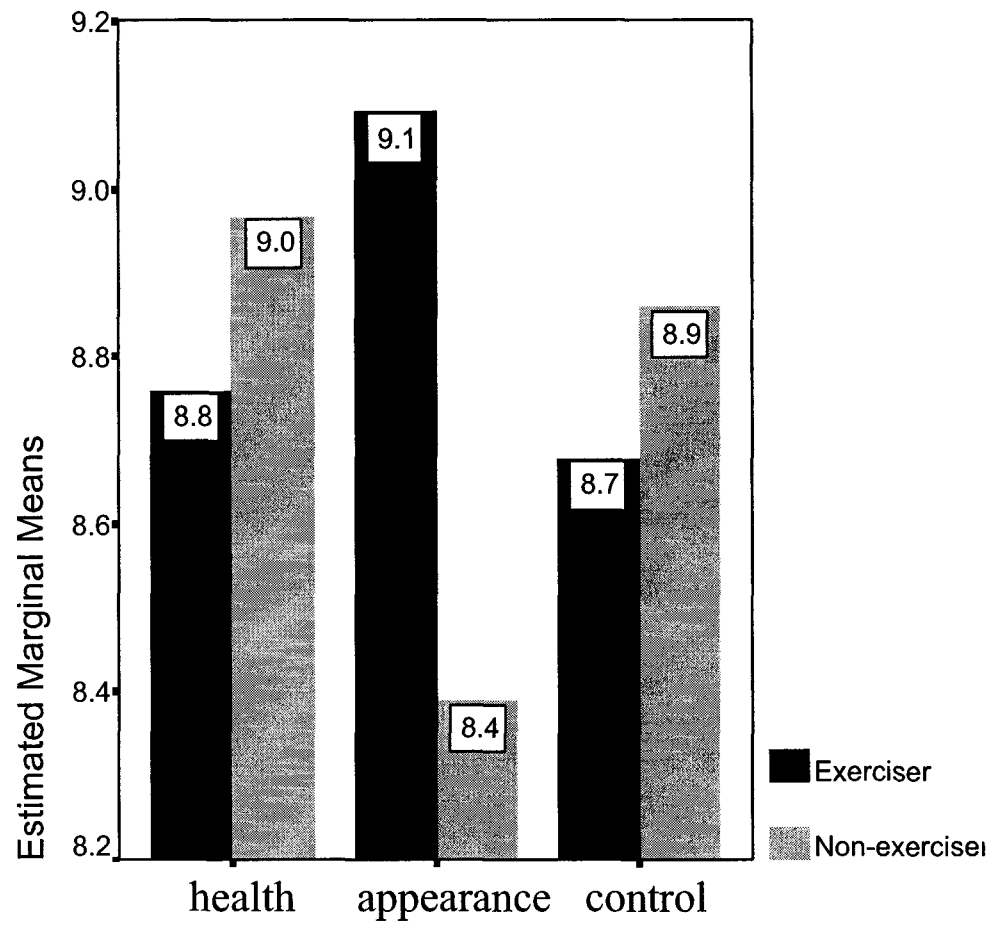


Figure 1. Post-test exercise attitudes by condition and physical activity controlling for pretest scores.

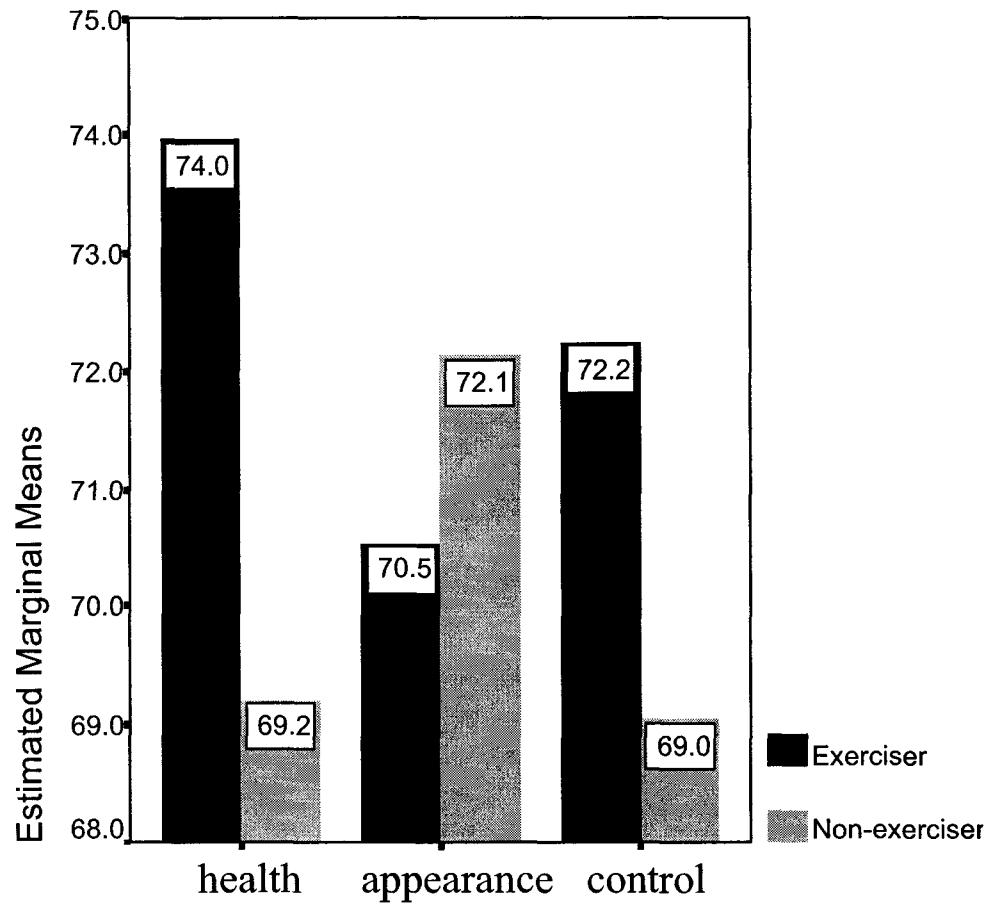


Figure 2. Post-test self-presentation in an exercise setting by Condition and Physical Activity controlling for pre-test scores.

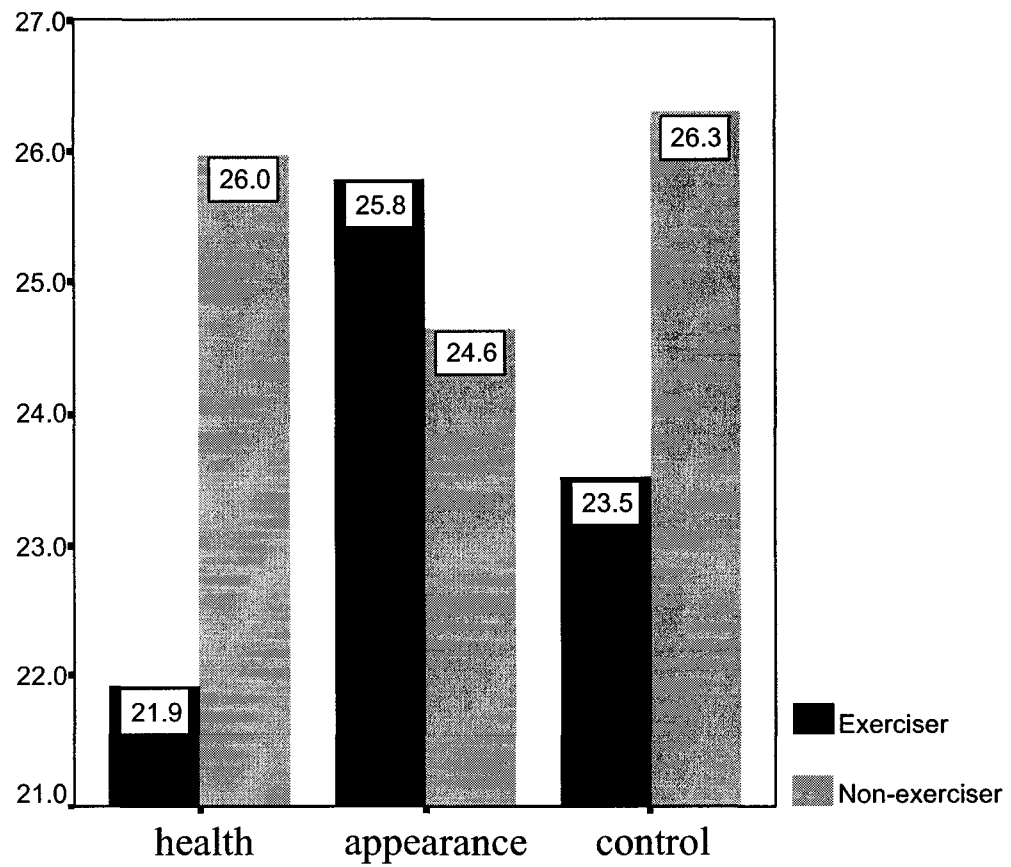


Figure 3. Post-test social physique anxiety by Condition and Physical Activity controlling for pre-test scores, television involvement and amount of television watched.

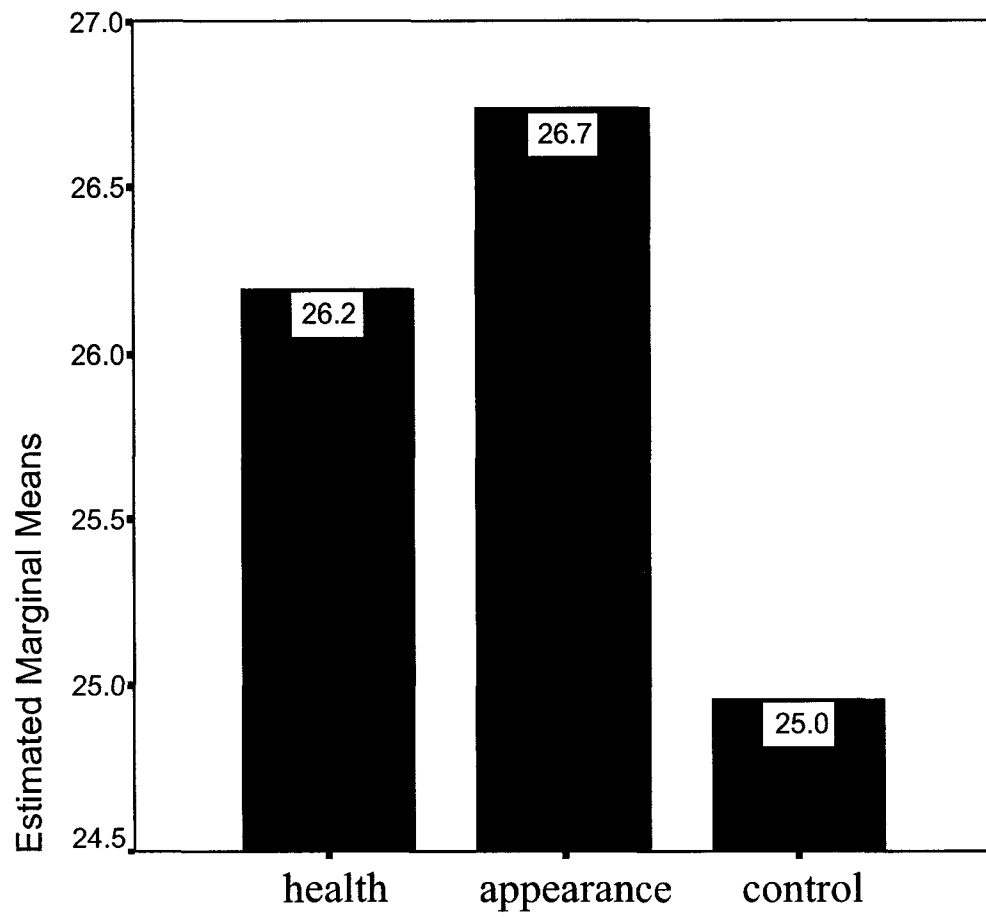


Figure 4. Post-test self-presentation (competitive) scores by condition.

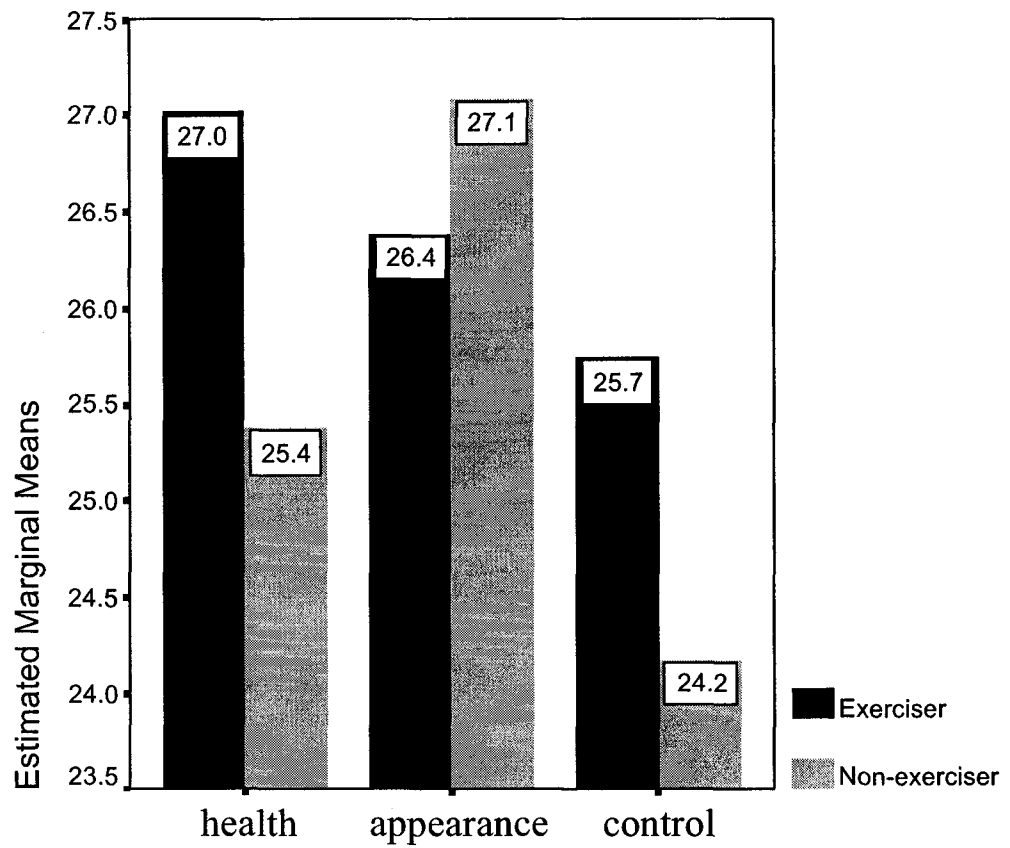


Figure 5. Post-test self-presentation (competitive) scores for condition by physical activity with pre-test as a covariate.

2.4 Discussion

Main effect of Condition

The hypothesis that participants in the health condition would have greater exercise attitudes and self-presentation in an exercise setting (SPEX) was not supported. Also not supported was the hypothesis that participants in the appearance condition would have higher social physique anxiety (SPA). Results showed that there were no significant main effects for condition indicating that the health-based exercise advertising, appearance-based exercise advertising, and control advertising did not differently affect viewers' exercise attitudes, SPA, or SPEX.

The results of this study are similar to the findings of Rhodes and Courneya (2001) who found no differences in participants' exercise attitudes after reading either health-based or appearance-based persuasive messages regarding exercise. Similarly, they found that gender did not affect exercise attitudes. The finding in the present study that there was no main effect for the advertising condition also supports previous literature that indicates that if health promotion advertising is to be effective it needs to be comprehensive and inclusive at many different levels. Cavill (1998) reported literature that found media campaigns alone had little effect on changing behaviour, but when included with community programs, some changes in behaviour were seen. Cavill also reported on a study that found a mass media campaign to promote physical activity, supported by a telephone help-line, shifted attitudes towards exercise but did not change exercise behaviour. Other research that examined the effects of England's *Active for Life* campaign, that included television advertising, newspaper advertising, magazine advertising, media advocacy, competitions, and

workplace promotions, found that there were no changes in amount of physical activity during two years of follow-up (Hillsdon et al., 2001). They further concluded that although there were small increases in knowledge about recommendations regarding physical activity, television advertising was likely not the critical component resulting in the change in knowledge. Given these results, it is not surprising that the small amount of health-based exercise advertising seen in the present study did not shift exercise attitudes for all participants.

Similarly, the relatively small dose of only three appearance-based advertisements was not enough to shift exercise attitudes, SPA, or SPEX across all participants. Previous studies that showed large amounts of television advertising at once did find that television advertising could influence body image (Heinberg & Thompson, 1995; Lavine et al., 1999). Indeed, in the present study it was found that people who watched more television (thereby likely increasing their exposure to appearance-based messages) had greater SPA than those who watched less television. However, results showed that the amount of television viewed in one week was not related to attitude towards exercise or SPEX. This relationship warrants further examination.

Although there was no main effect for SPEX, a post-hoc analysis showed that when total SPEX scores were broken down into two factors, SPEX (non-competitive) and SPEX (competitive), there was a significant main effect for condition on SPEX (competitive). Participants in the appearance condition were more likely to endorse exercising around others in sport or game situations than were participants in the control condition. Although no a priori hypothesis was made for this analysis, the

result is opposite what one might intuitively expect given the previous discussion in the literature about the possible negative effects of appearance-based advertising. It would be more probable that participants in the appearance condition would not want to exercise around others in a competitive situation. However, De Bourdeaudhuij and Sallis (2002) found that competition benefits were a significant contributor to physical activity in males aged 16 to 24. It may be that the extrinsically motivating, comparative nature, of the appearance videos highlighted competition as a potential benefit for physical activity. Although this is conjecture, further research is warranted.

It was also found that exercisers in the health and control conditions had significantly higher SPEX (competitive) scores than non-exercisers in the health and control conditions, but there were no differences between exercisers and non-exercisers in the appearance condition. When looking at the change scores, it was found that exercisers in the health condition had an increase in SPEX (competitive) scores while non-exercisers had a decrease. Participants in the control condition did not change from pre-test to post-test. This highlights the reinforcing nature of health promotion advertising for already active people.

Further Interactions

Although there were no main effects for video condition, there were some significant interactions between video condition and physical activity. When exercisers were compared to non-exercisers, it was found that non-exercisers in the appearance condition had worse exercise attitudes after watching the video than did exercisers in the appearance condition. This may be related to research that found that

for exercising women, only the appearance/weight management factor from the reasons for exercise scale was significantly correlated with frequency of exercise (Cash et al., 1994). It also may be that appearance can be a demotivating influence on exercise for people who are currently sedentary. The range of body types shown in the appearance-based advertising was very limited, and the negative reaction could be related to this narrow view. This is a similar result to that of Brooks (1999) who found that negative emotions can arise if the symbols of an active lifestyle, such as age and athleticism, do not match an individual's active lifestyle self-concept. The subtext in appearance-based exercise advertising is that you exercise to appear young, and thin if you are a woman, muscular if you are a man.

It was also found that exercisers in the health condition had less SPA than non-exercisers when amount of television viewed and television involvement were controlled for. When compared to pre-test scores, exercisers had a larger decrease in SPA than non-exercisers who had a very small decrease. It may be that exercisers who saw the health-based exercise advertising, which showed a variety of people exercising, not just the young and beautiful, were reinforced in the notion that anyone can exercise, and that variation in body types is acceptable. This idea is supported by the finding that exercisers in the health condition had higher SPEX scores than non-exercisers, the same finding as when SPEX (competitive) was similarly analyzed. These results differ from those of Fleming and Martin (2002) who found that non-exercisers who viewed an exercise video emphasizing physique had poorer body image than exercisers. However, the methodology of the present study differed from Fleming and Martin, in that there was a specific health condition, not just the

replacement of attractive people exercising with normal looking people as a control. Similarly, although Crawford and Eklund (1994) concluded that SPA was a factor in influencing exercise behaviour, they found that non-self-presentational motives for exercise, including health were unrelated to SPA. However, their study also used videos that emphasized appearance compared to a video that did not emphasize appearance and looked at the correlations to reasons for exercise. The only other study that compared health-based exercise messages to appearance-based exercise messages, found that low self-monitors had better exercise attitudes than high self-monitors after reading the health-based message (Rhodes & Courneya, 2001).

Gender and Physical Activity Level Comparisons

That there was a significant gender difference in SPA in the present study supports the findings of Frederick and Morrison (1996). Across all groups there was a difference in SPA at pre-test, and this result did not change at post-test. In addition, the finding that non-exercisers had significantly greater SPA than exercisers supports the results of Lantz et al. (1997) who found that SPA was negatively correlated with amount of leisure time physical activity in males. However, other researchers found that in a group of exercisers, SPA was not correlated with the number of days per week, or minutes per day, spent exercising (Crawford & Eklund, 1994). Further investigation of this relationship is warranted. It was also found that exercisers had better exercise attitudes and SPEX than non-exercisers at both pre and post test. This supports the work of Berry and Howe (2001) who reported significant differences between exercisers and non-exercisers when developing the SPEX questionnaire with

undergraduate participants. Further validation of this questionnaire is needed with older participants and participants of different economic background and ethnicities.

Conclusions

These results can be related to motivations for exercise – it would appear that health messages can be influential in reducing SPA, and increasing SPEX.

Unfortunately, the positive effect of health-based exercise advertising was only for exercisers. Appearance-based advertising had a slight negative effect on exercise attitudes, and a positive influence on people feeling confident in joining a sport situation.

The finding from the present study that health-promotion advertising only had positive effects for current exercisers may be related to results of one qualitative research study that found that non-active women questioned media and societal messages about exercise, believing that they might be incomplete (Leith & Shaw, 1997); particularly, they disbelieved the message that being physically active always leads to health. Rejeski (1992) also cites research that found drop-outs from an exercise program doubted the benefits of exercise. Another major theme that emerged from the Leith and Shaw study was that participants viewed physical activity as a non-leisure activity and preferred to spend their leisure time in other activities. Iso-Ahola and St. Clair (2000) acknowledge this difficulty when they wrote that “leisure activities are the only opportunity for most people to feel autonomy, freedom, and control. Therefore, they are particularly sensitive to undertaking exercise as a leisure activity because the Surgeon General says that they should... Such interpersonal environment is not autonomy supportive and thus not exercise enhancing” (p. 137).

The health promotion advertisements used in the present study all targeted increasing physical activity during leisure-time. Exercisers have already chosen exercise as a viable leisure-time activity and so the message given in health promotion advertising may be reinforcing that choice. However, the message may be falling on deaf ears among the sedentary who do not believe that exercise will increase their health or happiness.

It should be noted that this study was limited by the convenience sample of using students from an introductory psychology class. It was also limited by the predominantly white, middle-class nature of these participants. Data on ethnicity was not collected, and future research should consider this variable. Researchers have found that ethnicity played a role in the influence that SPA and SPEX had on exercise behaviour (Buza, Seals, Lantz, & Mayhew, 2001). Another limitation is that there are other possible motivators for physical activity than health or appearance that are not reflected in the advertising used in this study. Further examination of the potential two-factor nature of the SPEX questionnaire is also necessary. Future research should examine exercising advertising in other populations, including an older population and with different ethnic groups.

Chapter 3

Experiment 2

3.1 Introduction

Despite evidence that many health problems associated with increased age can be prevented or controlled by being physically active (Miller & Iris, 2002), engaging in adequate amounts of physical activity is an ongoing problem for older adults. The Canadian Fitness and Lifestyle Research Institute reports that physical inactivity increases with age and that gender differences may become more apparent in the older population with 67% of women inactive compared with 55% of men (CFLRI, 2001). Other factors that have been cited as contributing to decreased activity in older adults include poor health, lack of skills, expense, transportation difficulties, and beliefs that one deserves to rest, is too old, too overweight, doesn't know how to start, and that there are many risks involved when one is older (O'Neill & Reid, 1991). Other variables may also include the belief that exercise for older adults is not socially acceptable (Dunlap & Barry, 1999), and lack of social support (Dunlap & Barry, 1999; Rhodes, Martin, Taunton, Rhodes, Donnelly, & Elliot, 1999). Further, previous participation in physical activity may be an important factor in current levels of activity in older adults (Martin & Iris, 2002; Rhodes et al., 1999), and in middle-aged men (Suter & Marti, 1992).

