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submitted for the degree of Doctor of Psychology (Health)

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Prevention of Body Concerns and Risk Behaviours in Adolescent Boys

Jacqueline Stanford
B. App. Sci. (Psych) (Hons)

Submitted in partial fulfilment of the requirements for the degree of
Doctor of Psychology (Health)

School of Psychology
Faculty of Health and Behavioural Sciences
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Melbourne, Australia

July 2003
DEAKIN UNIVERSITY
CANDIDATE DECLARATION

I certify that the thesis entitled:

Prevention of Body Concerns and Risk Behaviours in Adolescent Boys

submitted for the degree of Doctor of Psychology (Health) is the result of my own work and that where reference is made to the work of others, due acknowledgment is given. I also certify that this thesis, in whole or part, has not been submitted for an award, including a higher degree to any other university or institution.

Full Name: Jacqueline Nicole Stanford

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ABSTRACT

Overall, this thesis was designed to explore the nature of adolescent boys’ body image, the effects of body image on body change strategies and psychological adjustment, and the factors that influence body image. The first study examined body image in 362 adolescent boys. Body image was considered in terms of attitudes to different body parts and attributes, including, lower, middle and upper body, as well as weight, shape and muscles. The relationships between Body Mass Index (BMI), body image, sociocultural messages, psychological adjustment and body change strategies, including strategies to decrease weight and increase muscles using food and exercise, drive for thinness, bulimic attitudes and behaviour, excessive exercise, food supplements to lose weight, increase muscles and steroids, were also investigated. Multiple regression analyses were used to examine the role of body image, sociocultural messages and psychological adjustment to predict satisfaction with different body attributes and body change strategies. The findings from study one led to the development of a program aimed at preventing the development of unhealthy attitudes and behaviours among adolescent boys. Study two involved the implementation and evaluation of this prevention program. One hundred and twenty one boys participated in the program. The program was based on social-cognitive theory, and included a focus on accepting differences and the development of self-esteem. The boys who participated in the program indicated some change in existing attitudes and showed less development of risk behaviours relative to the control group. The implications of the findings from this thesis in relation to future research, as well as the prevention of adolescent boys’ body image problems are discussed.

XII
CHAPTER ONE

Body image is the view we have of our body, and it includes both a perceptual and attitudinal component (Slade, 1994). For many years, research on body image has largely focused on females, due to the view that body image is of much greater importance for females than for males (Lamb, Jackson, Cassidy & Priest, 1993). As a result, much of the research exploring male body image has considered only those issues found to be relevant for females. This has unfortunately resulted in limited exploration of levels of body dissatisfaction in males, the factors that influence male body image, and the behaviours associated with male body dissatisfaction. While some of the areas of concern are similar for males and females (Jacobi & Cash, 1994), there are differences in issues that relate to each gender (McCabe & Ricciardelli, 2001a), and there are also some aspects of body image specifically relevant for males that require further research (McCrae & Sasse, 2000). Within the exploration of male body image research, it is important that longitudinal research is conducted, due to the limitations of otherwise only considering cross-sectional research.

Male body image concerns have been reported to be increasing, with more males indicating greater levels of body dissatisfaction (Moore, 1990). These concerns have generally been found to develop in the adolescent period, and so this thesis focuses on adolescent boys' body image and what can be done to prevent the development of body image concerns. In this chapter, an overview of body image in adolescent boys will be presented, including factors that relate to body image, such as sociocultural influences, self-esteem, affect and body change strategies. An overview of the programs that have been implemented to decrease body
dissatisfaction and prevent unhealthy body image attitudes and behaviours will also be provided. The aims of this thesis will then be presented, together with an overview of the organisation of the thesis.

Body Image

Gender Differences

There are both gender similarities and gender differences in body image satisfaction. Males are often perceived to experience much higher levels of body satisfaction than females (Fallon & Rozin, 1985), but research indicates that this may depend on the definition of body image and how it is explored. Recent research has indicated that similar percentages of males and females report a desire to change their body size and shape (Stanford & McCabe, 2002). However, males and females differ in how they would like their body to change. The large majority of females want to be smaller than their current size, whereas males are divided between those who want to be smaller and those who want to be larger than their current size (Furnham & Calnan, 1998; Raudenbush & Zellner, 1997). Greater understanding of what males desire is needed, particularly in terms of what they mean when they indicate a desire to be larger than their current size. This issue has received little research attention, and is emerging as an important aspect of the understanding of male body image.

Males, in particular, demonstrate a desire for muscles. Not only is the size of their body important, but they are also concerned with the composition of their body, with a strong preference for muscles. Whereas females emphasise a desire to be smaller in order to achieve the ideal female body, males report a desire to decrease fat and increase muscles, resulting in a lean, muscular body (McCabe, Ricciardelli, & Finemore, 2002).
In addition to gender differences in global body change preferences, there are also gender differences related to body parts. When the body is considered in terms of the upper, middle and lower body, females generally report a desire to decrease the size of each area, with particular focus on the lower body. On the other hand, most males want to decrease the size of their lower body, maintain their middle body size, and increase their upper body (Stanford & McCabe, 2002). Therefore, particularly with males, it is important to evaluate attitudes and feelings toward the different body areas, rather than only address the overall body.

In obtaining a full understanding of body image concerns, research also needs to explore the strength of the attitudes and feelings related to the ideal body. It is important that research distinguishes between body image discrepancy and body image dissatisfaction. Body image discrepancy is where males or females indicate a discrepancy between their actual and ideal body (Fallon & Rozin, 1985), but they may not feel strongly about this, and it may not impact on their happiness. Body dissatisfaction, on the other hand, is where this preference for change results in some degree of unhappiness (Mendelson, Mendelson, & Andrews, 2000). Dissatisfaction is of greater concern than discrepancy, as it impacts on other areas of life, such as negative affect and self-esteem (e.g., McGeeary & Sasse, 2000; Stowers & Durm, 1996). Therefore, research concerned with the impact of body image on psychological adjustment needs to evaluate attitudes toward the body, such as satisfaction.
The literature on adolescent boys is not clear as to whether they are experiencing simply a discrepancy between their actual and ideal body or if they are experiencing body dissatisfaction. Males often report a discrepancy between their actual and ideal body (Stanford & McCabe, 2002), but rate their appearance as being of low importance (McCabe & Ricciardelli, 2001a). However, boys indicate an influence of body image on self-esteem, affect and body change strategies (e.g., McCreary & Sasse, 2000; Stowers & Durm, 1996). This suggests that their concerns go beyond simply being a discrepancy between their actual and ideal body, to indicating they also experience some level of body dissatisfaction. These findings suggest males may not be aware of the influence and importance that body image has on them.

Sociocultural Influences

The discrepancies between people's actual body and ideal body, and the importance of body image, are shaped and developed throughout life by our environment and by our responses to our environment. Parents, peers and the media have all been reported to influence the body that people desire (McCabe & Ricciardelli, 2001a). Each of these sociocultural influences can provide both direct and indirect messages, the messages may or may not be perceived at a conscious level, and the individual may or may not be aware of the influence of sociocultural messages.

Parents are reported to provide messages about physical functioning as well as physical appearance (Rodin, Silberstein, & Striegel-Moore, 1985). The messages received are reported to be least positive in the adolescent years, compared to the childhood years (Striegel-Moore & Kearney-Cooke, 1994). Mothers and fathers are
both reported to influence body change strategies and provide encouragement to
change body appearance (Vincent & McCabe, 2000). Mothers are perceived to
provide a greater number of messages about the weight of their child and also
provide more positive messages related to the appearance and body of their children
(Ricciardelli, McCabe, & Banfield, 2000).

Messages are perceived by adolescent boys and girls to be coming from peers,
and these messages have been found to be predictive of behaviours to change the size
and shape of adolescents’ bodies (Vincent & McCabe, 2000). However, these
perceived messages about the ideal body are not the messages peers intend to
portray, with both genders exaggerating the ideal body message coming from the
other gender (Fallon & Rozin, 1985). Peer messages can either be direct or indirect.
Direct messages include comments specifically made to the individual, whereas
indirect message may involve messages about other people, reactions to body issues
or comparisons of body size and shape. Both direct and indirect messages have been
found to be influential on body image and related attitudes and behaviours
(Ricciardelli et al., 2000). Adolescent boys report little influence from their peers on
body image and body change strategies, yet the relationship between perceived
messages and outcome variables, such as body image, suggests an influence beyond
what adolescent boys are aware.

The media’s messages have been found to be stronger and more frequently
detected by females, but research suggests that messages directed at males have
increased in recent years in both the strength of the message about ideal body and the
frequency with which this message is portrayed (Pope, Olivardia, Gruber, &
Borowiccki, 1999). The ideal image for males is changing, and while there are a wider range of acceptable male bodies than female bodies, strong messages are portrayed about the ideal body (Leit, Pope, & Gray, 2000). While most males report that the media does not influence their body image, controlled experiments looking at the effect of media exposure indicate some influence (Lavine, Sweeney, & Wagner, 1999).

*Psychological Functioning and Body Change Strategies*

Research has indicated relationships between body image, self-esteem, affect and body change strategies (e.g., Cohane & Pope, 2001; Leon, Fulkerson, Perry, Keel, & Klump, 1999). It is important to determine the relationships between body image, self-esteem, affect and the use of unhealthy body change strategies. The findings are mixed in terms of the relationship between body image, self-esteem, affect and body change strategies. Some research has indicated adolescent boys report a correlation between body image and self-esteem (Stowers & Durm, 1996) and with negative affect (Tomori & Rus-Makovec, 2000), whereas other research has indicated weaker relationships for adolescent boys than girls (Keel, Fulkerson, & Leon, 1997). With males desiring an ideal body that is both lean and muscular, males may desire to both decrease weight and increase muscles. These body goals may lead to the use of multiple strategies to achieve the ideal body, such as dieting, exercise and food supplements (Furnham & Calnan, 1998; Komoroski & Rickert, 1992). These strategies are often used with the goal of decreasing fat and increasing muscles (Moore, 1990). While recent research has allowed greater understanding of these issues for adolescent boys, our understanding of relationships in this area is still incomplete.
Prevention Program

Numerous prevention and intervention programs have been developed and implemented, with the primary goals of preventing the development of negative body image, improving body image, as well as preventing and reducing the impact of negative body image on psychological adjustment. As prevention programs aim to prevent the onset of problems, they are normally implemented at an earlier age than intervention programs, which predominantly focus on people already experiencing problems.

As with the research into body image, the large majority of these programs have targeted females, and addressed concerns found to be of greater relevance to females, such as the desire to be thinner (e.g., Paxton, 1993). Some programs have included males, although these programs have focused on the factors found to be relevant for females, or have been of a general nature and not targeted issues specific to males (e.g., O'Dea & Abraham, 2000; Smolak, Levine, & Schermer, 1998). It is important that programs be developed to target problems specifically relevant for males, such as the desire for increased muscles. While eating disorders are found to be more prevalent in females, there are also unhealthy behaviours and attitudes that are of concern in males, such as excessive exercise, and they ideally need to be incorporated into prevention programs for males.

The development of a prevention program involves consideration of the target population, the setting in which the program will be implemented, how many sessions will be included and what approach will be taken within these sessions, as well as how to evaluate the outcomes of the program. In order to develop the best
possible program, each of these factors needs to be considered both individually to
determine their unique value, and together to determine how the different factors
should be combined to develop the best program for adolescent boys.

Aims of Research and Organisation of Thesis

The aims of the research in this thesis are to further explore adolescent boys' body
image, the role of sociocultural influences, and the relationship between body image,
self-esteem, affect and body change strategies. This thesis also aims to determine
elements that should ideally be incorporated into a prevention program targeted at
adolescent boys, with the aim to prevent the development of body dissatisfaction and
its impact on psychological adjustment. Existing programs are evaluated for their
success in preventing the development of unhealthy body image and body change
strategies. The programs are evaluated specifically for their use with adolescent boys,
considering the strengths and weaknesses of application in this population. A
conclusion is presented as to how a body image prevention program targeting
adolescent boys should be conducted. A program that is relevant to adolescent boys
is then developed, implemented and evaluated.

Thesis Outline

Chapter two consists of an exploration of the literature related to body image in
terms of gender and age differences. Body image is evaluated in terms of both
satisfaction and importance. This review focuses on young adolescent boys, who are
beginning to experience pubertal changes, as research has indicated that body
dissatisfaction often increases at this time (Frisch, 1983). The aim of this evaluation
is to identify the issues pertinent to adolescent boys, such as the development of muscles.

The literature exploring how sociocultural factors, such as parents, peers and the media, influence body image is also investigated. Particular emphasis is placed on sociocultural influences on adolescent boys. The relationship between body image, self-esteem, negative affect and body change strategies is also explored by considering past research. A summary is then presented, drawing attention to the specific issues found to be important for adolescent boys, as well as the areas that require further research to increase our understanding of adolescent boys’ body image.

Existing prevention and intervention programs are introduced and evaluated in Chapter three. The programs addressed include prevention programs that have been implemented to prevent or minimise the impact of negative body image on both males and females, drawing attention to their possible utility with adolescent boys. The strategies and the format of these programs are also explored. This discussion considers the effectiveness of the use of education, discussion, activities, and therapy, as well as the different outcomes of the programs according to who delivers the program and the population receiving the program. The theoretical underpinnings and the target variables are also evaluated for their influence in determining the success of a program. Finally, recommendations for a prevention program for young adolescent boys are developed and presented.
Chapter four describes the first study of this thesis. An introduction to the study is provided, including the methodology of the research. The results of the first study are also included in Chapter four. Study 1 consists of an exploration of body image attitudes and related behaviours, and the influences on the development of body image.

Study 2 is presented in Chapter five, and consists of the development, implementation and evaluation of a prevention program targeted at young adolescent boys. The program draws upon intervention and prevention programs that have previously been administered with the goal of preventing and decreasing negative body image, and increasing healthy attitudes and behaviours. As most of these programs have been conducted with females, specific attention is focused on how the strategies used may be applied to adolescent boys, with the aim to prevent the onset of unhealthy attitudes and behaviours.

Chapter six consists of an overall discussion of the findings of study 1 and study 2, indicating how the results relate to previous research. The implications and limitations of the research are presented, along with suggestions for future research.
CHAPTER TWO

Body Image

Body image is considered to consist of numerous components, and different methods have been used to evaluate each of those. Body image has been defined as having a perceptual, attitudinal, affective and cognitive component (Slade, 1994). In terms of perceptual body image, research has assessed the picture of the size, shape and form people have of their body. This has then been evaluated in terms of the accuracy of an individual’s body size estimates. Attitudinal and affective body image considers the attitudes and feelings about body size, shape and form, and cognitive body image considers the thoughts about body size, shape and form (Slade, 1994).

While each of the conceptualisations above are important, there is significant overlap between some of these conceptualisations (Banfield & McCabe, 2002). Attitudinal, affective and cognitive body image, may be considered as sharing the same underlying construct. Research has indicated that people from the general population do not differ in their responses when asked about their cognitive and affective body image (Bowden, Touyz, Rodriguez, Hensley, & Beumont, 1989; Franzen, Florin, Schneider, & Meier, 1988). Research exploring perceptual body image has been used to determine the accuracy of perception (Bergstrom, Stenlund, & Svedjehall, 2000) to determine if this is the basis of body dissatisfaction. While a person’s perception of their body is important, the judgements the individual makes are highly influenced by cognitive, affective, attitudinal, and other variables (Slade, 1994). Attitudinal body image has been found to have a moderate correlation with perceptual body image, and therefore, while related, they are independent constructs. For the purposes of this thesis attitudinal body image will be explored, as it has been
closely related to behaviours, such as exercise and diet, and to attitudes such as self-esteem (Thomas, Ricciardelli, & Williams, 2000).

Body Mass Index (BMI) will be used as an objective measure of a person’s size. BMI accounts for both muscle and fat, as it is determined from measurement of height and weight. As such, its use is appropriate with adolescent boys who desire to be lean and muscular. Within the objective measure of BMI, an attitudinal element can be determined by comparing attitudes within the adolescent population according to the BMI range of participants.

Body image can also be evaluated at both a global and specific level. In terms of global body image, individuals indicate how they feel, think and view their body as a whole. This may result in parts of the body rated favourably moderating the impact of the areas rated less favourably, giving an overall body image that does not indicate the variations in attitude towards different parts of the body. Research has also considered body image in terms of specific parts of the body, including the upper, middle and lower body (Stanford & McCabe, 2002). This allows more detail to be obtained about the body, such as the strength of attitudes toward different body parts. This information can then be compiled to obtain an understanding of attitudes towards the different regions of the body: upper, middle and lower. By combining the ratings of the different body parts, an overall body image can be determined, allowing a global understanding that still considers the relative importance and rating of different body parts. Consideration of the importance placed on body image and different body parts also increases the depth of understanding about body image, as it is unlikely that all parts contribute equally to overall body image ratings. Ideally,
ratings of body parts should not simply be added to obtain an overall score. Rather, body parts should be weighted by the importance the individual places on each body part. In order to obtain a comprehensive understanding of someone’s body image, it is important to evaluate body satisfaction at both a global and specific level, and determine the importance of body image to the individual.

The ideal body for males has changed considerably over the years. Leit et al. (2000) compared Playgirl models from 1973 to 1997 and found the cultural norms of the ideal male body are becoming increasingly muscular. Pope et al. (1999) explored the societal message about the ideal male body as portrayed through action toys over the past thirty years. Similar to the findings of Leit et al. (2000), they found the figures have grown much more muscular over time. In fact, action figures have become so muscular, they are larger than even the largest body builders. This increased focus on muscles in action figures and models appears to be influencing males of all ages, including adolescent boys. The ideal body many boys are striving for is both muscular and lean, they desire to have the mesomorph body shape that includes broad muscular shoulders, and lean, narrow hips (Furnham & Calnan, 1998). It is important to consider male body image in terms of body shape, size, weight, and composition (muscles vs fat).

Clearly, there are many dimensions to body image that need to be considered. While research has indicated that body image concerns impact a large proportion of people by interacting with body change strategies, self-esteem and affect, researchers have also found both gender and age differences (e.g., Tomori & Rus-Makovec, 2000). This chapter will include an exploration of gender and age differences in the
areas of body image, such as satisfaction and importance of the global body and body parts. The sociocultural influences on body image will also be explored. Specifically, the messages perceived to come from parents, peers and the media will be evaluated in terms of the impact on the individual. The relationship between body image, attitudes and behaviours, such as self-esteem, negative affect and body change strategies, will also be discussed. Finally, an overview of the body image literature with a specific focus on adolescent boys will be presented.

Gender Differences

Exploring gender differences in body image is somewhat difficult, as most of the research into body image and body dissatisfaction has been concerned with females. Research into male body image has largely focused on the female phenomenon of desiring to be smaller than their current size (Stevens & Tiggemann, 1998; Thelen & Cormier, 1995). It is only in more recent years that research into male body image has recognised that males and females are aspiring to different ideals, and as such there are differences in the body goals and the body change strategies used. Male bodily attractiveness is big, bulky and muscular (McCreary & Sasse, 2000), whereas females desire a very slim body (Furnham & Calnan, 1998). As with females, the ideal image applies to males across the life span, and males at all ages are pressured to achieve the ideal body; research finds that even young adolescent boys are striving to be strong and muscular (Raudenbush & Zellner, 1997).

Some research has demonstrated that males have been found to select almost identical images to represent their current body and their ideal body, indicating high levels of body satisfaction (Fallon & Rozin, 1985; Lamb et al., 1993). Other studies
have obtained different results. For example, Moore (1990) found that 42% of adolescent boys were dissatisfied with their weight and 33% with their body shape. More specifically, studies have demonstrated that adolescent boys who are dissatisfied with their bodies have indicated that about half wanted to be smaller and half wanted to be larger (Drewnowski & Yee, 1987; Furnham & Calnan, 1998; Middleman, Vazques, & Durant, 1998; Raudenbush & Zellner, 1997; Tomori & Rus-Makovec, 2000). While a significant number of males report desiring to be larger than their current size, it is important to determine what they mean when they indicate a desire to be larger. When talking about losing weight, it is assumed that people desire to lose body fat. When males report a desire to gain weight it needs to be determined whether they just desire to be larger, or whether it is specifically an increase in muscles that they desire (Cohane & Popc, 2001). With research supporting the importance of muscles to adolescent boys, it is important that research explores the desire to increase muscles in a similar manner to the research that has explored the desire to decrease weight.

On numerous body attributes, such as body size, weight, height, and musculature, both males and females expressed significant self-ideal discrepancies (Jacobi & Cash, 1994). When the magnitude of these discrepancies was considered, rather than the direction, males and females reported similar levels of body image discrepancies (Jacobi & Cash, 1994). In addition to males and females having reported similar amounts of body image discrepancy, similar numbers of males and females also reported no desire for weight change (Drewnowski & Yee, 1987).
These desires for body change are regardless of actual body size, and are related to body size perception. Many males in the healthy weight range believe they are underweight and so desire to be heavier, whereas females have the tendency to overestimate their size and therefore desire to be thinner. Even when participants perceived themselves as the correct weight, they were dissatisfied (Raudenbush & Zellner, 1997). Almost all of the females who think they are the correct weight have been shown to want to be thinner, and the males who perceive themselves to be the correct weight are split between those who want to be thinner or heavier (Raudenbush & Zellner, 1997).

With regard to the desired change in specific body parts to achieve the ideal body, adolescent boys commonly desire a larger chest and larger arms, and desire a smaller abdomen (Moore, 1990). This is in contrast to females who generally desire to be smaller in every body part (Stanford & McCabe, 2002).

Development of Body Image Concerns with Increasing Age

In childhood there appears to be fewer gender differences in body image than in adolescence and adulthood. Some researchers have reported that elementary school children indicated no gender differences in overall body esteem, and that there were few gender differences in levels of concern about weight and shape (e.g., Benjet & Hernandez-Guzman, 2001). It also appears that the meaning of body image changes with increasing age. When children are young they are more concerned with the abilities of their body, and as they approach adolescence their body images become increasingly tied to their appearance and their beliefs about their physical attractiveness (Pope, McHale, & Craighhead, 1988).
In a study that explored body image in fifth grade boys and girls, there were no statistically significant differences between boys and girls on self-concept, eating disorder symptoms, and body image (Cullari, Rohrer, & Baum, 1998). An equal number of boys and girls reported their ideal body to be smaller than their current size, larger than their current size, and that their ideal weight profile was that same as their current perceived weight. For both genders there was a positive correlation between actual body weight and both body dissatisfaction and weight dissatisfaction (Cullari et al., 1998). In contrast, Tiggemann and Wilson-Barrett (1998) found girls aged from seven to twelve years indicated body dissatisfaction, whereas their male peers indicated no discrepancy between their actual and ideal body. These different findings may suggest female body dissatisfaction emerges earlier than male body dissatisfaction or the different findings may relate to the method used to evaluate body image.

Studies that compare different age ranges have found that weight concerns generally increase with age (Davies & Furnham, 1986; McCabe & Ricciardelli, 2001a; Thelen, Powell, Lawrence, & Kuhnert, 1992). By adolescence there are substantial gender differences evident in body image concern, with significant differences found in weight dissatisfaction and body dissatisfaction between young adolescent boys and girls (Cullari et al., 1998; Tomori & Rus-Makovec, 2000). Differences were also evident in the number of males and females who desired a larger and smaller body than their current size. Two-thirds of girls indicated that their mean ideal weight profile was thinner than their current perception of their body as opposed to only a quarter of the boys. A greater number of boys than girls reported a
heavier ideal weight profile and that their ideal weight profiles was the same as their current perception of themselves (Cullari et al., 1998).