Motivation for exercise, or lack thereof, may not be the same for older adults as for younger. For example, it has been found that middle-aged and elderly adults exercised for health reasons more so than younger adults (Duda & Tappe, 1989). In a study of middle-age men and women it was found that among the beliefs of why

women gain weight was they have more of a sedentary lifestyle as they age, while for men it was that they play fewer sports than when younger. Contributing to this lack of physical activity were the beliefs that women are content with life and do not have a problem with “letting oneself go” while men give up trying to be attractive and that further, women are more accepting of weight gain in their male partners (Ziebland, Robertson, Jay, & Neil, 2002). Other researchers have found that health is a greater motivation for exercising as age increases while exercising for sexual attractiveness becomes less important (Davis et al., 1995). Similarly, for men aged 50 to 82, and for women older than 60, it has been found that health is the most important reason that people joined physical education programs, followed in order of importance by social relations, autonomy, appearance, accomplishment, and aesthetics (Heitmann, 1986). However, the results were somewhat different for women 40-59: although health was still the most important motivator, appearance was second followed by achievement, with social reasons being last of the six motivators. It has also been found that social support and the social aspect of participation is as important to elderly people in a senior’s home as is actual participation in an exercise class (Miller & Iris, 2002). The challenge of physical activity was also a motivator for exercise; challenge was important because it allowed the participants to test limits, and to defy stereotypes of the elderly. Similarly, participants in another research study felt that they could avoid the label of “old” by taking part in an exercise class (Whaley & Ebbeck, 2002).

This idea of not wanting to appear old may be related to self-presentational concerns in older adults. If an image central to an individual’s identity is of being competent and skilled and a physical activity environment threatens that image, social

anxiety and subsequent avoidance of the environment is likely. For example, an older woman who doesn't consider herself athletic but wants to appear competent might avoid physical activity so as to avoid threats to her self-image. Martin, Leary and Rejeski (2000) concluded that self-presentational concerns in older adults generally relate to physical appearance, competence, and behavioural norms. In terms of physical activity, self-presentation may play a role in keeping older adults sedentary because of the belief mentioned above that exercise is for the young, or the fear of appearing incompetent. Conversely, the belief that one can avoid being labeled as old by participating in physical activity may be interpreted as a positive result of self-presentational beliefs (Martin et al., 2000).

Another aspect of self-presentation, social physique anxiety, has also been shown to be salient with an older population. Lantz et al. (1997) found that older women with high social physique anxiety were the least likely to exercise. Other researchers found that for older participants (mean age of 65 years) improvements in self-efficacy and fitness significantly predicted changes in social physique anxiety, but exercise frequency and changes in body fat did not (McAuley, Marquez, Jerome, Blissmer, & Katula, 2002). Further, it has been found that middle-aged women have as much physique anxiety as do younger women and that "younger" middle-aged women have higher social physique anxiety than "older" middle-aged women, (McAuley, Bane, Rudolph, & Lox, 1995).

How self-presentation and social physique anxiety may be influenced by exercise advertising, both health promotion and appearance-based, warrants examination in an older population. Although older women are more likely to use

media-presented health information, (Rimal, Flora, & Schooler, 1999) it is possible that appearance-based exercise advertisements might have negative self-presentational consequences that deter an individual's motivation to exercise. This idea is reflected by Brooks (1998), who identified age as a symbol of an active lifestyle; the message often heard is that older people should be resting and that exercise and sports are for the young.

The nature of advertising itself may also contribute to this relationship as there is evidence that older people are under represented or negatively represented in commercial advertising. For example, although one group of researchers found that there was relatively little negative stereotyping of the elderly in magazine advertisements overall, they did find that over time, negative stereotyping was increasing while positive stereotyping was decreasing (Miller, Miller, McKibbin, & Pettys, 1999). They also found that the elderly are under represented in advertising used in their study with only 6.6% of advertisements depicting elderly people. Other researchers found similar findings in that only 5.7% of magazine advertising featured older men and 2.4% featured older women (McConatha, Schnell & McKenna, 1999). Further, advertising that uses older models and actors tends to promote pharmaceuticals, travel, and finances, while using older models is least recommended for advertisers of sporting goods, shampoos, and electronics (Balazs, 1995). McConatha et al. (1999) also found that only one advertisement in their study, (for a vitamin) featured an older women in a physically active role. Older men were somewhat more frequently portrayed in active roles such as traveling or playing golf. Having few older adults in sporting goods advertising may contribute to the belief

that older people should not participate in physical activity. Whether older adults are influenced by appearance-based exercise advertising that features only younger people is a question that needs to be addressed. Further, health promotion advertising has been shown to do little to change exercise behaviour in people aged 18-65 (Cavill, 1998), and so the efficacy of health promotion exercise advertising with older adults also warrants examination.

Purpose

The influence of health-based and appearance-based exercise advertising on self-presentation, social physique anxiety, and exercise attitudes were addressed with younger participants in Experiment One. The purpose of the present experiment was to extend the findings of Experiment One to look at these questions in a middle-aged sample. Further, a sub-sample of participants from Experiment One were used to see if there were differences in any of these relationships between older and younger participants.

It was hypothesized that:

Older participants only:

1. Participants in the health condition would have a greater post-test attitude toward exercise and would be more likely to indicate wanting to exercise around others than participants in the appearance condition.
2. Participants in the appearance condition would have greater post-test social physique anxiety than participants in the health condition.

Age-group comparison:

3. Younger participants would have more SPA than older participants.
4. Older participants in the health condition would have higher ratings of exercise attitude than younger participants.

Independent Variables

1. Condition – health, appearance, or control advertising.
2. Age-group – younger or older

Dependent Variables

1. Exercise attitude
2. Social Physique Anxiety (SPA)
3. Self-presentation in a sport setting (SPEX (competitive))
4. Self-presentation in an exercise setting (SPEX (non-competitive))

Covariates

1. Pre-test dependent variable scores
2. Physical activity level (exerciser or non-exerciser)
3. Exercise History (EXHIST)

3.2 Method

Participants

Participants were 29 adults ranging in age from 44 to 67 (mean age 55.66 years, standard deviation = 8.17) who volunteered through the university community and through various community groups. There were 21 females and 8 males. Using the same classification criteria for physical activity as in Experiment One, there were 23 exercisers and 6 non-exercisers. None of the non-exercisers were male.

Materials

The same videos and questionnaires were used as in Experiment One.

Procedure

Participants were mailed the pre-test questionnaires with an informed consent, and instructions for completion (see Appendix K). At the same time that participants were called to get their mailing address, an appointment for the second session was made. All appointments were made for one week to ten days after mailing. Participants were told on the phone and in the letter to please fill in the questionnaires as soon as possible after receiving them in the mail.

When participants came in for the second session, procedure followed exactly the same as in Experiment One, including random assignment to conditions.

Analyses

Data were screened for outliers. A series of ANCOVAs on condition (health, appearance, control) for each dependent variable were performed with pre-test scores, physical activity, and whether they had exercised for three to six months since high school (EXHIST) as covariates. The EXHIST measure came from a single question

on the demographic questionnaire (see Appendix B). Surprisingly, physical activity and EXHIST were uncorrelated ($r^2=.03$) and so both could be included as covariates. Based on the psychometric results of Experiment One that found SPEX to be a two-factor model, similar ANCOVAs were also performed for SPEX (non-competitive) and SPEX (competitive). Unfortunately, there were not enough older participants to do separate psychometric analyses on the questionnaires.

In addition to these analyses, 29 participants from the Experiment One data set were quasi-randomly selected by SPSS to match the older participants in terms of number of participants per condition, gender and physical activity so that an age comparison could be made. The mean age for this group was 19.2 years (s.d. = 1.49). A series of 3 (condition) by 2 (old and young) ANCOVAs were performed with pre-test scores and physical activity as covariates. Exercise history was not used as a covariate for this series of analyses because many of the participants from Experiment One were in first year university and had been out of high school for less than six months. There were no significant differences at pre-test for exercise attitudes, SPA, or SPEX between the two groups of participants.

3.3 Results

Demographics

There were 9 older participants in the health condition, 10 in the appearance condition, and 10 in the control condition. Data were screened for outliers and none were found for pre-test or post-test scores on any of the three dependent variables.

Demographic data are presented in Table 3.

Condition ANCOVAs for older participants.

There were no significant differences at pre-test between conditions for any of the dependent variables (all $p > .5$). The means and standard deviations for pre-test and post-test scores by condition are shown in Table 4.

- *Exercise Attitudes* - The results of the ANCOVA on exercise attitudes showed that pre-test exercise attitudes, $F(1, 23) = 172.20, p < .001$, physical activity, $F(1, 23) = 19.68, p < .001$, and EXHIST, $F(1, 23) = 5.85, p < .05$, all significantly adjusted the DV scores. After adjustment for the covariates, exercise attitudes did not differ significantly between conditions.
- *SPA* - The results of the ANCOVA on SPA showed that pre-test SPA, $F(1, 23) = 55.92, p < .001$ significantly adjusted the DV scores, but physical activity, and EXHIST did not. After adjustment for the covariates, SPA did not differ significantly between conditions.
- *SPEX (non-competitive)* – The results of the ANCOVA on SPEX (non-competitive) showed that pre-test scores significantly adjusted the DV scores, $F(1, 23) = 152.93, p < .001$, but physical activity and EXHIST did not. After adjustment for the covariates, there was a significant difference between conditions on SPEX (non-competitive), $F(1, 23) = 3.56, p < .05, \eta^2 = 0.21$. Follow-up tests with a Bonferonni adjustment for multiple comparisons showed that participants in the health condition were more likely to indicate wanting to exercise around others than participants in the control condition. Figure 6 shows this relationship.
- *SPEX (competitive)* – The results of the ANCOVA on SPEX (competitive) showed that pre-test scores significantly adjusted the DV scores, $F(1, 23) =$

54.09, $p < .001$, but physical activity and EXHIST did not. After adjustment for the covariates, there were no significant differences between conditions.

Condition by Age-group ANCOVAs

There were no significant differences at pre-test on condition, age-group or the interaction for any of the dependent variables with the exception of SPEX (competitive). For SPEX (competitive) there was no significant difference for condition, or the interaction, but there was a significant effect for age-group, $F(1, 52) = 4.48, p < .05, \eta^2 = 0.07$. Younger participants had significantly higher scores than older participants.

- *Exercise Attitudes* - For the second set of analyses, the results of the ANCOVA on exercise attitudes showed that pre-test attitudes significantly adjusted the DV scores, $F(1, 49) = 197.61, p < .001$, as did physical activity, $F(1, 49) = 8.58, p < .005$. After adjustment for the covariates, there were no significant differences between conditions or age-group, nor was there an interaction.
- *SPA* - The results of the ANCOVA on SPA showed that pre-test attitudes significantly adjusted the DV scores, $F(1, 49) = 150.23, p < .001$, but physical activity did not. After adjustment for the covariates, there were no significant differences between conditions or age-group, nor was there an interaction.
- *SPEX (non-competitive)* - The results of the ANCOVA on SPEX (non-competitive) showed that pre-test attitudes significantly adjusted the DV scores, $F(1, 49) = 185.71, p < .001$, but physical activity did not. After adjustment for the covariates, there were no significant differences between conditions or age-group. There was a significant interaction, $F(2, 49) = 3.28, p < .05$. Follow-up

univariate F tests with a Bonferroni adjustment for multiple comparisons showed that younger participants in the control condition had higher scores than did older participants.

- *SPEX (competitive)* - The results of the ANCOVA on SPEX (competitive) showed that pre-test attitudes significantly adjusted the DV scores, $F(1, 49) = 111.13, p < .001$, but physical activity did not. After adjustment for the covariates, there were no significant differences between conditions or age-group, nor was there an interaction.

Post-hoc Analyses

1. *Adjusting for amount of television watched* – The amount of television watched had no effect on SPA, SPEX, or attitudes towards exercise. Nor was there a significant difference on SPA, SPEX, or attitudes towards exercise between people who watched more or less television.

2. *SPA by age in the older group.* In an effort to replicate the findings of McAuley et al. (1995) that SPA was higher in “younger” middle-aged women than in “older” middle-aged women, the older participants were classified as younger middle-age and older middle-aged using a median split of 56 years. Significant differences were found for SPA, $F(1, 27) = 8.19, p < .005$, indicating that participants aged 56 to 67 had significantly less SPA than participants aged 44 to 56. Similar analyses with exercise attitudes, SPEX (non-competitive), and SPEX (competitive) were not significant.

Table 3

Demographic Information for Older Participants

Variable	Health	Appearance	Control	Total
Male (n)	3	2	3	8
Female (n)	6	8	7	21
Exerciser (n)	8	9	6	23
Non-exerciser (n)	1	1	4	6
Age – mean (s.d.)	54.6 (7.84)	59.8 (6.37)	51.1 (8.29)	
TVIS- mean (s.d.)	36.00 (5.89)	38.10 (3.18)	37.33 (3.46)	
Minutes of TV (mean)	413.33	309.00	538.89	

Table 4

Means and standard deviations for pre-test and post-test scores by condition, experiment two.

Variable	Health M (sd)	Appearance M (sd)	Control M (sd)
Exercise Attitudes (pre)	9.00 (1.00)	9.10 (1.73)	8.40 (1.65)
Exercise Attitudes (post)	9.11 (.93)	9.30 (1.34)	8.50 (1.35)
SPA (pre)	20.00(6.87)	24.10 (6.92)	22.40 (8.40)
SPA (post)	20.78 (8.71)	20.90 (6.74)	22.10 (6.97)
SPEX – total (pre)	68.22 (13.31)	70.80 (17.08)	71.70(12.01)
SPEX – total (post)	73.78 (14.27)	71.70 (14.88)	71.90(11.31)
SPEX – non-competitive (pre)	30.56 (5.94)	31.90 (8.56)	31.60 (6.87)
SPEX – non-competitive (post)	33.11 (4.88)	32.80 (7.27)	31.10 (7.43)
SPEX – competitive (pre)	24.11 (6.41)	23.60 (6.51)	25.50 (4.45)
SPEX – competitive (post)	25.44 (6.86)	23.90 (5.97)	25.60 (2.46)

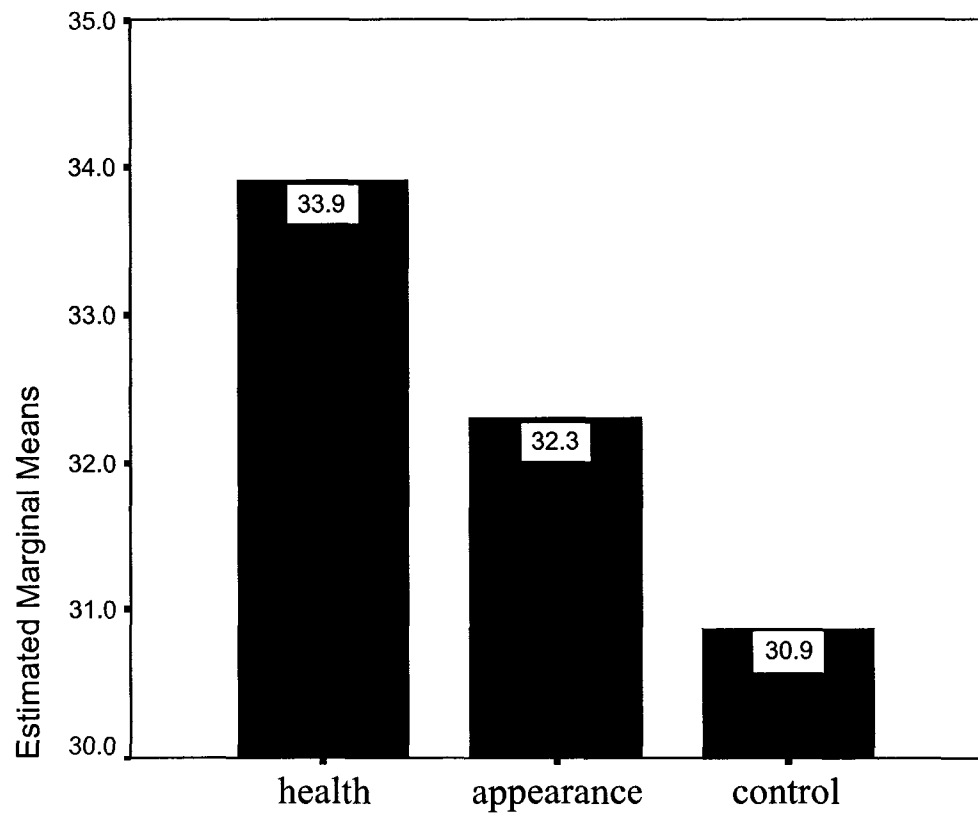


Figure 6. Post-test self-presentation (non-competitive) scores by condition for the older participants.

3.4 Discussion

Analyses of older participants

The hypothesis that participants in the health condition were significantly more likely to endorse exercising around other people than participants in the appearance or control conditions was supported, although this was limited to a non-competitive exercise situation and not a competitive situation. There were no differences in exercise attitudes or SPA. The hypothesis that participants who viewed the appearance-based exercise advertising would have greater SPA was not supported; indeed, the appearance-based exercise advertising did not influence any of the dependent variables. These results are supportive of several studies that found that exercising for health increased with age, while exercising for sexual attractiveness decreased with age (Davis et al., 1995; Gill & Overdorf, 1994). Health-based exercise advertising, which features people of all ages exercising in a noncompetitive environment, resulted in an increase in endorsing exercising around others perhaps because of a decrease in self-presentational concerns that one does not have the skills or strength required or will be unable to make a desired impression. Further, this result supports previous literature reporting that health was a strongly motivating factor for women aged 50 to 60 (Gill & Overdorf, 1994). Although it was not possible to compare exercisers and non-exercisers due to the small number of sedentary participants in this study, a post-hoc test limited to only exercisers supported this relationship. Consistent with the findings of Experiment One, it would appear that for participants who are already physically active, health promotion

advertising reinforces the importance of exercising for health, while reducing concerns about exercising around others.

Previous research has shown that older people are under-represented in advertising (Miller et al., 1999; McConatha et al., 1999) and also that older people are rarely shown in sporting goods advertising (Balazs, 1995) or in active roles in general (McConatha et al., 1999). This was true for the appearance-based exercise advertising shown in the present study – none of the advertisements had older people as models. However, the lack of older active models in the appearance advertising did not have an influence on participant attitudes in this study. It should be noted however, that having so few non-exercisers in this study limited the analyses that could be done, and it was not possible to replicate the finding of Experiment One that showed that appearance-based exercise advertising negatively influenced exercise attitudes. Further research is necessary to test this relationship in older, sedentary adults.

Further, despite the under-representation of older people in advertising, it is interesting to note that exposure to television did not have an effect on SPA as it did with the university aged participants in Experiment One. It was also found in Experiment One that exercisers in the health condition had significantly less SPA than non-exercisers when amount of television was adjusted for. However, given the very small number of older non-exercisers in the present study, it was not possible to look at the relationship of appearance-based exercise advertising in sedentary, older adults and further data should be collected before any conclusions are reached regarding the relationship of television exposure to SPA in older adults.

Analyses of older participants compared to younger participants

Although the hypothesis that older adults in the health condition would have better exercise attitudes than younger participants was not supported, it was found that younger participants were more likely to endorse exercising around others in a competitive context than older participants. Although some researchers have reported that competition was one of the least valued incentives for exercise in people aged 20 to 60, and this did not change with age (Gill & Overdorf, 1994), the finding in the present study is supportive of other researchers who found that the need for competition decreased across ages (Tappe & Duda, 1988; Heitmann, 1986). Tappe and Duda (1988) found that for middle-aged and older adults, exercising to gain recognition was negatively related to life satisfaction which, in turn, was the main predictor of exercise behaviour. Further, the more the individual sought to exercise around others for social reasons was positively associated with life satisfaction, but physically active adults who reported high levels of satisfaction with life were less reliant on feedback from others to continue exercising. These findings, and the findings in the present study, indicate that self-presentational concerns in a competitive exercise setting do not appear to be salient for older, active adults.

The results of this study did not support the hypothesis that younger participants would have higher SPA than older participants, but the results did support the findings of McAuley et al. (1995) who found that for women aged 45 to 59, there were no differences in SPA with college-aged women. There were no significant age-group differences on SPA in the present study between younger participants (mean age 19.7) and all the older participants (mean age 55.2), and this relationship was maintained when the analysis was restricted to women only.

However, a post-hoc analysis that split only the older participants into a younger group and an older group showed a large difference between SPA – those participants aged 56 and older had lower SPA than those participants aged 44 to 56, a similar finding to McAuley et al. (1995). It is of interest to note that the participants in the McAuley et al. study were sedentary, while the participants in the present study were primarily active exercisers, and so it can be concluded that this relationship is not restricted to the sedentary. Further research is needed to replicate these findings with both exercising and non-exercising older adults.

Conclusions

In conclusion, the results of this study found that for older adults, health-based exercise advertising may reinforce the positive effects of exercise in those already active. Further, the health-based exercise advertising may have reinforced the social aspect of exercise which has been found to be the second most important exercise motivator for middle-aged and elderly adults (Heitmann, 1986). Participants in this study who viewed the health-based advertising were more likely to endorse exercising around others in a non-competitive environment. It was not found that appearance-based exercise advertising had any effects on older adults, however, there was a small number of non-exercising participants and it was not possible to replicate some of the analyses from Experiment One.

This leads to one major limitation in this study: the small number of non-exercising participants. These results are further limited by the self-selection of the participants. Although previous research indicated that activity declines with increased age (CFLRI, 2001), in this study only 21% of participants could be

classified as non-exercisers. Participants were recruited from the university community and from such organizations as new-comers clubs, museum volunteer organizations, and Rotary clubs. People who are already active in the community may be more likely to be more physically active. This may also be related to the findings of Tappe and Duda (1988) who reported that physical competence was the best predictor of increased life satisfaction. The participants in this study were physically active, involved in their communities, and likely had high life satisfaction. The results of this study warrant further research with less active and involved older adults.

Chapter 4

Experiment 3

4.1 Introduction

Sociocultural theory posits that unrealistic ideals of attractiveness, as are often portrayed in television advertisements, are responsible, at least in part, for high levels of body dissatisfaction (Thompson, Heinberg, Altabe, & Tattleff-Dunn, 1999). However, the results of the first two experiments in this dissertation indicated that appearance-based exercise advertising had little or no significant effects on attitudes towards exercise, social physique anxiety (SPA), or self-presentational concerns in a non-competitive or competitive setting (SPEX) for women or men. That the appearance-based exercise advertising had no effect on SPA for women in particular, was somewhat surprising in light of sociocultural theory and supporting research that showed that televised appearance-based advertising can have negative consequences for women's body image (Lavine et al., 1999; Hargreaves & Tiggemann, 2002), and that appearance-based exercise videos can negatively influence body image (Fleming & Martin, 2002). However when this relationship is examined more closely, as in the case of a meta-analysis by Groesz et al. (2002), it can be concluded that the influence of appearance-based advertising is strongest for women who are especially vulnerable to activation of a thinness schema. Hargreaves and Tiggemann (2002) define such a schema as a cognitive construction that organizes the processing of information relating to the self. Groesz et al. (2002) concluded that the experimental effect of decreased body satisfaction after viewing thin women is related to the activation of an

already existing thinness schema in females, rather than the cultivation of such a schema.

Hargreaves and Tiggemann (2002) have examined the idea of schema activation and concluded that appearance schematics increased vulnerability to negative effects of appearance-based television advertising. Vulnerability to appearance messages appears to be a key variable in the relationship between societal messages regarding appearance and body image disturbances. For example, some researchers found that women who were high in sociocultural awareness and internalization of appearance messages had greater distress following exposure to appearance-based television advertising (Heinberg & Thompson, 1995). These researchers used a scale developed by Heinberg, Thompson, and Stormer (1995) to look at sociocultural influences on body image. In developing their questionnaire, these authors found that the internalization of pressures to meet a certain standard of attractiveness may be an important variable in body dissatisfaction. Similarly, Stice and Whitenton (2002) found in a prospective study of adolescent girls, that internalization of a thin ideal predicted body dissatisfaction.

The amount of exposure to media may also play a role in the relationship between body image and ideal appearance images. Researchers have found that media exposure had a direct effect on eating disorder symptoms and gender-role endorsement in women (Stice, Schupak-Neuberg, Shaw & Stein, 1994). In turn, gender-role endorsement was related to the internalization of an ideal body-type which predicted body dissatisfaction. They concluded that internalization of a thin ideal for women mediates the relationship between amount of media exposure and

body dissatisfaction. Similarly, Botta (1999) found that for adolescent girls who already endorse a thin ideal, the amount of television exposure predicted increased body dissatisfaction; however, she did not find a direct relationship between television exposure and body image disturbance. In a review article, Thompson and Heinberg (1999) concluded that long-term daily exposure to mass media messages regarding a thin ideal for women could be labeled “toxic” particularly for those women who have internalized societal ideals of attractiveness. Other researchers have found that for women, exposure to thinness-promoting media predicted eating disorder symptoms in women, and for men, similar exposure predicted men’s attitudes to favor personal thinness and dieting (Harrison & Cantor, 1997). These results were more consistent for magazine reading than for television viewing.

The study by Harrison and Cantor (1997) is one of the few research articles in this area to include men, with most of the research to date focusing on women. As Groesz et al., (1995) wrote: the effects of appearance images are stronger for women than for men because “boys learn to view their bodies as a tool to master the environment, whereas girls learn that their bodies should be used to attract others” (*p.* 2). They used this rationale to justify only including studies with female samples in their meta-analysis. However, their contention may be incorrect and the issue of male body image is receiving increased attention with some researchers starting to look for examples of changes in male muscularity in North American culture. For example, it was found that the size of male human action figures have increased in muscularity over the past 30 years and some now exceed what is physically possible (Pope, et al., 1999). Similarly, an analysis of Playgirl magazine centerfold models showed that the

ideal male body has become increasingly muscular, and that the most muscular models were seen after 1994 (Leit, Pope, & Gray, 2001). Berry and Lauzon (in press) found that men's fitness magazines invariably focused on a very muscular look and concluded that the concentration on a single, very muscular, ideal male body type in fitness magazines might be related to recent literature that suggests that poor body image in males can result in muscle dysmorphia, the fear of appearing weak and non-muscular (Olivardia, 2001). It has also been suggested that increased research is needed to look at body dissatisfaction in men (Stice & Whitenton, 2002) and such descriptive research as described above needs to be followed by experimental research that examines if images of attractive, very muscular men negatively influences body image in men in the same way that images of attractive, very thin women can have deleterious effects on women's body image.

The possible negative effects of societal appearance messages on body image in both men and women could include self-presentational difficulties. Seeing images of very attractive people might result in higher social physique anxiety or the wish to avoid being in situations where personal appearance or competence might be judged. Indeed, some authors have cited unpublished research that identified self-presentation as a facet of the perfectionism related to eating disorders; that is, perfectionism includes striving to appear flawless to others (Hewitt, Flett, & Ediger, 1995). These authors found that needing to appear perfect to others was related to anorexic and bulimic predispositions, as well as concern about being negatively evaluated (Hewitt et al., 1995). Other researchers found self-rated attractiveness was negatively correlated with social anxiety, an outcome of self-presentational beliefs (Cash, Cash,

& Butters, 1983). One study that involved gender comparisons found that younger women were more publicly self-conscious than similar aged men, or older men or women, and further, that older men had significantly less social anxiety than any other group (Gould, 1987). Such self-presentational concerns may be related to sociocultural attitudes towards appearance and further extend to exercise behaviour.

Purpose

The question remains as to whether exercise advertising, whether health or appearance-based, influences exercise attitudes, SPA, or SPEX either in a non-competitive or competitive setting. The results of previous research would indicate that sociocultural attitudes to appearance could be a mediating variable in this relationship. Therefore, the purpose of this experiment was to extend the findings of the previous two experiments in this dissertation by testing if socio-cultural attitudes towards appearance is a mediating variable on the effects of health or appearance-based advertising on exercise attitudes, SPA, or SPEX. Further, although no significant gender differences were found in Experiment One, this experiment will look to see if there are differences between men and women in any of the conditions, on the dependent variables.

It was hypothesized that:

1. Participants high in sociocultural internalization and awareness who are in the appearance condition will have higher social physique anxiety than those in the health or control conditions.

2. Participants low in sociocultural internalization and awareness will not be affected by the appearance-based advertising on any of the dependent variables.
3. That there will be no significant differences between men and women on SPA, exercise attitudes, SPEX (competitive), or SPEX (non-competitive).

Independent Variables

1. Condition – health, appearance, or control advertising.
2. Internalization of sociocultural attitudes toward appearance – High and Low.
3. Awareness of sociocultural attitudes toward appearance – High and Low.

Dependent Variables

1. Exercise attitudes
2. Social Physique Anxiety (SPA)
3. SPEX (competitive)
4. SPEX (non-competitive)

Covariate

1. Pre-test scores for each dependent variable.

4.2 Method

Participants

Participants were 109 students in an introductory psychology course who received credit points toward their final grade for participation. This was a distinct set of students than those from Experiment One. The data from 20 participants were not used because there were missing data (N=5), participants did not show up for the second session (N=10), or because participants' English skills were very poor and it was judged they would not understand the verbal messages in the videos (N=5). This left 89 participants in the final data set.

Materials

The same videos were used as in previous experiments.

Questionnaires

The pre-test questionnaires consisted of a demographic questionnaire that included questions on exercise attitudes (same as previous experiments), the Social Physique Anxiety Scale, and the Self-presentation in an Exercise Setting Questionnaire. Participants were also given either the original Sociocultural Attitudes towards Appearance Questionnaire, developed for women by Heinberg et al. (1995) (see Appendix L) or a version adapted for males for the purposes of this study (see Appendix M).

The post-test questionnaires consisted of a modified demographic questionnaire (same as previous experiments), the Social Physique Anxiety Scale, the Self-presentation in an Exercise Setting Questionnaire, and the TV Involvement Questionnaire.

Socio-Cultural Attitudes Towards Appearance (SATAQ) was measured with the Socio-cultural Attitudes towards Appearance Questionnaire, a fourteen-item questionnaire measured on a five-point Likert scale ranging from completely agree to completely disagree. There are two subscales that reflect *internalization* of sociocultural attitudes and *awareness* of sociocultural attitudes. Heinberg et al. (1995) reported a correlation of .34 between the two subscales. They also report Cronbach's alpha values of .88 for the internalization scale, and .71 for the awareness scale. For the purposes of this study, the questionnaire was adapted for men by changing the wording of some of the questions. For example the original item "Women who appear in TV shows and movies project the type of appearance that I see as my goal," was changed to "Men who appear in TV shows and movies project ..."

Procedure

All participants volunteered for the experiment by signing up during set times posted on a psychology class website. The description of the experiment, as it appeared on the web site, was the same as for Experiment One. Up to twenty participants could sign-up for one time slot and participants were assigned to a treatment condition of health, appearance, or control, in the order that they signed up.

Methods followed the same as Experiment One with the only difference during the first session being that participants also completed the SATAQ. Women were given a package of questionnaires that included the original SATAQ. Men were given a package of questionnaires that included the version adapted for men. During the second session, participants viewed one of the three videos and then completed the modified demographic, SPA, SPEX, and TV Involvement questionnaires.

Analyses

Following methodology by Heinberg and Thompson (1995), a median split was used to create groups that were high and low on SATAQ (internal) and SATAQ (awareness). For SATAQ (internal) the median was 25, and for SATAQ (awareness) the median was 20. A series of 3 (condition) by 2 (high and low internalization) ANCOVAs were performed for each dependent variable, with pre-test scores as covariates. A similar series of ANCOVAs was performed with high and low awareness as one of the independent variables. A series of 3 (condition) by 2 (gender) ANCOVAs were also performed, with pre-test scores as covariates.

4.3 Results

Data were screened for outliers and it was found that there were two outliers in pre-test exercise attitudes, six outliers in post-test exercise attitudes, and one outlier for pre-test SPEX (competitive). These participants were deleted from the data set leaving 80 in the final set. Table 5 shows the number of participants for each condition by SATAQ subscale, gender, and level of physical activity.

A correlation of .34 was found for the two subscales of the SATAQ. Results for the partial correlations between the dependent variables, controlling for physical activity, are shown in Table 6.

Demographics

There were 28 participants in the health condition, 28 in the appearance condition, and 24 in the control condition. There were 49 females and 31 males. Participants were also classified as either exercisers or non-exercisers, by whether they answered yes or no to the question “do you currently exercise for at least 30

minutes, three times a week.” In this way, 54 participants were classified as exercisers, and 26 as non-exercisers.

Condition by SATAQ (internal) ANCOVAs

There were no significant differences at pre-test on condition or the interaction for any of the dependent variables. There were no significant differences between high and low SATAQ (internal) on exercise attitudes, or either SPEX subscales, but there was a significant difference for SPA, $F(1, 74) = 9.54, p < .005, \eta^2 = .19$, indicating that people high on the internalization subscale had higher SPA than individuals who had low scores on this subscale.

- *Exercise Attitudes* – The results of the ANCOVA on exercise attitudes showed that pre-test SPEX significantly adjusted the DV scores, $F(1, 73) = 59.07, p < .001$. After adjustment for the covariate, there was a small difference between conditions, $F(2, 73) = 2.38, p < .10, \eta^2 = .06$. Follow-up tests showed that participants in the health condition had higher exercise attitude scores than did participants in the appearance condition.
- *SPA* – The results of the ANCOVA on SPA showed that pre-test SPA significantly adjusted the DV scores, $F(1, 73) = 313.99, p < .001$. After adjustment for the covariate, there were no significant differences between conditions, high and low SATAQ (internal) nor was there an interaction.
- *SPEX (competitive)* - The results of the ANCOVA on SPEX (competitive) showed that pre-test SPEX significantly adjusted the DV scores, $F(1, 73) = 270.57, p < .001$. There was no significant difference between conditions, or high and low SATAQ (internal). There was a significant interaction, $F(2, 73) = 3.15,$

$p < .05$, $\eta^2 = .11$, indicating that participants who were high in SATAQ (internal) in the health condition were less likely to endorse exercising around other people in a competitive situation than participants low in SATAQ (internal) in the health condition. Figure 7 shows this interaction.

- *SPEX (non-competitive)* - The results of the ANCOVA on SPEX (non-competitive) showed that pre-test scores significantly adjusted the DV scores, $F(1, 73) = 182.57$, $p < .001$. There was no significant difference between conditions, high and low SATAQ (internal), nor was there an interaction.

Condition by SATAQ (aware) ANCOVAs

There were no significant differences at pre-test on condition, high and low SATAQ (aware), or the interaction for any of the dependent variables.

- *Exercise Attitudes* – The results of the ANCOVA on exercise attitudes showed that pre-test SPEX significantly adjusted the DV scores, $F(1, 73) = 58.48$, $p < .001$. After adjustment for the covariate, there was a small difference between conditions, $F(2, 73) = 2.10$, $p = .10$; participants in the health condition had higher exercise attitude scores than did participants in the appearance condition.
- *SPA* – The results of the ANCOVA on SPA showed that pre-test SPA significantly adjusted the DV scores, $F(1, 73) = 340.43$, $p < .001$. After adjustment for the covariate, there were no significant differences between conditions, high and low SATAQ (aware) nor was there an interaction.
- *SPEX (competitive)* - The results of the ANCOVA on SPEX (competitive) showed that pre-test scores significantly adjusted the DV scores, $F(1, 73) =$

260.26, $p < .001$. There was no significant difference between conditions, or high and low SATAQ (aware), nor was there an interaction.

- *SPEX (non-competitive)*- The results of the ANCOVA on SPEX (non-competitive) showed that pre-test scores significantly adjusted the DV scores, $F(1, 73) = 187.82, p < .001$. There was no significant difference between conditions, or high and low SATAQ (aware), nor was there an interaction.

Condition by Gender ANCOVAs

The series of ANCOVAs on condition by gender revealed significant interactions. For the sake of brevity, only the significant results are reported.

- *Exercise Attitudes*. There was a significant effect for condition, $F(2, 73) = 4.53, p < .05, \eta^2 = .07$, showing that participants in the health condition had significantly higher ratings of attitudes towards exercise than did participants in the appearance condition. There was also a significant interaction for exercise attitude, $F(2, 73) = 4.53, p < .05, \eta^2 = .11$. Follow-up tests with a bonferroni adjustment for multiple tests showed that males in the appearance condition reported significantly lower exercise attitudes than did females. Further, males in the health condition had significantly higher exercise attitudes than did males in the appearance condition. Figure 8 shows this interaction.
- *SPEX (non-competitive)*. There was a significant interaction for SPEX (non-competitive), $F(2, 73) = 3.82, p < .05, \eta^2 = .07$. Follow-up tests with a bonferroni adjustment for multiple tests showed that males in the

appearance condition had significantly lower SPEX (non-competitive) scores than did participants in the health or control conditions.

- In addition, there were no significant differences between genders on SATAQ (total) or either of the subscales. Neither were there any significant differences between genders on exercise attitudes or SPEX (non-competitive) at pre-test. There were significant differences between men and women on SPA at pre-test, $F(1, 78) = 11.23, p < .001, \eta^2 = .11$, and post-test scores did not change significantly after covariate adjustment. Men consistently had lower SPA than did women. There were also significant differences on SPEX (competitive) at pre-test, $F(1, 78) = 12.14, p < .001, \eta^2 = .16$, and post-test scores did not change significantly after covariate adjustment. Men had consistently higher scores than did women.

Post-hoc analyses

1. Differences between exercisers and non-exercisers on the dependent variables.

There were not enough non-exercisers to look at interactions between condition and physical activity. However, univariate tests on physical activity and each of the dependent variables showed there were no significant differences between exercisers and non-exercisers on either of the SATAQ subscales. Neither were there any differences between exercisers and non-exercisers at either pre or post-test on SPA or SPEX (competitive). There were significant differences between exercisers and non-exercisers on exercise attitudes at both pre-test, $F(1, 78) = 18.57, p < .001, \eta^2 = .21$, and at post-test, $F(1, 78) = 11.18, p < .001, \eta^2 = .15$. There were significant

differences on SPEX (non-competitive) at both pre-test, $F(1, 78) = 8.47, p < .005$, $\eta^2 = .09$, and at post-test, $F(1, 78) = 4.94, p < .05, \eta^2 = .07$.

Table 5

N participants by median split for SATAQ subscales, genders, and physical activity.

Variable	Health	Appearance	Control	Total
High SATAQ (internal)	14	12	10	36
Low SATAQ (internal)	14	16	14	44
High SATAQ (aware)	10	12	11	33
Low SATAQ (aware)	18	16	13	47
Females	19	17	13	49
Males	9	11	11	31
Exercisers	22	20	12	54
Non-exercisers	6	8	12	26

Table 6

Partial correlations between the dependent variables controlling for physical activity.

	Exercise Attitudes	SPA	SPEX (n-c)	SPEX (c)
Exercise Attitudes	1			
SPA	.023	1		
SPEX (non-competitive)	.212	-.323	1	
SPEX (competitive)	.278	-.529	.515	1

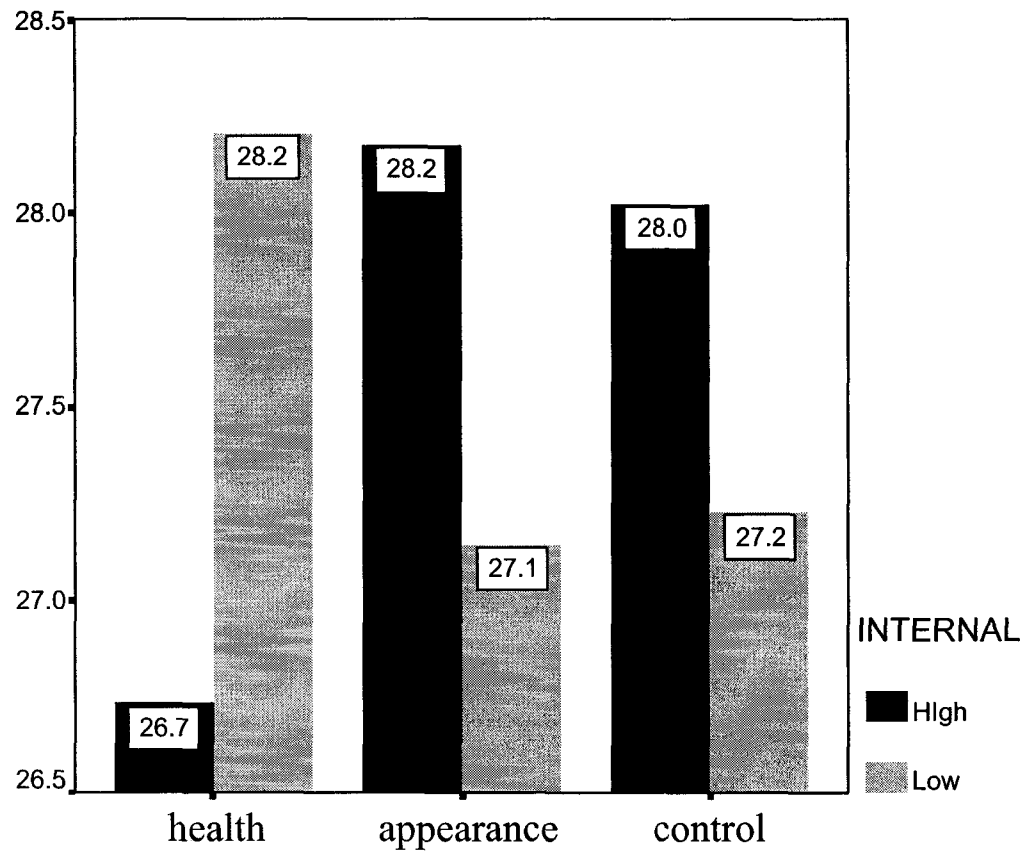


Figure 7. Results for SPEX (competitive) by condition and SATAQ (internal).

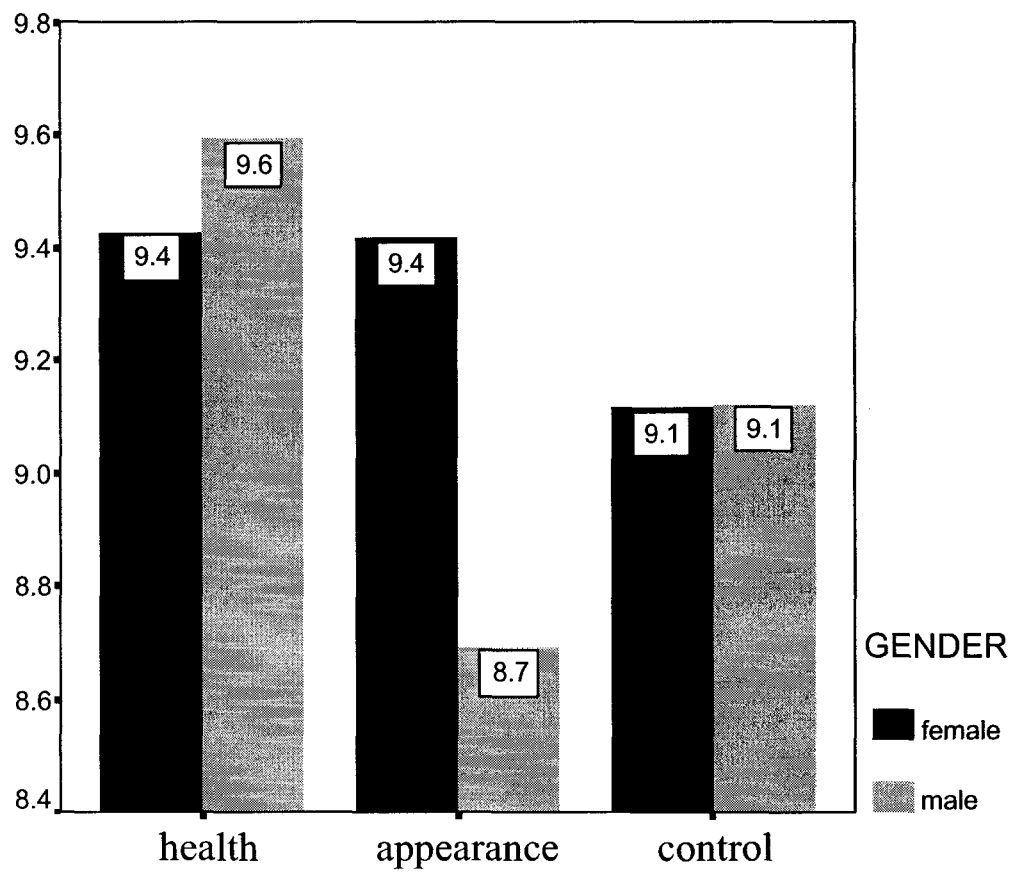


Figure 8. Exercise attitudes by condition and gender.

4.4 Discussion

Findings for SATAQ:

The hypotheses regarding sociocultural attitudes towards appearance were supported. There were no differences between participants high and low in awareness of sociocultural attitudes towards appearance, across the three conditions, on any of the dependent variables at either pre-test or post-test. The only significant difference for internalization was contrary to what was expected: Participants high in internalization in the health condition were less likely to endorse exercising around others in a competitive situation compared to participants low in internalization in the health condition. It would appear that the findings of other researchers that appearance-based advertising can significantly affect women's body image (Heinberg & Thompson, 1995; Stice & Whitenton, 2002) does not extend to exercise advertising.

That participants who internalize appearance beliefs are less likely to endorse exercising around others in a competitive environment after viewing a health advertisement, but not an appearance advertisement may be because those who are high in internalization still want to exercise but feel threatened by a competitive setting. This finding is somewhat similar to the findings of Rhodes and Courneya (2001). They found a positive effect on exercise attitudes for people that read a persuasive physical activity health message, but only for people who were low self-monitors; that is, for those who paid less attention to how others might be perceiving them. Although not significant, similar trends to that of Rhodes and Courneya for exercise attitudes and SPEX (non-competitive) were found in the present study;

participants low in SATAQ (internal) who viewed the health-based exercise advertising had a greater increase in exercise attitudes, and were more likely to endorse exercising around others in a noncompetitive environment, than those high in SATAQ (internal). Conversely, participants high in internalization in the appearance condition had decreases in exercise attitudes and willingness to exercise around others. These non-significant results indicate that more research is justified to explore these relationships. Further, these results, significant and not, highlight the possibility that different self-presentational difficulties might be exacerbated in competitive and non-competitive physical activity settings.

There was a significant difference in SPA between people high in internalization of sociocultural attitudes regarding appearance and those low in internalization. This is supportive of previous research that found that internalization of sociocultural attitudes was related to body image disturbance (Heinberg et al., 1995). Internalization of appearance beliefs is clearly related to body image but does not necessarily influence reaction to appearance-based exercise advertising.

Gender differences

There was a main effect for condition on exercise attitudes. Participants in the appearance condition had significantly lower attitudes towards exercise than did participants in the control condition. An examination of the change in scores showed a large decrease in exercise attitudes in the appearance condition and slight increase in the health condition, with negligible change in the control condition. Although this trend was apparent across analyses, there was also a significant interaction for condition by gender, indicating that the largest drop in exercise attitudes was for men

in the appearance condition. This may point to the negative effect that appearance comparisons in an exercise setting can have for men. If men do not believe they are achieving the societal ideal of having a very muscular physique, this may decrease their motivation to exercise. This result is similar to the findings of Harrison and Cantor (1997) who found that, for men, only viewing television programs with thin models significantly predicted men's endorsement of personal thinness and dieting. It should be noted that they rated television shows in terms of thin women only, and it is likely that these programs also contained men who meet the current cultural ideal of muscularity. The findings in the present study also may be related to speculation that images of very muscular men are related to increased incidences of muscle dysmorphia (Olivardia, 2001). Other researchers however, in a purely correlational research project, found that women are more aware of social cues such as those in advertising and pay greater attention to themselves as social objects (Gould, 1987).

Conclusions regarding the results of the present study are tenuous and further research is necessary to fully understand what is occurring. The exercise advertising in this study contained images of both men and women so it cannot be concluded that it was necessarily the images of muscular men that caused a negative reaction in the men. The results of one study that had both men and women view "sexist" advertising that contained only images of thin women resulted in poor body image for both women and men (Lavine et al., 1999); women desired to be thinner while men desired to be more muscular. In the present study, we are unable to determine if it was the images of thin women, muscular men, or both that resulted in the decreased exercise attitudes for men. Further research should address this question.

Related to this issue is the finding that males in the appearance condition had significantly lower SPEX (non-competitive) scores than did male participants in the health or control conditions. This may relate to findings by Duda and Tappe (1989) that men reported comparisons with others in an exercise setting an important exercise motivator, whereas women did not. Men may have felt that they could not portray themselves in the desired manner in an exercise setting thereby making them feel more negative towards exercise and less likely to endorse exercising around others. However, whether this is because of the potential presence of attractive, thin women in an exercise setting or the potential of comparisons to muscular, attractive men remains to be determined.