These gender differences that appear to develop between the transition from childhood to adolescence may be partly related to pubertal development. For females, puberty tends to take them away from the female ideal with the development of hips and stores of fat, which conflicts with the cultural ideal of a slender body (Koff, Rierdan, & Stubbs, 1990). On the other hand, puberty brings males closer to their ideal with the broadening of shoulders and the development of muscles (Frisch, 1983; McCabe et al., 2002). Puberty for males is a more positive experience and the changes, such as increased muscle, are often desired (O’Dea & Abraham, 1999).

Not only do pubertal changes play a role in determining levels of body satisfaction, but the timing of puberty is also significant. Early development has the most negative impact on females, whereas late development is most distressing for males (Siegel, Yancey, Aneshensel, & Schuler, 1999). Following puberty, there may be a plateauing or even an increase in body esteem for males but a continued decrease in body esteem for females (Siegel et al., 1999).

Exploring body image for males is complex, as is evident by the mixed findings with regard to male body satisfaction and dissatisfaction. It is important that an accurate representation of the issues of concern for males is obtained and that we do not assume they experience greater body satisfaction because they do not desire to be smaller in the same way as females. In particular, it is important to obtain a greater
understanding of what males mean by desiring to be smaller and larger, including an understanding of the desire for muscles as part of the preference for a larger body.

**Influences on Body Image**

Sociocultural influences are important factors that influence an individual’s body image. At different ages sociocultural influences are apparent in different ways. The adolescent period is the time in which parents generally become a less important influence and peers play a greater role and have a greater influence over different aspects of life, such as body image and the related issues (e.g., McCabe & Ricciardelli, 2001a).

Understanding what influences body image is particularly important in the development of a prevention program for body image concerns. Greater understanding of body image influences can be used to counter negative influences and develop positive influences. Many of the influences on body image that have been researched are those found to influence females and have subsequently been evaluated for their influence on males. Some of the sources of influence that have been found to be significant include parents, peers and the media. Each of these influences will be discussed below in relation to adolescent boys’ body image.

**Parents**

Parents are an important influence on their children’s body image due to the role they have in providing modelling, feedback, and instruction as part of their children’s socialisation (Ricciardelli & McCabe, 2001b; Striegel-Moore & Kearney-Cooke, 1994). Research has indicated that the mechanisms of discussion, encouragement,
teasing or modelling impact on body dissatisfaction and disordered eating, rather than the quality of the family and parent relationship (Vincent & McCabe, 2000).

Studies have indicated different findings in relation to parental influence according to the gender of the child. One study found that parents tended to focus on physical attractiveness in their daughters, and focused on physical functioning, such as athletic skills in their sons (Rodin et al., 1985). However, the gender of the child has not been shown to influence parental acceptance of obesity in their child, satisfaction with the child’s eating habits, or their efforts to help the child to lose weight (Striegel-Moore & Kearney-Cooke, 1994).

Parental influence on their sons and daughters has also been noted to vary according to the age of the child. Higher levels of praise were indicated by parents with younger children, and less positive evaluations were reported with the increasing age of the child. Adolescents consistently received the least positive evaluations, being the targets of the most criticism, the least praise, and the most efforts to change physical appearance (Striegel-Moore & Kearney-Cooke, 1994). With the least positive evaluations of physical appearance occurring in adolescence, prevention programs at this age may need to incorporate messages that will counter these messages or minimise their impact on individuals.

The gender of the parent has also been found to be influential in determining adolescent boys’ body image. While mothers do not report encouraging either daughters or sons to control or lose weight significantly more than fathers, more encouragement to control or lose weight is perceived to come from the mother.
(Thelen & Cormier, 1995). Regardless of whether or not the mother encourages children to change their body size, the perception of the child is important, particularly in developing prevention programs, as the perceived messages indicate a potential cause of concern to be targeted.

Research has indicated that both mothers and fathers influence their son’s body change strategies. Encouragement to lose weight from the mother has been found to predict eating problems, such as binge eating, dietary restraint and normative weight loss (Ricciardelli & McCabe, 2001b; Vincent & McCabe, 2000). Research has indicated that fathers may be more important in influencing body change methods, eating, and exercise, rather than in shaping body image (Ricciardelli et al., 2000). Fathers have also been perceived to play a role in extreme weight loss behaviours (Vincent & McCabe, 2000). The role of fathers in shaping adolescent boys’ body change strategies suggests that fathers operate as same-sex role models (McCabe & Ricciardelli, 2003).

Mothers have also been found to provide positive messages for adolescent boys and these have been found to be associated with positive feelings about their bodies (Ricciardelli et al., 2000). These positive messages from their mother may help counter the competing messages they receive, such as the negative messages presented by peers, the media, and family, including their mother.

Other research has indicated that adolescent boys may not receive or may not respond to parental messages. Thelen and Cormier (1995) found no significant correlations between dieting and the encouragement variables and found the boys did
not respond to parental messages about weight control by dieting. These results should be interpreted in light of the fact that some boys were trying to increase weight and that some boys may have been focusing on muscles rather than weight. It is important that parental influence on adolescent boys’ body image and body change strategies considers the desire of all males for muscles, regardless of body size. Such research may allow greater understanding of body image concerns in adolescent boys. These findings about parental influence and the direction of desired change would suggest that male body image is more complex than females. Prevention programs need to account for negative parental messages, by countering or reducing their impact on adolescent boys’ body image and body change strategies.

**Peers**

Peers are viewed as an important influence on body image and body change strategies, particularly during the adolescent period when a greater proportion of time is spent with peers, who become increasingly important (McCabe & Ricciardelli, 2001a). Encouragement from male and female peers to lose weight has been shown to be a predictor of eating problems, binge eating and weight loss behaviours in adolescent boys (Vincent & McCabe, 2000). Positive messages from female peers appear to be associated with positive feelings about their bodies (Ricciardelli et al., 2000). Similar to mothers, these positive messages from peers may serve as a protective factor. Similar to fathers, male peers may have a greater influence on adolescent boys’ body change methods, particularly exercise (Ricciardelli et al., 2000).
Unfortunately, research indicates that both males and females are often inaccurate in their assumptions of what the other gender idealises for the participants' own gender (Jacobi & Cash, 1994). Both genders tend to exaggerate the preference of the other gender, with males believing females prefer males to be larger than what the females actually prefer, and with females perceiving males to prefer females smaller than what the males actually prefer (Fallon & Rozin, 1985). This distortion may result in a greater impact of opposite sex peers on an individual's body image than would be the case if the messages about ideal body were perceived more accurately.

Perceived messages about the ideal body are one way in which individuals detect indirect messages, and while they have been found inaccurate they do influence body image. Social comparisons are another form of indirect messages. Social comparisons may promote body satisfaction in males, whereas it is related to dissatisfaction in females (Ricciardelli et al., 2000). Most adolescent boys who used social comparisons with regard to their body reported feeling positive or neutral about their body, rather than dissatisfied (Ricciardelli et al., 2000). This may be due to males with higher levels of body satisfaction engaging in comparisons and those with greater body dissatisfaction avoiding comparisons, in order not to increase their feelings of dissatisfaction. It may also be due to males overall higher levels of body satisfaction in comparison to females.

It appears to be the direct influences of peers through words and actions, rather than the quality of these relationships, that predict body dissatisfaction and disordered eating in adolescent boys. Within the range of direct influences, not all
were found to be important for males. Modelling and discussion about weight related topics were not predictive of adolescent boys’ body image, as they have been found to be with adolescent girls’ body image (Vincent & McCabe, 2000). It appears that encouragement from peers may be the major influence on eating problems in adolescent boys (Vincent & McCabe, 2000).

Adolescent boys appear to view peers as having a positive effect on their body image, yet these influences were also viewed as leading them to change their body shape and size (Ricciardelli et al., 2000). The exact nature of peer influence is unclear, with half of the adolescent boys indicating that sociocultural influences were not important and yet peers were found to influence body change strategies. Prevention programs need to account for these mixed findings. Adolescent boys may not recognise the influence of their peers and so prevention programs may need to include an exploration of peer influences, or simply attempt to counter the peer influence with opposing messages.

Media

The media is another source found to significantly influence body image and body change strategies, and as with the other sources of influence, gender differences are evident. The pressure on females to make their body appearance conform to the media ideal is thought to be greater than the pressure for males to conform to a media ideal (McCabe & Ricciardelli, 2001a; Pritchard, King, & Czajka-Narins, 1997). In a study of adults, 23% of females indicated that movie or television celebrities influenced their body image when they were young, and 22% endorsed the influence of fashion magazine models. In contrast, only 13% and 6% of men reported an
influence of movie and television celebrities or fashion magazine models (Garner, 1997).

Another study reported a similar degree of influence by the media on both genders (Lavine et al., 1999). When exposed to sexist ads, women judged their current body size as larger and revealed a larger discrepancy between their actual and ideal body sizes (preferring a thinner body), than women exposed to the non sexist or no ad condition. Men exposed to the sexist ad judged their current body size as thinner, and revealed a larger discrepancy between their actual and ideal body size (preferring a larger body). The men also revealed a larger discrepancy between their own ideal body size and their perceptions of others’ male body size preferences (believing that others preferred a larger ideal) than men exposed to the non sexist or no ad condition (Lavine et al., 1999). Similarly, Leit, Gray and Pope (2002) showed exposure to muscular images resulted in body dissatisfaction, relative to a control group. In other words, the media was found to skew an individual’s own ideal and their perception of their peer’s ideal.

The gender differences noted in media influence may be associated with the less clearly defined and developed ideal body type presented by the media for males (McCabe & Ricciardelli, 2001a). The media depicts a wider range of acceptable body shapes and sizes for males, and so the media may promote body satisfaction in adolescent boys (Anderson & DiDomenico, 1992). However, the studies that found gender differences relied on self report, as do most studies exploring media influences (e.g., Garner, 1997), and it may be that males are not aware of the influence of the media. In contrast, the study by Lavine et al. (1999) that found
similarities between the genders, evaluated differences in the ideal body of participants according to exposure to the media, and therefore this is a more objective measure.

Another factor that may determine the influence of the media is that of internalisation. Internalisation of societal ideals regarding attractiveness is a variable that explains why some individuals are greatly affected by such messages, whereas other people receive the same messages but may not modify their behaviours in dysfunctional ways to model media promoted images (Thompson & Heinberg, 1999). Internalisation may also be related to gender, with more females internalising the messages provided by the media than males. Gender differences in internalisation would help explain some of the gender differences in the impact of the media on body image that have been reported.

While the media appears to provide less pressure and weaker messages about the ideal male body than the ideal female body, the media has been perceived to have some influence over adolescent boys' feelings about their bodies and methods used to change body size and shape. Ricciardelli et al. (2000) found adolescent boys viewed the media as instrumental in encouraging them to exercise more. On the other hand, research has indicated that media messages have little impact on the prediction of body image or body change strategies in adolescent boys, but do impact on the prediction of body image and body change strategies for adolescent girls (McCabe & Ricciardelli, 2001a). Other research has indicated that the media has very little association with the levels of body dissatisfaction and body change strategies among either adolescent boys or girls (McCabe et al., 2002). This lack of association
between media influences and body change strategies was proposed to be due to the fact that adolescents are not detecting these media messages, or are not aware of their influence (McCabe & Ricciardelli, 2001a; McCabe et al., 2002).

The media presents an image about how males should look, and prevention programs should attempt to address the impact that these messages have on male body image and body change strategies. Further research is also needed to determine the exact nature of the media's influence on male body image, to determine whether adolescent boys detect messages about the ideal body, and whether those messages influence adolescent boys' body image and body change strategies.

Influences Summary
Body image is constantly evolving and developing due to the influence of various sources. Some of the sources of influence include parents, peers and the media. These different sociocultural influences have been found to shape both body image and body change strategies (Vincent & McCabe, 2000). Factors, such as gender, influence the impact of sociocultural messages. It is not only the gender of the individual whose body image is being evaluated, it is also the gender of the parent and the peers that determine the type and amount of influence. Clarity is needed as to how these factors interact with each other and how this information may be incorporated into a program aimed at decreasing the negative influence of these sociocultural influences and increase the positive effects.
The Relationship Between Body Image, Attitudes and Behaviours

Body image dissatisfaction has been associated with lowered self-esteem, negative affect, and unhealthy body change strategies, such as dieting and exercise, in females (e.g., McCrery & Sasse, 2000; Stowers & Durm, 1996). To varying extents, these factors are related to adolescent boys’ body image. Gender similarities and differences in how body image relates to attitudes and behaviours are now discussed. The relationship between male body image and self-esteem is then explored, as well as the relationship between body image and negative affect. The relationship between body image and body change strategies is then discussed, followed by the relationship between negative affect, self-esteem and body change strategies.

Self-esteem

Self-esteem refers to the way people generally feel about themselves most of the time, and across most situations (Heine, Lehman, Markus, & Kitayama, 1999). It has been defined as both a self-reflexive attitude that results from self-evaluation (Rosenberg, 1979) and a self-appraisal of one’s significance, worth, competence and success, as compared to others (Cooper-Smith, 1967).

In a meta-analysis of self-esteem, gender differences consistently favoured males, indicating males of all ages tended to have slightly higher self-esteem than females (Kling, Hyde, Showers, & Buswell, 1999). In contrast, females have been reported to have higher levels of body dissatisfaction than males (Siegel et al., 1999). Interestingly, controlling for body image eliminated observed gender differences in
both self-esteem and depression, providing evidence regarding the close relationship between body image and self-esteem (Siegel et al., 1999).

In studies that did not find gender differences in self-esteem, differences in body image were still evident, with females being less satisfied (Stowers & Durm, 1996). While these gender differences in body image were evident, within each gender significant and positive correlations between measures of body image and self-concept were evident.

The above data would suggest that body image dissatisfaction may influence the global view of self. For example, Stowers and Durm (1996) found a correlation of .7 between the global view of males and their view of their body and appearance. In light of the relationship between self-esteem and body image, it is not surprising that gender differences in self-esteem parallel the gender differences in body satisfaction (Siegel et al., 1999).

While both adolescent boys and girls indicate a relationship between dissatisfaction with body weight and lower self-esteem, the relationship between body weight dissatisfaction and self-esteem was somewhat less pronounced among males than among females (Tomori & Rus-Makovec, 2000). Gender differences in degree of body dissatisfaction may influence the relationship between body dissatisfaction and self-esteem, as although males generally displayed less overall body concern than females, many males of all ages reported dissatisfaction with their bodies. Body dissatisfaction has often been reported to be associated with reduced self-esteem (Cohane & Pope, 2001).
Other findings further confuse our understanding of the relationship between body image and self-esteem, as some research has indicated that there may be no direct relationship between self-esteem and body weight dissatisfaction in adolescent boys (Furnham & Calnan, 1998; Tiggemann, 1994). In order to be able to more fully understand this relationship in adolescent boys, it is important to firstly assess body dissatisfaction in a manner that is appropriate to adolescent boys’ ideal body, and then to explore the relationship with self-esteem.

Another factor that may explain the relationship between body image and self-esteem is the importance placed on body image and weight. Mendelson et al. (2000) found that late developing adolescents who thought weight was important tended to rate their global self-esteem, their appearance, and weight satisfaction low. Regardless of the importance attributed to weight, appearance and body esteem, adolescents with positive feelings about their appearance had high global self-worth. In other words, importance of weight may mediate the relationship between negative body image and self-esteem, but not between positive body image and self-esteem.

Specifically in regard to males, those who perceive themselves as thinner than average are more likely to have a negative self-view and hence, lower self-esteem (Harmatz, Gronendyke, & Thomas, 1985). This concern of being too small in comparison to peers, may be understood from a developmental point of view, in that those who perceived themselves to be too thin also perceived themselves to be less mature. Therefore, the relationship between body image and self-esteem may also be mediated by perceived maturity in adolescent boys. Being too small may have as great an impact on self-esteem as being overweight (Tomori & Rus-Makovec, 2000).
While there is some confusion about the relationship between self-esteem and body dissatisfaction, numerous findings suggest some association between adolescent boys' body dissatisfaction and self-esteem. Programs are needed that recognise the place of body image in self-esteem and incorporate a focus on the development of self-esteem, thereby reducing the impact of body image on self-esteem.

**Negative Affect**

Negative affect is a term used to describe negative emotional symptoms, including stress, anxiety and depression (Lovibond & Lovibond, 1995a). Researchers have found negative affect, including depression and emotional distress, to be related to body dissatisfaction (Grubb, Sellers & Waligroski, 1993; Heatherton & Baumeister, 1991; Leon et al., 1999). Again, more research has been conducted with females than with males in this area, and when males have been included in the research, negative affect has often been explored in relation to factors found to be significant for females, such as a desire to lose weight (e.g., Thelen & Cournier, 1995).

Some of the research that has been conducted with both males and females has found similarities between the genders. In both males and females, negative affect has been found to be associated with body dissatisfaction (Koenig & Wasserman, 1995; Kostanski & Gullone, 1998; Tomori & Rus-Makovcev, 2000). Depression has been found to be higher in participants with negative body image, regardless of body image importance (Koenig & Wasserman, 1995). It has been proposed that dissatisfaction with one's body and the rejection of the bodily self may, however,
generate depressed mood and generally rejective attitudes toward oneself (Tomori & Rus-Makovec, 2000).

Another area in which negative affect has been related to both genders is with sociocultural influences and messages about muscles. Negative affect was found to play a moderating role on some of the sociocultural influences in predicting strategies to increase muscles (Ricciardelli & McCabe, 2001a). Both boys and girls with higher levels of negative affect were more likely to be affected by sociocultural messages directed at increasing muscle tone, they were more likely to perceive stronger sociocultural pressures directed at increasing muscle tone. For boys, these perceived pressures were seen to be coming from their female friends, while for girls, they were perceived to be coming from their mothers and the media.

While similarities are evident between genders in some of the relationships with negative affect, some research has identified gender differences with negative affect. One of the strongest findings is that males experience lower levels of negative affect than females (Allgood-Merten, Lewinsohn, & Hops, 1990; Keel et al., 1997; Kostanski & Gullone, 1998). Wroblewska (1997) indicated that prepubescent children do not indicate any gender differences in depression, but that during early adolescence, girls experience significant increases in depression, resulting in significantly higher levels of depression than adolescent boys. Researchers have proposed numerous explanations for this difference, including the greater exposure of girls to stressors and pressures in early adolescence, which are thought to lead to depression (Wroblewska, 1997). The gender differences in body satisfaction may
also explain the differences in negative affect, due to the close relationship that has been found between the two constructs (e.g., Grubb et al., 1993).

When research has explored negative affect in relation to variables found to be very important for males, such as increasing muscles, gender differences are again apparent. Rather than girls indicating the greater relationship between negative affect and body-related variables, adolescent boys who experienced high levels of drive for masculinity exhibited higher levels of depression than males low on drive for masculinity. This difference was not apparent with the girls, who indicated similar levels of negative affect, regardless of their drive for masculinity (McCreary & Sasse, 2000). This finding again points to the need to look beyond simply evaluating the issues found to be significant for females in males. Research has indicated that the drive for masculinity was relatively unrelated to the drive for thinness (McCreary & Sasse, 2000), and therefore needs to be considered independently in order to obtain more detailed and accurate information about the relationship of negative affect with body image and body change variables in adolescent boys.

Clearly, there is some confusion in the literature about the role of negative affect in male body image. Some research has indicated gender differences in the level of negative affect experienced, and differences in the relationship between negative affect and outcome variables, with females often indicating poorer results. On the other hand, some research has indicated similarities between the genders in how negative affect impacts on the individual. Research has also indicated that with some variables, such as increasing muscles, males experience a greater relationship between negative affect and the outcome variable (e.g., McCreary & Sasse, 2000).
Further research is needed to gain a greater understanding of how boys’ body image relates to negative affect. Once we have a greater understanding of the role of negative affect, strategies related to the specific issues can be incorporated into programs to reduce the impact of negative affect.

**Body Change Strategies**

Body image dissatisfaction has been found to be associated with body change strategies in both males and females. Body change strategies can include both health enhancing and health risk behaviours. The body change strategies most frequently investigated are those related to eating disorders, such as binging, purging, and dieting (e.g., Furnham & Calnan, 1998; Tomori & Rus-Makovec, 2000). These behaviours are more prevalent in females, and while males may engage in these behaviours, it is too simplistic to view these behaviours as the only outcome of body dissatisfaction in males. With males and females having different body goals, there may be differences in what influence poor body image has on behaviours. Body change strategies consist of two components, the motive and the strategy. With males and females aspiring to different ideals they may both use the same strategy, such as exercise, but with different motives, males with the motive of increasing muscles and females with the motive of decreasing weight.

Body change strategies can broadly be categorised into two categories, general body change strategies and extreme body change strategies. Gender and age differences in the relationship between body image and general body change strategies will be presented first, followed by extreme body change strategies.
General body change strategies.

General body change strategies include the use of food and exercise to increase weight, decrease weight or increase muscles. Research shows that females were more likely to use weight loss strategies than males (Furnham & Calnan, 1998; Neumark-Sztainer, Sherwood, French, & Jeffery, 1999). Only a small number of males report dieting and fasting, and most males used exercise to increase and decrease weight (Drewnowski, Kruth, & Krahn, 1995; Moore, 1990).

Both males and females report using exercise to achieve their ideal body. Among males and females actively trying to reduce weight, exercise was the most frequently reported specific weight loss practice (66% of women and 53% of men) (Neumark-Sztainer et al., 1999).

The reasons behind body change strategies in males are more complex than in females, due to the varying body goals adopted by males. Studies of the factors that determine physical activity suggest that while there are some similarities between males and females, there are differences in motivations for specific types of activity. Cash, Novy and Grant (1994) found that women reported body image factors (weight loss, dissatisfaction with body) to be more motivating. On the other hand, young men rated strength (muscle gain, muscle tone) and social aspects (organised competition, meeting people) of physical activity more highly than did young women. Other research supports this gender difference, with the finding that females report exercising for appearance-related reasons more than men (Smith, Handley, & Eldredge, 1998) and that males have higher drives for musculature, which leads to desiring increases in both weight and muscle mass (McCreary & Sasse, 2000).
While males who were trying to lose weight reported exercising, they may have been exercising with a desire to lose weight and a desire for increased muscle. Males who are exercising may be concerned with the strength of their body, the appearance of their body or both. Hard exercise, stretching and toning were associated with trying to lose weight among females and with trying to gain weight among males. (Middleman et al., 1998).

Exercising for physical tone, attractiveness, health, fitness and weight control were found to be related to measures of disordered eating (Furnham & Calnan, 1998). This finding suggests that there is an association between the use of general body change strategies and the use of extreme body change strategies. In addition, while men may engage in greater amounts of exercise than dieting, they still use food related strategies to try and attain their ideal body.

Decreasing fat intake was the second most common strategy to decrease weight, and was reported by 62% of women and 48% of men trying to lose weight (Neumark-Sztainer et al., 1999). In addition, the use of at least one unhealthy weight control behaviours over the past year was reported by 22% of women and 17% of the men (Neumark-Sztainer et al., 1999). When questioned about the dietary behaviours engaged in to decrease weight, females reported having changed their intake of several foods when trying to change weight, whereas males reported they changed their intake of dessert foods (Middleman et al., 1998). This indicates males may not use dietary methods to the same extent or in the same way as females.
Extreme body change strategies.

Extreme body change strategies include the use of food supplements, bulimic behaviours such as bingeing and purging, and the excessive use of exercise to achieve different body goals. As with general body change strategies, extreme body change strategies may be used to increase weight, decrease weight or increase muscles.

Bingeing and purging behaviours appear to occur at low rates in males, with a study of 16,114 showing less than 1% of adolescent boys engaged in such behaviours (Field et al., 1999). On the other hand, Moore (1990) found 24% of males binge, and that this was most common in males dissatisfied with their bodies. This discrepancy in findings indicates a need to re-examine the definition of bingeing behaviour and the prevalence of bingeing in adolescent boys.

In late childhood and early adolescence Cullari et al. (1998) found no gender differences in restricting or purging, suggesting it may be during the adolescent period that increases in these behaviours occur at a faster rate among females than among males. Binge eating is also significantly more frequent amongst females than among males, although bouts of excessive eating also occur among males (Tomori & Rus-Makovec, 2000).

With half of males desiring to be larger than their current size, or more specifically, more muscular than their current size, there are also other body change strategies that have been researched among males. Food supplements and steroids are two methods that males believe help them achieve their body ideal (Drewnowski et
al., 1995). Wang, Yesalis, Fitzhugh, Buckley and Smiciklas-Wright (1994) researched males' attitudes to steroids and found that about 24% were not sure about the most dangerous health risks associated with anabolic steroid use, and 16% did not want to see the use of anabolic steroids in sports stopped. Research has indicated that the use of anabolic steroids was quite rare in males, with reports of .6% (Drewnowski et al., 1995) and 1.2% usage (Wichstrom & Pedersen, 2001). In contrast, another study found 7.6% of males were using steroids (Komoroski & Rickert, 1992). Regardless of which number is accurate, any use of steroids by males to achieve their ideal body is of concern. Targeting males and the issues that are specific to male body image in prevention programs is required in order to minimise the impact of body dissatisfaction on attitudes and behaviours.

The Relationship Between Negative Affect, Self-esteem and Body Change Strategies

Further to the relationships evident between body image and attitudes and behaviours, there are also relationships between these attitudes and behaviours, such as between negative affect, self-esteem and body change strategies. It is important these relationships are considered in order to gain a comprehensive understanding of the relationship between body image, self-esteem, negative affect and body change strategies.

Tiggemann and Williamson (2000) found exercise was associated with lower body satisfaction and self-esteem in young women, but was associated with higher body satisfaction and self-esteem in young men. This shows the potential benefits of certain body change strategies for males. At the same time, it is important to
distinguish between healthy behaviours and risk behaviours associated with exercise when considering the relationship with self-esteem.

Researchers have found negative affect is related to body change strategies (e.g., McCabe & Ricciardelli, 2003). Depression and emotional distress were related to disordered eating (Grubb et al., 1993; Heatherton & Baumeister, 1991; Leon et al., 1999). While both anxiety and depression were found to be predictive of disordered eating in girls, only anxiety has been found to be predictive of disordered eating in boys (McCabe & Vincent, in press). In contrast, another study found disordered eating was predicted by depressed mood in both genders (Wichstrom, 2000). Other factors may shape the influence of affect, such as the degree of depression experienced. Research has indicated that depression is higher in participants who have experienced failure in dieting (Koenig & Wasserman, 1995), and therefore there may be a reciprocal relationship between negative affect and body change strategies, further complicating the relationship between body image, negative affect and disordered eating.

Gender differences have been indicated in the relationship between negative affect and some behavioural variables. While there has been research that has found the relationship between negative affect and outcome variables to be similar for males and females, as discussed above, some research has identified differences. Some studies suggest that negative affect may not play an important role in determining binge eating and other bulimic behaviours among adolescent boys (e.g., Keel et al., 1997). While depressed affect was one of the variables that predicted binge eating in girls, no relationship was evident for the boys (Wertheim, Paxton,
Maude, Szmukler, Gibbons, & Hiller, 1992). In a similar way, adolescent girls trying to increase or decrease their weight showed greater levels of depression from those maintaining their weight, while adolescent boys did not differ in levels of depression, regardless of whether they were trying to increase, decrease or maintain their weight (Rosen, Gross, & Vara, 1987).

With males desiring different changes to achieve their ideal body, it may be important to consider these different goals in understanding the role of negative affect. Research has found that among adolescent boys who desired a thinner body size negative affect mediates the relationship between body dissatisfaction and bulimic behaviours. For boys who desired a larger body size, body dissatisfaction and dietary restraint were found to influence bulimic behaviours, whereas negative affect was not (Ricciardelli & McCabe, 2001a). As boys can aspire to two contrasting and seemingly opposite body size ideals, these findings highlight that the relationship between body dissatisfaction, dietary restraint, negative affect, bulimic behaviours, and other body change strategies are more complex in males than in females.

Further research is required to determine the extent of the relationship between negative affect, body dissatisfaction and unhealthy behaviours in males. This is particularly important in light of their varying body goals of increasing muscles and decreasing fat.
Summary of the Relationship Between Body Image, Attitudes and Behaviours

Various aspects of a male's life have been implicated as relating to body image. Self-esteem, negative affect and body change strategies are three of the areas that research has addressed. In each of these areas there remains some confusion as to the degree and importance of the effects in relation to adolescent boys. As much of the research has previously been conducted with females, a substantial amount of the research with males has addressed the same issues found to be significant with females. Therefore, in order to improve our understanding of the relationship between body image attitudes and behaviours in males, it is important that body image is assessed in a manner relevant to males, which means including a consideration of the desire for increased muscles. Once body image has been adequately evaluated in males, body image can then be considered in relation to other variables, such as self-esteem, negative affect and body change strategies.

Research that has explored body image in a manner relevant for males, has found results that counter the common finding that indicates gender similarities in the relationship between negative affect and outcome variables, or that females have greater problems. Males have been found to exhibit a stronger relationship than females between negative affect and a desire for increased muscles. It is therefore critical that research is conducted to allow greater understanding of the relationship between male body image and other attitudes and behaviours, such as negative affect, self-esteem and body change strategies. Research needs to look beyond the variables found to be significant for females, and focus on variables relevant to males.
Chapter Summary

Adolescent boys experience body dissatisfaction due to a discrepancy between their actual body and their ideal body, and this may impact on their attitudes and behaviours. In order to achieve the ideal body, some boys want to be smaller and others want to be larger than their current size. Mixed results have been found with regard to the influence of sociocultural factors on adolescent boys’ body image. Further research is needed to explore adolescent boys’ body image to determine a better representation of their body dissatisfaction, particularly with regard to what is meant by the desire to be smaller and larger, and the desire for muscles. Research also needs to determine the influence of parents, peers and the media by evaluating the messages provided, how they are received, and how they impact on males. Further investigation into the nature of the relationship between body dissatisfaction, self-esteem, negative affect and body change strategies is also needed.

Exploring these issues is important, but it is also important to utilise the information obtained from young adolescent boys to implement programs designed to improve body image and prevent unhealthy body change strategies. Programs should aim to reduce the impact of body dissatisfaction on self-esteem, negative affect and body change strategies. The sociocultural influences on body dissatisfaction, self-esteem, negative affect and body change strategies would be important targets in programs to improve adolescent boys’ body image.
CHAPTER THREE

Prevention Programs

It is important that programs are implemented to prevent or reduce the body image problems experienced by adolescent boys and the impact that problems may have on their psychological adjustment. Intervention programs are designed to reduce existing problematic attitudes and behaviours, and are therefore useful with populations who are already experiencing negative body image. On the other hand, prevention programs aim to influence people before they have developed unhealthy attitudes and behaviours. As such, prevention programs are often targeted at a younger population than intervention programs, before the development of negative attitudes and behaviours occur. With adolescence being the time in which body image concerns become apparent in boys, targeting young adolescent boys with a prevention program may prevent the development of negative body image and related behaviours.

A number of prevention and intervention programs have been developed to address body image problems among different age groups. The majority of these programs have targeted adolescent and young adult females, with very few including males, and none targeted specifically at males (e.g., Paxton, 1993; Smolak et al., 1998). A program called ATLAS (Adolescents Training and Learning to Avoid Steroids) has been developed to prevent use of steroids in adolescent boys (MacKinnon et al., 2001). Rather than focus on body image in the general male population, it focused on preventing drug use in middle to late adolescent football players, and as such will not be reviewed with the body image prevention programs.
In order to increase the effectiveness of prevention programs it is important that programs are specifically targeted to a population, and therefore it is of concern that no program has targeted adolescent boys, who are exhibiting increasing levels of body image dissatisfaction and related issues, such as unhealthy exercise behaviours. Programs that have already been implemented have employed different strategies, including class-based teaching, group work and individual treatment sessions, and have varied in their theoretical underpinnings, utilising cognitive behaviour theory, social cognitive strategies and cognitive dissonance principles. The programs have also targeted a range of variables, such as negative body image, attitudes, weight management and self-esteem. The utility of these programs for implementation with adolescent boys is evaluated in this chapter. As no program has targeted adolescent boys specifically, the evaluation is based on the effectiveness with the populations targeted, such as adolescent girls, and then related to boys, considering the similarities and differences between adolescent boys and girls. The programs are evaluated according to the strategies they employ, the format utilised, the theoretical underpinnings, and the variables that are targeted in the programs.

The strategies used in the programs are presented first and include education, discussion, activities, and therapy. The format of programs are then evaluated according to the number of sessions included, who administers the program, the inclusion of follow up, the setting, and the population. The theoretical underpinnings of the programs, that is, cognitive behavioural theory, cognitive dissonance and social cognitive theory are then discussed. Finally, the variables targeted by the programs are explored, including knowledge, attitudes and behaviours.
Strategies Used by Prevention Programs

Different combinations of strategies have been utilised in body image programs, including education, discussion, activities, and therapy. The use of such strategies has resulted in a variety of findings, and therefore each approach is considered for its apparent effectiveness with adolescent boys.

Education, Discussion, and Activities

A number of programs for body image have used education, discussion and activities to communicate the information and target certain attitudes and behaviours. Kater, Rohwer and Levine (2000) developed a prevention program for primary school girls and boys that presented information about healthy living and biological factors that strongly shape what people look like. The program included education and the lessons utilised more active and experiential learning than some programs, and aimed to teach critical thinking. The program also aimed to develop the children's identity based on competency and interests rather than image. While the program targeted both boys and girls, the curriculum appeared to be focused on issues relevant to both boys and girls, such as the basis of self-image, or on issues relevant to girls, such as the hazards of weight loss through dieting. The program did not target issues specific to boys, such as the desire for muscles. The evaluation of the program indicated positive changes in knowledge, attitudes and behavioural intentions in both boys and girls. Actual behaviours were not assessed, and therefore it is unknown whether the program influenced the children's actions. While knowledge and attitudes are important components in determining behaviour, they are insufficient. Actual behaviour needs to be assessed over time, to look for changes and unhealthy practices that may or may not develop. While this program was implemented with
boys and found to be successful, it did not appear to take into account issues specific to males. Therefore, the program’s effectiveness with issues found to be relevant for females, such as weight loss and dieting, can only be used as an indicator of the possible utility of this approach with issues specific to males. It is important that this approach is implemented and evaluated with specific focus on adolescent boys for an understanding of its value.

A program developed by Neumark-Sztainer, Butler and Palti (1995) was also based on education, discussion and activities, and assisted the development of student assertiveness against the pressures from society. This program was implemented with adolescent girls, with targeted variables specific to females, such as dieting and binge eating. The results indicated moderate effects on knowledge and behaviours, as well as preventing the onset of unhealthy eating practices. Again, the use of education, discussion and activities appears useful in changing knowledge and behaviour. The program also appears to have had a preventative effect in terms of unhealthy eating practices. These findings cannot be generalised to adolescent boys, as there may be gender differences in responses to components of a program. Therefore this program would need to be administered to adolescent boys to determine its usefulness. Another program was also focused on sociocultural pressures, and addressed dieting, body esteem, and self-esteem in young adolescent girls (Carter, Stewart, Dunn, & Fairburn, 1997). The program involved education, role plays and discussion, and as others have found, there was an increase in knowledge of topics such as dieting. The results of this program also indicated a decrease in the negative attitudes and behaviours related to eating disorders. As the focus of these programs was on issues relevant to females, such as dieting, research
is needed to determine if this approach may be useful with adolescent boys. In particular, it would be important to focus on the issues of concern to males, such as the development of muscles and the use of exercise.

Consistent with the focus of the above programs, Paxton (1993) developed a program targeting adolescent girls that included specialised classes addressing media images of women, factors influencing body size, healthy and unhealthy weight control methods and emotional eating. However, this program included less of a focus on building self-esteem and responding to pressures from society than the programs discussed above. The results of the program by Paxton (1993) were disappointing, with diet and exercise behaviours remaining constant and body dissatisfaction increasing. It may, therefore, be important to include components in a program that looks at building self-esteem and responding to societal pressures. These results will be explored further in relation to other factors that distinguish the different programs, such as the importance of follow up. With this program being very specifically focused on the issues relevant to females, and the poor results, its adaptation for use with adolescent boys may not be beneficial.

Chally (1998) conducted a program aimed at reducing eating disorders that was based solely on education. While changes in knowledge were apparent, there were not changes evident in attitudes or behaviour, suggesting that education alone is insufficient.

Rather than including information about healthy and unhealthy eating and exercise practices, O’Dea and Abraham (2000) focused their prevention program on
self-esteem, targeting young adolescent boys and girls. The 'Everybody's Different' program aimed to develop individuals' self-esteem by looking at areas such as stereotypes and learning to accept and value differences, and involving others outside of the class, such as family, to learn to receive positive feedback about oneself. The program resulted in improvements in body satisfaction and self-concept, with the importance of social acceptance decreasing following the program. These positive findings further support the inclusion of a focus on self-esteem, and as this program included adolescent boys, the positive results support the use of these strategies with adolescent boys.

From these programs, it appears most could be adapted for use with adolescent boys. While the focus of some programs may not be applicable to young adolescent boys (e.g., Neumark-Sztainer et al., 1995), the core components of the programs, such as education, discussion, activities and a focus on self-esteem, could be applied for use in a body image prevention program with adolescent boys. Most of the programs have included some exploration of the different aspects of an individual and strategies for countering societal pressures. It would be possible to modify these strategies to be specifically applicable to adolescent boys, with the aim of improving boys' body image and preventing unhealthy attitudes and behaviours.

It appears programs that include education, discussion and activities have had success in improving knowledge about diet and exercise, but have had limited success in improving weight related attitudes and behaviours (e.g., Smolak et al., 1998). With the desire for body image intervention and prevention programs to alter
or prevent unhealthy attitudes and behaviour, the focus needs to be on improving the
different programs' influence on attitudes and behaviour.

Discussion and Activities

While the programs in the previous section included education, discussion and
activities, Stice, Mazotti, Weibel, and Agras (2000) used only discussion and
activities in their preventative program for eating disorders. Young adult female
participants voluntarily argued and critically evaluated the thin ideal. The program
addressed the development of the thin ideal and the impact that this had on
individuals and society. The results indicated a decrease in thin-ideal internalisation,
body dissatisfaction, dieting, negative affect, and bulimic symptomatology. While
the program was successful in achieving some of its aims, it did not include
education and therefore there was not an increase in knowledge. This may not be
important for adults, but for young adolescents some education may be important to
ensure they have appropriate knowledge about different issues related to body image,
such as the differences between people in development. The approach used by Stice
et al. (2000) is suited to small groups and may be applicable to males. The approach
may not be suitable for programs aimed at young adolescents due to the lack of
education and the focus on intervening with existing body image dissatisfaction
rather than preventing body image dissatisfaction. Also, for this type of approach to
be successful, participants need an understanding about the cultural thin ideal, the
skills to take different perspectives from their own, and the ability to argue
successfully. The knowledge, understanding and perspective-taking skills required
may not be at an adequate level in young adolescent boys, due to their stage of
cognitive development.
Therapy

Some programs have consisted of therapeutic interventions and have targeted existing body image concerns and are therefore designed to intervene to reduce existing concerns rather than prevent these concerns. Rosen, Saltzberg, and Srebnik (1989) used cognitive behaviour therapy, in which participants discussed body image, size perception, thoughts and attitudes about appearance, and avoidance of body related behaviours, such as eating food in public. Participants included young adult women with high levels of body dissatisfaction. In comparison to the controls, those who participated in the program indicated an improvement in size perception, body dissatisfaction and behaviourial avoidance. Changes were evident in current behaviours, rather than in the prevention of onset of unhealthy behaviours. While change in existing behaviours is important, the strategy may not be able to be generalised to other populations, such as adolescent boys who may not yet be engaging in unhealthy behaviours to the same extent as these young adults. Therefore, the importance of preventative strategies for adolescent boys becomes apparent.

Butters and Cash (1987) also utilised cognitive behaviour therapy and targeted body image and related cognitions in adult women, as well as addressing self-esteem. The program was found to be successful in improving body image and self-esteem, indicating again that including a focus on self-esteem as well as body image may lead to more positive outcomes. Dworkin and Kerr (1987) conducted a similar study on the efficacy of a cognitive behavioural based program with individual treatment of women with existing body dissatisfaction. The results indicated that cognitive behavioural programs can be effective in improving body image and self-esteem.
These programs were only conducted with women with significant levels of body dissatisfaction, and therefore research is needed to determine their utility with men and with adolescents. It is also unclear whether such an approach would be applicable to young adolescent boys who do not experience such a high level of body dissatisfaction, as the program is intervening in existing body image dissatisfaction rather than preventing, which appears more applicable to adolescent boys.

Program Strategy Summary

The program strategy does not appear to be the critical factor in determining the success or otherwise of the program, although there does appear to be some factors (e.g., population to be targeted) that should be considered in determining the appropriate strategy. While the different strategies had been found to improve knowledge, they had relatively little impact on attitudes and behaviours. Programs that incorporated discussion and activities had greater impact on attitudes and behaviour than the programs that included education alone, which only resulted in improved knowledge (Chally, 1998). Programs that included therapy were also found to have some impact on attitudes and behaviour, but were focused on intervening rather than preventing. From this, it can be hypothesised that education is not the only critical component in a prevention program. Although it may increase knowledge, it does not tend to impact on weight regulation attitudes and behaviours. Therefore, it is important to include other strategies, such as discussion and activities, in a manner relevant to adolescent boys.
Format of Prevention Programs

The format of the different prevention programs are evaluated in this section. The factors that are evaluated include the number of sessions in the program, the program administrator, and the presence of follow up to determine the duration of any effects of the program. The setting in which the program is conducted, whether in school, as a group, or with individuals, and the targeted population according to age and gender are also evaluated.

Number of Sessions

Programs differ in the number of sessions included, and this may influence the effectiveness of a program. In this section programs will be considered that may have some applicability to adolescent boys, and are preventative rather than intervention focused. One program consisted of a single session utilising a video as a basis for discussion with female adolescents (Moreno & Thelen, 1993), and was effective in improving knowledge, attitudes and behavioural intentions. As behaviour was not measured, the possible influences on behaviour is unknown. It does not appear that one session is the important factor, as Chally (1998) also conducted a program comprised of a single session. While changes in knowledge were found, changes in attitude and behaviour were not. This program was education based, consisting of a training session, which may account for the lack of attitudinal and behavioural changes. Therefore, it is possible to have a positive outcome with one session, but it appears to be the content of the program that is more important than the number of sessions in determining the success in influencing attitudes and behaviour.
Paxton's (1993) program was comprised of five sessions and the intervention did not detect changes in attitudes or behaviours. This program was more specifically focused on particular behaviours, such as weight loss, as opposed to a focus on self-esteem and acceptance of differences as included in some programs. As such, it appears again to be the content of the program rather than the number of sessions that is important.

Carter et al. (1997) included eight sessions in their program and found improvements in knowledge, attitudes and behaviours with adolescent girls through the use of education, discussion, and activities. Four other programs consisted of ten sessions and were also based on education, discussion and activities. Those by Smolak et al. (1998) and Levine, Smolak, and Schermer (1996) found changes in knowledge and little change in attitudes and behaviour. Kater et al. (2000) and Neumark-Sztainer et al. (1995) found improvements in knowledge, attitudes, behavioural intentions and behaviour. The programs by Smolak et al. (1998), Levine et al. (1996) and Kater et al. (2000) all targeted boys and girls between nine and eleven years and the program by Neumark-Sztainer et al. (1995) targeted adolescent girls with education, discussion and activities. The inclusion of education, discussion and activities again appears to be the important factor, rather than the number of sessions. While three of the studies were conducted with both boys and girls, they were very general in approach and a more specific focus on issues for males may be more beneficial for adolescent boys.

The program by Killen et al. (1993) aimed to increase knowledge, to modify eating and weight regulation practices and counter societal influences in young
adolescent girls. This program consisted of 18 sessions that utilised slide presentations and included a strong educational component. This program was not found to be more effective than shorter programs (e.g., Carter et al., 1997), with improvements in knowledge evident, but not in attitudes and behaviours. Therefore simply increasing the number of sessions does not appear beneficial. The poor results with regard attitudes and behaviour may be explained in that both the program group and the control group maintained attitudes and behaviour. In other words, the assumption that girls’ attitudes and behaviour would become more problematic over a 2 year period was not supported, and therefore a program based on this assumption may not be successful in achieving the goals.

From these studies it does not appear that the number of sessions determines the success of a program, as some programs with few sessions and some with a larger number of sessions have shown success. Factors other than the number of sessions therefore appear to determine the success of prevention programs, such as the inclusion of education, discussion, and activities found in many of the successful programs.

Administrator

Both researchers and classroom teachers have administered prevention programs, and the influence of the different administrators on the effectiveness of the programs has been questioned. Programs conducted by the classroom teacher have all been conducted with adolescents and children, both males and females, and have resulted in improvements in knowledge (Kater et al., 2000; Levine et al., 1996; Neumark-Sztainer et al., 1995; O’Dea & Abraham, 2000; Smolak et al., 1998). Some have also
found attitude improvements (Kater et al., 2000; Neumark-Sztainer et al., 1995; O'Dea & Abraham, 2000), and both Neumark-Sztainer et al. (1995) and O'Dea and Abraham (2000) found that unhealthy eating behaviour was prevented. With the various successes of these programs, it does not appear that having a teacher administering the program determines the success of the program. The results of these programs are promising, particularly those by Neumark-Sztainer et al. (1995) and O'Dea and Abraham (2000), as it is important that programs alter existing unhealthy attitudes and behaviour or prevent the development of unhealthy attitudes and behaviour, rather than simply increase knowledge. As some of the programs administered by the classroom teacher have been administered to boys and found to be successful, it would appear to be appropriate for a teacher to administer the program in a classroom setting.

Prevention programs that have been conducted by researchers have mostly been therapy based, and some of these programs were conducted with adolescents and others with young adults. The programs have resulted in improvements to knowledge and some changes to body image (Butters & Cash, 1987; Dworkin & Kerr, 1987; Moreno & Thelen, 1993; Rosen et al., 1989; Stice et al., 2000). Not all of these programs were evaluated with regard to the influence of the program on behaviour. Moreno and Thelen (1993) evaluated behavioural intentions and found improvements following the video based program. Stice et al. (2000) measured behaviours and found improvements in healthy behaviour following a cognitive behavioural intervention. Other programs did not result in improvements in attitudes and behaviour (Chally, 1998; Paxton, 1993). Most of these programs differed significantly from those administered by the teacher in ways other than the
administrator. Most of these interventions by the researchers were therapy based rather than based on education, discussion, and activities. Because of the types of programs conducted by teachers and researchers, the comparison is often between teachers administering a psychoeducational program versus researchers conducting therapy. Therefore, the benefits observed in the program administered by teachers may be due to the type of program administered, adding further support to the value of education, discussion and activities.

A study by Moreno and Thelen (1993) allows better evaluation of the role of the administrator, as their video based program, consisting of education and discussion, was presented by different administrators. In the first study, a researcher conducted the program, and in the second program, the program was conducted by the class teacher. Administration by the teacher resulted in the same overall findings as with the researcher as the administrator. This replication of results suggests that it is the content of the program and not the administrator that is important in the achievement of effective outcomes.

The studies reviewed above do not seem to indicate that there is a clear advantage of either the researcher or the teacher administering body image programs. In light of this, it appears appropriate for either the researcher or teacher to administer the program to adolescent boys.

Follow Up

Some intervention and prevention programs have not conducted any follow up with participants after the conclusion of the program, whereas other programs have
included follow up after their program and this has ranged from 1 month to 2 years. Follow up of programs is an important aspect to include in a prevention program for two main reasons. It allows the duration of effects to be determined, and it may indicate if unhealthy behaviours have been prevented. Programs may not change existing behaviours, but may prevent the development of unhealthy behaviours.