Interestingly, this relationship did not hold for SPEX (competitive), for which there was no effect for condition, nor was there an interaction. It may be that competition often occurs only with others of the same gender, and so self-presentational concerns are less salient. Further, it was found that men had significantly higher SPEX (competitive) scores than women, indicating a greater likelihood to endorse exercising around others in a competitive setting. It has been reported that men are consistently higher on competitiveness and win orientation than women (Gill, 1988), and that men are more focused on participating in competitive physical activities than are women (Duda & Tappe, 1989). It may be that their desire to compete overrides any self-presentational concerns. Gill also found no differences between females and males on noncompetitive achievement orientations and likelihood to report noncompetitive activities. This is reflected in the current finding that there were no pre-test gender differences for SPEX (non-competitive).

Also supportive of previous research was the finding that men had lower SPA than women. Frederick and Morrison (1996) found that women in an exercise setting showed more social physique anxiety than did men. It is interesting that even though men reported less social physique anxiety than did women, it was men who were negatively affected by appearance-based exercise advertising. It may be that the results of this study are related more to fears of appearing weak or lacking in strength than to fears of appearing unattractive. This is an interesting area for future research.

Other Findings

Similar to the findings of Experiment One, and not surprisingly, there were significant differences between exercisers and non-exercisers on exercise attitudes at both pre-test and at post-test. Also supportive of Experiment One, there were significant differences on SPEX (non-competitive) at both pre-test and at post-test, but no pre-test differences on SPA or SPEX (competitive). The results for SPEX further highlight the distinction between self-presentation in an exercise setting and self-presentation in a competitive setting. The results for SPEX and exercise attitudes replicate the findings from Experiment One, but not the results for SPA. In Experiment One there were post-test differences between exercisers and non-exercisers on SPA. In a study by Lantz et al. (1997), it was found that SPA could distinguish between those currently active and those who were not. However, Kowalski, Crocker, and Kowalski (2001) found that social physique anxiety did not predict physical activity. The relationship between SPA and physical activity is tenuous and further research into moderating variables is necessary.

Conclusions

It would appear that men are more susceptible to the negative effects of appearance-based exercise advertising than are women, but that sociocultural attitudes towards appearance do not moderate this relationship. The relationship between men's exercise attitudes and exercise advertising is an interesting area for future research. The results of this study also did not support previous research that showed that internalization of a societal appearance ideal moderated the relationship between appearance-based advertising and body image concerns.

Chapter 5

Experiment 4

5.1 Introduction

A model that has been of increasing interest to exercise psychology researchers is the Transtheoretical Model (TTM) of behaviour change. This model was originally developed to help psychotherapists address both physical and mental problems (Prochaska & Norcross, 1994), and identifies specific stages that individuals go through when trying to change their patterns of behaviour. In addition to the stages, researchers have since identified other factors as being important to the model; these factors include decisional balance, self-efficacy, and processes of change. In the exercise domain the TTM has proven to be a useful model when examining exercise behaviour in such diverse populations as high-school students, university students, employed adults (Rodgers, Courneya, & Bayduza, 2001), and seniors (Schumann, et al., 2002; Barke & Nicholas, 1990).

Overview of the Transtheoretical Model

The stages of change identified by the TTM include precontemplation, contemplation, preparation, action, and maintenance. In exercise behaviour, individuals who are in the precontemplation stage are unaware that lack of physical activity is problematic and have no intention of changing their behaviour. In the contemplation stage, individuals are aware that there is a problem and are thinking of addressing it, but have yet to commit to action. During the preparation phase people start to make small changes such as going for an occasional walk, but have not yet started regular exercise. In the action stage, individuals make a significant

commitment of time and resources and start regular exercise. If individuals change their behaviour for up to six months they are considered to be in the action stage. If they adhere to the behaviour changes for longer than six months they are considered to be in the maintenance stage (Prochaska & Norcross, 1994). It should be noted that people can cycle through these stages, and even though an individual may have once been in maintenance, he or she may revert back to an earlier stage.

Another aspect of the TTM, decisional balance, refers to the potential benefits (pros) and costs (cons) of behaviour change (Prochaska, 1994). Pros and cons can include approval and instrumental gain by self and others, or disapproval and losses by self and others (Biddle & Nigg, 2000). In earlier stages when no action to change behaviour has occurred (precontemplation and contemplation stages) possible costs of changing behaviour outweigh possible benefits. Prochaska (1994) reports strong support for the use of pros and cons of behaviour change across twelve health behaviours including exercise. Further research has shown that the balance shifts around the preparation stage, with pros becoming more important with advanced stages, while the cons of behaviour change become less important (Herrick, Stone, & Mettler, 1997). Marshall and Biddle (2001), in a meta-analysis of the TTM and exercise, conclude that the biggest increase in evaluation of the benefits of physical activity occurs during the contemplation phase; as stage increases, there are small increases in perceived benefits, but large decreases in the costs of change.

Self-efficacy, which has been incorporated into the TTM, has been well researched in the exercise domain and has been found to be a strong contributor to exercise behaviour (Bandura, 1997). Exercise self-efficacy is the belief that an

individual holds in his or her ability to achieve a given exercise or physical activity goal (Bandura, 1997). Researchers have found that exercise adherence is most affected by self-regulatory efficacy; that is, adherence is affected by the strength of the belief that one can get oneself to exercise regularly in the face of numerous obstacles (Bandura, 1997). Self-efficacy has been shown to increase across stages of exercise behaviour change (Marcus, Selby, Niaura, & Rossi, 1992; Herrick et al., 1997). However, Biddle and Nigg (2000) point out that self-efficacy's predictive ability is limited in earlier stages of changing exercise behaviour. Similarly, Marshall and Biddle (2001) reported in a meta-analysis, that the change from contemplation to preparation results in the smallest change in self-efficacy, while there are larger changes in later stages.

The final aspect of the TTM to be discussed is the processes of change, defined by Prochaska and Norcross (1994) as the "covert or overt activities that people engage in to alter affect, thinking, behavior, or relationships related to particular problems or patterns of living" (p. 457). These processes are either behavioural in nature or experiential in nature. The experiential processes of change are consciousness raising (gathering information), self-reevaluation (reconsidering the consequences of the behavior on oneself), dramatic relief (experiencing affect), environmental reevaluation (reconsidering the consequences of the behavior on others), and social liberation (attending to social norms). The behavioural processes are counter conditioning (substituting new behaviors for old ones), stimulus control (controlling environmental cues), reinforcement management (rewards), helping relationships (social support), and self-liberation (committing to change). As

Prochaska and Norcross discuss, the different stages of behaviour change incorporate different processes of change. However, the processes of change have been the least studied aspect of the TTM with exercise behaviour (Marshall & Biddle, 2001; Plotnikoff, Hotz, Birkett, & Courneya, 2001; Rosen, 2000b). Marshall and Biddle conclude that the relevancy of the processes of change in physical activity is uncertain and that stage by process interactions do not appear to be evident.

Overall, the TTM appears to be a valuable theoretical model in exercise research. However, it should be noted that it has been criticized for having little to offer to the understanding of the maintenance stage (Dishman, 2001). Others have argued that it can be difficult to assign some people to a single stage and that the model is lacking in predictive validity (Whitelaw, Baldwin, Bunton, & Flynn, 2000). Further, the stages of change ignore other possible factors such as socioeconomic status and access to resources, and people in the precontemplation and contemplation stages are more likely to be socially disadvantaged (Bunton, Baldwin, Flynn & Whitlaw, 2000). Although these possible weaknesses in the model should be kept in mind, the TTM may still prove useful in investigating the effects of exercise advertising on attitudes and intentions to exercise. Following is an overview of the application of the TTM to exercise advertising research.

Application of the TTM to exercise advertising research

The application of the TTM to research into exercise advertising is warranted as it has been found that matching health promotion messages to individuals' stage of change has helped smoking cessation programs (Dijkstra, De Vries, Roijackers, & van Breukelen, 1998). Specifically, it was found that contemplators benefited the

most from both self-efficacy enhancing information and outcome information, whereas participants in the preparation stage benefited the most from self-efficacy-enhancing information only. A community based physical activity program that included television advertising and comic strips was also found to increase self-efficacy in targeted individuals (Renger, Steinfeld, & Lazarus, 2002). These authors also analyzed participants only in precontemplation and contemplation phases and found that knowledge of physical activity did not change, nor did perceived costs and benefits of physical activity. Other researchers found that when weight loss materials were tailored to an individual's stage of change, participants had more positive thoughts about the materials but there were no differences in negative thoughts between participants who received the tailored materials and those who received untailored information (Kreuter, Bull, Clark & Oswald, 1999). Further, these authors found no differences in self-efficacy between the groups. In a review of existing literature, it was concluded that self-efficacy has support as a mediator between physical activity interventions and behaviour, but that support for decisional balance as a mediator has been mixed (Lewis, Marcus, Pate, & Dunn, 2002).

In an intriguing study that specifically looked at the processing of exercise promotion information, Rosen (2000a) combined concepts from the TTM, theory of planned behavior, and the elaboration likelihood model of attitude change, to look at whether readiness to change influenced the processing of exercise-promotion writing. He found that stage of exercise behaviour change was not related to cognitive elaboration on exercise-related written messages, nor did argument quality affect thoughts towards exercise. However, strength of argument was related to elicitation

of negative thoughts – the weaker the argument the more negative exercise thoughts were generated. It should be noted that the only aspect of the TTM used in Rosen’s study was stages of change. Neither self-efficacy nor the benefits and costs of exercise were measured. Further, his study used written health promotion messages, and few studies have looked at televised health promotion advertisements, nor have they examined the possible effects of appearance-based exercise advertising on aspects of the TTM. It may be that health-promotion exercise advertising can highlight the benefits of exercise or positively influence self-efficacy for exercise. Conversely, appearance-based advertising may result in greater endorsement of the costs of exercise, or decrease self-efficacy for exercise.

Purpose

The purpose of this study was to see if health-based and appearance-based exercise advertising had any influence on the stages of change, decisional balance, or self-efficacy aspects of the TTM in an undergraduate sample.

It was hypothesized that:

1. Self-efficacy and the pros of behaviour change would increase for participants in the health condition.
2. The costs (cons) of changing behaviour would be more important for participants in the appearance condition.
3. That participants in an early stage of behaviour change in the health condition would advance in stage of behaviour change.

Independent variable:

1. Condition (health, appearance, control)

Dependent variables:

1. Self-efficacy.
2. Pros of changing behaviour.
3. Cons of changing behaviour.

Covariates

1. Pre-test scores
2. Change in stage

5.2 Method

Participants

Participants were 47 students from a third year statistics for psychology class and 54 students from an introductory psychology class. Participants from the third year course participated as part of a class project. It should be noted that although they participated in a class project they were given informed consent and received no penalties if they chose not to participate. Participants in the introductory psychology class were recruited in the same way as in Experiments One and Three. The data from 4 participants was not used because there was missing data (N=1), or participants did not show up for the second session (N=3), leaving 97 in the final data set.

5.1.2 Materials

The same videos were used as in previous experiments.

Questionnaires

Questionnaires used were obtained from the website of the Cancer Prevention Research Center (CPRC). Both the short form stages of change algorithm (see Appendix N) and long form stages of change questionnaire (see Appendix O) were administered, as were the self-efficacy (see Appendix P) and decisional balance (see Appendix Q) questionnaires.

Stages of Change Algorithm. This short-form stage questionnaire was developed out of work by Marcus and Simkin (1993) and asks participants to mark one of five statements that reflect one of the five stages of behaviour change. Researchers have confirmed its use in assessing stage of behaviour change (Reed, Velicer, Prochaska,

Rossi, & Marcus, 1997), but conclude that it is more useful for assessing moderate to strenuous exercise, rather than mild exercise (Schumann et al., 2002).

Long-form Stages of Change: This is a 24-item questionnaire that assesses stages of change but includes six stages. Four stages remain the same but the precontemplation stage is divided into precontemplation believer, and precontemplation non-believer (Reed, 1994).

Decisional Balance. This ten-item questionnaire asks about the benefits (5 questions) and costs (5 questions) of behaviour change. Items were rated on a 5 point Likert scale ranging from 'extremely important' to 'not important'. A low score on the pros subscale indicates that the benefits of behaviour change are important. A low score on the cons subscale indicates that the costs of behaviour change are important. The questionnaire has been validated by Nigg, Rossi, Norman, and Benisovich (1998).

Self-efficacy. This is an eighteen item questionnaire rated on 5-point Likert scale ranging from not at all confident (1) to very confident (5). There is a six-question form, but the 18-item form is recommended (Cancer Prevention Research Center, 2003). This 18-item scale has six factors, that have been validated by the CRPC. The six factors with corresponding alpha are: negative affect (.852), excuse making (.829), must exercise alone (.869), inconvenient to exercise (.773), resistance from others (.853), and bad weather (.837).

Procedure

The procedures used were the same as in the previous three experiments. It is only the questionnaires used that were different. Participants completed the same set of questionnaires at pre-test and at post-test. Each questionnaire packet included the

short-form stages of change, long-form stages of change, decisional balance, and self-efficacy questionnaires.

Analyses

Changes in self-efficacy, and the pros and cons of behaviour change were analyzed using ANCOVAs by condition with pre-test as covariate.

In order to look at transition between stages, analysis was based on the methodology of Plotnikoff, et al. (2001). Namely, the possible transitions for each baseline stage were condensed into the patterns regressed, remained, or progressed. In this way, participants at pre-test in the precontemplation condition could only remain or progress, participants in the preparation and action stages could regress, remain, or progress, and participants in the maintenance stage could regress or remain. Due to the small number of participants that changed stages, these data are purely descriptive. Further, although both the short-form and long-form stages of change questionnaires were used, it was the answer to the short-form that was used for this analysis. It was difficult to assess stage of change based on the long-form as scores were often equal across several stages. In this study, the short and long forms were highly correlated at both pre-test and post-test ($r^2=.703$ and $r^2=.785$ respectively).

5.3 Results

Demographics

Data were screened for outliers and it was found there were two participants with outlying data. These participants were deleted from the data set leaving 95 in the final set. There were no differences between participants from the two classes on any of the dependent variables at pre or post-test. There were 30 participants in the health

condition, 33 in the appearance condition, and 32 in the control condition. There were 70 females, and 25 males.

Self-efficacy was moderately correlated with cons for changing behaviour ($r^2=0.24$), and moderately negatively correlated with pros for changing exercise behavior ($r^2=-0.27$). Pros and cons were moderately negatively correlated ($r^2=-0.37$).

Condition ANCOVAS

There were no significant differences at pre-test on any of the dependent variables by condition.

- *Self-efficacy.* Pre-test scores significantly adjusted the post-test scores, $F(1, 86) = 290.98, p<.001$, as did change in stage, $F(1, 86) = 3.04, p<.01$. After adjustment for the covariates there were no significant differences on self-efficacy between conditions, nor were there any differences on any of the individual sub-scales.
- *Pros of changing behaviour.* Pre-test scores significantly adjusted the post-test scores, $F(1, 86) = 117.86, p<.001$, but change in stage did not. After adjustment for the covariate there were no significant differences between condition.
- *Cons of changing behavior.* Pre-test scores significantly adjusted the post-test scores, $F(1, 86) = 55.60, p<.001$, but change in stage did not. After adjustment for the covariate there was no significant difference between conditions.

Stage Changes by Condition

Table 7 shows the number of participants that changed stage by condition. Of the three participants who were in the pre-contemplation stage at pre-test two

progressed to the contemplation stage, but both were in the control condition. The one participant who remained in precontemplation was in the health condition. Nine participants were in the contemplation stage at pre-test. Three of these remained in the contemplation stage, two in the appearance condition progressed to preparation, one in the control condition progressed to preparation, and two in the health condition progressed to preparation. One participant in the appearance condition regressed to precontemplation. Of the eighteen participants in the preparation stage at pre-test, fifteen remained there at post-test, one participant in the appearance condition regressed to contemplation and one progressed to action. One participant in the control condition regressed to contemplation. There were fourteen participants in the action stage at pre-test, twelve of whom remained there, one participant in the appearance condition progressed to the maintenance stage, and one regressed to preparation. Of the fifty-one participants in maintenance at pre-test, forty-seven remained in maintenance, one in the health stage regressed to the action stage, as did one in the appearance stage, one in the control condition regressed to action, and one regressed to preparation. Although these numbers are very small, there is no apparent pattern. A much larger sample size would be required to see if any of the video conditions resulted in a change in stage.

Post-hoc analyses

1. *Condition by Gender.* Technically there were not enough male participants to allow for a condition by gender analysis (there were 10 men in the health condition, 9 in appearance, and 6 in the control group). However, based on the results of the previous experiments it was deemed that an exploratory analysis

looking at this relationship would be of interest. There were no significant differences between men and women at pre-test on either of the dependent variables. With pre-test scores and change in stage as covariates there was a significant condition by gender interaction for self-efficacy, $F(2, 88) = 3.30$, $p < .05$, $\eta^2 = .07$, indicating that men in the appearance condition had less self-efficacy for exercise than did women. There was no significant interaction for pros or cons of behaviour change. These data were also looked at by self-efficacy subscale. Significant interactions were found for exercising alone, $F(2, 87) = 5.54$, $p = .005$, $\eta^2 = .07$, and for resistance from others, $F(2, 87) = 4.14$, $p < .05$, $\eta^2 = .11$. Follow-up tests with bonferroni adjustment showed that men in the appearance condition had lower self-efficacy for exercising alone, and for exercising when there was resistance from others, than did women in the appearance condition.

2. *Condition by physical activity.* When participants were collapsed into exercisers (pre-test maintenance and action, $N=65$) and non-exercisers (pre-test preparation, contemplation and precontemplation, $N=30$), there were no significant interactions for self-efficacy, or for the pros or cons of behaviour change.
3. *Test of the TTM.* A validity test of the TTM was performed using pre-test data for stage, self-efficacy, and decisional balance. Participants significantly differed by stage at pre-test for self-efficacy, $F(4, 90) = 5.30$, $p < .001$, but not for pros or cons of changing behaviour. Follow-up univariate F tests with a Bonferroni adjustment for multiple comparisons showed that participants in

the maintenance stage had significantly higher self-efficacy than participants in the action, preparation, or contemplation stages. Participants in the action stage had significantly higher self-efficacy than participants in the contemplation stage. All other comparisons were not significant. Although the finding for pros was not significant, the results did follow the trend predicted by the model: participants in maintenance and action stages rated the benefits of exercise as more important than did participants in earlier stages. The range was from a low of 8.93 for participants in the action stage to a high of 14.00 for participants in the precontemplation stage. A lower score means the benefits are rated as more important. The means for the cons scores were very similar across groups (ranging from 21.00 to 22.67).

Table 7

Number of participants who changed in stage from pre-test to post-test by condition

	Health	Appearance	Control
Remained	27	25	26
Progressed	2	4	3
Regressed	1	4	3

5.4 Discussion

None of the hypotheses were supported in this study. No significant differences were found between the three conditions for self-efficacy, pros of changing behaviour, or cons of changing behaviour. Although no significant results were found for self-efficacy, exploratory analyses did find interactions for condition by gender. Specifically, men in the appearance condition had lower self-efficacy than men in the control group. Because of the statistical limitations, conclusions regarding these findings are necessarily suspect. However, these results do indicate that more research is warranted.

Further, although there are limitations, the finding that men in the appearance condition had decreased self-efficacy after watching the appearance-based advertising is consistent with the findings of Experiment Three; the negative effects of appearance-based exercise advertising is worse for men and it seems to be related to the belief in the ability to do exercise rather than of appearing attractive. Men in the appearance condition were significantly less likely than women to be confident to exercise when alone, or when friends or family do not want to exercise. This is an interesting result, in light of the similar results found when looking at self-presentation in an exercise setting. The exercising alone and resistance from others self-efficacy scales may have a self-presentational component. It is unclear if exercising alone means completely alone or without friends and potentially in the presence of strangers. This distinction needs to be made clear. Once this issue has been clarified, another interesting avenue to explore is why, for men, exercising alone is less attractive after viewing appearance-based advertising.

The finding that there was no condition by exercise interaction for self-efficacy is contrary to what might be supposed when compared to the findings of other researchers such as Bauman, Bellew, and Owen (2001) who found that a mass media campaign aimed at increasing physical activity resulted in positive changes in exercise self-efficacy. This campaign used a variety of communication channels including television and was specifically aimed at people who were motivated to be physically active but weren't yet exercising regularly. However, these authors only used three questions to measure self-efficacy and did not specify what aspects of exercise self-efficacy were examined. Rimal (2000), in a study that examined dietary health promotion, found that the relationship between dietary knowledge and behaviour was mediated by self-efficacy to change diet behaviour; the strongest relationship was for those people with the highest self-efficacy. Longitudinally, it was found that correlations between dietary knowledge and behavior decreased as groups of participants also decreased in their self-efficacy. Although there were no significant results for the interaction between condition and exercise level in the present study, because of the exploratory nature of this analysis no conclusions can be drawn and further research is required.

Prochaska (1994) recommends that public-health policies be dedicated to increasing the benefits of healthy behaviour change, while also decreasing the costs. However, in a review of existing studies, mixed support for the benefits and costs of behaviour change as a mediator between physical activity interventions and behaviour have been found (Lewis et al., 2002). Prochaska's recommendation may be premature in light of the findings of Lewis et al., and the results of the present study

that found that neither health-based nor appearance-based exercise advertising affected decisional balance for changing exercise behaviour. The results of the present study may be related to findings by Rosen (2000a). He found that weakly argued messages (e.g. exercise will make you less bored, more comfortable being sweaty, and that you can make friends at they gym) resulted in more thoughts opposing exercise than did messages that were strongly argued (e.g. exercise will make you feel less stressed, have more energy and feel comfortable with your body). The health messages in the present study were that exercise can “add years to your life” (Hillary Commission), that “it’s all about prevention from diseases like diabetes, cancer, and heart disease,” that you “won’t feel as tired from a hectic day of living,” (Dairy Nutrition Council of Alberta), and that exercise can result in “more independence, more energy, and more fun” (Participaction). These arguments could be described as “strong-argument” messages according to Rosen’s criteria and so may not have resulted in different thoughts regarding exercise. It should be noted that participants in Rosen’s (2000a) study read the messages and so may have had more opportunity for processing the information than did participants in the present study who saw televised advertisements. Rosen concluded that “one approach when targeting people with low readiness for change is using messages that require little processing, such as imagery or paired associations. Images of attractive people with gym membership are examples of such an approach. However, attitude changes produced by such peripheral cues tend to be weak and transitory” (*p.* 178). In the present study “images of attractive people with gym memberships” had no effect on changing attitudes.

The lack of any pattern for changes in stages of behaviour change is inconclusive due to the small sample size and the small number of participants who actually changed stage. That so few participants changed stage is not surprising when compared to the results of a non-intervention study that included a sample of 1602 participants. With that large of a sample size, only 78 participants were in *precontemplation* at baseline, 41 of whom remained there after six-months (Plotnikoff et al., 2001). However the lack of pattern in the present study may be related to previous research that found that although health promotion advertising can increase knowledge, it does little to change behaviour (Cavill, 1998; Marcus et al., 1998), but future research would be required before any conclusions can be reached. The lack of pattern for stage change found in the present study may also be related to criticisms by Whitelaw et al. (2000) who argued that large numbers of people cannot easily be assigned to any one stage. Indeed, the data from the long form stage questionnaire was not used for this reason. Many participants scored equally across several of the stages and so were difficult to classify. More research is necessary to fully explore the difficulties in assigning people to stages, and the possible quick transition that people may make between stages (possibly within minutes according to Whitelaw et al.).

Conclusions

Exercise advertising can be thought of in terms of consciousness raising, one of the processes of change defined by the TTM. Consciousness raising is defined as “increased awareness about the causes, consequences, and cures for a particular problem behaviour. Interventions that can increase awareness include feedback,

education, confrontation, interpretation, bibliotherapy, and media campaigns” (Prochaska & Velicer, 1997, *p.* 39). According to the model, participants in a contemplation stage should use consciousness raising the most, however Marshall and Biddle (2001) found that consciousness raising was used about equally across stages, and overall the processes of change have limited support for exercise behaviour (Marshall & Biddle, 2001; Rhodes, Berry, Naylor, & Wharf-Higgins, 2003). Despite these limitations, a stage-matched health-promotion physical activity campaign that was labeled as consciousness raising found some success in changing self-efficacy for exercise, but did not affect perceived costs or benefits (Renger et al., 2002). In the present study, consciousness-raising in the form of health-based exercise advertising did not appear to have any different effect for participants at any stage. Appearance-based advertising did not have any effect either. The assumption through the literature seems to be that consciousness raising is necessarily limited to health information. However, motivation to exercise is a complex issue and both health and appearance have been found to be strong motivators for physical activity (Davis et al., 1995). Future research should look into whether consciousness-raising is necessarily limited to health-promotion materials and whether making such a distinction affects the relationship between stage and use of this process of change. It should be noted that one limitation of the present study is that the processes of change were not measured and so conclusions regarding the effectiveness of consciousness raising are limited.

Although there were no effects for decisional balance in this study, there were promising results for self-efficacy, with interactions between advertising condition

and gender. Although the number of male participants was small, the results for gender replicate the findings of earlier experiments which found that men who viewed appearance-based exercise advertising were least likely to endorse exercising around other people. In the present study, it was the factors of exercising alone, and of having others resist their exercising that had the lowest self-efficacy. The finding that condition and exercise did not interact is inconsistent with the findings of Experiment One that found that non-exercisers who viewed health-based exercise advertising were less likely to endorse exercising around others in a non-competitive situation. However, future research is needed with an adequate sample size to replicate the findings of the present study.

The results of this study also supported the TTM in terms of self-efficacy increasing with advancing stage, and partly for the pros of changing behaviour, but the cons of changing behaviour were not supported. These results corroborate previous research that cite self-efficacy as consistently increasing with stage of change (Marshall & Biddle, 2001; Marcus & Simkin, 1993; Herrick et al., 1997). The lack of support for the cons may be due to the small number of participants in earlier stages.

Limitations in the present study include a convenience sample of students enrolled in two psychology classes. Results of a meta-analysis showed that studies that had passive recruitment, as in the present study, had fewer precontemplators than did studies that were randomly sampled (Marshall & Biddle, 2001). Another related limitation is the description of exercise used in this study. Exercise was described as “any planned physical activity (e.g., brisk walking, aerobics, jogging, bicycling,

swimming, rowing, etc.) performed to increase physical fitness.” Researchers have found that the staging algorithm is most reliable with moderate to vigorous physical activity, but not with mild exercise (Schumann et al., 2002). The description of exercise used in this study could be construed as mild according to the definition of walking as a mild form of physical activity used by Schumann et al. (2002). Marshall and Biddle (2001) also found that the proportion of participants assigned to each stage varied according to the definition of physical activity and concluded that the staging algorithm appears to overestimate the number of people who are physically active. Future research can address these limitations and conceptual difficulties.

Chapter 6

General Discussion

The main findings of the series of experiments were that health-based exercise advertising positively influenced those participants who were already active, that appearance-based exercise advertising had negative effects on men only, and that there is a theoretical distinction between self-presentational concerns in a non-competitive exercise environment and self-presentational concerns in a competitive exercise environment. Each of these will be discussed more fully. It should be noted that although most of the effect sizes for the reported results were small (.03 - .16), the power was low. Cohen (1992) recommends that to achieve recommended power, sample size be a minimum of 52 participants per group in a three group ANOVA. The sample sizes in these experiments were all smaller than this recommended amount. Had a larger sample size been used in this series of studies, it is possible that effect sizes would have been correspondingly larger.

It should also be mentioned that overall, although significant results were found relating to self-presentation theory, the only aspect of the transtheoretical model that had any significant results was self-efficacy. Although there was a very small number of participants which made looking at overall stage change problematic, the lack of findings for stage may be related to the critique forwarded by Whitelaw et al. (2000) that stage is very transitory. It also may be that the overall exposure to advertising and exercise messages, be they health or appearance related, in general (i.e. outside of the experiment) had an influence that could not be controlled for in this experiment. This, of course, is a consideration for all the

experiments. The lack of change in decisional balance was similar to findings by Renger et al. (2002) who found no change in pros or cons scores after a television and comic strip physical activity promotion campaign. In a review of the TTM literature, Bunton et al. (2000) conclude that there are very few actual behavioural outcome studies and those that have been done have poor to modest results at best. Further research is required to determine if exercise advertising can influence stages of change or decisional balance for exercise, but the evidence to date would suggest not.

Health-based exercise advertising

One of the appealing aspects of mass media health promotion campaigns is that they can potentially reach a wide audience. However, it is questionable whether such an approach is genuinely beneficial and more research should examine these campaigns as little is known about the actual health benefits and outcomes (Marcus et al., 1998). One way that health promotion advertisers have tried to make their campaigns stronger, and have achieved some measure of success by doing so, is to apply the principles of social marketing theory which advocate tailoring media campaigns to specific target groups (Marcus et al., 1998). Similarly, health promoters who have adopted the transtheoretical model tailor their messages to specific stages of behaviour change (Rimal, 2000; Bauman et al., 2001). Although the health promotion advertisements used in the experiments in this dissertation were aimed at increasing activity in the sedentary participants¹ the results showed that those who were already active were the ones who were positively influenced. This is similar to the findings of other researchers who reported that only 5% of a target population

who saw a physical activity promotion advertisement targeted at sedentary adults called the accompanying help-line, and of that 5%, over half were already physically active and were satisfying their curiosity regarding the “surprising fact” that was the focus of the advertisement (Wimbush, MacGregor, & Fraser, 1998).

The specific results from this dissertation were that in Experiment One, exercisers in the health condition were significantly more likely than non-exercisers to endorse exercising around other people. In addition, after adjusting for the amount of television watched, exercising participants in the health condition had less social physique anxiety than non-exercisers. In Experiment Two, older participants who viewed health-based exercise advertising were significantly more likely to endorse exercising around others in a non-competitive environment than were their similar aged counterparts who viewed appearance-based or control advertising; but whether this was because 82% of participants in the study were exercisers or whether it was due to age could not be determined. Although physical activity level was not a significant covariate in this relationship, it may be that the finding was a result of the combination of age and activity level.

It was unexpected that the health-based advertising did not increase exercise self-efficacy as increasing exercise self-efficacy is both a goal and a predicted result of health-promotion advertising (Rimal et al., 1999). Increased self-efficacy is also associated with increased exercise behaviour (Bandura, 1997). It is especially disturbing that not only did health-based exercise advertising do little to increase exercise self-efficacy, appearance-based advertising may have decreased exercise

¹ E.g. a stated goal of the Push Play campaign was “to get more people, more active, more often”

self-efficacy for a subset of participants, a finding discussed more fully in the next section. It may be that the lack of change in self-efficacy for participants in the health condition may be related to other findings in this dissertation, namely that health-promotion advertising is most influential for those already active. Researchers have consistently found that exercise self-efficacy is high in active individuals (Bandura, 1997) and if health-based exercise advertising only affects exercisers, further changes in self-efficacy might be limited.

Researchers have consistently shown that media-based health promotion campaigns do little to change exercise behaviour (Hillsdon et al., 2001; Marcus et al., 1998; Cavill, 1998), and research into these campaigns have generally looked at changes in population activity levels, or have conducted follow-up telephone interviews to determine if individuals have increased their exercise levels (e.g. Wimbush et al., 1998; Renger et al., 2002). Most of the research has examined the numbers of sedentary people who became active after a campaign, but even that data collection has been short-term and Marcus et al. (1998) have stated that long-term maintenance data from mass media campaigns have not been collected. Further, to my knowledge, this is the only research that has looked at televised health-promotion campaigns in a laboratory setting. The experimental results from this dissertation further our knowledge of what these campaigns might be achieving: namely, reinforcing the exercise message in the already active, a result that would be difficult to detect with the methodology used in many of the evaluation studies. However, whether exercise advertising can help people who are not consistently active stay

active, or whether it is reinforcing only those who are committed long-term exercisers, remains to be determined and would be an interesting area for future research.

The finding that physically active people were more positively influenced may also be related to research that shows that the level of involvement with a topic determines the extent to which health information is processed (Rimal et al., 1999). Although Rosen (2000a) found that cognitive elaboration of exercise messages was not related to stage of behaviour change, it is still possible that those who are already active are also interested in physical activity as a topic and so would pay more attention to the physical activity advertisements. Conversely, those who are not physically active may pay less attention to exercise advertising. Rosen used written exercise messages and similar research into televised exercise advertisements is necessary as processing of diverse media may be very different. In addition, it should be noted that it is a limitation of the present study that number of advertisements recalled was not measured.

It has been shown that older people are more motivated by health than appearance to increase physical activity and further, that women are more motivated by fitness and health than by competition (Duda & Tappe, 1989). Rimal et al. (1999) cite research that indicates that older women are more likely to use health information than younger women or men. The finding of Experiment Two is supportive of this research. With 72% of the older participants being women, it was found that there was a reduction in inhibitions to exercise around others in a non-competitive environment. Martin et al. (2000) speculate that self-presentation can have positive

effects on exercise behaviour by mitigating physique concerns and by helping to maintain a younger identity. Conversely, they postulate that self-presentation concerns can also have an adverse effect on physical activity levels in older people because of the belief that exercise is for the young, or that other people will evaluate their physical abilities. Although not labeled self-presentation, results by other researchers support these arguments and have found that for older adults, exercise was a way to get positive feedback while also staying fit (Duda & Tappe, 1988). The increase in endorsing exercising around others in Experiment Two may be a function of both the reinforcing message of exercise for health, and also the images of people of all ages and sizes exercising seen in two of the advertisements². It would seem that the health-promotion advertising mitigated possible self-presentational concerns regarding feeling incompetent but that self-presentational concerns regarding physique concerns were not evident and appearance-based exercise advertising did not adversely affect older participants.

The only finding for health-based exercise advertising that does not fit the pattern of exercisers being positively influenced was that participants high in internalization of sociocultural attitudes towards exercise were less likely to endorse exercising around others in a noncompetitive setting that were those low in internalization. This could be related to research that showed that people who tried harder to impress others in an exercise setting reported lower rates of perceived exertion at light to moderate workloads (Boutcher, Fleischer-Curtain, & Gines, 1988).

² Participation and Push Play had a variety of people exercising. The Dairy Nutrition Council of Alberta advertisement featured children endorsing adults to “get up and get active” after a “hectic day of living.”

Although not tested in this dissertation, it is possible that individuals who have internalized sociocultural ideals of attractiveness are also highly motivated to make good impressions on others. Further, it is possible that if they are concerned that such an impression cannot be achieved they might want to avoid the situation altogether. It should be noted that this result was not an artifact of the number of exercisers and non-exercisers in each internalization group as they were not markedly different with twenty-six exercisers and thirteen non-exercisers who were high in internalization, and thirty-one exercisers and seventeen non-exercisers who were low in internalization. A similar trend was seen for men and women who were high or low in internalization.

There was only one significant finding for SPA through this series of experiments. This may be because SPA was originally conceived as a trait construct (McAuley et al., 2002). Although other researchers such as Crawford and Eklund (1994) and Eklund and Crawford (1994) used SPA as a dependent variable in an experimental setting with only one exposure to an appearance-based exercise video, their results were inconclusive. Recently, other researchers worked towards reconceptualizing SPA as being both state and trait and found that a scale developed to assess state SPA showed promising results (Schultz, 2002). Despite these preliminary findings, the trait nature of this variable is a consideration when interpreting the findings of this series of experiments.

Appearance-based exercise advertising

The major finding for appearance-based exercise advertising was that it was men who were negatively affected by it. In various experiments, men's exercise

attitudes, self-presentational beliefs, and self-efficacy were all adversely affected by the appearance-based advertising. Even when the results were not significant, the trend could be observed, as in Experiment One where the relationship was not significant but men in the appearance condition had a decrease in their attitudes towards exercise, a similar result to Experiment Three, where the relationship was significant. In Experiment Three it was also found that men in the appearance condition had lower SPEX (non-competitive) scores than men in the health or control conditions. In Experiment Four, men in the appearance condition had a change for the worse for self-efficacy, and a closer examination showed this to be for self-efficacy for exercising alone or without the support of significant others. The only other effect for appearance-based advertising was in Experiment One where non-exercisers had worse attitudes towards exercise, but this result was not significant, and not replicated in the later experiments.

Although much research has discussed the issue of body image in women and in particular, how media representations of thin as attractive can negatively influence women, little similar research has been undertaken with men. Only recently have studies begun to examine the cultural representations of attractive men. For example, it has been found that male action figure toys have steadily evolved in muscularity, with some toys now being bigger than what is physiologically possible (Pope, et al., 1999). Similarly, it has been found that Playgirl centerfolds have become more muscular over time (Leit, Pope, & Gray, 2001). Other researchers, in more experimental work, found that when exposed to sexist advertisements, women desired to be thinner while men desired to be more muscular (Lavine et al., 1999). However,

although these authors discuss their findings in terms of exposure to images of attractive women, the advertisements used in their study also included images of men rated as attractive and so their conclusions are necessarily limited as to whether it was the images of men, women, or both that caused body image concerns. A similar limitation is evident in the present research.

There is evidence that supports the idea that it is the exercise component of the advertisements used in the present study, rather than just images of attractive people, that makes men particularly susceptible to appearance-based exercise messages. For example, it has been found that men who read fitness magazines had greater body dissatisfaction and self-objectification than men who did not read these magazines (Morry & Staska, 2001). To compound this problem, these authors also found that men read significantly more fitness magazines than women, while women read more beauty magazines. Other authors reported that although they found significant exercise concerns in one-third of college-aged men surveyed in their study, and 8% had clinical disorders, none of the participants felt they had a problem with exercise even though some reported continuing to exercise when ill or injured, or being extremely agitated or angry if their workout session was disrupted (O'Dea & Abraham, 2002). It may be that images of exercisers, or exercise itself, has an importance for some men similar to the vulnerability some women have to images of thin, beautiful women. The results of this dissertation as well as previous research support this idea but further research is necessary to understand the full implications.

Although there are statistical limitations and a replication study with adequate N is necessary, the findings for self-efficacy are of interest because of the strong

relationship that self-efficacy has to physical activity. Self-efficacy has been consistently shown to increase across stages of behaviour change (Marcus et al., 1992; Herrick et al., 1997). Consequently, if any form of advertising can decrease self-efficacy then the result may be less actual exercise behaviour. It is also of interest because of the specific aspects of self-efficacy that were negatively affected. Other researchers have found that exercising in front of a mirror resulted in lower self-efficacy for women but not for men, and that men had higher exercise self-efficacy than women, however the self-efficacy aspects asked about were exclusively regarding the ability to exercise at certain intensities and for certain amounts of time (Katula, McAuley, Mihalko, & Bane, 1998). These authors link their findings to self-presentation theory and the discussion by Leary (1992) that exercise environments can be a demotivating influence on exercise behaviour. The results of the present dissertation are of interest because of the aspects of self-efficacy that were found to be adversely affected in men only and involved exercising alone or without the support of a significant other. This is a unique contribution with a strong likelihood of a self-presentational component. This possible connection between self-presentation in an exercise setting and exercise self-efficacy requires further investigation. Indeed, researchers have already proposed a theoretical link between self-presentation and self-efficacy. Maddux, Norton, and Leary (1988) reported results that found that social anxiety is related to beliefs that one won't be able to perform certain self-presentational beliefs, and labeled it presentational self-efficacy. Exercise self-efficacy may include aspects of presentational self-efficacy.

That the findings regarding the negative effects of appearance-based exercise advertising are restricted to men and not women is interesting in light of researchers who claim that “boys learn to view their bodies as a tool to master the environment whereas girls learn that their bodies should be used to attract others” (Groesz et al., 2002, p.2). Be that as it may, the results of this dissertation highlight that men are susceptible to mass media messages and that perceived pressure to be strong and muscular (perhaps so that they can master the environment?) may be detrimental. Other researchers have found that in a sample of college-aged men, 85% desired to be more muscular (Vartanian, Giant, & Passino, 2001). It has also been found that men overestimated the size of men they thought women would find attractive (Demarest & Allen, 2000). Researchers into muscle dysmorphia have discussed findings that men with such a disorder are socially anxious and avoid others because of appearing too small (Olivardia, 2001). Further research into the role that physical activity and physical activity messages have in male body dissatisfaction and self-presentational difficulties is necessary.

Self-presentation in an exercise setting

Another interesting finding was the distinction that emerged between self-presentational concerns in a non-competitive setting compared to a competitive setting. The results of a psychometric evaluation showed that self-presentation in an exercise setting could be broken down into two factors: exercising around others in a non-competitive environment and exercising around others in a competitive environment. Questions that did not load onto either factor included questions that included both competitive and non-competitive examples (e.g. question 15: “I would

be quick to quit a game or exercise class...”; similarly, questions 19 & 20 both included “game or exercise class”).

Analyses using these two factors showed that when overall self-presentation scores were affected they were because of a significant difference on only one of these factors. Not surprisingly, there were significant differences between exercisers and non-exercisers on the non-competitive self-presentation scale; exercisers had higher scores indicating greater willingness to exercise around others in a non-competitive situation. There were no significant differences between exercisers and non-exercisers on the competitive subscale, although exercisers had consistently higher scores than non-exercisers and the results were close to significant. Conversely, there were no significant differences between men and women on the non-competitive self-presentational factor, but men had significantly higher scores than women on the competitive factor. Leary (1995) writes that when people are trying to manage their impressions they generally try to manage them by using slight prevarications. There is some evidence that this is true for males in an exercise setting. One group of researchers found that men’s rate of perceived exertion while exercising was affected by the gender of the experimenter; at high workloads men reported lower exertions in the presence of a female experimenter (Boutcher, et al., 1988). The relationship between self-presentation in non-competitive and competitive exercise settings for exercisers and non-exercisers, and for men and women, warrants further attention.

No clear pattern emerged on how these two factors were affected by exercise advertising. In Experiment One it was found that participants in the appearance

condition were more likely to endorse exercising around others in a competitive situation. Further, exercisers in the health condition had higher SPEX (competitive) scores than non-exercisers. The main finding from Experiment Two was that older participants in the health condition had an increase in their likelihood to endorse exercising around others in a non-competitive setting. Younger participants had higher scores for exercising around others in a competitive environment than did older participants. In Experiment Three, participants in the health condition who internalized sociocultural attitudes regarding appearance had lower SPEX (competitive) scores than those who did not internalize such attitudes. In addition, men in the appearance condition had lower scores for the non-competitive factor than did participants in the other conditions.

Non-competitive situations as defined by the SPEX questionnaire included very global question that asked about “exercising around others” and could be interpreted to mean any one of a number of possible exercise situations. Conversely, some of the questions asked about “exercise classes” or an “exercise group” which could include situations such as aerobics classes where ostensibly there is no competitive component, but where self-presentation could be very relevant. Frederick, Havitz, and Shaw (1994) suggested that aerobics classes could be an important area for studying social comparison in an exercise setting. They proposed that social comparisons are important in aerobics classes and that such comparisons may affect participation and choice of physical activity. They further proposed that the media could play an important role in this relationship because the emphasis placed on appearance and weight-loss may inhibit people who are prone to such

comparisons from joining. Frederick et al. discussed this possibility mainly in the context of women, however for this dissertation their proposals appeared to be true for men rather than for women. Men in the appearance condition (Experiment Three) were less likely to endorse exercising around others in a non-competitive situation than were men in the other two conditions. However, as already discussed, whether men felt inhibited by the presence of women or men remains to be determined. One group of researchers found that the gender composition of an exercise class had no effect on physical self-presentation (Gibbons, Rust, Blassingame, & Reed, 2000). Similarly, the one question from the SPEX questionnaire in this dissertation that asked about participating “in an exercise group if almost everybody else were of the opposite sex” did not load onto either factor and so was not used in these analyses. Further, an exploratory analysis of only this question revealed no significant results for condition, gender, or the interaction. In addition, the terms “exercise class” and “exercise activity” leave much room for interpretation and is a limitation of this study.

Other than the findings regarding older people, which were discussed in the health promotion section earlier, and the finding for men discussed in the previous paragraph, most of the findings around the competitive/non-competitive distinction had to do with exercising around others in a competitive situation. Researchers who have focused on self-presentation in a competitive exercise setting found that eight themes emerged with the three most important self-presentational stressors being significant others, social evaluation, and competitive anxiety (James & Collins, 1997). Further, these authors reported that self-presentation played an important role

in the development of competitive anxiety. It should be noted that the participants in their study were competitive athletes whereas the participants in the present studies ranged from the completely sedentary through competitive athletes. In a similar study that also used competitive athletes as participants, it was found that physical self-presentation and social physique anxiety were both significant predictors of sport competition anxiety, but for females only (Martin & Mack, 1996). These authors note that social physique anxiety was a marginal contributor, accounting for only 2% of the variance whereas physical self-presentation accounted for 19% of the variance. These results are similar to the findings of this dissertation: Social physique anxiety did not prove to be an important variable in any of the experiments, while self-presentation did come up repeatedly as being influenced by exercise advertising.

The results from Experiment One of this dissertation found that exercisers in the health condition had higher scores for exercising around others in a competitive situation than did non-exercisers. Although the health advertising in no way mentioned competition it could be that those who are not currently active conceive exercise situations as being inherently competitive and so were less likely to want to subject themselves to such a situation. This could also explain the results for those who internalized sociocultural attitudes from Experiment Three.

This result could also be related to how competitive sports are described. Some of the questions in the SPEX questionnaire used the word “race” while others specified a “game” or “sport.” Wong, Lox, and Clark (1993) found significant differences in self-presentation confidence between athletes from team sports and those from individual sports; athletes from the individual sports had lower self-

presentational confidence. This issue also needs to be examined in non-exercisers. Consideration should be made to how non-exercisers conceive of exercise situations – do they immediately think of exercising alone (walking, running), exercising around others in a gym or aerobics class, or exercising by joining a recreational sport team. Future research is needed to address how physical activity is defined by individuals and if this is related to self-presentational difficulties or other aspects of exercise motivation.

Another consideration is the nature of competition. Some of the questions in this study asked about competing against “elite or professional players” or conversely playing against others who are “of the same ability as me.” Duquin (1986) found that as ability and age increased (from high-school to college) participants were less likely to want to play squash with less able players and were more interested in equal or better social comparison. A further result that relates to the findings of this dissertation is that men were more likely than women to not want to compete against less able players. Men wanted to compare themselves more to people who were better than themselves. These findings by Duquin may be related to the gender difference in self-presentation for the present study: Men in the appearance condition had lower scores for the non-competitive factor than did participants in the other conditions. It may be that for men, the competition aspect overrides self-presentational difficulties, but that self-presentation becomes a problem in situations in which social comparison is possible but not necessarily a focus of the activity; for example, weight training around others.

The limitations in the structure of the questionnaire may explain some of the difficulty in interpreting the findings of this series of experiments. No clear thread emerged in this series of results as in the case of the results for health promotion or appearance-based advertising. However, the distinction between self-presentation in a competitive environment compared to a non-competitive environment warrants further research, starting with a restructuring of the SPEX questionnaire to clarify the issue raised above regarding the ambiguity of some of the wording. At the same time examining how non-exercisers and exercisers alike conceive of exercise would be a valuable addition to the literature in this area.

Conclusion

In conclusion the results of this dissertation provided several unique contributions to the area of exercise psychology and motivation to exercise. First, that it is the already active who are positively influenced by health-promotion advertising is an important finding that highlights the need to find out if it is helping those already active to stay active, or whether it is only those who are long-term committed exercisers who are being reinforced. This finding also shows that we need to understand more fully how non-exercisers are processing such messages. By finding out if non-exercisers are not paying attention, or conversely by finding out what does engage their attention, physical activity messages can be structured in such a way that they can have a greater impact on the sedentary. A second contribution of this dissertation is that it is men who are adversely affected. Most of the literature to date has focused on women and it is very interesting to find that it was men who were consistently negatively affected. There is a possibility that it is the exercise

component of the appearance-based exercise advertising that resulted in these findings, but further research is necessary to reach any conclusions. The third contribution is the distinction that emerged in self-presentational difficulties between competitive and non-competitive exercise environments. These results draw attention to the need to be precise when identifying exercise behaviour. Further, these results can be tied to the need to understand how messages are processed by non-exercisers; perhaps the definition of an exercise environment differs between various segments of the population and discussing exercising around others in a competitive environment compared to a non-competitive environment will have different effects on motivation to exercise.