The program conducted by Neumark-Sztainer et al. (1995) with adolescent girls included a follow up of the participants at both six months and two years. While there was no change in existing unhealthy eating behaviours, those participants who did not exhibit the behaviours at the start of the program were less likely to begin the behaviours than were the controls who did not participate in the program. This study indicates the importance of follow up to determine prevention effects. If the program was only evaluated immediately following the implementation, this prevention effect may not have been evident. While this program was only conducted with adolescent girls, the findings of the value of follow up may be generalised to adolescent boys. It is important that follow up occurs regardless of the population.

The importance of follow up to determine the duration of effects is evident in the study by O’Dea and Abraham (2000). Twelve months following the ‘Everybody’s Different’ program with young adolescent girls and boys, participants still indicated that physical appearance did not contribute to their self-esteem to as great an extent as the control participants (O’Dea & Abraham, 2000). Those who participated in the program did not begin the harmful weight losing behaviours that often appear during adolescence, indicating a prevention effect. As a result, their body weight increased appropriately. Yet there was no significant difference before
the program compared to after the program in the number of students who reported
that they were currently trying to lose weight. Preventing the onset of unhealthy
behaviour appears to have occurred to some extent, but existing behaviour appears
not to have changed. Evaluation over a period of time is important with both
adolescent boys and girls to evaluate duration of effects and any preventative
outcomes.

On the other hand, a follow up conducted six months following the program by
Carter et al. (1997) found that although there were improvements in knowledge,
attitudes and behaviours immediately following the completion of the program, these
effects were short lived and had disappeared within six months. This is a clear
indication as to why it is insufficient to say a program was effective immediately
following the program; follow up studies are required to assess the long-term
effectiveness of prevention programs.

The poor long term results from the program by Carter et al. (1997) may be due
to the lack of focus on self-esteem, in comparison to the studies by Neumark-
Sztainer et al. (1995) and O’Dea and Abraham (2000). It may be important to go
beyond education about the influences of society on self-esteem to more specific
strategies aimed at improving self-esteem, such as the included in the study by
O’Dea and Abraham (2000). Secondly, the evaluation of the program by Carter et al.
(1997) did not include a control group, and therefore the program may also have had
some preventative effects that would have become apparent with a control group.
Both of these reasons may have contributed to the poor long term effects of the
program by Carter et al. (1997).
With some research, the long term findings are unclear. Following the program by Paxton (1993) with adolescent girls, a one year follow up was conducted. Body dissatisfaction was found to have increased and there was no change evident in behaviours leading to the conclusion that the program was ineffective. The question arises whether unhealthy behaviours were prevented, as while body dissatisfaction increased, unhealthy behaviours did not increase. Whether the program is conducted with boys or girls, or whether the aim is to prevent unhealthy dieting or excessive exercise to increase muscles, follow up is an important component of the evaluation of a program. It allows one to determine both the duration of effects, as well as identify any prevention effects. If effects occur following the program they may not be maintained, limiting the value of the program. Also, while existing behaviours may not be open to change, the prevention of unhealthy behaviours is important and needs to be evaluated in studies of programs designed to prevent the onset of unhealthy body change strategies, such as excessive exercise.

**Setting**

**School.**

The majority of prevention programs with adolescent girls and boys have been implemented in the classroom and most have been found to have some success in increasing knowledge (Carter et al., 1997; Kater et al., 2000; Killen et al., 1993; Levine et al., 1996; Moreno & Thelen, 1993; Neumark-Sztainer et al., 1995; Smolak et al., 1998). Some have altered participants’ attitudes (Butters & Cash, 1987; Carter et al., 1997; Dworkin & Kerr, 1987; Kater et al., 2000; Levine et al., 1996; Moreno & Thelen, 1993; O’Dea & Abraham, 2000; Rosen et al., 1989; Stice et al., 2000). Some have altered behavioural intentions (Kater et al., 2000; Moreno & Thelen,
1993), and others have had some influence on actual behaviour (Carter et al., 1997; Neumark-Sztainer et al., 1995; O'Dea & Abraham, 2000; Rosen et al., 1989; Stice et al., 2000). Other school based programs have not been successful in achieving their aims (Paxton, 1993), and changing existing behaviour has been found to be particularly difficult (Killen et al., 1993; Levine et al., 1996; Smolak et al., 1998).

Due to the variation of the findings of programs conducted in the classroom, it appears that the success of a prevention program is influenced by factors other than the setting. Class based programs appear to be somewhat successful in influencing knowledge, attitudes or behaviour. The programs that are aimed at changing knowledge were found to be successful in improving knowledge, but were found to have limited success in improving attitudes and in influencing behaviour. For a program with adolescent boys, implementation in a school setting may be ideal. It is a setting in which they are accustomed to learning and participating in activities, and also it is easier to access and follow up a group if the participants are based in a particular setting.

Group.

While the prevention programs conducted in school are group based, other programs have been conducted in a group setting outside of school. Stice et al. (2000) conducted one such program and found improvements in attitudes and behaviour. Rosen et al. (1989) also found some improvement in attitudes and found decreases in behaviour avoidance, such as a reduction in the avoidance of wearing a tight outfit. While those results appear promising, both of these programs were conducted with people with significant body image problems. As such, the programs were
therapeutic in nature, and therefore their methods may not be suitable for use in the prevention of unhealthy attitudes and behaviours with young adolescent boys who may or may not have body image concerns. As the benefits of group work can be incorporated into a school-based program, it appears that for adolescent boys a school-based program may be the ideal.

*Individual.*

Butters and Cash (1987) and Dworkin and Kerr (1987) both conducted their programs with individuals. Both programs focused on improving body image and were found to be successful. Again, the participants had existing body image problems and the programs were targeted at altering existing problems with the use of therapeutic strategies. As with the non-school group based programs, these approaches may not be suitable for the prevention of unhealthy attitudes and behaviours in adolescent boys, and in light of the success of school-based programs with adolescent populations, it appears school-based programs may be the most appropriate.

*Summary.*

School-based body image prevention programs tend to be used with children and adolescents and have been found to be successful in increasing knowledge and to some extent in influencing attitudes and behaviours. Group programs outside of the school setting and individual based programs have not been conducted with adolescents, due in part to the convenience of administering a program in a school. Also, the programs administered to groups and individuals tend to be based on therapeutic strategies and are intervention rather than prevention focused.
Comparisons, therefore, cannot be made between school based programs, group based programs, and individual programs, as they have been conducted with different populations and with different goals. Considering the number of successful school based programs aimed at adolescents, it appears a program for adolescent boys would be suitable to conduct in schools.

Population

Gender and age.

Programs targeted toward females have been found to be successful in improving knowledge and to some extent changing unhealthy attitudes and behaviours related to body image (Carter et al., 1997; Moreno & Thelen, 1993; Neumark-Sztainer et al., 1995), as have those targeted toward both males and females (Kater et al., 2000; Levine et al., 1996; O’Dea & Abraham, 2000; Smolak et al., 1998). Research is needed to evaluate the effectiveness of programs targeted toward young adolescent boys that are aimed at the prevention of the unhealthy behaviours found to be prevalent in males.

It is important to also consider the impact of age on the effectiveness of programs. Programs for adults have targeted existing problems, rather than taking a preventative approach, and have been found to result in improvements to attitudes and behaviour (Butters & Cash, 1987; Dworkin & Kerr, 1987; Rosen et al., 1993; Stice et al., 2000). With children, programs have been successful in increasing knowledge (Levine et al., 1996; Smolak et al., 1998), and only some have had an impact on attitudes and behaviour (e.g., Kater et al., 2000). With adolescents, there has been a similar trend to the success of programs with children, with some
influencing knowledge (Killen et al., 1994; Neumark-Sztainer et al., 1995), and only a few influencing behaviour (Moreno & Thelen, 1993; Neumark-Sztainer et al., 1995; O’Dea & Abraham, 2000). Again, age does not appear to strongly influence the success of body image intervention and prevention programs, although early intervention is necessary to prevent the onset of unhealthy behaviours.

**Program Format Summary**

The research has indicated that the success of a prevention program is not dependent on the number of sessions. Research has also indicated that positive results can occur whether a teacher or a researcher administers the program. Therefore, programs for adolescent boys may be implemented by either, depending on the available resources. With positive results occurring in school, group and individual programs, the structure of the program can determine the setting. For adolescent boys a school based program may be the most ideal. Research has indicated success with programs for children, adolescents and adults, and both males and females. As the purpose of a prevention program is to prevent the onset of unhealthy body change strategies it is important to implement the program during childhood or early adolescence, prior to the onset of unhealthy behaviour. With no program specifically targeting males, a prevention program aimed at the prevention of unhealthy body attitudes and behaviours in adolescent boys would be ideal. The content of the program should be shaped to adolescent boys’ interests and concerns and the number of sessions could be determined by the amount of material included. Evaluation of the program is a critical component to ensure the effects are enduring and to determine whether the onset of unhealthy behaviours has been prevented, and evaluation over an extended period of time would ideally be included to determine the duration of effects.
Theoretical Underpinning of Prevention Programs

Prevention and intervention programs have differed in their theoretical underpinnings. Some of the theories on which programs are based include cognitive behavioural theory, cognitive dissonance principles, and social cognitive theory. The effectiveness of programs is evaluated according to the theory on which they are based to determine the utility of different theoretical positions. Programs based on cognitive behavioural theory are presented first, followed by those based on cognitive dissonance principles, and then those based on social cognitive theory are presented. A summary of the findings are then presented drawing attention to the value of the different underlying theories for use with adolescent boys.

Cognitive Behavioural Theory

Three studies evaluated cognitive behavioural programs administered to young adult women with an existing negative body image (Butters & Cash, 1987; Dworkin & Kerr, 1987; Rosen et al., 1989). While the programs were successful in reducing existing body dissatisfaction, the strategies involved in cognitive behavioural therapy focus on existing body dissatisfaction, and are therefore unsuitable in preventing the development of dissatisfaction in adolescent boys.

Cognitive Dissonance

Stice et al. (2000) based their program on the principles of cognitive dissonance, whereby a discrepancy between one’s behaviour and their attitudes is thought to result in changes to one’s attitudes or behaviour. In this program, young adult women voluntarily argued against the thin ideal. While the program resulted in positive findings, such as decreases in unhealthy attitudes and behaviour that remained at a
one month follow up, it was designed for young adults who have the cognitive capacity to take different perspectives and argue. The approach may not be able to be altered for use with young adolescent boys, due to the requirement of body related knowledge and argumentative strategies. Further to this, it is argued that young adolescent boys do not have the same consolidation of knowledge and attitudes regarding body image found in adulthood. While the principle has been found to be successful among adults, it does not appear to be suitable for prevention of unhealthy body change strategies in young adolescent boys due to their age and cognitive development.

*Social Cognitive Theory*

An approach that appears to be potentially more appropriate for young adolescent boys was evaluated by Neumark-Sztainer et al. (1995) and was based in the principles of social cognitive theory. The theory maintains that outcomes are shaped through interactions among social-environmental, personal and behavioural factors, and emphasises the central role of personal factors (especially cognitions) in shaping behaviours (Neumark-Sztainer et al., 1995). A program based on this theory aims to target each of these areas to some extent in order to achieve the best outcome. The program by Neumark-Sztainer et al. covered these areas by educating adolescent girls about healthy eating and exercise, and assisting them in the development of assertiveness in modifying negative social norms. Participants also attempted to modify the social environment with regard to food availability, eating behaviours, or weight concerns. The program was moderately successful in increasing nutrition knowledge and meal patterns and on the prevention of unhealthy dieting and
binge-eating behaviour. While this program was conducted with females the principles on which the program was based appear to be applicable to young adolescent boys.

O'Dea and Abraham (2000) also conducted a program based on social cognitive theory, and the program focused on self-esteem, accepting differences and overall well-being. The program was conducted with both adolescent boys and girls. The results of the program indicated success in influencing body image and self-esteem, as well as preventing the onset of dieting. These results support the use of social-cognitive theory as the theoretical underpinning for a program with adolescents.

The majority of prevention programs have targeted components believed to be important for social-cognitive based programs, without fully adopting the social cognitive framework. Programs have often been presented as psychoeducational, incorporating education about diet and exercise, as well as focusing on psychological aspects, such as the development of self-esteem and assertiveness.

Kater et al. (2000) implemented a program with boys and girls that included education and critical evaluation of messages received about appearance and body change strategies, as well as promoting the development of one’s own identity from diverse sources that reflect competency and interests rather than image. The program resulted in improved knowledge and attitudes about body image and related behaviours, and the authors also found that participants had healthy behavioural intentions related to body image. Other studies have found similar results in that knowledge and attitudes were able to be changed to some extent (e.g., Levine et al., 1996), but behaviour was difficult to change and when it was changed, changes were
not always maintained (Carter et al., 1997). The study by Carter et al. (1997) was
only conducted with girls, but in the same way as the program by Neumark-Sztainer
et al. (1995), the principles of the program appear applicable to adolescent boys.

Both Killen et al. (1993) and Moreno and Thelen (1993) utilised visual stimuli
for the presentation of the information in their programs with adolescent girls, as a
strategy to increase students' interest. They both also included females of a similar
age discussing and presenting the information, drawing on the principles of social
identity theory. The similarity between the female presenters and the participants was
utilised to try and improve the success of the program. Utilising slides of young
females and their dialogue, Killen et al. found increased knowledge, but not the
desired change in attitudes and behaviours. Moreno and Thelen were more successful
in changing knowledge, attitudes and behavioural intentions with their video
presentation, but it may have been the following discussion including in their
program that was critical. They found improvements in knowledge, attitudes and
behavioural intentions. Actual behaviour was not evaluated, so the program's
efficacy in preventing the onset of unhealthy behaviours is unclear, as is the ability to
change the existing behaviours. While the concept of using a peer to assist in the
presentation of information and using visual stimuli to increase interest appear
applicable to adolescent boys, the results of the studies do not appear to be more
favourable than programs not utilising these strategies. Therefore, neither component
appears critical to the success of a program.

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Theoretical Summary

While prevention programs within each of the theoretical frameworks were somewhat successful in achieving their goals, they do not appear equally ideal for use in a program designed for the prevention of body dissatisfaction and related behaviours in young adolescent boys. The cognitive behavioural approach, while effective with young adults with existing body dissatisfaction, would appear to be unsuitable for the prevention of body dissatisfaction due to the necessary body dissatisfaction and the required cognitive abilities. The cognitive dissonance approach also does not appear to be the best approach in working with young adolescent boys, because it relies heavily on knowledge and argumentative strategies unlikely to be adequately developed in young adolescent boys. It appears that a program based on social cognitive principles may be the best approach to take with young adolescent boys.

Within the social cognitive theoretical framework, research indicates that the psychological components (such as the development of self-esteem and coping with societal pressures) may be more critical in the prevention of unhealthy body change strategies, than education (Neumark-Sztainer et al., 1995). This is evident in the program implemented by O'Dea and Abraham (2000) which addressed the psychological aspects within the social-cognitive framework, specifically focusing on self-esteem. The program indicated improvement in attitudes and the prevention of unhealthy behaviour. Therefore, a prevention program for young adolescent boys based on social-cognitive principles should include discussion and activities aimed at improving self-esteem and the acceptance of differences between people, rather than simply educating about diet and exercise.
Targeted Variables

Prevention programs have targeted and evaluated different variables, which can broadly be identified as knowledge, attitudes and behaviours. Many programs aim to prevent and intervene with variables in each of these categories due to the inter-relationship and the potential for changes to generalise to other variables, yet these categories are considered individually for the purposes of discussion. Firstly, programs aiming to increase knowledge are presented, followed by those aiming to prevent the development of unhealthy attitudes, then programs that are designed to prevent the development of unhealthy behaviour are presented.

Knowledge

The programs that have aimed to increase participants' knowledge about healthy eating and exercise, unhealthy eating and exercise, and eating disorders have been largely successful (Carter et al., 1997; Chally, 1998; Kater et al., 2000; Killen et al., 1993; Levine et al., 1996; Moreno & Thelen, 1993; Neumark-Sztainer et al., 1995; Smolak et al., 1998). These programs have largely been conducted with adolescent girls and are focused on the issues pertinent to adolescent girls, such as dieting and eating disorders, rather than issues relevant to males, such as desire for muscles. Knowledge about exercise was included which has relevance to both males and females but may have included the assumption that exercise was focused at losing weight rather than increasing muscles, which is true for many males. The results indicate that it may be possible to change knowledge, although knowledge does not directly relate to behaviour, and it is unhealthy behaviour that needs to be prevented or changed. Therefore, the increase in knowledge is encouraging, but the focus needs to be on the areas of concern in males in a prevention program for adolescent boys.
Attitudes

Many of the prevention programs have also targeted attitudes, in three different areas: individual body image, self-esteem, and attitudes about weight management. With regard to altering body image, there has been some success. Some studies have found that particular programs have improved individuals' body image (Butters & Cash, 1987; Dworkin & Kerr, 1987; Franko, 1998; O'Dea & Abraham, 2000; Rosen et al., 1989; Stice et al., 2000). Most of these programs have been conducted with females, but the success of the program by O'Dea and Abraham (2000), which included adolescent boys and girls, suggests that programs can also influence body image among adolescent boys. Other program evaluations indicate no change in body image (Neumark-Sztainer et al., 1995; Smolak et al., 1998), and some have found body dissatisfaction increases following the program, although this was at the one year follow up (Paxton, 1993). Most research has been conducted with young adult and adolescent girls, and the program by O'Dea and Abraham (2000) was the only program that improved body image in young adolescent boys. Interestingly, this program was also successful in improving self-esteem, possibly an important component in the alteration of body image.

Self-esteem was addressed in a number of studies, and was found to improve as a result of some programs (Butters & Cash, 1987; Dworkin & Kerr, 1987; O'Dea & Abraham, 2000), but not others (Neumark-Sztainer et al., 1995). Again, much of the work that has addressed changes with attitudes about the self has been conducted with adult and adolescent females. The study by O'Dea and Abraham (2000) is one of the only studies to have addressed self-esteem in relation to body image with adolescents younger than 14 years and to have included both boys and girls. The
program focused on recognition and appreciation of differences between people and was found to positively influence self-esteem. Some programs targeted self-esteem specifically and other programs target related variables and then measured self-esteem. While not surprising, Haney and Durlak (1998) found that programs that targeted self-esteem and self-concept were significantly more effective in changing self-esteem than were programs focused on other targets, such as social skills. Targeting self-esteem appears to be an important area in prevention programs, due to the relationship between body image, self-esteem and unhealthy body change strategies. This is applicable to adolescent boys, as supported by the findings by O’Dea and Abraham (2000).

The third component that many researchers evaluate is attitudes toward weight management, such as eating and exercise behaviour. Attitudes are believed to be related to behaviour, and therefore may be an important component to address in prevention programs. Some of the programs have successfully improved attitudes about food, exercise, and fatness (Carter et al., 1997; Kater et al., 2000; Levine et al., 1996), whereas others have had little effect (Chally, 1998; Killen et al., 1993; Moreno & Thelen, 1993; Neumark-Sztainer et al., 1995; Smolak et al., 1998). While the findings are mixed, the success of some programs is promising, although it is important that the changes are maintained over time, and one program that included a follow up period found that these changes had disappeared after 6 months (Carter et al., 1997).

Two of the programs found to be successful in changing attitudes included adolescent boys and therefore it appears boys’ attitudes are able to be changed in
relation to diet and exercise (Kater et al., 2000; Levine et al., 1996). Further work needs to be done with adolescent boys with the aim to prevent or alter unhealthy attitudes specific to males, such as attitudes related to muscles. There is mixed support for body image and eating disorder programs being effective at altering attitudes, and this may be related to the very strong messages that society presents about the ideal body and strategies for obtaining it that oppose the healthy attitudes that programs are promoting. Further work is needed in this area to improve methods of changing attitudes. Follow up evaluations are also necessary to determine the duration of effects.

Behaviours

The final major component that is targeted and evaluated by programs is behaviour. Some studies have addressed behaviour change, and others have focused on prevention of the onset of unhealthy behaviours. The evaluation of programs targeting behaviour change have found inconsistent results, with some programs resulting in changes to participants' unhealthy behaviour (Carter et al., 1997; Rosen et al., 1989; Stice et al., 2000). Other programs have not been able to change unhealthy behaviour (Killen et al., 1993; Levine et al., 1996; Paxton, 1993; Smolak et al., 1998). These findings are concerning in relation to changing existing behaviour in adolescents, but behaviour may be at a low level at this age and therefore prevention of unhealthy behaviours may be a more desirable and achievable goal. The finding of no change may indicate that development of unhealthy behaviours was prevented. Some studies have looked specifically at the prevention of the onset of unhealthy behaviours and have found positive results. Neumark-Sztainer et al. (1995) and O'Dea and Abraham (2000) both found that their
programs prevented the onset of unhealthy behaviours in those who participated in the program in comparison to the control sample. The program by O'Dea and Abraham (2000) included adolescent boys and therefore the success of the program suggests that unhealthy behaviour may be prevented in adolescent boys. At the same time it is important to look beyond the issues pertinent to females and aim to also prevent unhealthy behaviour specific to males, such as the use of food supplements to increase muscles.

**Prevention Program Conclusion**

Females have traditionally been viewed as experiencing significant body image issues and greater prevalence of eating disorders, yet males also indicate body image concerns and unhealthy body change strategies that need to be recognised. While females tend to want to be smaller than their current size (Fallon & Rozin, 1985), males are split between desiring a smaller body and desiring a larger body (Drewnowski & Yee, 1987). Also, there is uncertainty with the factors that influence body image, with half of males stating that none of the specific sociocultural factors were important, yet indicating that sociocultural factors influenced their body image and body change strategies (Ricciardelli et al., 2000). Further investigation of the factors that influence male body image is needed. Prevention programs are needed that target adolescent boys specifically, addressing their body image concerns, the factors that are found to influence them, and attempting to prevent the body change strategies that are dangerous to their health, such as excessive exercise.

Prevention programs targeting young adolescent boys need to incorporate discussion and activities to increase the potential benefit to participants. Research
evaluating prevention programs has indicated that providing education on its own is insufficient, and that while it increases knowledge, it does not tend to alter attitudes and behaviours (Chally, 1998). While some degree of education may be useful, discussion and activities appear to be the important components in school based programs (e.g., O'Dea & Abraham, 2000; Smolak et al. 1998).

The program administrator and the number of sessions are two components of the program format. Research has shown that programs with very few sessions (e.g., Moreno & Thelen, 1993) demonstrated similar success to programs with a larger number of sessions (e.g., Neumark-Sztainer et al., 1995) in achieving their prevention aims. As such, it appears it is not the number of sessions that determines the success of a prevention program and therefore the number of sessions can be dependent on the time available and the amount of content to be addressed. Both researchers and teachers have administered programs that have resulted in positive changes to attitudes and behaviours (e.g., Moreno & Thelen, 1993). Therefore, neither the administrator nor the number of sessions within a program appear to determine the success of a prevention program.

Consideration of how the program will be evaluated is another aspect of the format of the program. Carter et al.'s (1997) finding that improvements following the program had disappeared six months later, indicates the necessity of follow up to determine the duration of effects. Prevention programs should include a post test, as well as a follow up.
The setting of the program also does not appear to be a critical factor in determining the success of a program, with research indicating some success in programs implemented in class time (e.g., O’Dea & Abraham, 2000), in groups (e.g., Stice et al., 2000), and with individuals (e.g., Butters & Cash, 1987). Therefore, convenience can help determine the setting, and with young adolescent boys, a school-based program is likely to be the most convenient.

The population the program targets was not found to determine the success of the program as interventions are shaped according to the population (e.g., Moreno & Thelen, 1993; O’Dea & Abraham, 2000). However, if the aim of the program is to prevent the onset of unhealthy body image and body change strategies, the program may need to be targeted at a relatively young age, before attitudes and behaviours develop. As such, early adolescence may be an ideal age to target.

The theoretical framework that appears most suitable for a prevention program targeted at young adolescent boys is a social cognitive framework (e.g., Neumark-Sztainer et al., 1995; O’Dea & Abraham, 2000). Within this framework, programs ideally include psychological components, such as targeting the development of self-esteem and ability to resist social pressures, not just education or information about diet and exercise.

The variables targeted by the program should be those of concern in the population receiving the program. In young adolescent boys, the issues of concern are the acceptance of differences in appearance, countering the negative messages received from parents, peers and the media, and reducing and preventing unhealthy
body change strategies such as excessive exercise and the use of food supplements. Research has indicated that knowledge appears more easily altered than both attitudes and behaviour (Smolak et al., 1998). As such, greater emphasis may need to be placed on altering attitudes and behaviours.
CHAPTER FOUR

Study One: Exploration of Adolescent Boys’ Body Image

Researchers have recently begun to explore male body image (e.g., McCabe & Ricciardelli, 2001a). The ideal male body is both muscular and lean, and as such, males desire to be larger in terms of muscles, but smaller with regard to fat (Moore, 1990). Further research is needed into male body image to gain greater understanding of the importance of this desire, how it develops and how it impacts on attitudes and behaviour.

Sociocultural influences have been shown to have a major impact on female body image. The research shows mixed results with regard the influence that parents, peers, and the media have on male body image and related behaviour (e.g., Striegel-Moore & Kearney-Cooke, 1994; Vincent & McCabe, 2000). Adolescent boys generally report receiving few messages and rate these messages as having low importance (Thelen & Cormier, 1995). However, sociocultural influences have been found to shape male body image when investigated through an experimental study rather than with self-report (Lavine et al., 1999). This suggests sociocultural messages may influence boys’ body image without them actually being aware of this influence.

In terms of the impact of adolescent boys’ body image on attitudes and behaviours, research has explored relationships between body image and self-esteem, negative affect and body change strategies (Ricciardelli et al., 2000), and the findings have been inconsistent. Some studies have indicated little association between body image and these attitudes and behaviours (e.g., Furnham & Calnan, 1998), whereas
other studies have supported positive relationships (e.g., Cohane & Pope, 2001). These inconsistencies in the research demonstrate the need for further investigation into the relationships between body image and self-esteem, negative affect and body change strategies.

The aim of study 1 is to gain a greater understanding of the predictors of body image, such as the sociocultural factors that influence individuals, affect, self-esteem and the body change strategies males utilise.

Specifically, it is hypothesised that:

1. Adolescent boys with higher BMI will demonstrate lower levels of body satisfaction and greater amounts of body change strategies;
2. Adolescent boys with higher BMI will demonstrate higher levels of sociocultural messages regarding their body;
3. Sociocultural factors (parents, peers and the media), negative affect, self-esteem and BMI will predict body satisfaction of different body parts (weight, shape, muscles, lower, middle and upper body) among adolescent boys;
4. Body satisfaction and importance, sociocultural factors (parents and peers), negative affect, self-esteem, BMI and drive for thinness will predict body change strategies (strategies to decrease weight, increase muscle tone, exercise and eating behaviour) among adolescent boys;
5. Adolescent boys will be less satisfied with their upper body than their lower and middle body;
6. Adolescent boys with higher body image satisfaction will indicate lower body image importance.
Method

Participants

The sample comprised 362 middle class young adolescent boys between the ages of 12 and 14 years. Two hundred and twenty four participants were recruited from year 7 and 8 in two independent boys' schools in metropolitan Melbourne (M = 12.59 years, SD = 0.73) and 138 participants were recruited from year 7 and 8 in three independent Co-educational schools in metropolitan Melbourne (M = 12.79 years, SD = 0.72).

Materials

Body Satisfaction and Body Change Inventory (Ricciardelli & McCabe, 2002). This questionnaire consists of five subscales (see Appendix A). The first subscale measures body image satisfaction and consists of 10 questions about satisfaction with different body parts, for example, “How satisfied are you with your weight?” The items were rated on a 5-point scale, where 1 = extremely satisfied and 5 = extremely dissatisfied. Items were reverse coded so higher scores indicated greater satisfaction. Scores were obtained by determining mean total scores for the scale, providing a range of scores between 1 and 5.

The second subscale measures body image importance of the same ten body parts as those included in the Body Satisfaction Scale. An example of an item in this subscale is: “How important is the shape of your body compared to other things in your life?” The items were rated on a 5-point scale, where 1 = extremely important and 5 = not important at all. Items were reverse coded so higher scores indicated
greater importance. Scores were obtained by determining mean total scores for the scale, providing a range of scores between 1 and 5.

The third subscale explored body change strategies to decrease weight, and consisted of six items. An example of an item in this subscale is: "How often do you change your eating to decrease your body size?" The items were rated on a 5-point scale, where 1 = always and 5 = never. Items were reverse coded so higher scores indicated greater levels of strategies to decrease weight. Scores were obtained by determining mean total scores for the scale, providing a range of scores between 1 and 5.

The fourth subscale explored body change strategies to increase muscle tone, and consisted of six items. Questions evaluated exercise and eating to increase muscle tone, and an example of a question is: "How often do you change your levels of exercise to increase the size of your muscles?" The items were rated on a 5-point scale, where 1 = always and 5 = never. Items were reverse coded so higher scores indicated greater levels of strategies to increase muscle tone. Scores were obtained by determining mean total scores for the scale, resulting in a range of scores between 1 and 5.

The fifth subscale explored both attitudes and use of food supplements and consisted of ten items. An example of a question is: "How often do you take food supplements to lose weight?" The ten items were rated on a 5-point scale, where 1 = always and 5 = never. Items were reverse coded so higher scores indicated more positive attitudes or use of food supplements. Scores were obtained by determining
mean total scores for the scale, resulting in a range of scores between 1 and 5. The scale was separated into three further subscales, four items related to a use of food supplements to decrease weight, three items related to a use of food supplements to increase muscles, and three items related to steroids. Each of these subscales also had a range of scores between 1 and 5.

Each of the above scales have been subjected to both exploratory and confirmatory factor analysis, have demonstrated high levels of internal consistency (α > .92), have demonstrated concurrent and discriminant validity and have satisfactory test-retest reliability (r > .75) (Ricciardelli & McCabe, 2002).

*Excessive Exercise Scale* (McCabe & Vincent, 2002). This scale consists of nine questions about excessive exercise attitudes and behaviour. An example of an item is: “Do you feel angry or upset when you do not exercise?” The questions were rated on 5-point scales, the first seven were rated as 1 = always and 5 = never. The eighth question, “How often do you exercise?”, was rated between 1 = once a day or more and 5 = not at all. The ninth question about the amount of time spent exercising was rated between 1 = hours or more and 5 = I do not exercise. Items were reverse coded so higher scores indicated higher levels of exercise. Scores were obtained by determining mean total scores for the scale, resulting in a range of scores between 1 and 5. Exploratory and confirmatory factor analyses were conducted and were found to be satisfactory (McCabe & Vincent, 2002). An alpha of .87 was found with the adolescent male population and the test retest was satisfactory (r = .82).
Eating Disorders Inventory-2 (Garner, 1991). Two subscales were used from the Eating Disorders Inventory-2. The Drive for Thinness subscale consists of 7 items addressing attitudes towards being thinner. An example of an item is: "I feel extremely guilty after overeating". The items were rated on a 6-point scale, where 1 = always and 6 = never. Items were reverse coded so higher scores indicated greater drive for thinness. Scores were obtained by determining mean total scores for the scale, resulting in a range of scores between 1 and 6.

The second subscale used was the Bulimia subscale, and consists of 7 items exploring behaviours related to bulimia, such as bingeing and purging. An example of an item is: "I stuff myself with food". The items were rated on a 6-point scale, where 1 = always and 6 = never. Items were reverse coded so higher scores indicated higher levels of bulimic attitudes and behaviour. Scores were obtained by determining mean total scores for the scale, resulting in a range of scores between 1 and 6.

The Sociocultural Influences on Body Image and Body Change Questionnaire (McCabe & Ricciardelli, 2001b). This questionnaire is comprised of one media scale, media influences scale, and four feedback scales – feedback from father, feedback from mother, feedback from best male friend, and feedback from best female friend. The four scales that related to feedback from parents or peers consisted of thirteen items, which were divided into seven subscales: messages about shape, messages about eating, messages about exercise, messages about losing weight, messages about increasing weight, messages about increasing muscles and the importance of messages. The first three subscales evaluated overall messages, including questions
such as "What type of feedback do you get from your father about the size or shape of your body?" The items were rated on a 5-point scale, where 1 = extremely positive and 5 = extremely negative, resulting in a range of scores between 1 and 5. The fourth subscale explored encouragement, teasing and behavioural example to gain weight (3 items), for example, "Does your mother encourage you to gain weight?" The fifth subscale explored encouragement, teasing, and behavioural example to lose weight (3 items), for example, "Does your best male friend diet to lose weight?" The sixth subscale explored encouragement, teasing, and behavioural example to increase muscle tone (3 items), for example, "Does your best female friend tease you because she thinks you are not muscular enough?" The items in the fourth, fifth and sixth subscale were rated on a 5-point scale, where 1 = always and 5 = never. Items were reverse coded so higher scores indicated more messages were received. Scores were obtained by determining mean total scores for the scale. The final question evaluated the importance of the messages to the individual, with participants rating the importance on a 5-point scale, where 1 = extremely important and 5 = extremely unimportant. The items were reverse coded so that higher scores indicated greater importance.

The Media Influences scale is comprised of 11 items and has been shown to form four subscales: messages to lose weight, messages to gain weight, messages to increase muscle tone, and the importance of these messages. The first subscale explores pressure to lose weight (3 items), for example "Do you think the media give the idea that you should exercise more to lose weight?" The second subscale explores pressure to gain weight (3 items), for example, "Do you think the media gives you the idea that you should eat more to gain weight?" The third subscale explores
pressure to increase muscle tone (4 items), for example “Do you think the media gives you the idea that you should be more muscular?” The items were rated on a 5-point scale, where 1 = always and 5 = never. Items were reverse coded so higher scores indicated more messages were received. Scores were obtained by determining mean total scores for the scale. The eleventh item evaluated the importance of the messages, where 1 = extremely important and 5 = extremely unimportant. The item was reverse coded so that higher scores indicated greater importance. All of these scales have demonstrated high levels of internal consistency (α > .84) and have been subject to both exploratory and confirmatory factor analysis (McCabe & Ricciardelli, 2001b).

*The Depression Anxiety Stress Scales* (DASS, Lovibond & Lovibond, 1995b). This is a 42 item instrument which measures negative emotional symptoms and consists of three scales: Depression, Anxiety and Stress. The authors also provide a short (21 item) version of the DASS which was employed in the present study. Only the depression and anxiety subscales were used. An example of an item is: “I feel down hearted and blue”. Respondents were required to indicate the extent to which they have experienced each item over the past week by circling a number on the Likert scale ranging from 0 (did not apply to me) to 3 (applied to me very much, or most of the time). Scores were obtained by determining the mean total scores for the scale, resulting in a range of scores between 0 and 3, with higher scores indicating greater negative affect.

*Marsh Self Description Questionnaire II*. The General Self scale was used from the Marsh Self Description Questionnaire II (Marsh, 1990) as a measure of self-
esteem and consists of eight items. An example of an item is: "Overall, I have a lot to be proud of". The statements were rated on a 6-point scale as to how true they were for the individual, where 1 = false and 6 = true. Self-esteem scores were obtained by determining the mean total score after reversing some items for consistency of direction of expression. The scores ranged between 1 and 6, with higher scores indicating higher levels of self-esteem.

With regard to internal consistency for this sample, all scales indicated high levels, with $\alpha = .85$.

Demographic information. The following demographic information was obtained: sex, age, year level, height, and weight. Height and weight were both measured by the researchers.

Procedure
Following approval from the University Ethics Committee (Appendix B) 28 schools were approached about being involved in the study. A letter outlining the study was sent and then a follow up phone call was made to discuss the study. Of the schools that were approached to participate in the study five agreed, resulting in a school response rate of 18%. Plain language statements and consent forms (Appendix C) were distributed to the adolescent boys in years 7 and 8 in the school. Parents and guardians were asked to return the consent form to the school if they were happy for their son to participate. Only those students who had written active parental consent participated in the study. The response rate for students whose parents agreed that they participate was 58%.
The questionnaire was completed anonymously in class time and only those participating in the study were in the room. Standard instructions were read to the participants (Appendix D). Participants were asked to complete the questionnaire without discussing responses with anyone. Participants were informed that they were free to withdraw at anytime, without any consequences.

On completion of the questionnaire, the participants were asked to sit quietly until all other students had completed the questionnaire. Participants were thanked for their time and effort, and offered an opportunity to ask any questions about the research. The entire procedure was completed in approximately 45 minutes.

Results

Prior to analyses, the data were screened with SPSS for Windows version 10. The variables were examined for accuracy of data entry, missing values and whether they met the assumptions for multivariate analyses.

The minimum and maximum descriptives indicated no out of range data entries had been made. A small number of missing values were evident in the body change strategy scales, the sociocultural influence scales, the negative affect and the self-description scale. These missing values appeared to be scattered randomly and therefore were replaced using the regression technique (Tabachnick & Fidell, 1996).

Variables were examined for the presence of univariate outliers by using SPSS DESCRIPTIVES. Variables with standard scores greater than ± 3.29 are usually
considered to be potential univariate outliers (Tabachnick & Fidell, 1996). Thirty-four cases were univariate outliers, and each was retained as there was no significant difference evident in the results with them excluded or included. Mahalanobis Distance with $p < .001$ was used to assess for multivariate outliers. Fourteen multivariate outliers were detected and were retained due to no significant difference evident in results with them included or excluded. The univariate outliers and multivariate outliers were retained to increase the generalisability of the results. Significant skewness was found with some measures, however, transformations were not undertaken because skewness was assumed to reflect the inherent nature of the variables. Residual scatterplots were used to evaluate normality, linearity, and homoscedasticity, and each of these multivariate assumptions were found to be within acceptable limits. No evidence of singularity or multicollinearity was evident with the correlation tables indicating correlations between variables being less than .7. After screening the data, all 362 cases were retained for further analyses. A significance level of $p < .01$ is used in the analyses for study 1 in order to decrease the likelihood of Type I error.

Descriptive Statistics

Means, score range and standard deviations of variables are set out in Table 4.1. From the results it is apparent that adolescent boys are generally more satisfied than dissatisfied with each of the attributes of their body. They were most satisfied with their lower body and least satisfied with their muscles. In terms of importance, adolescent boys rated most attributes as moderately important, with muscles rated as the most important, and weight the least important.
Table 4.1  Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction – weight</td>
<td>3.84</td>
<td>.93</td>
<td>1-5</td>
</tr>
<tr>
<td>Satisfaction – shape</td>
<td>3.77</td>
<td>.88</td>
<td>1-5</td>
</tr>
<tr>
<td>Satisfaction – muscles</td>
<td>3.60</td>
<td>.89</td>
<td>1-5</td>
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<tr>
<td>Satisfaction – lower body</td>
<td>3.91</td>
<td>.75</td>
<td>1.33-5</td>
</tr>
<tr>
<td>Satisfaction – middle body</td>
<td>3.64</td>
<td>1.05</td>
<td>1-5</td>
</tr>
<tr>
<td>Satisfaction – upper body</td>
<td>3.94</td>
<td>.64</td>
<td>1.99-5</td>
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<td>1-5</td>
</tr>
<tr>
<td>Importance – shape</td>
<td>3.02</td>
<td>1.12</td>
<td>1-5</td>
</tr>
<tr>
<td>Importance – muscles</td>
<td>3.34</td>
<td>1.04</td>
<td>1-5</td>
</tr>
<tr>
<td>Importance – lower body</td>
<td>2.88</td>
<td>.98</td>
<td>1-5</td>
</tr>
<tr>
<td>Importance – middle body</td>
<td>3.31</td>
<td>1.19</td>
<td>1-5</td>
</tr>
<tr>
<td>Importance – upper body</td>
<td>3.14</td>
<td>1.04</td>
<td>1-5</td>
</tr>
<tr>
<td>Strategies to decrease weight – food</td>
<td>1.77</td>
<td>.90</td>
<td>1-5</td>
</tr>
<tr>
<td>Strategies to decrease weight – exercise</td>
<td>2.08</td>
<td>.98</td>
<td>1-5</td>
</tr>
<tr>
<td>Strategies to increase muscles – food</td>
<td>1.76</td>
<td>.90</td>
<td>1-5</td>
</tr>
<tr>
<td>Strategies to increase muscles – exercise</td>
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<td>.92</td>
<td>1-5</td>
</tr>
<tr>
<td>Exercise</td>
<td>2.50</td>
<td>.76</td>
<td>1-5</td>
</tr>
<tr>
<td>Food supplements – lose weight</td>
<td>1.11</td>
<td>.33</td>
<td>1-2.46</td>
</tr>
<tr>
<td>Food supplements – increase muscles</td>
<td>1.34</td>
<td>.64</td>
<td>1-3.59</td>
</tr>
<tr>
<td>Food supplements – steroids</td>
<td>1.10</td>
<td>.38</td>
<td>1-2.98</td>
</tr>
<tr>
<td>Drive for Thinness</td>
<td>1.99</td>
<td>1.14</td>
<td>1-6</td>
</tr>
<tr>
<td>Bulimia</td>
<td>1.67</td>
<td>.69</td>
<td>1-3.97</td>
</tr>
<tr>
<td>Father feedback – shape</td>
<td>2.41</td>
<td>.96</td>
<td>1-5</td>
</tr>
<tr>
<td>Father feedback – eating</td>
<td>2.71</td>
<td>.89</td>
<td>1-5</td>
</tr>
<tr>
<td>Father feedback – exercise</td>
<td>2.53</td>
<td>1.01</td>
<td>1-5</td>
</tr>
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<td>Father feedback – lose weight</td>
<td>1.54</td>
<td>.66</td>
<td>1-4</td>
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<td>Father feedback – increase weight</td>
<td>1.18</td>
<td>.36</td>
<td>1-2.55</td>
</tr>
<tr>
<td>Father feedback – increase muscles</td>
<td>1.54</td>
<td>.58</td>
<td>1-3.37</td>
</tr>
<tr>
<td>Father feedback – importance</td>
<td>2.67</td>
<td>1.24</td>
<td>1-5</td>
</tr>
<tr>
<td>Mother feedback – shape</td>
<td>2.32</td>
<td>1.01</td>
<td>1-5</td>
</tr>
<tr>
<td>Mother feedback – eating</td>
<td>2.66</td>
<td>.94</td>
<td>1-5</td>
</tr>
<tr>
<td>Mother feedback – exercise</td>
<td>2.48</td>
<td>1.01</td>
<td>1-5</td>
</tr>
<tr>
<td>Mother feedback – lose weight</td>
<td>1.55</td>
<td>.67</td>
<td>1-3.63</td>
</tr>
<tr>
<td>Mother feedback – increase weight</td>
<td>1.13</td>
<td>.31</td>
<td>1-2.36</td>
</tr>
<tr>
<td>Mother feedback – increase muscles</td>
<td>1.29</td>
<td>.49</td>
<td>1-3.05</td>
</tr>
<tr>
<td>Mother feedback – importance</td>
<td>2.73</td>
<td>1.24</td>
<td>1-5</td>
</tr>
</tbody>
</table>

88
Adolescent boys reported engaging in relatively few strategies to change their body, although they reported greater use of exercise strategies relative to food related strategies. Sociocultural messages about shape, eating, and exercise were moderately positive, and messages were reported in relation to losing weight and increasing weight and muscles. Ratings of negative affect were generally low and ratings of self-esteem generally high. BMI scores were overall low, but exhibited a significant range, allowing for comparison of adolescent boys according to their BMI.

**Body Mass Index (BMI)**

It was predicted that adolescent boys would differ in their body satisfaction and use of body change strategies, as well as the sociocultural messages they receive,
according to their BMI. A Multivariate Analysis of Variance (MANOVA) was used to determine whether adolescent boys with low BMI differed from those with high BMI on measures of body satisfaction and body change strategies. BMI was the independent variable, and the boys were separated into low and high BMI using a median split, of which the value was 19. A median split was used to enable comparison of the dependent variables in relation to BMI. The dependent variables were Satisfaction with weight, Satisfaction with shape, Satisfaction with muscles, Satisfaction with lower body, Satisfaction with middle body, Satisfaction with upper body, Strategies to decrease weight – food, Strategies to decrease weight – exercise, Strategies to increase muscles – food, Strategies to increase muscles – exercise, Excessive exercise, Food supplements – lose weight, Food supplements – increase muscles, Food supplements – steroids, Drive for thinness, and Bulimia.

The means and standard deviations for the two groups on the 17 variables are reported in Table 4.2. The MANOVA revealed a main effect for BMI, $F(16, 308) = 4.08, p < .001$. The results reflect a modest difference between BMI groups and the combined dependent variables $\eta^2 = .18$. The univariate $F$ values indicated there were significant differences between the two BMI groups on the following variables:

Satisfaction with weight, $F(1, 325) = 36.10, p < .001, \eta^2 = .10$; Satisfaction with shape, $F(1, 325) = 17.35, p < .001, \eta^2 = .05$; Satisfaction with lower body, $F(1, 325) = 18.79, p < .001, \eta^2 = .06$; Satisfaction with middle body, $F(1, 325) = 27.75, p < .001, \eta^2 = .08$; Strategies to decrease weight – food, $F(1, 325) = 24.04, p < .001, \eta^2 = .07$; Strategies to decrease weight – exercise, $F(1, 325) = 27.80, p < .001, \eta^2 = .08$; Food supplements – lose weight, $F(1, 325) = 6.88, p < .01, \eta^2 = .02$; Drive for thinness, $F(1, 325) = 16.27, p < .001, \eta^2 = .05$. Adolescent boys with higher BMI
Table 4.2  Means and standard deviations for body image and body change strategy variables for boys with low and high BMI scores

<table>
<thead>
<tr>
<th>Body image and body change strategies</th>
<th>Low BMI</th>
<th></th>
<th>High BMI</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Satisfaction - weight</td>
<td>4.14</td>
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<td>3.56</td>
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<td>Satisfaction - muscles</td>
<td>3.55</td>
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<td>.85</td>
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<td>Satisfaction - lower body</td>
<td>4.09</td>
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<td>3.75</td>
<td>.75</td>
</tr>
<tr>
<td>Satisfaction - middle body</td>
<td>3.94</td>
<td>.89</td>
<td>3.36</td>
<td>1.10</td>
</tr>
<tr>
<td>Satisfaction - upper body</td>
<td>3.98</td>
<td>.66</td>
<td>3.89</td>
<td>.60</td>
</tr>
<tr>
<td>Strategies to decrease weight - food</td>
<td>1.53</td>
<td>.74</td>
<td>1.99</td>
<td>.94</td>
</tr>
<tr>
<td>Strategies to decrease weight - exercise</td>
<td>1.79</td>
<td>.90</td>
<td>2.33</td>
<td>.96</td>
</tr>
<tr>
<td>Strategies to increase muscles - food</td>
<td>1.69</td>
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<td>Strategies to increase muscles - exercise</td>
<td>2.11</td>
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<td>Food supplements - lose weight</td>
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<tr>
<td>Bulimia</td>
<td>1.62</td>
<td>.64</td>
<td>1.75</td>
<td>.73</td>
</tr>
</tbody>
</table>

Scores were less satisfied with their weight, shape, lower and middle body than those with lower BMI scores. In addition, those with higher BMI scores reported greater levels of Strategies to decrease weight, using both food and exercise, Food supplements – lose weight, and Drive for thinness. These findings support the first hypothesis that adolescent boys with higher BMI would demonstrate lower levels of body satisfaction and greater amounts of body change strategies.