Limitations

There are several limitations to this series of experiments. Perhaps the most important has to do with the definitions of exercise and physical activity used throughout this dissertation. Physical activity has been defined as any movement that results in energy expenditure whereas exercise can be described as planned and structured movement for the purpose of physical fitness (Buckworth, 2002). While the optimal amount of physical activity has not been conclusively determined, it has been shown that low to moderate amounts of physical activity can result in better health for the sedentary (Blair & Connelly, 1996). In this dissertation, the term exercise rather than physical activity was used on the questionnaires. Further, exercise was not defined in terms of duration or intensity on either the SPEX questionnaire or the exercise attitudes measure. Because participants were classified as exercisers or non-exercisers according to set criteria, but similar criteria was not

specified on some of the measures, there could be strong implications for the reported results. Participants might have used different definitions of exercise than the one used for classification. Even when the PAR was used to assess levels of activity, there still could be difficulties as it has been noted that there are often problems with the accurate self-reporting of physical activity, and in particular the intensity of physical activity (Dishman, 1994).

This issue becomes apparent through the results of an exploratory analysis. In Experiments One and Two, the PAR was used as a check to the question “do you currently exercise three times a week for at least thirty minutes.” Using data from Experiment One, an exploratory analysis that split participants into exercisers and non-exercisers based solely on the answer to this question resulted in very different numbers: 67 exercisers and 36 non-exercisers compared to 54 exercisers and 49 non-exercisers when the PAR was included. When the simpler criteria was used, the borderline significant relationship from Experiment One became significant – non-exercisers in the appearance condition had lower attitudes towards exercise than did exercisers. However this relationship did not extend to older participants. Even using the PAR as a check is not ideal for non-exercising adults, as it has been shown that sedentary adults tend to overestimate the intensity of their moderate physical activity when using the PAR (Duncan, Sydeman, Perri, Limacher, & Martin, 2001). Further, in Experiment Three the PAR was not used and categorizing participants as exercisers or non-exercisers was based entirely on the answer to the question on the demographic questionnaire. This makes comparisons between experiments problematic.

Other limitations are as follows:

1. Only two possible motivators for exercise were discussed: health and appearance. Researchers have identified a number of other motivators for exercise including social relationships, autonomy, and accomplishment for older participants (Heitmann, 1986) and mood improvement, weight control, enjoyment, stress management, recognition and competition for people aged 18 to 60 (Davis et al., 1995; Gill & Overdorf, 1994). It is possible that these other motivators mitigated the influence that exercise advertising might have had on the dependent variables. In particular, social relationships might have direct connotations for the results of this study.
2. The nature by which participants were recruited is limiting. Both undergraduate and older participants were convenience samples. This may account for the greater number of active older participants (82%) than is representative of the general population, where on average 67% of women and 55% of men are inactive (CFLRI, 2001).
3. Although attempts were made to not cue participants as to the nature of the research (i.e. having to do with exercise), the pre-test questionnaires may have made participants more aware of the exercise advertising and suspicious as to the nature of the experiment, thereby skewing results.
4. Although it appears that the health promotion advertisements were inclusive of all types of people, it has been argued that the Participation campaign is biased and takes a middle-class, Caucasian, and sexist perspective (MacNeill, 1999). Neither socioeconomic status nor ethnicity were taken

into account in this study and so some participants may have felt excluded by the message thereby affecting their response. However, in contrast to MacNeill's assertions gender differences were not found for the health promotion advertising and so the argument that women might feel excluded due to a heterosexist bias in the advertisements in favour of males was not substantiated.

5. Another limitation is that there was no measure of advertisement recall. It may be that different types of advertising are recalled differently or processed differently
6. The dose of advertisements is another limitation. Participants saw three target advertisements and this is likely not truly representative of what would be seen when actually watching television at home. Generalizations are therefore limited.
7. Questionnaire research is always suspect. There are concerns that participants may not have filled out the questionnaires honestly and accurately and self-presentational concerns may also have played a part in answers. However, researchers have found that when supervised, participants filling in a Movement Imagery Questionnaire spent more time in filling out the questionnaire and their results were more accurate (Short & Short, 2002). All participants were supervised during all aspects of this research except for the older participants who filled out pre-test questionnaires at home.

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Appendix A

Related Literature

The following section provides a review of the literature related to this dissertation. Topics covered include exercise motivation, physical activity promotion, appearance-based advertising, self-presentation theory, social physique anxiety, the Transtheoretical Model of behaviour change, and self-efficacy theory. Although these topics are discussed in separate sections, it should be noted that there is some overlap between topics, for example, when stage-matched campaigns are discussed in physical activity promotion.

Exercise Motivation

Motivation has been defined as the pattern of three functions that work to direct our behaviour: personal goals, emotions, and personal agency beliefs (Ford, 1992). In the exercise domain, how these three factors interact to direct behaviour towards physical activity is a question that remains, for the most part, unanswered. Although researchers have attempted to identify motivators for physical activity, the issue is not easily defined and most likely relies on an interplay of various variables, as will be outlined in the following section. An additional difficulty with this area is, as Dishman (2001) writes, the main focus has been on trying to direct people to be more physically active, rather than trying to understand what barriers might exist.

In an attempt to start to understand who is physically active and who is not, exercise researchers have studied the demographics of the active population. King et al. (1992) reported that in younger adults, more men than women were active, but physical activity levels decreased for both genders with increasing age. Higher

education is also consistently correlated with increased leisure-time physical activity. Overall, black women, those with less education, the overweight, and the elderly are most likely to be inactive (King et al., 1992). In a study that looked specifically at the recruitment of older adults living in lower income housing to a physical activity program, it was found that participants who were successfully recruited were younger, more likely to speak English as a first language, and were overweight but not completely sedentary (Mills & Stewart, 1996). However, those who enrolled were similar to those who did not in terms of ethnicity, education, marital status, self-rated health, and smoking status. Other researchers found that across age groups (16-24, 35-45, and 50-65) and gender, a socially supportive exercise environment was equally important for adherence. However, in older men and women, physical and psychological health problems were related to less physical activity (DeBourdedeaudhuij & Sallis, 2002).

Researchers have identified a number of possible motivators for physical activity including health, appearance, weight-loss, social support, autonomy, competition, mood enhancement, stress reduction, and recognition (Davis Fox, Brewer, & Ratusny, 1995; Cash et al., 1994; Heitmann, 1986; Gill & Overdorf, 1994). One of the most important motivators identified by several researchers, particularly for people over the age of 40, is health (Duda & Tappe, 1989, Heitmann, 1986). Yet despite the known links between increased physical activity and decreased risk of many physical health problems including cardiovascular disease, type II diabetes, colon cancer, and osteoporosis, as well as mitigating some mental health difficulties including anxiety, stress, and depression (Dubbart, 2002), motivation to

stay physically active remains a problem for over half of Canadians (CFLRI, 2001). This is not too surprising in light of research that found that for both male and female participants aged 18 to 60 years, level of physical activity participation was not related to any of the six factors (sexual attractiveness, general appearance, weight control, fitness and health, mood, and enjoyment) of the Reasons for Exercise Inventory (Davis et al., 1995). Similarly, Cash et al. (1994) reported that only the appearance factor of the Reasons for Exercise Inventory was significantly correlated with exercise frequency in women aged 18 to 52. However, a follow-up to the Cash et al. study found that health and fitness concerns predicted physical activity in women (Smith, Handley, & Eldredge, 1998). These authors further found that women exercised more for appearance reasons than did men. Other researchers found significant differences between regular exercisers and occasional exercisers on exercising for health and recognition but not for body satisfaction or social well being, (Farrington & Rees, 1996). Overall, it is unfortunate that exercise adherence rates are so low because it has been shown that exercise can improve the health of obese men and women, even if there is no concomitant loss in body fat (Miller, 1999; Cogan & Ernsberger, 1999).

How motivations for exercise may interact is also of interest. Weight-loss as a motivator is an interesting example. Weight-loss can be interpreted in either health or appearance terms. Weight-loss as a motivator likely has little resilience because it has been shown through a meta-analysis of 493 clinical programs, that for a 21 week exercise program, the average weight-loss was 3 kg, while for a 15 week diet program, the average weight-loss was 11 kg (Miller, 1999). Although weight-loss

continued for the exercise only programs, the diet programs resulted in weight regain; the slow progression of weight loss likely leads to abandonment of the program, perhaps explaining an average 70% drop-out rate from exercise programs after the first year (Miller, 1999).

Beyond descriptive studies of demographics and motivation to exercise, researchers have looked at how personality characteristics interact with motivations to exercise. Davis et al. (1995) reported that being extroverted was positively related to the motivators of weight control, general appearance, and enjoyment. Extroverted young adults were more motivated by health and fitness than their younger counterparts, whereas for older adults the relationship was inverted: the more introverted were more motivated to be physically active because of health and fitness reasons than the older extroverts. These authors also found that people who were high in neuroticism were most motivated to exercise by attractiveness and appearance and that people high in psychoticism were most likely to disregard health as a motivator. In a similar study, Courneya and Hellsten (1998) found that neuroticism was the only personality characteristic to correlate with physical appearance and weight control as exercise motivators. Further, neuroticism was correlated with the barriers to exercise of lack of energy, lack of motivation, and embarrassment. Extroverts preferred to exercise in a group. They also found that exercisers were more extroverted and less neurotic than non-exercisers. In a study of older adults, it was found that lower anxiety predicted adherence to exercise one year after an intervention (Emery, Hauck, & Blumenthal, 1992).

In addition to the relationship between motivators and personality characteristics, the interplay between barriers and motivation is also complex. Some of the barriers to active living that have been identified include weather, inaccessibility, time (Dishman, 2001), and lack of social support (Carron et al., 1996). However Dishman reports on research that has suggested that some people who have dropped out of exercise programs actually live closer to the exercise facility and have more reported leisure time than those who have adhered to the program. One study that examined adherence rates to an exercise program in overweight women found that of the 30% who dropped out, the most often cited reasons were lack of time, and no identifiable cause. The number one reason why people adhered to the program was a positive response to the instructor (Sale, Crawford, & McCargar, 1996). This study did not further explore why women dropped out or if there were differences in terms of available leisure time or proximity to the exercise setting. How barriers are perceived and interpreted is an area that remains largely unexplored.

Although one variable that has received some research attention is social support for exercise, there is still a lack of experimental research, as discussed by Courneya and McAuley (1995) who identified the need for more experimental research that can confirm that changes in social support will lead to changes in perceived behavioral control. Social support in an exercise setting has six major sources: physicians and colleagues, family, exercise professionals, coexercisers, and social and task cohesive exercise groups (Carron, et al., 1996). A meta-analysis showed that although it was expected that family would be the most important source of social support on compliance, important others such as friends turned out to have a

greater effect (Carron et al., 1996). A further interesting finding from this meta-analysis was that there was a negative relationship between powerful others and adherence behavior. The authors speculate that when a powerful other is considered to be in control, perceptions of self-determination will lessen and exercise adherence will suffer. Other researchers have also looked at the exercise situation and found that the higher the perceived social support, the higher the perceived control over attending classes regularly. They have concluded that any intervention aimed at developing social support within an exercise setting is likely to enhance perceptions of control over exercise (Courneya & McAuley, 1995). Carron et al. (1996) point out that in terms of intention to exercise, and the emotion associated with exercise, only family and important others have been researched as sources of social support.

An additional difficulty in motivation and adherence to exercise may be in the definition of active living. By making exercise sound like work, many people may be disinhibited from even trying. An argument is being made that moderate amounts and intensities of physical activity are important in helping the most sedentary of North Americans to become at least moderately active (Blair & Connelly, 1996). These authors also claim that an optimal dose of exercise cannot be specified. However, various researchers have cited walking as an activity that is likely to result in greater adherence (Hillsdon & Thorogood, 1996; Taylor, 1994). Sale et al. (1996), who examined exercise adherence in overweight women, also found that although overall adherence rates did not differ between a walking class and a resistance training class when they were supervised, they did find that adherence was much greater for the walkers during unsupervised exercise sessions. They found that women in the

resistance training class tended to walk rather than weight train during the unsupervised sessions as it was more convenient and there was more opportunity for social interaction. Marcus et al. (2000) concluded that exercise interventions that emphasized lower intensity activities were found to be most effective in helping people adopt physical activity.

Overall, it appears that health as a motivator for physical activity is important at all ages, but does increase with advancing years. Younger people are more motivated by appearance than are older people. However, these are gross generalizations, and as outlined above, there are many possible factors involved. It should also be noted that the pattern of starting and stopping physical activity is repeated many times for most people and the issue of motivation and adherence should not be assumed to be black and white (i.e. sedentary or active forever) (Marcus et al., 2000). Despite the complexity of this area, certain groups have still tried to motivate others to be active and the two main motivators that have been used are health and appearance. The public sector has been active in physical activity promotion as a means to improve health and decrease rates of certain diseases. This may be the best approach for older women as it has been shown that older women are more likely to use media-presented health information, (Rimal et al., 1999). Product manufacturers have tended to focus on appearance as the primary motivator to be physically active (and therefore buy their fitness products). A review of both these types of advertising follows.

Health Promotion advertising

Public health advertisements focus on exercise as a means of reducing cardiovascular disease and other health concerns. For these health messages to work, it is important that they achieve widespread exposure (Rimal, et al., 1999). To that end, most health-promotion physical activity campaigns use multiple methods to disseminate information including television, radio, print media, and the Internet (Marcus et al., 1998). However, from a researcher's perspective, this wide use of media means that if there is a positive impact, it can be difficult to determine which method is being effective. Research into health promotion effectiveness can be challenging and Nutbeam (1998) outlines the necessary criteria for proper evaluation of health promotion programs. These include assessing if the program reached the target population, ensuring that the program is acceptable to the target population, and ensuring that the program was implemented as planned. Of those programs that have been evaluated, Marcus et al. (1998) report that most result in a high recall of messages (on average 70% recall), but significant improvements in knowledge are rare, possibly due to the fact that most people already know about the benefits of physical activity before the start of a campaign. Further, actual changes in behaviour seldom occur.

Televised health promotion advertisement can reach a large audience at less cost than face to face interventions (Marcus, et al., 1998), yet they are not necessarily inexpensive to produce and show as evidenced by England's *Active for Life* campaign that spent £2 million on producing and airing a 40 second advertisement over a six-week period (Hillsdon, et al., 2001). Despite the cost, the efficacy of public physical activity campaigns are questionable and a literature review found few systematic

studies evaluating such campaigns and showed that although the campaigns may change levels of knowledge, they had little impact on actual behaviour or participation (Cavill, 1998). Wimbush et al. (1998) reported on a Scottish campaign aimed at sedentary men and women aged 30-55, that used a 40 second television advertisement with a telephone help-line. The campaign resulted in a 70% awareness of the advertisement. However, only 5% of survey respondents who were aware of the telephone help-line actually used it, and they also found that the help-line was of less interest to people in lower socioeconomic groups. Overall, there were no changes in intentions to increase walking or increases in population walking behaviour. For those few people who called the help-line, one-third were already active and half claimed to be more active after the campaign. Other researchers found that the recall of a physical activity campaign was higher among those who were already active or planning to become active (Hillsdon et al., 2001). These authors also reported that the number of participants ready to take up physical activity did not change in the first year after the campaign and went down in the second year.

Some of the public health campaigns that have achieved a measure of success have applied social marketing theory. Social marketing theory applies marketing techniques to social change and one of the important aspects is population segmentation, or having a target audience (Black, Blue, Kosmoski, & Coster, 2000). For example, Black et al. (2000) advise that when a physical activity promotion campaign is targeted at a blue-collar population, the emphasis should be on being physically active after a long work day, when there are large demands at work, and when there is no trainer available. For those with greater education, the campaign

should focus on improved health, increasing energy, making them feel better, toning of muscles, and relaxation. For those with less than high school education, the focus should be on having to exercise when alone, when the weather is bad, and when there are no structured athletic opportunities.

Others have applied the Transtheoretical Model of behaviour change and found that a program targeted at precontemplators and contemplators increased self-efficacy for exercise but had no impact on decisional balance or level of exercise behaviour (Renger et al., 2002). Oldenburg, French, & Glanz (2000) reviewed an Australian campaign that used physicians to dispense tailored messages to inactive people and reported that about 20% of the least active people moved toward preparation and action stages, and that this was most successful with at risk males.

Despite the argument by social marketing theorists that tailored interventions can have greater impact (Marcus et al., 1998), the Push Play advertisements used in this dissertation which included Maori people from New Zealand, were not as well recalled by women or Maori, as compared to white men (Hillary Commission, 2001). Further, 93% of those surveyed in 1999 said that after seeing a Push Play advertisement they hadn't done anything to increase their activity; a mere 4% had thought of getting more active, and 1% had talked about getting more active. Two years later 83% hadn't done anything, while 10% had thought about increasing physical activity, 3% had talked about it, and 5% had started or returned to physical activity.

Part of the problem with unsuccessful campaigns may be related to the actual processing of information. Rosen (2000a) combined concepts from the TTM, theory

of planned behavior, and the elaboration likelihood model of attitude change, to look at whether readiness to change influenced the processing of exercise-promotion writing. The theory of planned behaviour posits that attitudes, social norms, and perceived behavioural control lead to intention for a behaviour which subsequently leads to the behaviour itself. The elaboration likelihood model suggests that the more relevant information is to an individual the more likely it is to be processed. Rosen found that stage of exercise behaviour change was not related to cognitive elaboration on exercise-related written messages, nor did argument quality affect thoughts towards exercise. However, strength of argument was related to elicitation of negative thoughts – the weaker the argument the more negative exercise thoughts were generated. He further found that participants who already had a positive attitude regarding exercise were more likely to elaborate on the message than were those who did not have a good attitude regarding exercise.

Recently, the focus in health promotion has shifted to more interactive methods of communication. Marcus, Nigg, Riebe, and Forsyth (2000) provide a review of how interactive methods such as the Internet can be best employed for physical activity promotion. They argue that to be effective, such interventions need to employ a proactive recruitment strategy, and need to use tailored interventions that are customized for each individual within a targeted group. However, as these authors acknowledge, such interventions are new and untested and much research is necessary to understand which variables are most effectively tailored.

In addition to looking at different ways of approaching people, and in understanding how messages are processed, the actual messages themselves require

further examination. Dishman (2001) has emphasized that health promotion advocates and the medical field must move beyond a purely health approach and include other motivators such as appearance to get people to increase their levels of physical activity. However, it is my contention that little is known about the interplay between health and appearance as motivators, and most of the literature on appearance-based advertising has shown that it can have negative consequences. There is little research that specifically examines the effects of appearance-based exercise advertising either alone, or in comparison to health-based exercise advertising. What research that exists has shown conflicting results. For example, researchers using written persuasive exercise messages, either health-based or appearance-based, showed that there was a positive effect on exercise attitudes for people that read the health message, but only for people who were low self-monitors; that is, for those who paid less attention to how others might be perceiving them (Rhodes & Courneya, 2001). Other researchers found that non-exercisers who watched an exercise video that emphasized appearance had the poorest body image, (Fleming & Martin, 2002). Further research is needed to understand the emphasis of appearance-based exercise advertising. Following is a review of the literature that currently exists on appearance-based advertising.

Appearance advertising

We are presented with product advertising across many media; television, radio, magazines, newspapers, and the Internet all contain a great deal of advertising. Television advertising in particular, has the potential to reach many people in North America. A 1999 study of consumer attitudes towards television found that on

average, North American adults watched 3 hours and 24 minutes of television per day. Further, it was reported that television advertising was deemed the most authoritative by 43% of those surveyed, and most influential by 78% (TV Basics, 2000). Much of this television advertising focuses on cultural ideals of attractiveness and images of young, thin, and beautiful people permeate the North American media (Lindeman, 1999). Viewing these images may have consequences for older viewers who are underrepresented in television advertising, particularly so in sporting goods advertisements (Balazs, 1995), or for those whose physique do not match the images presented. It has been shown that negative emotions can arise when the symbols of an active lifestyle, such as age and athleticism, do not match an individual's active lifestyle self-concept (Brooks, 1998).

With television being such a powerful medium, it is of interest to see what messages are being given and what influence these messages might have. Television producers and advertisers do not randomly show programs and advertisements. Careful thought is given to who might be watching during a give time period. For example, advertisers generally target adult women as the major audience of daytime television. Craig (1992) found differences in how the genders are portrayed in television advertising based on the time of day that the advertisement was shown. During the daytime, advertisements were more likely to portray women indoors and at home. Women in daytime commercials were also less likely to be shown in positions of power than women in primetime commercials. This is of particular interest when considering exercise advertising because when looking for exercise advertisements on television, I found a total of thirteen over a three-day period,

twelve of them with an emphasis on appearance over health. Nine of the exercise for appearance advertisements were during daytime viewing hours (8 a.m. to 4 p.m.). It would appear that housewives are considered to be a prime target for advertisers of exercise equipment and that these advertisers think that most housewives probably want to improve their appearance.

Some researchers have looked at the effects of appearance-based advertising (not specifically exercise advertising) on body image. A dominating theory in this literature is sociocultural theory whose advocates argue that societal factors are powerful in influencing body image and cultural ideals of beauty (Thompson et al., 1999). These authors describe how thinness has become almost synonymous with beauty in North American culture. It should be noted that although this theory has strong empirical support, its focus is almost entirely on women with societal influences on men largely ignored, and men themselves discussed as a “special population.” Regardless, sociocultural theorists argue that mass media is a “toxic” influence and is largely responsible for body image disturbances in women.

As mentioned, empirical support for this theory is strong. In a meta-analysis of the effects of mass media portrayals of thin women on body image, it was found that body image for women was significantly and consistently worse after viewing images of thin women than after viewing images of normal or overweight women (Groesz et al., 2002). This relationship was strongest for women younger than 19 years. Another researcher found that the more high school girls compared themselves to media images, the more they tried to be thin, disliked their bodies, and engaged in unhealthy dieting practices (Botta, 1999). Hargreaves and Tiggemann (2002) found

that for women, viewing appearance-related advertising resulted in greater anger and body dissatisfaction, and less confidence. Other researchers found that women who internalized sociocultural ideals of attractiveness were more susceptible to the negative consequences of viewing appearance-based advertising (Heinberg & Thompson, 1995). Lavine et al. (1999) also refer to the media's power in shaping an individual's self-concept. They found that exposure to television advertisements depicting women as sexual objects resulted in poor body image for both men and women. Women desired a thinner physique, while men desired to be more muscular. Gould (1987) looked at advertising response and social anxiety and found that females were more publicly self-conscious than males suggesting that women pay greater attention to external cues such as advertising.

As discussed, internalization of a sociocultural ideal has been shown to be a moderating variable in the media exposure – body image relationship (Heinberg & Thompson, 1995). Another, similar, mediating variable is self-monitoring which refers to being aware of how one presents oneself and can be a regulating variable in trying to create a desired impression (Snyder, 1987). Snyder and DeBono (1985) found that there was a difference in the type of advertisement that appealed, depending of the level of self-monitoring an individual had. Low self-monitors favoured advertisements that were quality-oriented; that is, those that discussed intrinsic merit or functional value, whereas high self-monitors preferred advertisements that appealed to image. Other researchers found that advertisements for clothing that appealed to image were more effective with consumers who were high self-monitors (Lennon, Davis, & Fairhurst, 1988).

Although the issue of male body image has been largely neglected, interest in the area is growing and there is increasing evidence that sociocultural ideals exist for men as well as for women. For example, it has been found that male action figure toys have steadily evolved in muscularity, with some toys now being bigger than what is physiologically possible (Pope et al., 1999). Similarly, it has been found that Playgirl centerfolds have become more muscular over time (Leit, et al., 2001). It has also been found that in a sample of male university students, 85% desired to be more muscular (Vartanian et al., 2001). The concentration on a single, very muscular, ideal male body type might be related to recent literature that suggests that poor body image in males can result in muscle dysmorphia, the fear of appearing weak and non-muscular (Olivardia, 2001). Other authors reported that although they found significant exercise concerns in one-third of college-aged men surveyed in their study, and 8% had clinical disorders, none of the participants felt they had a problem with exercise even though they reported continuing to exercise when ill or injured, or being extremely agitated or angry if their workout session was disrupted (O'Dea & Abraham, 2002).

Other media besides television may also have negative consequences. Magazines may also reach large segments of the population and fitness magazines in particular, are popular commodities. Two such magazines, *Men's Health* and *Shape*, were the 42nd and 43rd top circulated magazines for the last half of the year 2000, with each magazine moving over 1, 600, 000 copies. Other fitness magazines among the top 150 included *Health* and *Men's Fitness*. Further, while many other magazines are decreasing in circulation, these fitness magazines are increasing in circulation (Fine,

2001). Some researchers have examined exercise and diet articles in general women's magazines. For example, Theberge (1991) looked at the monthly Canadian women's magazine, *Chatelaine*, and found that health and fitness were major themes of 78% of exercise articles and that more than half of the articles mentioned weight control or skill development as benefits of physical activity. Other researchers reported that the cultural ideal for women was becoming thinner and that there was an increase in the number of diet and exercise for weight loss articles in women's magazines over the years 1959 to 1988 (Wiseman et al., 1992). There is very little, if any, similar research with exercise articles in men's magazines.