A Multivariate Analysis of Variance (MANOVA) was used to determine whether adolescent boys with low BMI differed from those with high BMI on measures of sociocultural messages. The dependent variables were messages from
father, mother, male friend, and female friend about body shape, eating, exercise, losing weight, increasing weight, increasing muscles, and the importance of the messages, as well as messages from the media about losing weight, increasing weight, increasing muscles and the importance of the messages.

The means and standard deviations for the two groups on the 32 variables are reported in Table 4.3. The MANOVA revealed a main effect for BMI, $F(32, 292) = 2.841$, $p < .001$. The results reflect a modest difference between BMI groups and the combined dependent variables $\eta^2 = .24$. The univariate $F$ values indicated there were significant differences between the two BMI groups on the following variables:

Father — lose weight, $F(1, 324) = 24.18$, $p < .001$, $\eta^2 = .07$; Father — increase weight, $F(1, 324) = 12.36$, $p < .001$, $\eta^2 = .04$; Mother — lose weight, $F(1, 324) = 32.03$, $p < .001$, $\eta^2 = .09$; Male friend — lose weight, $F(1, 324) = 11.82$, $p < .001$, $\eta^2 = .04$; Female friend — lose weight, $F(1, 324) = 15.70$, $p < .001$, $\eta^2 = .05$. Adolescent boys with higher BMI scores reported receiving more messages about losing weight from Father, Mother, Male friend and Female friend than those boys with low BMI. Those boys with low BMI reported more messages from Father to increase weight. These findings show general support for the second hypothesis that adolescent boys with higher BMI would demonstrate higher levels of sociocultural messages regarding their body.
Table 4.3  Means and standard deviations for sociocultural messages for boys with low and high BMI scores

<table>
<thead>
<tr>
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<td>Female friend feedback – eating</td>
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<td>Female friend feedback – increase muscles</td>
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<td>.49</td>
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<td>Female friend feedback – importance</td>
<td>2.91</td>
<td>1.21</td>
<td>2.72</td>
<td>1.26</td>
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<tr>
<td>Media – lose weight</td>
<td>2.35</td>
<td>1.13</td>
<td>2.58</td>
<td>1.14</td>
</tr>
<tr>
<td>Media – increase weight</td>
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<td>.52</td>
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<td>.52</td>
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<tr>
<td>Media – increase muscles</td>
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<td>1.02</td>
<td>1.95</td>
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</tbody>
</table>
Prediction of Body Satisfaction

It was hypothesised that Sociocultural messages from parents, peers and the media, Negative affect, Self-esteem and BMI would predict body satisfaction among adolescent boys. Six standard multiple regression analyses were performed, with levels of body satisfaction for different body characteristics as the dependent variables (weight, shape, muscles, lower body, middle body and upper body), and messages from parents, peers and the media, as well as negative affect, self-esteem and BMI as the independent variables. The specific independent variables were determined from empirical and theoretical literature and the correlation matrices, in order to include the minimal number of variables in each regression equation. Tables 4.4 - 4.9 display the beta coefficients, the squared semipartial correlations (sr²), R, R², and adjusted R² for each of these analyses.

Satisfaction with weight.

The independent variables for Satisfaction with weight were: Importance of weight, Father – increase muscles, Mother – lose weight, Male friend – increase muscles, Female friend – lose weight, Media – lose weight, Media – increase weight, Media – increase muscles, Negative affect, Self-esteem, and BMI.

For the regression equation onto Satisfaction with weight (see Table 4.4), R for regression was significantly different from zero, F (11, 308) = 14.0, p < .001, indicating that the independent variables predicted Satisfaction with weight. Overall, 33% (R² = .33) of the variance in Satisfaction with weight was predicted by the independent variables. An examination of the t-values indicated that Father –
increase muscles ($r^2 = .02$), Mother – lose weight ($r^2 = .05$) and BMI ($r^2 = .03$) uniquely contributed to Satisfaction with weight for adolescent boys.

\textbf{Table 4.4} \hspace{1cm} \textit{Prediction of satisfaction with weight}

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$sr^2$</th>
<th>$t$</th>
<th>$p$</th>
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<td>.02</td>
<td>-2.67</td>
<td>.01</td>
</tr>
<tr>
<td>Mother – lose weight</td>
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<td>-.29</td>
<td>.05</td>
<td>-4.55</td>
<td>.001</td>
</tr>
<tr>
<td>Male friend – increase muscles</td>
<td>.11</td>
<td>.09</td>
<td>.00</td>
<td>1.40</td>
<td>.16</td>
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<td>-.13</td>
<td>.01</td>
<td>-2.19</td>
<td>.03</td>
</tr>
<tr>
<td>Media – lose weight</td>
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<td>.00</td>
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<td>.21</td>
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<td>.04</td>
<td>.00</td>
<td>.85</td>
<td>.40</td>
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<td>Media – increase muscles</td>
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<td>.08</td>
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<td>-.08</td>
<td>.00</td>
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<td>.01</td>
<td>2.09</td>
<td>.04</td>
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<td>-.18</td>
<td>.03</td>
<td>-3.48</td>
<td>.001</td>
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</tbody>
</table>

Multiple $R = .58$

$R$ Square $= .33$

Adjusted $R$ Square $= .31$

Standard Error $= .77$

\textit{Satisfaction with shape.}

The independent variables for Satisfaction with shape were: Importance of shape, Father – shape, Mother – shape, Male friend – shape, Female friend – shape, Media – lose weight, Media – increase weight, Media – increase muscles, Negative affect, Self-esteem, and BMI.

For the regression equation onto Satisfaction with shape (see Table 4.5), $R$ for regression was significantly different from zero, $F (11, 308) = 10.35$, $p < .001$, indicating that the independent variables predicted Satisfaction with shape. Overall, 27% ($R^2 = .27$) of the variance in Satisfaction with shape was predicted by the
independent variables. An examination of the t-values indicated that Importance of shape ($r^2 = .02$), Male friend – shape ($r^2 = .02$), Self-esteem ($r^2 = .02$) and BMI ($r^2 = .02$) uniquely contributed to Satisfaction with shape for adolescent boys.

**Table 4.5 Prediction of satisfaction with shape**

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$sr^2$</th>
<th>$t$</th>
<th>$p$</th>
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<td>Importance of shape</td>
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<td>-2.53</td>
<td>.01</td>
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<td>-.13</td>
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<td>-1.69</td>
<td>.09</td>
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<td>Mother – shape</td>
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<td>-.04</td>
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<td>.64</td>
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<td>-.17</td>
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<td>-2.55</td>
<td>.01</td>
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<tr>
<td>Female friend – shape</td>
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<td>.02</td>
<td>.00</td>
<td>2.9</td>
<td>.77</td>
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<td>.00</td>
<td>-1.10</td>
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<td>.02</td>
<td>.00</td>
<td>-1.10</td>
<td>.27</td>
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<tr>
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<td>.06</td>
<td>.00</td>
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<td>.02</td>
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<td>-.16</td>
<td>.02</td>
<td>-2.53</td>
<td>.01</td>
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</table>

Multiple R = .52
R Square = .27
Adjusted R Square = .24
Standard Error = .76

*Sat**a**f***action with muscles.*

The independent variables for Satisfaction with muscles were: Importance of muscles, Father – increase muscles, Mother – increase muscles, Male friend increase muscles, Female friend – increase muscles, Media – increase muscles, Negative affect, Self-esteem, and BMI.

For the regression equation onto Satisfaction with muscles (see Table 4.6), $R$ for regression was significantly different from zero, $F (9, 310) = 6.11$, $p < .001$. 

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indicating that the independent variables predicted Satisfaction with muscles.

Overall, 15% ($R^2 = .15$) of the variance in Satisfaction with muscles was predicted by the independent variables. An examination of the t-values indicated that Self-esteem ($r^2 = .06$) uniquely contributed to Satisfaction with muscles for adolescent boys.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$sr^2$</th>
<th>$t$</th>
<th>$p$</th>
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<td>Importance of muscles</td>
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<td>.01</td>
<td>1.51</td>
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<tr>
<td>Father – increase muscles</td>
<td>-.19</td>
<td>-.13</td>
<td>.01</td>
<td>-1.94</td>
<td>.05</td>
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<td>Mother – increase muscles</td>
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<td>-.02</td>
<td>.00</td>
<td>-.34</td>
<td>.73</td>
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<td>Male friend – increase muscles</td>
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<td>.05</td>
<td>.00</td>
<td>.68</td>
<td>.50</td>
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<tr>
<td>Female friend – increase muscles</td>
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<td>-.06</td>
<td>.00</td>
<td>-.94</td>
<td>.35</td>
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<tr>
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<td>-.03</td>
<td>.00</td>
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<td>-.05</td>
<td>.00</td>
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<td>.02</td>
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<td>.02</td>
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</table>

Multiple $R = .39$
R Square = .15
Adjusted R Square = .13
Standard Error = .82

**Satisfaction with lower body.**

The independent variables for Satisfaction with lower body were: Importance of lower body, Father – shape, Mother – shape, Male friend – shape, Female friend – shape, Media – lose weight, Negative affect, Self-esteem, and BMI.

For the regression equation onto Satisfaction with lower body (see Table 4.7), $R$ for regression was significantly different from zero, $F (9, 310) = 11.37$, $p < .001,$
indicating that the independent variables predicted Satisfaction with lower body.

Overall, 25% ($R^2 = .25$) of the variance in Satisfaction with lower body was predicted by the independent variables. An examination of the $t$-values indicated that Negative affect ($sr^2 = .02$), Self-esteem ($sr^2 = .02$) and BMI ($sr^2 = .02$) uniquely contributed to satisfaction with lower body for adolescent boys.

**Table 4.7  Prediction of satisfaction with lower body**

<table>
<thead>
<tr>
<th>Independent variables</th>
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<th>$p$</th>
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<td>Importance of lower body</td>
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<td>-.08</td>
<td>.01</td>
<td>-1.64</td>
<td>.10</td>
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<td>Father – shape</td>
<td>-.10</td>
<td>-.14</td>
<td>.01</td>
<td>-1.78</td>
<td>.08</td>
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<tr>
<td>Mother – shape</td>
<td>.05</td>
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<td>.00</td>
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<td>.37</td>
</tr>
<tr>
<td>Male friend – shape</td>
<td>-.06</td>
<td>-.08</td>
<td>.00</td>
<td>-1.21</td>
<td>.23</td>
</tr>
<tr>
<td>Female friend – shape</td>
<td>-.05</td>
<td>-.07</td>
<td>.00</td>
<td>-1.00</td>
<td>.32</td>
</tr>
<tr>
<td>Media – lose weight</td>
<td>-.01</td>
<td>-.03</td>
<td>.00</td>
<td>-.60</td>
<td>.55</td>
</tr>
<tr>
<td>Negative affect</td>
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<td>-.16</td>
<td>.02</td>
<td>-2.53</td>
<td>.01</td>
</tr>
<tr>
<td>Self-esteem</td>
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<td>.15</td>
<td>.02</td>
<td>2.54</td>
<td>.01</td>
</tr>
<tr>
<td>BMI</td>
<td>-.03</td>
<td>-.15</td>
<td>.02</td>
<td>-3.04</td>
<td>.001</td>
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</table>

Multiple $R = .50$

$R$ Square = .25

Adjusted $R$ Square = .23

Standard Error = .65

*Satisfaction with middle body.*

The independent variables for Satisfaction with middle body were: Importance of middle body, Father – shape, Mother – shape, Male friend – shape, Female friend – shape, Media – lose weight, Negative affect, Self-esteem, and BMI.

For the regression equation onto Satisfaction with middle body (see Table 4.8), $R$ for regression was significantly different from zero, $F (9, 310) = 13.50, p < .001,$
indicating that the independent variables predicted Satisfaction with middle body.

Overall, 28% ($R^2 = .28$) of the variance in Satisfaction with middle body was predicted by the independent variables. An examination of the t-values indicated that Importance of middle body ($sr^2 = .02$), Father – shape ($sr^2 = .04$), Male friend – shape ($sr^2 = .02$), Self-esteem ($sr^2 = .02$) and BMI ($sr^2 = .05$) uniquely contributed to Satisfaction with middle body for adolescent boys.

<table>
<thead>
<tr>
<th>Independent variables</th>
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<th>sr2</th>
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<th>p</th>
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</thead>
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<td>.02</td>
<td>-2.64</td>
<td>.01</td>
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<tr>
<td>Father – shape</td>
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<td>-3.90</td>
<td>.001</td>
</tr>
<tr>
<td>Mother – shape</td>
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<td>2.36</td>
<td>.02</td>
</tr>
<tr>
<td>Male friend – shape</td>
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<td>.01</td>
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<tr>
<td>Female friend – shape</td>
<td>-.05</td>
<td>.00</td>
<td>-.78</td>
<td>.44</td>
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<td>Media – lose weight</td>
<td>-.04</td>
<td>.00</td>
<td>-.89</td>
<td>.37</td>
</tr>
<tr>
<td>Negative affect</td>
<td>-.16</td>
<td>.00</td>
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<td>.31</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>.23</td>
<td>.02</td>
<td>3.14</td>
<td>.001</td>
</tr>
<tr>
<td>BMI</td>
<td>.06</td>
<td>.05</td>
<td>-4.42</td>
<td>.001</td>
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</tbody>
</table>

Multiple R = .53  
R Square = .28  
Adjusted R Square = .26  
Standard Error = .90

**Satisfaction with upper body.**

The independent variables for Satisfaction with upper body were: Importance of upper body, Father – shape, Mother – shape, Male friend – shape, Female friend – shape, Father – increase muscles, Mother – increase muscles, Male friend – increase muscles, Female friend – increase muscles, Media – increase muscles, Negative affect, Self-esteem, and BMI.
For the regression equation onto Satisfaction with upper body (see Table 4.9), R for regression was significantly different from zero, F (13, 306) = 8.84, p < .001, indicating that the independent variables predicted Satisfaction with upper body. Overall, 27% (R^2 = .27) of the variance in Satisfaction with upper body was predicted by the independent variables. An examination of the t-values indicated that Father – increase muscles (sr^2 = .03), and Self-esteem (sr^2 = .02) uniquely contributed to Satisfaction with upper body for adolescent boys.

<table>
<thead>
<tr>
<th>Independent variables</th>
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<th>β</th>
<th>sr^2</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
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<td>-.06</td>
<td>.00</td>
<td>-1.18</td>
<td>.24</td>
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<td>-.07</td>
<td>.00</td>
<td>-.86</td>
<td>.39</td>
</tr>
<tr>
<td>Mother – shape</td>
<td>.08</td>
<td>-.14</td>
<td>.01</td>
<td>-1.79</td>
<td>.07</td>
</tr>
<tr>
<td>Male friend – shape</td>
<td>.08</td>
<td>-.12</td>
<td>.01</td>
<td>-1.83</td>
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<tr>
<td>Female friend – shape</td>
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<td>-.08</td>
<td>.00</td>
<td>-1.13</td>
<td>.26</td>
</tr>
<tr>
<td>Father – increase muscles</td>
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<td>-.22</td>
<td>.03</td>
<td>-3.59</td>
<td>.001</td>
</tr>
<tr>
<td>Mother – increase muscles</td>
<td>.17</td>
<td>.14</td>
<td>.01</td>
<td>2.10</td>
<td>.04</td>
</tr>
<tr>
<td>Male friend – increase muscles</td>
<td>.08</td>
<td>.11</td>
<td>.01</td>
<td>1.59</td>
<td>.11</td>
</tr>
<tr>
<td>Female friend – increase muscles</td>
<td>-.09</td>
<td>-.08</td>
<td>.00</td>
<td>-1.25</td>
<td>.21</td>
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<tr>
<td>Media – increase muscles</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
<td>.02</td>
<td>.98</td>
</tr>
<tr>
<td>Negative affect</td>
<td>-.22</td>
<td>-.14</td>
<td>.01</td>
<td>-2.19</td>
<td>.03</td>
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<tr>
<td>Self-esteem</td>
<td>.11</td>
<td>.15</td>
<td>.02</td>
<td>2.49</td>
<td>.01</td>
</tr>
<tr>
<td>BMI</td>
<td>-.00</td>
<td>-.01</td>
<td>.00</td>
<td>-.17</td>
<td>.87</td>
</tr>
</tbody>
</table>

Multiple R = .52
R Square = .27
Adjusted R Square = .24
Standard Error = .55

The third hypothesis was partially supported, with parents and male peers predicting body satisfaction, but not female peers or the media. While self-esteem and BMI consistently predicted body satisfaction, negative affect only predicted satisfaction with the lower body.
Prediction of Body Change Attitudes Strategies

It was hypothesised that body satisfaction and importance, sociocultural messages from parents and peers, negative affect, self-esteem, BMI and drive for thinness will predict body change attitudes and strategies among adolescent boys. Ten standard multiple regression analyses were performed with body change attitudes and strategies as the dependent variables: strategies to decrease weight – food, strategies to decrease weight – exercise, strategies to increase muscles tone – food, strategies to increase muscle tone – exercise, drive for thinness, bulimia, excessive exercise, food supplements – increase muscles, food supplements – lose weight, and food supplements – steroids. Body satisfaction, drive for thinness, messages from parents, peers and the media, as well as negative affect, self-esteem and BMI were independent variables. The specific independent variables were determined from the empirical and theoretical literature, and the correlation matrices, in order to include the minimal number of variables in each regression equation. Tables 4.10 – 4.19 display the beta coefficients, the squared semipartial correlations (sr^2), and R, R^2, and adjusted R^2 for each of these analyses.

Strategies to decrease weight – food.

The independent variables for Strategies to decrease weight - food were: Satisfaction with weight, Importance of weight, Drive for thinness, Father – lose weight, Mother – lose weight, Male friend – lose weight, Female friend – lose weight, Negative affect, Self-esteem, and BMI.

For the regression equation onto Strategies to decrease weight – food (see Table 4.10), R for regression was significantly different from zero, F (10, 309) = 56.6, p <
.001, indicating that the independent variables predicted Strategies to decrease weight - food. Overall, 65% ($R^2 = .65$) of the variance in Strategies to decrease weight - food was predicted by the independent variables. An examination of the $t$-values indicated that Satisfaction with weight ($sr^2 = .01$) and Drive for thinness ($sr^2 = .18$) uniquely contributed to Strategies to decrease weight – food for adolescent boys.

**Table 4.10**  Prediction of strategies to decrease weight – food

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$sr^2$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
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<td>Satisfaction with weight</td>
<td>-.11</td>
<td>-.12</td>
<td>.01</td>
<td>-2.75</td>
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<tr>
<td>Importance of weight</td>
<td>.04</td>
<td>.06</td>
<td>.00</td>
<td>1.53</td>
<td>.13</td>
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<tr>
<td>Drive for thinness</td>
<td>.50</td>
<td>.65</td>
<td>.18</td>
<td>12.66</td>
<td>.001</td>
</tr>
<tr>
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<td>.02</td>
<td>.00</td>
<td>.47</td>
<td>.64</td>
</tr>
<tr>
<td>Mother – lose weight</td>
<td>.00</td>
<td>.01</td>
<td>.00</td>
<td>.12</td>
<td>.91</td>
</tr>
<tr>
<td>Male friend – lose weight</td>
<td>.04</td>
<td>.02</td>
<td>.00</td>
<td>.47</td>
<td>.64</td>
</tr>
<tr>
<td>Female friend – lose weight</td>
<td>.12</td>
<td>.07</td>
<td>.00</td>
<td>1.48</td>
<td>.14</td>
</tr>
<tr>
<td>Negative affect</td>
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<td>.01</td>
<td>.00</td>
<td>.32</td>
<td>.75</td>
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<tr>
<td>Self-esteem</td>
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<td>.03</td>
<td>.00</td>
<td>.64</td>
<td>.52</td>
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<td>BMI</td>
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Multiple $R = .80$
$R$ Square = .65
Adjusted $R$ Square = .64
Standard Error = .53

**Strategies to decrease weight – exercise.**

The independent variables for Strategies to decrease weight - exercise were:

Satisfaction with weight, Importance of weight, Drive for thinness, Father – exercise, Father – lose weight, Mother – exercise, Mother – lose weight, Male friend – exercise, Male friend – lose weight, Female friend – exercise, Female friend – lose weight, Negative affect, Self-esteem, and BMI.
For the regression equation onto Strategies to decrease weight – exercise (see Table 4.11), R for regression was significantly different from zero, F (14, 305) = 23.7, p < .001, indicating that the independent variables predicted Strategies to decrease weight – exercise. Overall, 52% ($R^2 = .52$) of the variance in Strategies to decrease weight – exercise was predicted by the independent variables. An examination of the t-values indicated that Drive for thinness ($sr^2 = .16$) uniquely contributed to Strategies to decrease weight – exercise for adolescent boys.

**Table 4.11** Prediction of strategies to decrease weight – exercise

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$sr^2$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with weight</td>
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<td>.18</td>
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<td>Importance of weight</td>
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<td>.07</td>
<td>.00</td>
<td>1.59</td>
<td>.11</td>
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<tr>
<td>Drive for thinness</td>
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<td>.60</td>
<td>.16</td>
<td>10.00</td>
<td>.001</td>
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<tr>
<td>Father – exercise</td>
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<td>-.07</td>
<td>.00</td>
<td>-1.28</td>
<td>.20</td>
</tr>
<tr>
<td>Father – lose weight</td>
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<td>-.05</td>
<td>.00</td>
<td>-.94</td>
<td>.35</td>
</tr>
<tr>
<td>Mother – exercise</td>
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<td>.05</td>
<td>.00</td>
<td>.84</td>
<td>.40</td>
</tr>
<tr>
<td>Mother – lose weight</td>
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<td>.07</td>
<td>.00</td>
<td>1.15</td>
<td>.25</td>
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<tr>
<td>Male friend – exercise</td>
<td>.09</td>
<td>.08</td>
<td>.00</td>
<td>1.42</td>
<td>.16</td>
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<tr>
<td>Male friend – lose weight</td>
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<td>-.05</td>
<td>.00</td>
<td>-.94</td>
<td>.35</td>
</tr>
<tr>
<td>Female friend – exercise</td>
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<td>-.05</td>
<td>.00</td>
<td>-.79</td>
<td>.43</td>
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<tr>
<td>Female friend – lose weight</td>
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<td>.09</td>
<td>.00</td>
<td>1.64</td>
<td>.10</td>
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<td>.58</td>
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<td>Self-esteem</td>
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<td>.02</td>
<td>.00</td>
<td>.43</td>
<td>.67</td>
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<td>BMI</td>
<td>.02</td>
<td>.09</td>
<td>.01</td>
<td>2.03</td>
<td>.04</td>
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</tbody>
</table>

Multiple R = .72  
R Square = .52  
Adjusted R Square = .50  
Standard Error = .69
Strategies to increase muscle tone – food.

The independent variables for Strategies to increase muscle tone – food were:

Satisfaction with muscles, Importance of muscles, Father – eating, Father – increase muscles, Mother – eating, Mother – increase muscles, Male friend – eating, Male friend – increase muscles, Female friend – eating, Female friend – increase muscles, Negative affect, Self-esteem, and BMI.

For the regression equation onto Strategies to increase muscle tone – food (see Table 4.12), R for regression was significantly different from zero, \( F(13, 306) = 11.65, p < .001 \), indicating that the independent variables predicted Strategies to

<table>
<thead>
<tr>
<th>Table 4.12 Prediction of strategies to increase muscle tone – food</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
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<td>---------------------------</td>
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<tr>
<td>Satisfaction with muscles</td>
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<tr>
<td>Importance of muscles</td>
</tr>
<tr>
<td>Father – eating</td>
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<tr>
<td>Father – increase muscles</td>
</tr>
<tr>
<td>Mother – eating</td>
</tr>
<tr>
<td>Mother – increase muscles</td>
</tr>
<tr>
<td>Male friend – eating</td>
</tr>
<tr>
<td>Male friend – increase muscles</td>
</tr>
<tr>
<td>Female friend – eating</td>
</tr>
<tr>
<td>Female friend – increase muscles</td>
</tr>
<tr>
<td>Negative affect</td>
</tr>
<tr>
<td>Self-esteem</td>
</tr>
<tr>
<td>BMI</td>
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</tbody>
</table>

Multiple R = .58

R Square = .33

Adjusted R Square = .30

Standard Error = .76
increase muscle tone - food. Overall, 33% (R^2 = .33) of the variance in Strategies to increase muscle tone - food was predicted by the independent variables. An examination of the t-values indicated that Importance of muscles (sr^2 = .04), Father - increase muscles (sr^2 = .08), and Negative affect (sr^2 = .03) uniquely contributed to Strategies to increase muscle tone - food for adolescent boys.

*Strategies to increase muscle tone - exercise.*

The independent variables for Strategies to increase muscle tone - exercise were:

Satisfaction with muscles, Importance of muscles, Father - exercise, Father - increase muscles, Mother - exercise, Mother - increase muscles, Male friend - exercise, Male friend - increase muscles, Female friend - exercise, Female friend - increase muscles, Negative affect, Self-esteem, and BMI.

For the regression equation onto Strategies to increase muscle tone - exercise (see Table 4.13), R for regression was significantly different from zero, F (13, 306) = 14.62, p < .001, indicating that the independent variables predicted Strategies to increase muscle tone - exercise. Overall, 38% (R^2 = .38) of the variance in Strategies to increase muscle tone - exercise was predicted by the independent variables. An examination of the t-values indicated that Importance of muscles (sr^2 = .09), Father - increase muscles (sr^2 = .06), and Negative affect (sr^2 = .04) uniquely contributed to Strategies to increase muscle tone - exercise for adolescent boys.
Table 4.13  Prediction of strategies to increase muscle tone – exercise

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>B</th>
<th>β</th>
<th>sr²</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
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<td>Satisfaction with muscles</td>
<td>.06</td>
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<td>.00</td>
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<td>.20</td>
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<tr>
<td>Importance of muscles</td>
<td>.28</td>
<td>.33</td>
<td>.09</td>
<td>6.78</td>
<td>.001</td>
</tr>
<tr>
<td>Father – exercise</td>
<td>-.11</td>
<td>-.13</td>
<td>.01</td>
<td>-2.07</td>
<td>.04</td>
</tr>
<tr>
<td>Father – increase muscles</td>
<td>.47</td>
<td>.30</td>
<td>.06</td>
<td>5.25</td>
<td>.001</td>
</tr>
<tr>
<td>Mother – exercise</td>
<td>.06</td>
<td>.08</td>
<td>.00</td>
<td>1.12</td>
<td>.26</td>
</tr>
<tr>
<td>Mother – increase muscles</td>
<td>-.04</td>
<td>-.03</td>
<td>.00</td>
<td>-.47</td>
<td>.64</td>
</tr>
<tr>
<td>Male friend – exercise</td>
<td>-.01</td>
<td>-.02</td>
<td>.00</td>
<td>-.26</td>
<td>.80</td>
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<tr>
<td>Male friend – increase muscles</td>
<td>.13</td>
<td>.11</td>
<td>.01</td>
<td>1.83</td>
<td>.07</td>
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<tr>
<td>Female friend – exercise</td>
<td>-.08</td>
<td>-.08</td>
<td>.00</td>
<td>-1.27</td>
<td>.20</td>
</tr>
<tr>
<td>Female friend – increase muscles</td>
<td>-.15</td>
<td>-.09</td>
<td>.01</td>
<td>-1.48</td>
<td>.14</td>
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<tr>
<td>Negative affect</td>
<td>.53</td>
<td>.24</td>
<td>.04</td>
<td>4.17</td>
<td>.001</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>.08</td>
<td>.08</td>
<td>.00</td>
<td>1.35</td>
<td>.18</td>
</tr>
<tr>
<td>BMI</td>
<td>-.00</td>
<td>-.01</td>
<td>.00</td>
<td>-.10</td>
<td>.92</td>
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</table>

Multiple R = .62  
R Square = .38  
Adjusted R Square = .36  
Standard Error = .72

**Drive for thinness.**

The independent variables for Drive for thinness were: Satisfaction with weight, Importance of weight, Father – lose weight, Mother – lose weight, Male friend – lose weight, Female friend – lose weight, Negative affect, Self-esteem, and BMI.

For the regression equation onto Drive for thinness (see Table 4.14), R for regression was significantly different from zero, F (9, 310) = 43.66, p < .001, indicating that the independent variables predicted Drive for thinness. Overall, 56% (R² = .56) of the variance in Drive for thinness was predicted by the independent variables. An examination of the t-values indicated that Satisfaction with weight (sr² = .04), Importance of weight (sr² = .05), Father – lose weight (sr² = .04), Mother –
lose weight ($sr^2 = .02$), and Negative affect ($sr^2 = .02$) uniquely contributed to Drive for thinness for adolescent boys.

### Table 4.14  Prediction of drive for thinness

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>B</th>
<th>$\beta$</th>
<th>$sr^2$</th>
<th>t</th>
<th>p</th>
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<tr>
<td>Satisfaction with weight</td>
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<td>-.23</td>
<td>.04</td>
<td>-5.12</td>
<td>.001</td>
</tr>
<tr>
<td>Importance of weight</td>
<td>.23</td>
<td>.24</td>
<td>.05</td>
<td>6.02</td>
<td>.001</td>
</tr>
<tr>
<td>Father – lose weight</td>
<td>.45</td>
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<td>.04</td>
<td>5.00</td>
<td>.001</td>
</tr>
<tr>
<td>Mother – lose weight</td>
<td>.35</td>
<td>.21</td>
<td>.02</td>
<td>3.63</td>
<td>.001</td>
</tr>
<tr>
<td>Male friend – lose weight</td>
<td>-.06</td>
<td>-.03</td>
<td>.00</td>
<td>-.53</td>
<td>.60</td>
</tr>
<tr>
<td>Female friend – lose weight</td>
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<td>-.01</td>
<td>.00</td>
<td>-.18</td>
<td>.85</td>
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<tr>
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<td>.17</td>
<td>.02</td>
<td>3.49</td>
<td>.001</td>
</tr>
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<td>Self-esteem</td>
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<td>.00</td>
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<td>.74</td>
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<tr>
<td>BMI</td>
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<td>-.29</td>
<td>.77</td>
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</table>

Multiple R = .75  
R Square = .56  
Adjusted R Square = .55  
Standard Error = .77

**Bulimia.**

The independent variables for Bulimia were: Satisfaction with weight, Importance of weight, Father – eating, Father – lose weight, Mother – eating, Mother – lose weight, Male friend – eating, Male friend – lose weight, Female friend – eating, Female friend – lose weight, Negative affect, Self-esteem, and BMI.

For the regression equation onto Bulimia (see Table 4.15), R for regression was significantly different from zero, $F (13, 306) = 12.58$, $p < .001$, indicating that the independent variables predicted Bulimia. Overall, 35% ($R^2 = .35$) of the variance in Bulimia was predicted by the independent variables. An examination of the t-values indicated that Father – lose weight ($sr^2 = .02$), Male friend – lose weight ($sr^2 = .02$), and Negative affect ($sr^2 = .05$) uniquely contributed to Bulimia for adolescent boys.
Table 4.15  Prediction of bulimia

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<th>p</th>
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<td>.87</td>
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<td>.11</td>
<td>.01</td>
<td>2.20</td>
<td>.03</td>
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<tr>
<td>Father – eating</td>
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<td>-.02</td>
<td>.00</td>
<td>-.34</td>
<td>.74</td>
</tr>
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<td>Father – lose weight</td>
<td>.18</td>
<td>.17</td>
<td>.02</td>
<td>2.76</td>
<td>.01</td>
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<td>-.05</td>
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</tr>
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<td>Mother – lose weight</td>
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<td>.06</td>
<td>.00</td>
<td>.87</td>
<td>.39</td>
</tr>
<tr>
<td>Male friend – eating</td>
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<td>.00</td>
<td>1.24</td>
<td>.22</td>
</tr>
<tr>
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<td>.02</td>
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<td>.001</td>
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<td>.08</td>
<td>.00</td>
<td>1.35</td>
<td>.18</td>
</tr>
<tr>
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<td>.01</td>
<td>.00</td>
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<td>.001</td>
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<td>-.08</td>
<td>.01</td>
<td>-1.64</td>
<td>.10</td>
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Multiple R = .59
R Square = .35
Adjusted R Square = .32
Standard Error = .57

Excessive exercise.

The independent variables for Excessive exercise were: Satisfaction with weight, Satisfaction with muscles, Importance of weight, Importance of muscles, Father – exercise, Mother – exercise, Male friend – exercise, Female friend – exercise, Negative affect, Self-esteem, and BMI.

For the regression equation onto Excessive exercise (see Table 4.16), R for regression was significantly different from zero, F (11, 308) = 9.99, p < .001, indicating that the independent variables predicted Excessive exercise. Overall, 26% (R² = .26) of the variance in Excessive exercise was predicted by the independent variables. An examination of the t-values indicated that Importance of muscles (sr² =
.03), Father – exercise (sr² = .04), and Negative affect (sr² = .04) uniquely contributed to Excessive exercise for adolescent boys.

<table>
<thead>
<tr>
<th>Independent variables</th>
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<th>β</th>
<th>sr²</th>
<th>t</th>
<th>p</th>
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<td>-.07</td>
<td>.00</td>
<td>-1.21</td>
<td>.23</td>
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<td>Satisfaction with muscles</td>
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<td>.01</td>
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<td>.01</td>
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<td>.05</td>
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<td>.19</td>
<td>.03</td>
<td>3.41</td>
<td>.001</td>
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<td>.32</td>
</tr>
<tr>
<td>Male friend – exercise</td>
<td>-.12</td>
<td>-.13</td>
<td>.01</td>
<td>-2.04</td>
<td>.04</td>
</tr>
<tr>
<td>Female friend – exercise</td>
<td>-.04</td>
<td>-.05</td>
<td>.00</td>
<td>-.65</td>
<td>.52</td>
</tr>
<tr>
<td>Negative affect</td>
<td>.45</td>
<td>.24</td>
<td>.04</td>
<td>3.98</td>
<td>.001</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>.07</td>
<td>.07</td>
<td>.00</td>
<td>1.20</td>
<td>.23</td>
</tr>
<tr>
<td>BMI</td>
<td>-.01</td>
<td>-.06</td>
<td>.00</td>
<td>-1.08</td>
<td>.28</td>
</tr>
</tbody>
</table>

**Multiple R = .51**  
**R Square = .26**  
**Adjusted R Square = .24**  
**Standard Error = .66**

**Food supplements – lose weight.**

The independent variables for Food supplements – lose weight were: Satisfaction with weight, Importance of weight, Father – lose weight, Mother – lose weight, Male friend – lose weight, Female friend – lose weight, Negative affect, Self-esteem, and BMI.

For the regression equation onto Food supplements – lose weight (see Table 4.17), R for regression was significantly different from zero, F (9, 310) = 16.79, p < .001, indicating that the independent variables predicted Food supplements – lose weight. Overall, 33% (R² = .33) of the variance in Food supplements – lose weight
was predicted by the independent variables. An examination of the t-values indicated that Importance of weight ($\text{sr}^2 = .02$), Mother – lose weight ($\text{sr}^2 = .03$), Male friend – lose weight ($\text{sr}^2 = .03$), and Negative affect ($\text{sr}^2 = .03$) uniquely contributed to Food supplements – lose weight for adolescent boys.

**Table 4.17  Prediction of food supplements – lose weight**

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$sr^2$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with weight</td>
<td>-.07</td>
<td>-.02</td>
<td>.00</td>
<td>-.32</td>
<td>.75</td>
</tr>
<tr>
<td>Importance of weight</td>
<td>.04</td>
<td>.14</td>
<td>.02</td>
<td>2.81</td>
<td>.01</td>
</tr>
<tr>
<td>Father – lose weight</td>
<td>.01</td>
<td>.02</td>
<td>.00</td>
<td>.35</td>
<td>.73</td>
</tr>
<tr>
<td>Mother – lose weight</td>
<td>.13</td>
<td>.26</td>
<td>.03</td>
<td>3.74</td>
<td>.001</td>
</tr>
<tr>
<td>Male friend – lose weight</td>
<td>.15</td>
<td>.21</td>
<td>.03</td>
<td>3.53</td>
<td>.001</td>
</tr>
<tr>
<td>Female friend – lose weight</td>
<td>-.03</td>
<td>-.04</td>
<td>.00</td>
<td>-.70</td>
<td>.48</td>
</tr>
<tr>
<td>Negative affect</td>
<td>.19</td>
<td>.23</td>
<td>.03</td>
<td>3.82</td>
<td>.001</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>.02</td>
<td>.04</td>
<td>.00</td>
<td>.80</td>
<td>.42</td>
</tr>
<tr>
<td>BMI</td>
<td>-.00</td>
<td>-.04</td>
<td>.00</td>
<td>-.69</td>
<td>.49</td>
</tr>
</tbody>
</table>

Multiple R = .57  
R Square = .33  
Adjust R Square = .31  
Standard Error = .27

**Food supplements – increase muscles.**

The independent variables for Food supplements – increase muscles were:

Satisfaction with muscles, Importance of muscles, Father – increase muscles, Mother – increase muscles, Male friend – increase muscles, Female friend – increase muscles, Negative affect, Self-esteem, and BMI.

For the regression equation onto Food supplements – increase muscles (see Table 4.18), R for regression was significantly different from zero, $F(9, 310) = 12.42$, $p < .001$, indicating that the independent variables predicted Food
supplements — increase muscles. Overall, 27% (R² = .27) of the variance in Food supplements — increase muscles was predicted by the independent variables. An examination of the t-values indicated that Importance of muscles (β² = .03), Father — increase muscles (β² = .02), Male friend — increase muscles (β² = .03), and Negative affect (β² = .03) uniquely contributed to Food supplements — increase muscles for adolescent boys.

Table 4.18  Prediction of food supplements — increase muscles

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>B</th>
<th>β</th>
<th>sr²</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with muscles</td>
<td>-.05</td>
<td>-.07</td>
<td>.00</td>
<td>-1.35</td>
<td>.18</td>
</tr>
<tr>
<td>Importance of muscles</td>
<td>.12</td>
<td>.19</td>
<td>.03</td>
<td>3.59</td>
<td>.001</td>
</tr>
<tr>
<td>Father — increase muscles</td>
<td>.21</td>
<td>.19</td>
<td>.02</td>
<td>3.08</td>
<td>.001</td>
</tr>
<tr>
<td>Mother — increase muscles</td>
<td>.02</td>
<td>.01</td>
<td>.00</td>
<td>.21</td>
<td>.83</td>
</tr>
<tr>
<td>Male friend — increase muscles</td>
<td>.21</td>
<td>.24</td>
<td>.03</td>
<td>3.73</td>
<td>.001</td>
</tr>
<tr>
<td>Female friend — increase muscles</td>
<td>-.15</td>
<td>-.12</td>
<td>.01</td>
<td>-1.87</td>
<td>.06</td>
</tr>
<tr>
<td>Negative affect</td>
<td>.37</td>
<td>.23</td>
<td>.03</td>
<td>3.67</td>
<td>.001</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>.06</td>
<td>.08</td>
<td>.01</td>
<td>1.38</td>
<td>.17</td>
</tr>
<tr>
<td>BMI</td>
<td>-.01</td>
<td>-.03</td>
<td>.00</td>
<td>-0.56</td>
<td>.58</td>
</tr>
</tbody>
</table>

Multiple R = .52  
R Square = .27  
Adjusted R Square = .24  
Standard Error = .58

Food supplements — steroids.

The independent variables for Food supplements — steroids were: Satisfaction with muscles, Importance of muscles, Father — increase muscles, Mother — increase muscles, Male friend — increase muscles, Female friend — increase muscles, Negative affect, Self-esteem, and BMI.
For the regression equation onto Food supplements – steroids (see Table 4.19), R for regression was significantly different from zero, $F(9, 310) = 2.71, p < .01$, indicating that the independent variables predicted Food supplements – steroids. Overall, 7% ($R^2 = .07$) of the variance in Food supplements – steroids was predicted by the independent variables. An examination of the t-values indicated that none of the independent variables uniquely contributed to Food supplements – steroids for adolescent boys.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$sr2$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with muscles</td>
<td>-.01</td>
<td>-.01</td>
<td>.00</td>
<td>-16</td>
<td>.88</td>
</tr>
<tr>
<td>Importance of muscles</td>
<td>-.01</td>
<td>-.01</td>
<td>.00</td>
<td>-.24</td>
<td>.81</td>
</tr>
<tr>
<td>Father – increase muscles</td>
<td>.04</td>
<td>.05</td>
<td>.00</td>
<td>.76</td>
<td>.45</td>
</tr>
<tr>
<td>Mother – increase muscles</td>
<td>.08</td>
<td>.11</td>
<td>.01</td>
<td>1.49</td>
<td>.14</td>
</tr>
<tr>
<td>Male friend – increase muscles</td>
<td>.05</td>
<td>.10</td>
<td>.01</td>
<td>1.37</td>
<td>.17</td>
</tr>
<tr>
<td>Female friend – increase muscles</td>
<td>-.03</td>
<td>-.04</td>
<td>.00</td>
<td>-.57</td>
<td>.57</td>
</tr>
<tr>
<td>Negative affect</td>
<td>.17</td>
<td>.17</td>
<td>.02</td>
<td>2.45</td>
<td>.02</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>.04</td>
<td>.09</td>
<td>.01</td>
<td>1.29</td>
<td>.20</td>
</tr>
<tr>
<td>BMI</td>
<td>-.01</td>
<td>-.04</td>
<td>.00</td>
<td>-.70</td>
<td>.49</td>
</tr>
</tbody>
</table>

Multiple $R = .27$
R Square = .07
Adjusted R Square = .05
Standard Error = .39

The fourth hypothesis was partially supported with body satisfaction and importance, sociocultural messages from fathers, mothers and male peers, negative affect and drive for thinness predicting body change attitudes and strategies. Messages from female peers, self-esteem and BMI did not predict the use of body change strategies.
Body Satisfaction with Body Parts

To test the fifth hypothesis that adolescent boys will be less satisfied with their upper body than their lower and middle body paired samples t-tests were conducted (see Table 4.20). Significant differences were evident between Satisfaction with the lower body and the middle body, \( t(361) = -5.91, p < .001 \) and between Satisfaction with the middle body and upper body, \( t(361) = 6.70, p < .001 \), but not between Satisfaction with the lower body and upper body, \( t(361) = 1.09, p > .05 \). Exploration of the means indicate the hypothesis that adolescent boys would be more dissatisfied with their upper body than their lower or middle body was not supported. The results indicate that adolescent boys report lower satisfaction with their middle body than lower body and upper body.

Table 4.20  Mean scores of satisfaction with body parts

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with lower body</td>
<td>3.91</td>
<td>.75</td>
<td>1.33-5</td>
</tr>
<tr>
<td>Satisfaction with middle body</td>
<td>3.64</td>
<td>1.05</td>
<td>1-5</td>
</tr>
<tr>
<td>Satisfaction with upper body</td>
<td>3.94</td>
<td>.64</td>
<td>1.99-5</td>
</tr>
</tbody>
</table>

Relationship Between Satisfaction and Importance

To test hypothesis 6 that adolescent boys with higher body image satisfaction will indicate lower body image importance, a correlation matrix was used with each of the body parts. Satisfaction with each body part was correlated with the importance of each body part. The correlations (see Table 4.21) indicate support for the hypothesis with negative correlations for Weight, Shape, Lower body and Middle body. The hypothesis was not supported with Muscles and Upper body.
Table 4.21  Correlations between satisfaction and importance of different body attributes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation between satisfaction and importance of body attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>-.20***</td>
</tr>
<tr>
<td>Shape</td>
<td>-.15**</td>
</tr>
<tr>
<td>Muscles</td>
<td>.02</td>
</tr>
<tr>
<td>Lower body</td>
<td>-.14**</td>
</tr>
<tr>
<td>Middle body</td>
<td>-.13**</td>
</tr>
<tr>
<td>Upper body</td>
<td>-.09</td>
</tr>
</tbody>
</table>

** = < .01  *** = < .001

Summary of Results

The results of Study 1 indicated that adolescent boys are generally satisfied with each part of their body, with the greatest satisfaction reported for the upper body, and the least satisfaction reported for muscles. The shape of different parts of the body were reported to be moderately important to adolescent boys compared to other things in their life, with muscles being reported as the most important body attribute, and weight the least important body attribute.

In terms of body change attitudes and strategies, adolescent boys reported engaging in and wanting to engage in relatively few body change strategies. Exercise strategies were reported more frequently than food related strategies. Use of Food supplements, as well as Drive for thinness and Bulimia were reported at very low levels, indicating that these extreme attitudes and behaviours are not a problem at this age.

In terms of sociocultural messages, the adolescent boys reported neutral messages from their fathers, mothers and male friends and female friends about their
shape, and their eating and exercise behaviours. Messages about decreasing and increasing weight and increasing muscles were reported to be received rarely from parents and peers. The importance of these messages was rated moderate to unimportant. The media was reported to provide messages to increase weight to a similar degree as parents and peers, but the media was reported to provide stronger messages about decreasing weight and increasing muscles. While stronger messages were reported to come from the media, the importance of these messages was rated as low.

Adolescent boys reported low levels of negative affect, and high levels of self-esteem. BMI scores were generally low, due to the age of the boys and their stage of development. Overall, the attitudes and behaviour of these adolescent boys appeared to generally be at a healthy level.

To explore how the adolescent boys differed in attitudes, behaviour and perceived sociocultural messages, according to BMI, a median split was used to enable comparison of boys with low BMI and high BMI. In terms of body image and body change strategies, boys with higher BMI indicated lower satisfaction with their body and engaged in greater amounts of body change strategies. They also reported receiving more messages about losing weight from parents and peers, as well as more messages about increasing muscles from their mother. Boys with low BMI reported more positive messages from their father about their exercise behaviour, and more messages from their father and male friends to increase weight. From these findings, it can be seen that significant differences exist in attitudes, behaviours and messages received for adolescent boys according to BMI.
Standard multiple regression analyses were conducted to determine what factors predicted body image and body change attitudes and strategies. In general, high levels of self-esteem and low BMI scores were found to be predictive of satisfaction with body parts. With body shape and middle body, greater importance of the body part predicted lower satisfaction with that body part. In terms of sociocultural influences, parental messages were generally found to predict satisfaction more frequently than peer messages. Media messages were not found to predict body satisfaction of any of the body parts.

With regard to factors that predict body change attitudes and strategies, the importance of the associated body part was found to be more influential than the satisfaction with the body part. Sociocultural messages from father were found most influential in determining body change strategies, followed by male friend and then mother. Messages from female friends were not found to be predictors of body change strategies. Negative affect was found to consistently predict body change strategies, while self-esteem and BMI were not unique predictors.

The results from the regression analyses showed individual and sociocultural factors predicted body image and body change strategies differently. Self-esteem was found to be a consistent unique predictor of body satisfaction, but not of body change strategies, while negative affect was a consistent predictor of body change strategies but not of body satisfaction. Sociocultural messages were found to predict both body satisfaction and body change strategies. In terms of the specific messages found to be important predictors of body satisfaction and body change strategies, messages from
fathers and male friends were important, particularly about shape, increasing muscles and losing weight.

Adolescent boys reported significantly lower satisfaction with the middle body, compared to the upper and lower body. The upper and lower body were rated with similar levels of satisfaction. Interestingly, boys rated satisfaction with the upper body higher than they rated satisfaction with muscles. The upper body has been considered the body part most strongly related to muscles, yet the difference in satisfaction ratings suggest the upper body and muscles are not considered to represent the same concerns for adolescent boys.