In a content analysis of fitness magazines Berry and Lauzon (2003) found that the most prevalent reason given to exercise for both men and women was appearance enhancement. These results are similar to the findings of Durham (1998) who reported that articles about physical fitness in young women's magazines focused on the need for girls to increase their attractiveness and sexual desirability through exercise rather than emphasizing their well being. It also supports the findings of Wiseman et al. (1992) who reported an increasing number of exercise and diet for weight loss articles in women's magazines and concluded that the culturally accepted thin look is now pursued through exercise as well as diet.

Berry and Lauzon also showed that when specific body parts were targeted in women's fitness magazines they tended to be lower body. This is interesting in light of research into body dissatisfaction in Canadian and Indian women where it was found that for Canadian women, body dissatisfaction was related to the weight of the abdomen, hips, thighs, and legs, and not the upper body (Gupta, Chaturvedi,

Chandarana, & Johnson, 2001). Berry and Lauzon reported that men's magazines equally targeted the upper and lower body as areas to gain musculature. This is of some concern because it has been found that men who read fitness magazines had greater body dissatisfaction and self-objectification than men who did not read these magazines (Morry & Staska, 2001).

Both television and magazine representations of thin women and muscular men have been shown to have a negative influence on body image. Whether this relationship extends to exercise behaviour is a question that remains to be answered. Possible theories that can be used to explore this relationship include self-presentation theory and the transtheoretical model of behaviour change. These will be described in the following sections with a particular emphasis on how they apply to exercise behaviour.

Self-presentation theory and exercise

Self-presentation relies on the premise that a great deal of our behaviour is governed by our interactions with others (Schlenker & Leary, 1982). These interactions can involve direct social contact, or imagined or anticipated social contact. Most of us spend a lot of our time interacting with others, or thinking about possible interactions with others, and self-presentation can both positively and negatively impact our behaviour during social encounters. As Leary and Kowalski (1995) discuss, self-presentation influences our behaviour, often keeping it within socially appropriate limits and thereby aiding our goals (as in the case of a job interview or getting a date). However, self-presentational concerns can also result in self-destructive behaviour such as excessive dieting or sun tanning. Dieting behaviour

provides a good example of how self-presentation can influence real or imagined social contact. The motivation to diet can have a self-presentational basis because an individual may receive compliments if weight is lost and be further motivated to diet as there is evidence that losing weight contributed to making a good impression. It is also likely that the person may anticipate receiving positive attention, or imagine that she will be more favourably received, if she is thinner. Either way, it is the desire to impress others that motivates the behaviour.

The more an individual wants to impress, the higher the likelihood for social anxiety. Social anxiety can result from self-presentation when people are unsure of how to create a desired impression, don't think they will be able to project the desired impression, don't think they will be able to prove themselves as good as they would like to, or think that something will happen that will prove their self-presentations wrong (e.g. fail after bragging about ability) (Schlenker & Leary, 1982). Further, If others are viewed as strong, that is are deemed powerful, attractive, expert, or high in status, it is more likely that an individual will try to impress them and the potential for social anxiety increases (Schlenker & Leary, 1982).

One aspect of self-presentation is impression monitoring, the amount of thought that a person devotes to the impressions being formed. Occasionally you might find an individual who is completely oblivious to how others are reacting to their presence and activities, for example when someone is completely concentrating on a task. More commonly, you find individuals who may be involved in a task but are still scanning their environment for cues as to how they are being perceived. Often we are consciously thinking about the impression we are making (Am I dressed

appropriately? What do I say?). Finally, people can be entirely focused on what others think of them, so much so that it impairs their performance (e.g. so nervous you can't speak to an audience) (Leary & Kowalski, 1995). The more that an individual is inclined to impression monitor, the more likely that social anxiety will arise.

The result of making a bad impression, or of thinking that a bad impression has been made, is usually embarrassment. People respond to embarrassment and subsequent social anxiety by reacting with nervous responses, disaffiliative behaviours, and image protection (Schlenker & Leary, 1982). Nervous responses include fidgeting, twirling hair, perspiring, stuttering, and blushing. Disaffiliation behaviours are designed to decrease social contact with others, leaving individuals less likely to initiate conversations, or to speak freely. People tend to avoid situations where they might be embarrassed, or to leave early when socially anxious. There is less eye contact and less social interaction in general. Finally socially anxious people listen more, interrupt less, and behave generally innocuously when they doubt they can make a positive social impression.

If an individual assesses that the desired impression will not be made, that person is likely to withdraw and feel bad about him or herself. This is an important point to consider with exercise behaviour because physical activity often takes place in the presence of others, even if it is jogging along a street. If there is too much concern about appearances or skill when exercising, then the consequence might be not exercising at all. However, the presence of others can also work to enhance

behaviour. In 1897, Norman Triplett observed that cyclists performed better when others were watching than when they were alone (Cox, 1998).

There are many factors that can influence self-presentation and the likelihood of social anxiety. Many of these factors are relevant in the exercise domain, yet self-presentation as a possible motivating factor in exercise behaviour has received relatively little research attention (Leary, 1992). However, as pointed out by Leary, Tchividjian, and Kraxberger (1999), self-presentation can be important in relation to physical activity because people often try to be in shape not for health reasons, but in order to make better impressions on people. These authors speculate that there are probably people who need and want to exercise but don't because they are worried about the impression they might make while exercising.

Self-presentation can play a role in exercise behaviour because of social physique anxiety, the fear that one's body will be negatively evaluated (Hart, Leary, & Rejeski, 1989), or because of concerns that one doesn't have the skills or strength required and so will be unable to make a desired impression (Leary, 1992). Other sources of anxiety linked to self-presentation could include the beliefs that others are more skilled, that it would be difficult to learn the activities quickly, or that everybody else is of a different gender or age (Leary, 1992). Individuals holding such beliefs might choose not to participate in a group sport but might exercise alone rather than risk appearing incompetent (Leary, 1992). Further, in new situations, particularly those that involve strangers, there are few cues as to how one should respond and the possibility of appearing incompetent is greater. For example, researchers found that group camaraderie affected exercise adherence in a group of previously sedentary,

overweight women (Sale, Crawford, & McCargar, 1996). However, the participants in the study were homogenous in terms of age, sex, weight, fitness level, and previous dieting behaviour and this may have affected their choice to participate. In a study of the health behaviours of Irish adolescents, researchers found that nonexercisers scored significantly higher on a measure of fear of negative evaluation than did regular exercisers (Martin, Leary, & O'Brien, 2001). These researchers also found that girls who were more publicly self-conscious had more self-presentational motives for exercising and drinking. These researchers also found a strong positive relationship between teens' concern about others' evaluations and their avoidance of exercise because of concerns about appearance, strength, and coordination. This relationship warrants further investigation with adults in North America.

People who don't exercise due to self-presentational concerns may be better off exercising if they want to impress others. In a study that examined the effects of a target's exercise habits on ratings of various physical and personality characteristics, it was found that targets described as exercisers were more favourably rated than non-exercisers or controls (Martin, Sinden, & Fleming, 2000). The authors of this study conclude that there are self-presentational advantages to being thought of as an exerciser. Although it's not too surprising that exercisers would be considered stronger and healthier, exercising targets in the Martin et al. study were also considered to be more independent, braver, friendlier, kinder, happier, neater, more intelligent, more sociable, and to have more friends than nonexercising targets. However, why exercisers should be rated so much more favourably than nonexercisers is still debatable.

Frederick, Havitz, and Shaw (1994) discuss how social comparison may affect participation in exercise classes. Among their propositions, they suggest that people will be more likely to attend if they consider themselves to be a typical participant, that women will compare themselves to other women, and men will compare themselves to other men, and that a focus on body image will demotivate some people from participating while motivating others. Overall, this theoretical position has received little empirical interest. However, some researchers showed that gender composition of exercise classes had no effect on men's self-efficacy for exercise, perceived physical ability, or physical self-presentation (Gibbons, et al., 2000). Other researchers found that males working at an intense level reported lower rates of perceived exertion in the presence of females (Boutcher, Fleischer-Curtian, & Gines, 1988). They further reported that individuals who were highly motivated to impress others in general reported lower rates of perceived exertion at moderate work intensities than did participants who had less motivation to impress others. The implication of this is that exercisers might be reporting that they are not working hard, even though they are, in an effort to impress coexercisers.

Another source of anxiety is sport competition trait anxiety, the tendency to perceive a sports competition as threatening and therefore anxiety producing. In a study exploring the link between physical self-presentation confidence, social physique anxiety, and sport competition trait anxiety, Martin and Mack (1996) found that women who were anxious about having their bodies evaluated were also the most anxious in a sports competition. Further, they found that physical self-presentation confidence predicted a significant amount of the variance in sport competition

anxiety for women athletes. Other researchers looking at sources of competitive stress for athletes found that 67% of stress sources were related to self-presentational beliefs (James & Collins, 1997). Examples of such stressful situations included making mistakes with others watching, the presence of significant others, not being ready to perform at the required standard, and the nature and difficulty of the performance. In a follow up study to this work, it was found that a questionnaire developed along the findings of James and Collins had a four-factor structure to competitive athletes' self-presentational concerns (Williams, Hudson, & Lawson, 1999). The four factors identified were concern over others' impressions, fear of appearing incompetent, fear of being unable to cope with pressure, and concern over current form. However, these may be affected by the type of sport involved as Wong, et al. (1993) found that team sport athletes had greater self-presentational confidence than did individual sport athletes. Duquin (1986), using a social comparison model, found that participants in her study preferred to compete with similar-ability competitors. She also found that college-aged participants were less willing to compete with lower ability players and more willing to compete with those of higher ability, than were high school aged participants.

The studies reviewed that looked at self-presentation in a competitive environment all used competitive athletes as participants. However, as discussed earlier, competition can be a motivator for physical activity and competitive self-presentational concerns should be researched in non-athlete exercisers and non-exercisers. It may be that non-exercisers think of competitive sports when they think of exercise or that they have to be as good as everyone else when they enter an

exercise class. Further research is needed to test these ideas. The distinction between athletes' and non-athletes' self-presentation did appear in a qualitative study on female body image by Krane, Waldron, Michaelenok, and Stiles-Shipley (2001). These authors found that while both athletes and non-athletes had significant body image concerns, the non-athletes were concerned about having minimal body fat, being toned but not too muscular, gymnasts and track athletes wanted to have no fat but more muscles, and basketball and softball athletes were only concerned with weight loss. All participants indicated that eating well and exercising led to positive self-presentation, but the opposite also held true: If they felt they weren't eating well or exercising enough their self-presentation suffered. In general, self-presentational concerns appear to be salient in exercise and sport environments however it remains an area that is inadequately researched.

Social Physique Anxiety

Social physique anxiety refers to the fear that one's body will be negatively evaluated by others (Hart et al., 1989). Social physique anxiety is one aspect of self-presentation that has received some attention as a possible factor in exercise behaviour although there is mixed evidence that social physique anxiety is relevant in an exercise setting. One group of researchers found that scores on the social physique anxiety scale were negatively correlated with scores on a physical activity questionnaire indicating that people with higher levels of social physique anxiety were less likely to exercise (Lantz et al., 1997). However, social physique anxiety was insufficient in predicting exercise behaviour, and the relationship was moderated by age and gender with older women with high social physique anxiety being the

least likely to exercise. Frederick and Morrison (1996) found that women in an exercise setting showed more social physique anxiety than did men, and that heavier individuals also had higher social physique anxiety than lighter individuals. These authors also found that participants with high scores on the social physique anxiety scale were more likely to participate in fitness type activities (e.g. going to the gym to use the machines) than in team or individual sports (including football, baseball, or tennis). Contrary to other findings, individuals in this study who were high in social physique anxiety reported a greater number of exercise days per week than less anxious participants. Subjectively underweight women have also been shown to have social physique anxiety (Lox, Osborn, & Pellett, 1998). Specifically, social physique anxiety, body dissatisfaction and proneness to depression were correlated in women who thought they were too skinny. On average, these women desired to gain about 14 pounds.

Other researchers have concluded that social physique anxiety is not the most important variable in predicting physical activity, speculating that motivation to be physically active for health or appearance reasons, is more powerful than anxiety resulting from self-presentational concerns in an exercise setting (Kowalski, Crocker, & Kowalski, 2001). These researchers point out that although there are many influences on exercise behaviour, the role of specific variables on motivation to participate in physical activity is a necessary area of research and social physique anxiety is one such variable. Other researchers found that although weight, body fat, and body mass index all decreased in a group of overweight women as the result of a 4-week exercise program, social physique anxiety did not change from before the

start of the program to after it was completed (Gardner & Hausenblas, 2002). One study that explored this area found that although social physique anxiety alone was not related to frequency or duration of exercise, social physique anxiety was positively correlated with exercise settings that de-emphasized the importance of physical appearance (Crawford & Eklund, 1994). They found that social physique anxiety was worse after viewing exercise videos that emphasized the importance of physical appearance. A follow-up study found that there were no significant associations between social physique anxiety and exercise video, but did find that participating in tight work-out clothes was negative associated with social physique anxiety and working out in loose-fitting clothes was positively associated with social physique anxiety (Eklund & Crawford, 1994). These authors further found positive correlations between social physique anxiety and self-presentational motives to exercise, however they found that exercising for health was negatively correlated with social physique anxiety. Other researchers found that for female aerobics instructors, amount of time spent in an aerobics exercise setting had no relationship to social physique anxiety (Hausenblas & Martin, 2000). However, the instructors who had self-presentational motives for instructing had greater social physique anxiety than those who instructed because of leadership or affect enhancement motives.

Although the majority of research has looked at social physique anxiety in women, some research has looked at this variable in men. Most of the research has indicated that women tend to have higher social physique anxiety than men (Martin & Mack, 1996; Motl, & Conroy, 2001). Other researchers found that there was no difference in social physique anxiety between men below mean BMI and those who

were higher (Little, Short, Short, & Brinkert, 2002). These authors also found that varsity athletes had higher BMI than non-varsity athletes. Taken together these results would indicate that social physique anxiety is not a problem for men, however because of the few studies done, further research is required.

Researchers have also examined social physique anxiety in older people and found that in a group of older adults who averaged 65.5 years, women had greater social physique anxiety than men (McAuley et al., 2002). They also found that improvements in fitness and physical self-efficacy, over a six-month exercise program, predicted improvements in social physique anxiety. In a study of 45 to 64 year old adults, it was found that women had more social physique anxiety than men, and that younger participants had greater social physique anxiety than older participants (McAuley et al., 1995). They also found that women who did not have reduction in hip size after a 20-week exercise program had the highest post-program social physique anxiety.

Overall, social physique anxiety is greater in women than in men, across ages. This construct has been shown to be higher in both overweight and underweight women. However, the relevancy for this construct in an exercise setting is inconclusive. Given the conflicting results about the role that social physique anxiety might play in exercise behaviour, further research needs to be done in this area and other variables that might play a role should be investigated.

Transtheoretical Model

The Transtheoretical Model (TTM) identifies the stages that an individual goes through when trying to change patterns of behaviour and the processes of

change that are used in moving between stages. Other theoretical aspects of the TTM include decisional balance, processes of change, and self-efficacy. As the aspects of the TTM were described in experiment 4 (see pp. 84-87) they will not be described here. Rather the following section will be a review of the literature that has applied the TTM to exercise behaviour. The model was designed to address both physical and mental problems (Prochaska & Norcross, 1994) and in terms of changing physical habits, the TTM has been used in research that addressed changing smoking behaviour (Prochaska, DiClemente, Velicer, & Rossi, 1993) and exercise adoption (Cole, Leonard, Hammond, & Fridinger, 1998).

General validity studies have provided qualified support for various aspects of the TTM. Prochaska (1994) reported that across twelve health behaviours, including exercise, the pros of changing behaviour increased from precontemplation to action while the cons decreased in all but three of the health behaviours (safe sex, condom use, and radon testing). In a similar study that looked at four health behaviours including exercise, it was found that the pros of behaviour change increased across stages while the cons decreased (Herrick, Stone, & Mettler, 1997). They also found that self-efficacy scores increased across stages. Other researchers have also found that self-efficacy increased with stages of change (Marcus, Selby, Niaura, & Rossi, 1992). The pros and cons of behaviour change, and self-efficacy have also been found to be valid in predicting moderate to strenuous physical activity in a sample of overweight adults (Sarkin, Johnson, Prochaska, & Prochaska, 2001). Burn, Naylor, and Page (1999) reported that in a white-collar work environment, there were

significant differences between stages on body mass index, aerobic activity, diet, self-efficacy, stress, and age.

In a recent meta-analysis of the application of the TTM to exercise behaviour, Marshall and Biddle (2001) found mixed results. Across the total sample (N = 68,580) it was found that 14% of people were in the precontemplation stage, 16% were in the contemplation stage, 23% in preparation, 11% in action, and 36% in maintenance. Consistent with the model, as stage increased so did reported physical activity. They found non-linear increases in self-efficacy across stages with the largest effects seen in the action to maintenance stages and the smallest effects seen in contemplation to preparation. They also found that the pros of changing behaviour increased across stages while the cons decreased. The weakest support found by these authors was for the processes of change, also the least studied aspect of the model. Support was stronger for the behavioural processes than for the experiential processes. Overall, they conclude that the TTM is a useful model in the exercise area because the majority of core constructs differed across stages.

As Marshall and Biddle (2001) point out, most of the research on the TTM has been cross-sectional. One of the few longitudinal tests of the TTM with physical activity showed that self-efficacy was a good predictor of stage transition but that the pros and cons were only partially supported as predictors (Plotnikoff et al., 2001). Cons scores were significant predictors only for participants who remained in action and maintenance stages and for those participants who advanced from preparation. These authors note that overall, although not always significant, the means were in the hypothesized directions. Finally, and similarly to Marshall and Biddle, the

processes of change were poorly supported with the experiential processes having no effects in early stages when they are hypothesized to be stronger than behavioural processes.

There has been some experimental research that has examined the effects of exercise interventions on the TTM. In a study that compared stage-matched interventions to unmatched interventions it was found that all interventions (non-staged intervention, staged intervention with counselling, and staged intervention with no counselling) resulted in changes in stage but change in stage did not result in increased physical activity or self-efficacy (Naylor, Simmonds, Ridoch, Velleman, & Turton, 1999). Blissmer and McAuley (2002) did find that stage-matched intervention and standard care interventions outperformed a stage mismatched intervention in terms of increasing physical activity. A community based physical activity program that included television advertising and comic strips was also found to increase self-efficacy in targeted individuals (Renger, Steinfeld, & Lazarus, 2002). These authors also analyzed participants only in precontemplation and contemplation phases and found that knowledge of physical activity did not change, nor did perceived costs and benefits of physical activity. Other researchers found that when weight loss materials were tailored to an individual's stage of change there were no differences in self-efficacy (Kreuter, et al., 1999).

Recently, some authors have started to publish papers that are critical of the TTM in terms of health promotion with one of the major criticisms being the paucity of studies that look at health outcomes (Whitelaw et al., 2000; Bunton, et al., 2000). These authors are concerned that the predictive nature of the model remains untested

and yet health promoters continue to use the model as a predictive tool despite the lack of evidence. They also comment on the nebulous status of the stages themselves. They cite literature that states that it can be very difficult to classify some people succinctly into stages and that people can change between stages in a matter of minutes. While these criticisms are valid and should be kept in mind, the evidence to date suggests that, barring the processes of change, the TTM is a useful model for researching exercise behaviour.

Self-efficacy

Although self-efficacy has been discussed somewhat in the earlier section, it is a unique construct that has been successfully incorporated in the TTM with research to show that it increases with stage of behaviour change. Self-efficacy will be further discussed here as a possible facet of self-presentation theory, and a review of literature relating self-efficacy to the exercise domain will be provided.

Self-efficacy refers to the belief in the ability to achieve a desired goal and develops by mastery, modeling, verbal persuasion, and the influence of physiological states (Bandura, 1997). As Bandura explains, self-efficacy can be broken down into two components: perceived self-efficacy and outcome expectancies. Perceived self-efficacy refers to the self-belief that one has the ability to do a certain task. A related concept, but theoretically distinct from perceived self-efficacy, is outcome expectancy which is the belief that a given behaviour will produce a desired outcome. Self-efficacy is domain specific, that is, people can have high self-efficacy in one area, but low self-efficacy in another. Self-efficacy has been well researched in the area of exercise psychology, with exercise self-efficacy being the belief that an

individual holds in his or her ability to achieve a given exercise or physical activity goal (Bandura, 1997). Bandura concludes that exercise adherence is most affected by self-regulatory efficacy; that is, adherence is affected by the strength of the belief that one can get oneself to exercise regularly in the face of numerous obstacles. Self-efficacy has been shown to increase with stages of exercise change (Marcus et al., 1992; Marshall & Biddle, 2001). In sedentary women, self-efficacy has been shown to decrease with advancing age, however across all ages (20-85 years), exercisers had greater self-efficacy than non-exercisers (Wilcox & Storandt, 1996). Similarly, it has been found that exercising octogenarians had greater exercise self-efficacy than their sedentary peers (Stidwell & Rimmer, 1995).

In other research regarding self-efficacy, a study that looked at the outcome expectancy aspect of self-efficacy found that in women who had been sedentary for at least a month before the study, those with higher initial expectancy of the benefits of exercise in terms of weight loss were more likely to drop-out (Sears & Stanton, 2001). Consistent with theory, the most consistent predictors of future exercise behaviour were previous exercise experience and exercise self-efficacy. Not only does self-efficacy hold predictive strength for exercise, it has also been found that self-efficacy can affect mood states after exercise. McAuley, Talbot, and Martinez (1999) manipulated the self-efficacy of previously sedentary women by randomly assigning them to a high-efficacy group where they were told that their performance on a treadmill was in the top 20% for their age and activity level, or to a low-efficacy group who told they were in the bottom 20%. Participants in the high-efficacy group had less fatigue, higher positive affect, and more distress, after exercise than did the

low-efficacy group. The exercise environment may also play a role in maintaining exercise self-efficacy as it has been found that exercising in front of a mirror had a positive influence on exercise self-efficacy (Katula & McAuley, 2001). However, other researchers found that women's exercise self-efficacy decreased when exercising in front of a mirror, but men's did not (Katula, et al., 1998). This brief review shows that self-efficacy can be important in maintaining physical activity, and in gaining some of the benefits that exercise has to offer.

Although self-efficacy has strength as an independent construct, self-efficacy has also been successfully incorporated into other theoretical models (e.g. TTM) and there has been some work that has looked at integrating self-efficacy and self-presentation theory. Although self-presentation is a useful theory, there is some debate as to whether it is an independent construct or if it is an aspect of self-efficacy. Two aspects of self-efficacy, perceived self-efficacy and outcome expectancies, can be discussed in self-presentational terms as low outcome expectancies and hoped for outcomes (Schlenker & Leary, 1982). Low outcome expectancies can arise when an individual knows what needs to be done to create a desired impression but doubt that it can be achieved, a concept that is arguably the same thing as perceived self-efficacy. In the self-presentational context, low outcome expectancies can occur when someone doesn't believe they have the skills, attributes, accomplishments, or resources required to make the desired impression. Like self-efficacy, low outcome expectancies resulting from concerns about self-presentation can be situation specific. Individuals might feel at ease that they are presenting themselves well in an intellectual environment but be anxious in a sports environment.

Within the self-presentation literature, the concept of hoped-for outcomes has also been discussed: People hope that the impressions they convey will achieve a desired outcome (Leary & Kowalski, 1995). This construct could be argued as being the self-efficacy construct of outcome expectancies. Within the self-presentation literature, hoped-for outcomes means that if a person believes that there are important consequences to being positively perceived by another, the person is more motivated to manage the impression being made. For example, a junior hockey player in a game where a talent scout is known to be present might get anxious about the consequences of her performance during the game. First impressions also take on an important role due to hoped-for outcomes. If an individual has low outcome expectancy of achieving the goal to make a good impression, then social anxiety is more likely to result (Schlenker & Leary, 1982). Doubts in abilities arise when there is uncertainty about how to impress others or when the belief exists that a goal cannot be met due to perceptions of the situation or audience. If you don't know the rules you are more likely to become socially anxious.

In an attempt to explain the possible relationship between self-presentation and self-efficacy, Leary and Atherton (1986) refined the self-presentational model to include self-efficacy theory. Using the distinction between self-efficacy and outcome expectancies, they proposed two concepts: self-presentational efficacy expectancy and self-presentational outcome expectancy. Self-presentational efficacy expectancy relates to the likelihood that an individual will be able to act in a way that will result in a particular impression, while self-presentational outcome expectancies refers to the likelihood that a certain impression will be made given the performance of a

behaviour. If both types of self-presentational efficacy are high then social anxiety should be low, however if one or both of these expectancies are low then there is an increased possibility of social anxiety.

Researchers have provided support for the link between self-presentation theory and self-efficacy theory. For example, it has been found that presentational self-efficacy and outcome expectations were both correlated with social anxiety (Maddux, Norton, & Leary, 1988). These researchers further found that social anxiety was related to poor self-efficacy beliefs in the ability to perform self-presentational behaviors. Similarly, it has been found that social physique anxiety is a predictor of self-efficacy when exercising in front of a mirror. (Katula, et al., 1998). Berry and Howe (2001) found a positive correlation between a self-presentation questionnaire that asked about exercising around others, and a physical activity self-efficacy questionnaire. Their results supported the theory proposed by Leary and Atherton (1986) that link self-presentation and self-efficacy with the construct represented being self-presentational efficacy expectancy. In the Berry and Howe study, participants with low scores on the self-presentation questionnaire may not have been confident that they would be able to perform in an exercise setting in a way that would impress other exercisers, particularly when the coexercisers were strangers.

In summary, self-efficacy is a strong theoretical construct to be used in the exercise domain. It has been successfully incorporated into the TTM and there have been some attempts to integrate it with self-presentation theory. However, research into the self-presentation – self-efficacy connection is limited and conclusions can not be drawn.

Summary

Although there are many possible motivators for physical activity, health and appearance are often rated among the top reasons to exercise. However, when examining the literature, it becomes evident that there is no clear relationship between reasons for exercise and actual exercise behaviour. Part of the issue is that there are various personality as well as demographic characteristics that are related to people's physical activity choices. Despite this, the public sector have emphasized health as the focus of health promotion campaigns, while private, for-profit, organizations make appearance the focus of selling exercise equipment and facilities. Unfortunately, health promotion campaigns are generally ineffectual in changing intentions to exercise or actual exercise behaviour. With respect to appearance as a motivator, there is reason to be concerned about the overwhelming number of images we see of thin, beautiful women, and muscular, attractive men. There is strong support for the contention that images of thin women result in poor body image and associated problems in women, but again, personality factors mediate this relationship. There has not been nearly as much research with men, but such research is necessary as there is some evidence that extreme muscularity is the ideal for men and that this may result in such problems as muscle dysmorphia. Overall, there is very little research specifically into exercise advertising, either health promotion or appearance-based, and such research is needed before conclusions can be made regarding approaches to exercise motivation.

Two theories that hold promise in addressing this issue are self-presentation theory and the transtheoretical model of behaviour change. Self-presentation theory

posits that much of our behaviour is governed by our interactions with others and this can extend to exercise behaviour. Fear of making a poor impression can result in avoidance of exercise settings. In addition, social physique anxiety, a specific aspect of self-presentation, can also influence exercise behaviour because of concerns that one's body will be negatively evaluated. This theory has received relatively little attention in the exercise domain, and warrants further attention as there is some evidence that social physique anxiety and self-presentational beliefs can have an influence on exercise behaviour. The transtheoretical model looks at the stages people go through when changing exercise behaviour. Self-efficacy has proven to be a strong predictor of stage transition, and there is also evidence that health promotion campaigns may positively influence self-efficacy for exercise. Further, there is some evidence that exercise environments can influence self-efficacy. However, how exercise self-efficacy may be affected by exercise advertising remains to be determined.

Given the difficulties in motivating people to increase physical activity, the questions regarding the efficacy of health promotion campaigns, and the possible negative effects of appearance-based advertising in both men and women, research is necessary to address these issues. Examining the question of health-based and appearance-based exercise advertising may reveal factors related to people's motivations to exercise and how such advertising affects various groups including exercisers and non-exercisers, women and men, and young and old adults. By using self-presentation and self-efficacy theories we can gain an understanding of whether such advertising affects people's willingness to exercise around others, or their belief

in their own exercise abilities. By doing such research we can potentially gain an understanding of how to approach population health promotion and what possible impact the emphasis on appearance is having on physical activity. This dissertation, therefore, was designed to address these questions.

Appendix B

Demographic Questionnaire

Participant number: _____

We are interested in finding out about the lifestyle of people that participate in our study. In order to find out about this, we'd like to ask you to answer the following questions about media habits and health habits.

Age (in years): _____ Gender: M F

Education: (Please Circle One)

Some	High School	Some	Completed	Some	Completed
High School	Diploma	Post-Secondary	Degree	Post-graduate	Post-graduate

Do you currently smoke? Y N

If you do currently smoke, how sure are you that you could quit if you really wanted to?

(0 = does not apply to me; 1 = not at all confident, increasing in confidence to 7 = very confident)

0 1 2 3 4 5 6 7

Do you currently exercise at least three times a week, for at least 30 minutes each time? Y N

If you don't currently exercise, how sure are you that you could become physically active if you really wanted to? (use the same scale as above)

0 1 2 3 4 5 6 7

Do you follow a healthy diet (e.g. low fat, lots of fruits & vegetables)? Y N

If you don't follow a health diet, how sure are you that you could follow one if you really wanted to? (use the same scale as above)

0 1 2 3 4 5 6 7

Please rate how you feel about the following things on a scale of 1 to 10 with 1 being very negative and 10 being very positive.

What is your attitude toward smoking?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward exercise?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward eating a healthy diet?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward the amount of advertising on television?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward the amount of advertising in newspapers?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward the amount of advertising in magazines?

1 2 3 4 5 6 7 8 9 10

Appendix C

Social Physique Anxiety Scale

Please read each statement below and how strongly you feel about it. There are no right or wrong answers.

	Not at all	Slightly	Moderately	Very	Extremely
1. I wish I wasn't so uptight about my physique/figure.	1	2	3	4	5
2. Sometimes I worry that other people think negatively about my weight or my muscular development.	1	2	3	4	5
3. My physique makes me nervous in certain social settings.	1	2	3	4	5
4. In the presence of others, I worry about my physique	1	2	3	4	5
5. I am comfortable with how my body appears to others	1	2	3	4	5
6. It would make me uncomfortable to know others are evaluating my physique.	1	2	3	4	5
7. When it comes to displaying my physique to others, I am a shy person.	1	2	3	4	5
8. I usually feel relaxed when others are looking at my physique.	1	2	3	4	5
9. When I am in a bathing suit I feel nervous about the shape of my body.	1	2	3	4	5

Appendix D
Self-presentation in an Exercise Setting Questionnaire

Following are questions about how a person might feel when exercising with or around other people. Please read each statement and decide how true or false each one is relating to whether you feel this way when you are in a sports or exercise situation. There are no right or wrong answers. Remember to choose the response that best describes how you feel socially about exercising.

1 = very false for me

2 = somewhat false for me

3 = somewhat true for me

4 = very true for me

- | | | | | |
|---|---|---|---|---|
| 1. I would join in a spontaneous physical game with friends. | 1 | 2 | 3 | 4 |
| 2. I would join in a group exercise class with strangers even if I were unfamiliar with the routine | 1 | 2 | 3 | 4 |
| 3. I would be willing to try a new exercise activity when I was alone or with a close friend. | 1 | 2 | 3 | 4 |
| 4. I would join in a game with friends if I were not good at the sport. | 1 | 2 | 3 | 4 |
| 5. I perform below my normal ability level if I am in an exercise situation where my ability might be judged. | 1 | 2 | 3 | 4 |
| 6. I would make excuses for my performance if I thought that others were watching me and judging my ability. | 1 | 2 | 3 | 4 |
| 7. I would go to a group exercise class with a friend, even if I were unfamiliar with the routine | 1 | 2 | 3 | 4 |
| 8. I would continue to play in a noncompetitive game when I know that the others playing were elite or professional players and I am not. | 1 | 2 | 3 | 4 |
| 9. I would be likely to join in a game if I know that I am good at the sport. | 1 | 2 | 3 | 4 |
| 10. I am likely to join in a game or race if I know that I might not do well compared to others. | 1 | 2 | 3 | 4 |
| 11. I would participate in an exercise group if almost everybody else were of the opposite sex. | 1 | 2 | 3 | 4 |
| 12. I would exercise around others if I were feeling depressed. | 1 | 2 | 3 | 4 |

13. I would exercise around others even if I have not exercised for a long time 1 2 3 4
14. I can learn new exercise activities in a group. 1 2 3 4
15. I would be quick to quit a game or exercise class if I was finding it difficult and everybody else is a stranger. 1 2 3 4
16. I would join in a game with strangers if I were not good at the sport. 1 2 3 4
17. I would participate in an exercise group if everybody else seems to know each other but I am new to the group 1 2 3 4
18. I would join an exercise facility even if I didn't know anybody there. 1 2 3 4
19. I get very nervous if I am exercising or in a game with strangers 1 2 3 4
20. If I am with friends, I am quick to quit a game or exercise class that I am finding difficult. 1 2 3 4
21. I would continue to play in a noncompetitive game when most others playing are of the same ability as me. 1 2 3 4
22. I can learn the skills needed for team sports easily. 1 2 3 4
23. I would join an exercise class if everyone else looked really fit and competent. 1 2 3 4
24. I would participate in an exercise group if I were much younger or older than everybody else. 1 2 3 4

Appendix E

Modified Demographic Questionnaire (Post-test)

Participation number _____

Please rate how you feel about the following things on a scale of 1 to 10 with 1 being very negative and 10 being very positive.

What is your attitude toward smoking?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward exercise?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward eating a healthy diet?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward the amount of advertising on television?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward the amount of advertising in newspapers?

1 2 3 4 5 6 7 8 9 10

What is your attitude toward the amount of advertising in magazines?

1 2 3 4 5 6 7 8 9 10

Since leaving high school, at any time have you ever exercised regularly (minimum of 3 x a week for 30 minutes) for at least 6 months continuously? Y N

If you answered no to Question 1, since leaving high school, at any time have you ever exercised regularly (minimum 3 x a week for 30 minutes) for at least 3 to 6 months continuously? Y N

If you answered no to the above questions, since leaving high school, at any time have you ever exercised regularly (minimum 3 x a week for 30 minutes) for at least 3 months continuously? Y N

Appendix F

Television Viewing Involvement Scale

Please read each statement below and how strongly you feel about it. There are no right or wrong answers.

	Very often	Often	Sometimes	Infrequently	Never
1. I watch television advertisements to find out how good a product is.	1	2	3	4	5
2. I watch television advertisements to find out what to buy to impress others.	1	2	3	4	5
3. I watch television advertisements to help me decide what things to buy	1	2	3	4	5
4. I watch television advertisements to have something to talk about with others.	1	2	3	4	5
5. I watch television advertisements to learn about the "in" things to buy.	1	2	3	4	5
6. I watch television advertisements to see people who are examples of the way I wish I were.	1	2	3	4	5
7. I watch television advertisements to find out where I can buy some things I want.	1	2	3	4	5
8. I watch television advertisements to make connections or associations between experiences in my life and t.v. commercials	1	2	3	4	5

Appendix G

The Seven-Day Recall

PAR#: 1 2 3 4 5 6 7 Participant _____

Interviewer _____ Today is _____ Today's Date _____

1. Were you employed in the last seven days? 0. No (Skip to Q#4) 1. Yes
2. How many days of the last seven did you work? _____ days
3. How many total hours did you work in the last seven days? _____ hours last week
4. What two days do you consider your weekend days? (mark days below with a squiggle)

WORKSHEET

DAYS

		1	2	3	4	5	6	7
SLEEP		1	2	3	4	5	6	7
M O R N I N G	Moderate							
	Hard							
	Very Hard							
A F T E R N O O N	Moderate							
	Hard							
	Very Hard							
E V E N I N G	Moderate							
	Hard							
	Very Hard							
Total Min Per Day	Strength:							
	Flexibility:							

- 4a. Compared to your physical activity over the past three months, was last week's physical activity more, less or about the same?
1. More
 2. Less
 3. About the same

Worksheet Key:	Rounding: 10-22 min.=.25 1:08-1:22 hr/min.=1.25
An asterisk (*) denotes a work-related activity.	23-37 min.=.50
A squiggly line through a column (day) denotes a weekend day.	38-52 min.=.75
	53-1:07 hr/min. =1.0

Appendix H

Seven-day Television Watching Recall

Participant: _____

Date: _____

		1	2	3	4	5	6	7
Morning	TV							
	Other (specify)							
Afternoon	TV							
	Other (specify)							
Evening	TV							
	Other (specify)							

Compared to your television watching over the past three months, was last week's television watching more, less, or about the same? More Less
 Same

Appendix I

Informed Consent

Effects of Television Programming and Advertising on Human Behaviour

You are being invited to participate in a study entitled Effects of Television Programming and Advertising on Human Behaviour that is being conducted by Tanya Berry. I am a graduate student at the University of Victoria and you may contact me if you have further questions by calling 250 472 4798, or e-mailing tberry@uvic.ca. As a graduate student, I am required to conduct research as part of the requirements for a PhD. It is being conducted under the supervision of Dr. Bruce Howe. You may contact my supervisor at 721 8381.

The purpose of this research is to see what effects television programming and advertising have on human behaviour. Research of this type is important because polls have found that people rate television programming and advertising as very influential and important. It is important to further investigate this area because television and advertising is very common and yet we know little about what effects they have on people and their behaviour. You are being asked to participate in this study because we are hoping to test the effects of advertising on many different people's behaviours. We want people from different age groups and so are asking people from many different groups including yours.

If you agree to voluntarily participate in this research, you will be asked to participate in two sessions. The first session will take about a half an hour and you will be asked to fill in some questionnaires about your attitudes towards television, advertising, and lifestyle (e.g. smoking, exercise, diet). During the second session, which will take up to an hour and a half, you will be asked to watch a video and fill in some more questionnaires on similar topics. Participation in this study may cause some inconvenience to you, including about two hours of your time. There are no known or anticipated risks to you by participating in this research. This research will contribute to our knowledge of the effects of television and advertising. By participating, you may also learn something about these effects.

Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. If you do withdraw from the study your data will not be used in the study and will be immediately destroyed. To make sure that you continue to consent to participate in this research at the second meeting, I will remind you that your participation is entirely voluntary and that if you want to discontinue at any time to please let me know. I will also remind you that your data will be destroyed if you do so. In terms of protecting your anonymity you will be assigned a code number and your name will not be on any of the questionnaires that you complete. Your confidentiality and the confidentiality of the data will be protected because all data will be kept in a locked room. Data from this study will be disposed of in the following ways: The questionnaires will be destroyed after the data has been entered into a computer and the computer data will be kept for seven years and then destroyed. It is anticipated that the data collected will be written up in my doctoral

dissertation. In addition to being able to contact me or my supervisor at the above phone numbers, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Associate Vice-President, Research at the University of Victoria (250-472-4362).

Your signature below indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researchers.

Name of Participant

Signature

Date

A copy of this consent will be left with you, and a copy will be taken by the researcher.

Appendix J

Participant Debriefing

You were told that we are interested in the effects of television programming and advertising on human behaviour. More specifically, we are interested in the effects of exercise advertising on attitudes towards exercise. We did not tell you this specific information at the beginning of the experiment because we did not want you to be biased or to pay extra attention to the exercise ads. There are three conditions: appearance, health, and control. You were in condition X. The difference between the three conditions is just in the type of advertising shown. We are interested if there is a difference in the effects of health promotions ads over ads that promote exercise for appearance reasons. We are wondering if after watching either type of ad people are more or less motivated to exercise, if they feel differently about exercising around other people, if their attitude towards exercise has changed, or if they feel differently about their bodies. All questions and concerns will be addressed.

Appendix K

Mailed letter for older participants

Hello,

Thank you very much for your interest in this research project.

If you are willing to participate in this project, I will need you to fill in the enclosed questionnaires and to come to the university for a session that will last about 45 minutes. During the university session you will be asked to watch a 20 minute video about Japanese culture and to fill in some more questionnaires.

Please find enclosed an informed consent form. This form indicates that this research project has been approved by the Human Research Ethics Committee at the University of Victoria. Please read it and sign it if you would like to participate in this study.

Also, please find enclosed three questionnaires. They should be straight-forward to answer. Please fill them in as soon as possible after receiving this letter and bring the completed questionnaires with you, and the informed consent, when you come for your appointment at the university.

I have enclosed a map of the university. When you come in for the session at the university, I will meet you at the corner marked with an X. I can then provide you with a parking pass and walk with you to where the second session will take place in room 126 of the Centre for Innovative Teaching..

If you have any questions please call me at your earliest convenience at 472 4798. Thanks again for your interest, it is very much appreciated.

Sincerely,

Tanya Berry
250 472 4798
tberry@uvic.ca

Appendix L

Sociocultural Attitudes Towards Appearance Questionnaire

Please read each of the following items and circle the number
That best reflects your agreement with the statement.

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. Women who appear in TV shows and movies project the type of appearance that I see as my goal.	1	2	3	4	5
2. I believe that clothes look better on thin models.	1	2	3	4	5
3. Music videos that show thin women make me wish I were thin.	1	2	3	4	5
4. I do not wish to look like the models in magazines.	1	2	3	4	5
5. I tend to compare my body to people in magazines and on TV.	1	2	3	4	5
6. In our society, fat people are not regarded as unattractive.	1	2	3	4	5
7. Photographs of thin women make me wish that I were thin.	1	2	3	4	5
8. Attractiveness is very important if you want to get ahead in our culture.	1	2	3	4	5
9. It's important for people to work hard on their figures/ physiques if they want to succeed in today's culture.	1	2	3	4	5
10. Most people do not believe that the thinner you are, the better you look.	1	2	3	4	5
11. People think that the thinner you are, the better you look in clothes.	1	2	3	4	5
12. In today's society, it's not important to always look attractive.	1	2	3	4	5
13. I wish I looked like a swimsuit model.	1	2	3	4	5
14. I often read magazines like Cosmopolitan, Vogue, and Glamour and compare my appearance to the models.	1	2	3	4	5

Appendix M

Male Version of the Sociocultural Attitudes Towards Appearance Questionnaire

Please read each of the following items and circle the number That best reflects your agreement with the statement.

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. Men who appear in TV shows and movies project the type of appearance that I see as my goal.	1	2	3	4	5
2. I believe that clothes look better on muscular models.	1	2	3	4	5
3. Music videos that show muscular men make me wish I were muscular.	1	2	3	4	5
4. I do not wish to look like the models in magazines.	1	2	3	4	5
5. I tend to compare my body to people in magazines and on TV.	1	2	3	4	5
6. In our society, fat people are not regarded as unattractive.	1	2	3	4	5
7. Photographs of muscular men make me wish that I were muscular.	1	2	3	4	5
8. Attractiveness is very important if you want to get ahead in our culture.	1	2	3	4	5
9. It's important for people to work hard on their figures/ physiques if they want to succeed in today's culture.	1	2	3	4	5
10. Most people do not believe that the more muscular a man is, the better he looks.	1	2	3	4	5
11. People think that the more muscular you are, the better you look in clothes.	1	2	3	4	5
12. In today's society, it's not important to always look attractive.	1	2	3	4	5
13. I wish I looked like a male swimsuit model.	1	2	3	4	5
14. I often read magazines like Men's Health and Men's Fitness and compare my appearance to the models.	1	2	3	4	5

Appendix N

Short form Stages of Change

Please Read the following definition for “Regular Exercise” and then answer the question that follows.

Regular Exercise is any *planned* physical activity (e.g., brisk walking, aerobics, jogging, bicycling, swimming, rowing, etc.) performed to increase physical fitness. Such activity should be performed *3 to 5 times* per week for *20-60 minutes* per session. Exercise does not have to be painful to be effective but should be done at a level that increases your breathing rate and causes you to break a sweat.

Question:

Do you exercise regularly according to that definition? Please circle one.

- Yes, I have been for MORE than 6 months.
- Yes, I have been for LESS than 6 months.
- No, but I intend to in the next 30 days.
- No, but I intend to in the next 6 months.
- No, and I do NOT intend to in the next 6 months.

13. I have been thinking about whether I will be able to exercise regularly.
14. I have set up a day and a time to start exercising regularly within the next few weeks.
15. I have managed to keep exercising regularly through the last 6 months.
16. I have been thinking that I may want to begin exercising regularly.
17. I have lined up with a friend to start exercising regularly within the next few weeks.
18. I have completed 6 months of regular exercise.
19. I know that regular exercise is worthwhile, but I don't have time for it in the near future.
20. I have been calling friends to find someone to start exercising with in the next few weeks.
21. I think regular exercise is good, but I can't figure it into my schedule right now.
22. I really think I should work on getting started with a regular exercise program in the next 6 months.
23. I am preparing to start a regular exercise group in the next few weeks.
24. I am aware of the importance of regular exercise but I can't do it right now.

Appendix P

Self-efficacy Questionnaire

This part looks at how confident you are to exercise when other things get in the way. Read the following items enter in the box the number that best expresses how each item relates to you in your leisure time. Please answer using the following 5-point scale:

- 1 = Not at all confident**
2 = Somewhat confident
3 = Moderately confident
4 = Very confident
5 = Completely confident

- | | |
|--|--------------------------|
| 1. I am under a lot of stress. | <input type="checkbox"/> |
| 2. I am depressed. | <input type="checkbox"/> |
| 3. I am anxious. | <input type="checkbox"/> |
| 4. I feel I don't have the time. | <input type="checkbox"/> |
| 5. I don't feel like it. | <input type="checkbox"/> |
| 6. I am busy. | <input type="checkbox"/> |
| 7. I am alone. | <input type="checkbox"/> |
| 8. I have to exercise alone. | <input type="checkbox"/> |
| 9. My exercise partner decides not to exercise that day. | <input type="checkbox"/> |
| 10. I don't have access to exercise equipment. | <input type="checkbox"/> |
| 11. I am traveling. | <input type="checkbox"/> |
| 12. My gym is closed. | <input type="checkbox"/> |
| 13. My friends don't want me to exercise. | <input type="checkbox"/> |
| 14. My significant other does not want me to exercise. | <input type="checkbox"/> |
| 15. I am spending time with friends or family who do not exercise. | <input type="checkbox"/> |
| 16. It's raining or snowing. | <input type="checkbox"/> |
| 17. It's cold outside. | <input type="checkbox"/> |
| 18. The roads or sidewalks are snowy. | <input type="checkbox"/> |

Appendix R

Copyright Permission from CBC

Received via e-mail March 28, 2002:

Dear Tanya:

Thank you for your email and for your interest in Peter Jordan's Japanese Adventures.

Please accept this letter as permission to incorporate the 4 Japanese Adventure segments identified in your outline in the manner you describe.

We understand that you will be dubbing these 4 segments from a vhs tape in your husband's possession. This permission is granted with the understanding that:

- the segments are included in their entirety on a maximum of 5 vhs copies of your presentation tape
- exhibition will be limited to the audiences and at the location described in your outline
- upon completion of your research project, the video(s) will be erased or destroyed
- CBC's copyright in the segments is acknowledged either on your presentation tapes or on the video face label as follows: Peter Jordan's Japanese Adventures, © 1998 Canadian Broadcasting Corporation. All rights reserved.

I hope the Adventures will be of use to you in this project, and wish you every success with your study. Please let me know if you have any questions or if I can assist further.

Karen Bower
Manager
CBC Non-Broadcast Sales

Appendix S

Recruitment Letter sent to service clubs

Volunteers needed for a research study

Hello. My name is Tanya Berry and I am a graduate student at the University of Victoria looking for volunteers to participate in a research project on attitudes towards TV and advertising. All participation is anonymous and would involve watching a TV program about Japanese culture and filling in some questionnaires. It doesn't matter if you are an avid TV watcher or not, I'm hoping to have a wide range of people participate!

Participation would involve you filling in some questionnaires at home (I would mail them to you) and then coming to the university for a 45 minute session during which you would watch a television program and fill in more questionnaires. I can provide a parking pass for when you are at the university.

If interested, please contact Tanya Berry:

Office phone: 250 472 4798

e-mail: tberry@uvic.ca