Interestingly, when satisfaction with body attributes was correlated with importance, significant negative correlations were evident for numerous body attributes, including weight, shape, lower and middle body. The correlations indicated that as the importance of a body part increased, the satisfaction decreased. Significant correlations were not found with muscles or upper body, suggesting different processes are operating with these body attributes for adolescent boys.

While young adolescent boys do not report concerning levels of unhealthy body attitudes and behaviours, the presence of some body image dissatisfaction and the relationship between dissatisfaction and other variables, including body change strategies, is concerning. Muscles emerged as a particularly important factor for adolescent boys. In terms of sociocultural influences, the most influential messages were from fathers and male friends who may operate as same sex role models, providing messages about shape, muscles and losing weight. With high importance
placed on muscles and the relatively low satisfaction with muscles, there is a greater likelihood of negative impact on body change strategies, negative affect and self-esteem. As such, it is important that interventions are implemented to increase satisfaction and decrease the importance of muscles, in order to reduce the impact on body change strategies, affect and self-esteem.
CHAPTER FIVE

Study Two: Prevention of Adolescent Boys’ Body Dissatisfaction and Body Change Strategies

The results from study 1 indicate that adolescent boys do not experience high levels of dissatisfaction with their body, nor do they engage in high levels of body change strategies. At the same time, some dissatisfaction was evident, as was the use of some body change strategies. These findings suggest that a prevention program that aims to prevent the onset of unhealthy attitudes and behaviours may be more applicable to this age group than an intervention program that aims to reduce existing unhealthy attitudes and behaviour. Study 2 therefore consists of the implementation and evaluation of a prevention program aimed at preventing the onset of unhealthy attitudes and behaviours in adolescent boys.

As there have been no programs to date that have specifically targeted adolescent boys’ body image, the utility of different strategies for use with adolescent boys can only be suggested from programs administered to adolescent girls and children. The literature appears to support the use of education, discussion and activities, in order to try and influence knowledge, attitudes and behaviour (e.g., O’Dca & Abraham, 2000). Specific aspects of the format of the program, such as the administrator, do not appear to be as pertinent to a program’s success as the strategies utilised, such as discussion and activities. As already indicated, the program evaluated in this study targets adolescent boys. Adolescent boys are beginning to develop attitudes and awareness about body image, but most do not yet exhibit highly unhealthy attitudes and behaviour, and therefore prevention work would ideally be targeted at this age. In addition, they have been neglected thus far in
prevention programs and with increasing problems emerging it is important interventions target them specifically. The program is administered in a school setting by the researcher, and runs over two sessions, with each session consisting of three activities.

Research has indicated the need for follow up of the program to occur, as many programs may result in short term changes (e.g., Carter et al., 1997), but the goal is to have changes that are durable. Also, some studies have not found change in the short term with variables such as with dieting, but long term follow up enables prevention effects to be identified (e.g., O’Dea & Abraham, 2000). Therefore, it is important that follow up data are collected, and so these data are collected at one-month and three-months following the prevention program in study 2.

In terms of the theoretical underpinning, social cognitive theory has most commonly been used with adolescents in a school setting, and has been found to be effective (e.g., Neumark-Sztainer et al., 1995). Therefore it will act as the theoretical basis for this prevention program. At a broad level, the variables targeted by programs can be described as knowledge, attitudes and behaviours. Programs have been successful in changing knowledge by providing education (e.g., Chally, 1998). Changing attitudes and behaviour has been found to be significantly more difficult (e.g., Smolak & Levine, 1994; Levine et al., 1996), and therefore it may be easier to prevent the onset of unhealthy attitudes and behaviour by targeting the program at young adolescent males, prior to the onset of unhealthy attitudes and behaviours.
Study 2 uses the information from study 1 as well as the broader literature outlined in chapters 2 and 3 to develop a prevention program that is implemented and evaluated. The program targets young adolescent boys, is based on social cognitive theory targeting knowledge, attitudes, and behaviour and aimed at the prevention of unhealthy attitudes and behaviours. By targeting knowledge, attitudes and behaviour, the goal was that the program effects would generalise to other variables. The program is conducted in two sessions by a researcher in the school setting, and follow up occurs over a three month time frame.

The aims of study 2 are to implement a prevention program to prevent the development of body dissatisfaction of young adolescent boys, prevent the influence of poor body image on self-esteem, and prevent the use of high risk body change strategies.

Specifically, it is hypothesised that:

1. Changes in attitudes and behaviours in one dimension of body image and body change strategies will be more likely to be associated with changes in other dimensions of body image and body change strategies for the program group but not for the control group;

2. Body image satisfaction will increase in the program group compared to the control group;

3. Body image importance will decrease in the program group compared to the control group;
4. The use of general body change strategies (strategies to decrease weight and increase muscles) will decrease for the program group compared to the control group;

5. The use of extreme body change strategies (excessive exercise, drive for thinness, bulimic attitudes and behaviour, food supplements to lose weight, increase muscle and steroids) will be prevented in the program group compared to the control group;

6. Self-esteem and negative affect with improve in the program group compared to the control group.

Method

Participants

The sample comprised 121 middle class young adolescent boys between the ages of 12 and 13 years. Sixty-nine participants were recruited from year 7 in an independent boys' schools in metropolitan Melbourne (M = 12.16 years, SD = 0.44) and served as the control group. Fifty-two participants were recruited from year 7 in an independent Co-educational school in metropolitan Melbourne (M = 12.52 years, SD = 0.51) and served as the program group.

Materials

The materials for study 2 consisted of the same scales used study 1. The scales included the five scales from the Body Satisfaction and Body Change Inventory (Ricciardelli & McCabe, 2002), the Excessive Exercise Scale (McCabe & Vincent, 2002), and the two subscales from the Eating Disorders Inventory-2 (Garner, 1991). The Depression Anxiety Stress Scales (Lovibond & Lovibond, 1995b), and the
general self scale from the Marsh Self Description Questionnaire II (Marsh, 1990) were also included. The demographic information obtained included sex, age, year level, height, and weight. Height and weight were both measured by the researchers.

Procedure

Following approval from the University Ethics Committee (Appendix B) five schools were approached about being involved in the study, firstly with a letter outlining the study and then with a follow up phone call, and two schools agreed to participate in the study. Plain language statements and consent forms (Appendix E) were distributed to the adolescent males in year 7 in the school. Parents and guardians were asked to return the consent form to the school if they were happy for their son to participate. Only those students who had written active parental consent participated in the study and the response rate was 49%. Participants at one school served as the control group and participants at the second school served as the program group.

Control group.

The control group completed the questionnaire anonymously four times and each participant’s questionnaires were tracked over time with an individual code. There was a two week period between the first completion of the questionnaire and the second completion of the questionnaire. The third completion of the questionnaire was one month after the second completion of the questionnaire. The last completion of the questionnaire was three months after the second completion of the questionnaire.
The questionnaire was completed in class time and only those participating in the study were in the room. Standard instructions were read to the participants (Appendix D). Participants were asked to complete the questionnaire without discussing responses with others. Participants were informed that they were free to withdraw at anytime, without any consequences.

On completion of the questionnaire the participants were asked to sit quietly until all other students had completed the questionnaire. Participants were thanked for their time and effort, and offered an opportunity to ask any questions about the research. The questionnaire was completed in approximately 45 minutes.

Program group.
The program group completed the questionnaire anonymously four times and individual codes were also used to track the questionnaires over the time points. Immediately following the first completion of the questionnaire the program group were involved in the first session of the intervention program. Two weeks later they participated in the second session of the intervention program. Immediately following the second session, participants completed the questionnaire for the second time. One month after the second session the participants completed the questionnaire for the third time. Participants completed the questionnaire a fourth time three months after the second session.

The questionnaire was completed in class time and only those participating in the study were in the room. Standard instructions were read to the participants (Appendix D). Participants were asked to complete the questionnaire without
discussing responses with others. Participants were informed that they were free to withdraw at anytime, without any consequences.

On completion of the questionnaire, the participants were asked to sit quietly until all other students had completed the questionnaire. Participants were thanked for their time and effort, and offered an opportunity to ask any questions about the research. The questionnaire was completed in approximately 45 minutes.

Program Details

The program group participated in the prevention program, which consisted of two sessions of approximately one hour each (See Appendix F for details of program). In summary, the first session consisted of three activities and the focus was on looking at body image in the context of the whole person, with the goal of decreasing the importance of body attributes. The first activity involved a discussion about the differences between people, using magazine pictures as a stimulus. The second activity was an exploration of differences in how boys may progress through the different developmental stages while still being normal. The boys were also asked to consider the characteristics that made up a person and identify the characteristics they find to be important in a best friend. To conclude the session the boys were asked to identify the differences between the characteristics identified in the first activity based on physical appearance, the characteristics that make up a person, and those that are important in a best friend.

The second session also consisted of three activities that related to the messages the boys received about the ideal male. The goal was to increase media literacy and
assist the development of processing and responding to pressures and messages related to body image. Participants were asked to identify the ideal male image from magazines, and identify each of the characteristics that made it the ideal image. They were asked to consider who presents this message to them and to their peers. The boys then considered how important this message was to them. In the second activity the boys were asked to discuss the influence that positive and negative messages about body image has on behaviour, attitudes and self-esteem. The third activity consisted of a consideration of possible responses to body image concerns. The boys were asked to complete the thoughts and speech of a boy depicted in a cartoon, who was discriminated against because of his size. They were also asked to consider what advice they could give to their younger sibling who is being teased about their looks. To conclude the session a brief overview was given of both sessions.

Results

Prior to analyses, the data were screened with SPSS for Windows version 10. The variables were examined for accuracy of data entry, missing values and whether they met the assumptions for multivariate analyses.

The minimum and maximum descriptives indicated no out of range data entries had been made. Attrition consisted of two participants who discontinued the research due to their leaving the school. In addition missing data were present for some participants across time points due to absence from school on the day of testing. These data were left as missing and these participants were not included in analyses involving that time point. A small number of additional missing values were evident in the body change strategy scales, the sociocultural influence scales, the negative
affect and the self-description scale for both the control group and the program
group. These missing values appeared to be scattered randomly and therefore were
replaced using the regression technique (Tabachnick & Fidell, 1996).

Variables were examined for the presence of univariate outliers by using SPSS
DESCRIPTIVES. Variables with standard scores greater than ± 3.29 are usually
considered to be potential univariate outliers (Tabachnick & Fidell, 1996). Univariate
outliers were retained as the results did not differ with the exclusion of the outliers.
The values appeared to be representative of the population and increase the
generalisability of the results. Mahalanobis Distance with p < .001 was used to assess
for multivariate outliers. A number of multivariate outliers were detected and were
retained due to no significant difference evident in results with them included or
excluded. They were retained to increase the generalisability of the results.

Significant skewness was found with some measures, however, transformations were
not undertaken because skewness was assumed to reflect the inherent nature of the
variables. Residual scatterplots were used to evaluate normality, linearity, and
homoscedasticity, and each of these multivariate assumptions were found to be
within acceptable limits. No evidence of singularity or multicollinearity was evident
with the correlation tables indicating correlations between variables being less than
.7. After screening the data, all 121 cases were retained for further analyses.

Description Statistics
Means, score range and standard deviations of variables for both the program and
control group of time 1 are set out in Table 5.1 and time 2 in Table 5.2 (see
Appendix G for all means and standard deviations).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Control Group</th>
<th>Program Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction - weight</td>
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**Group Differences in Body Image and Body Change Strategies**

Group differences in body image and body change strategies were explored. With the program being the first targeted at adolescent boys specifically, the analyses were exploratory in nature. As such, a significance level of p < .05 was used to allow the differences to be identified.
Body image satisfaction.

To examine the second hypothesis that Body image satisfaction will increase in the program group compared with the control group, a Repeated Measures Multivariate Analysis of Variance (RM MANOVA) was used. In this analysis there were six dependent variables and one independent variable. The dependent variables were: Satisfaction with weight, Satisfaction with shape, Satisfaction with muscles, Satisfaction with lower body, Satisfaction with middle body, and Satisfaction with upper body. The independent variable was Group (program and control). The RM MANOVA revealed no significant difference for group across time, F (18, 65) = .63, p > .05. This analysis fails to support the second hypothesis that satisfaction would increase in the program group relative to the control group.

Muscle satisfaction.

To examine the second hypothesis further, Satisfaction with muscles was considered separately, as it has been claimed that males consider muscles to be the most important body component. A Repeated Measures Analysis of Variance (RM ANOVA) was used to evaluate changes from pre-test to post-test. In this analysis there was one dependent variable and one independent variable. The dependent variable was Satisfaction with muscles and the independent variable was Group (program and control).

The RM ANOVA revealed a main effect for group across time, F (1, 104) = 4.29, p < .05 (see Table 5.3). The results reflect a small association between group and the dependent variable, η² = .04, across time. Adolescent boys in the program group increased in Satisfaction with muscles from pre-test to post-test, whereas the
boys in the control group maintained their levels of Satisfaction with muscles. This finding indicates partial support for the second hypothesis, as while satisfaction did not increase overall in the program group relative to the control group, satisfaction with muscles increased, the body attribute considered most important to adolescent boys.

**Table 5.3**  
*Mean scores for satisfaction with muscles*

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<th>Program</th>
</tr>
</thead>
<tbody>
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<td>Time 2</td>
</tr>
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</tbody>
</table>

_Body image importance._

To examine the third hypothesis that Body image importance will decrease in the program group compared to the control group, a Repeated Measures Multivariate Analysis of Variance (RM MANOVA) was used. In this analysis there were six dependent variables and one independent variable. The dependent variables were: Importance of weight, Importance of shape, Importance of muscles, Importance of lower body, Importance of middle body, and Importance of upper body. The independent variable was Group (program and control). The RM MANOVA revealed no significant difference for group across time, $F(18, 63) = 1.13$, $p > .05$. The third hypothesis was not supported, as there was no difference between the program and control group in ratings of importance over time.

_General body change strategies._

To examine the fourth hypothesis that general body change strategies will decrease in use for the program group compared with the control group, a Repeated Measures
Multivariate Analysis of Variance (RM MANOVA) was used. In this analysis, there were four dependent variables and one independent variable. The dependent variables were: Strategies to decrease weight – food, Strategies to decrease weight – exercise, Strategies to increase muscle tone – food, and Strategies to increase muscle tone – exercise. The independent variable was Group (program and control). The RM MANOVA revealed no significant difference for group across time, \( F(12, 68) = 1.36, p > .05 \).

To evaluate whether the program resulted in changes to general body change strategies in the short term that were not maintained over the follow up period, a RM MANOVA was used with the same variables to assess for changes from time 1 to time 2. The RM MANOVA revealed a main effect for group across time, \( F(4, 101) = 4.01, p < .01 \) (see Table 5.4). The results reflect a small association between group and the dependent variables, \( \eta^2 = .14 \), across time. The univariate F values indicate there were interaction effects with significant differences between the two groups across time on Strategies to decrease weight – food, \( F(1, 104) = 11.05, p < .01, \eta^2 = .10 \), and Strategies to increase muscles – exercise, \( F(1, 104) = 7.09, p < .01, \eta^2 = .06 \).

Adolescent boys in the program group maintained their very low levels of use of general body change strategies from pre-test to post-test, suggesting a floor effect. On the other hand, the boys in the control group decreased their use of general body change strategies, but did not improve beyond the level of the program group. While the fourth hypothesis was not supported over the four time points, significant differences between the program and control group were evident over the short-term. Rather than the program group decreasing their use of general body change
strategies, as was hypothesised, their very low levels were maintained and remained lower than the control group.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Control</th>
<th>Program</th>
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<tbody>
<tr>
<td>Strategies to decrease weight – food</td>
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<td>1.57</td>
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<td>Strategies to decrease weight – exercise</td>
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<td>Strategies to increase muscle tone – exercise</td>
<td>2.30</td>
<td>1.96</td>
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</tbody>
</table>

Extensive body change strategies.

To examine the fifth hypothesis that the use of extreme body change strategies will be prevented in the program group compared to the control group, a Repeated Measures Multivariate Analysis of Variance (RM MANOVA) was used. In this analysis there were six dependent variables and one independent variable. The dependent variables were: Exercise, Drive for thinness, Bulimia, Food supplements – lose weight, Food supplements – increase muscles, and Food supplements - steroids. The independent variable was Group (program and control). The RM MANOVA revealed no significant difference for group across time, $F(18, 61) = 1.17$, $p > .05$. Hypothesis five was not supported, as the program group did not decrease their use of extreme body change strategies relative to the control group.

Self-esteem and negative affect.

To examine the sixth hypothesis that self-cstecm and negative affect will improve in the program group compared with the control group, a Repeated Measures Multivariate Analysis of Variance (RM MANOVA) was used. In this analysis there
were two dependent variables and one independent variable. The dependent variables were Self-esteem and Negative affect. The independent variable was Group (program and control).

The RM MANOVA revealed a main effect for group across time, $F(6, 66) = 2.85$, $p < .05$. The results reflect a modest association between group and the combined dependent variables $\eta^2 = .21$ across time. To account for failure of Mauchly's Test of Sphericity, the Huynh-Feldt adjustment was used and the univariate F values indicated there were interaction effects with significant differences between the two groups across time on both Self-esteem, $F(2.4, 167.6) = 3.2$, $p < .05$, $\eta^2 = .04$, and Negative affect, $F(2.8, 196.2) = 2.64$, $p < .05$, $\eta^2 = .04$.

Adolescent boys in the program group increased their self-esteem over the four time periods whereas the boys in the control group experienced a decrease in self-esteem. Those boys in the program group maintained their levels of negative affect and then decreased their negative affect, while the control group decreased and then increased their levels of negative affect (see Table 5.5). Hypothesis six was partially supported with the program group ending with an overall increase in self-esteem relative to the control group, and the program group reporting a decrease in negative affect, while the control group reported fluctuating negative affect.

<table>
<thead>
<tr>
<th>Table 5.5</th>
<th>Mean scores for self-esteem and negative affect</th>
</tr>
</thead>
<tbody>
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<tr>
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</tr>
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<td>Self-esteem</td>
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<tr>
<td>Negative affect</td>
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</tr>
</tbody>
</table>

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Change Correlations

It was hypothesised that changes in attitudes and behaviours in one dimension of body image and body change strategies would be associated with changes in other dimensions of body image and body change strategies for the program group but not for the control group. To evaluate this hypothesis, change scores across time were correlated with each other to determine the relationship between changes in attitudes and behaviours.

Between pre-test and post-test, and between pre-test and the two follow up periods, there were changes in the participants’ responses on a number of variables. Change scores are a measure of how responses to a particular variable change over time. Significant changes would be expected to occur during adolescence in areas including body image attitudes and body change strategies. The change scores allow this process of development to be evaluated and provide more meaningful information than simply the scores obtained on a particular variable at one point in time. While the correlations may indicate increases or decreases, they will be discussed primarily in terms of decreases in order to be consistent. Changes may be due to the passage of time between time 1, time 2, time 3 and time 4, or may be due to the prevention program. Correlations were calculated separately for the program group and the control group, and a significance level of p < .01 was used to minimise the chances of Type I error.

The following change variables were calculated: Satisfaction with weight (Sat_weig), Satisfaction with shape (Sat_sha), Satisfaction with muscles (Sat_mus), Satisfaction with lower body (Sat_low), Satisfaction with middle body (Sat_mid),
and Satisfaction with upper body (Sat_up), Importance of weight (Imp_weig), Importance of shape (Imp_sha), Importance of muscles (Imp_mus), Importance of lower body (Imp_low), Importance of middle body (Imp_mid) and Importance of upper body (Imp_up) were also calculated. Strategies to Decrease Weight – food (SDW_food), Strategies to Decrease Weight – exercise (SDW_ex), Strategies to Increase Muscle Tone – food (SIMT_food), Strategies to Increase Muscle Tone – exercise (SIMT_ex), Excessive Exercise (Exercise), Drive for Thinness (Dthin), Bulimic Attitudes and Behaviour (Bulim) were also calculated. Attitudes and Behaviour related to food supplements were also explored in relation to losing weight (FSlose), increasing muscle tone (FSmus), and the use of steroids (FSster). Negative Affect (Negaff) and Self-Esteem (SE) were also explored. These change scores were calculated separately for the control and program group. The correlations for the control condition will be presented first, followed by the correlations for the program group.

**Control Group**

*Correlations between pre-test and post-test (time 1 – time 2).*

There were numerous significant correlations between the change scores from time 1 to time 2 (see Table 5.6). Respondents who experienced a decrease in Satisfaction with weight also experienced a decrease in Satisfaction with shape, Satisfaction with lower body, Satisfaction with middle body, Satisfaction with upper body and a decrease in the Importance of Shape. Decreases in Satisfaction with shape were associated with decreases in Satisfaction with lower body, Satisfaction with middle body, and Satisfaction with upper body. Those who reported a decrease in Satisfaction with the lower body also reported a decrease in Satisfaction with the
Table 5.6  Correlations of body image change scores from time 1 to time 2 (control group).

<table>
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<th>Sat_sha</th>
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** p < .01  *** p < .001
Table 5.6 (continued) Correlations of body change strategy and attitude change scores from time 1 to time 2 (control group).

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** p < .01 *** p < .001
middle body, and Satisfaction with the upper body. Those who reported a decrease in Satisfaction with the middle body reported a decrease in Satisfaction with the upper body.

Respondents who reported a decrease in the Importance of weight also reported a decrease in the Importance of shape and Importance of lower body. Those who reported a decrease in the Importance of muscles reported a decrease in Drive for thinness. Those who reported a decrease in Importance of the lower body reported a decrease in the Importance of the middle body and Importance of the upper body. Those who reported a decrease in the Importance of the middle body reported a decrease in the Importance of the upper body.

Respondents who reported a decrease in Strategies to increase muscles – food also reported a decrease in Strategies to increase muscles – exercise. Those who reported a decrease in Food supplements – lose weight also reported a decrease in Bulimic attitudes and behaviour. Respondents who reported a decrease in Drive for thinness reported a decrease in Bulimic attitudes and behaviour and those who reported a decrease in Bulimic attitudes and behaviour reported a decrease in Negative affect and an increase in Self-esteem. Participants who reported a decrease in Negative affect reported an increase in Self-esteem.

Summary.
The relationship between changes in satisfaction with different body parts may be due to changes in attitudes or a change in appearance leading to an increase in satisfaction with body parts. As such, adolescent boys who reported an increase in
satisfaction with one body part were likely to report an increase in satisfaction with other body parts. In a similar way, decreases in the importance of some body parts were likely to correlate with decreases in other body parts, due to a change in the importance of the body generalising to body parts. While correlations were evident between change scores for satisfaction with different body parts and with importance of different body parts, significant correlations were not obtained between body satisfaction and body change strategies, nor were they evident between importance of body parts and body change strategies.

In terms of changes in body change strategies, very few correlations were evident even with other body change strategies. Strategies to increase muscles – food correlated with Strategies to increase muscle – exercise, which would be expected as they both have the same specific goal. Food supplements – lose weight correlated with Bulimic attitudes and behaviours, and Drive for thinness correlated with Bulimic attitudes and behaviours. These variables may have correlated due to the similar underlying attitude or behaviour, such as the desire to increase muscles or extreme eating attitudes and behaviours.

*Correlations between pre-test and three-month follow up (time 1 – time 4).*

There were a number of significant correlations between the change scores from time 1 to time 4 (see Table 5.7). Respondents who reported a decrease in Satisfaction with weight also reported a decrease in Satisfaction with shape, Satisfaction with muscles, Satisfaction with lower body, Satisfaction with middle body, Satisfaction with upper body, Strategies to increase muscles – food and an increase in Importance of muscles. Those who reported a decrease in Satisfaction with shape reported a
Table 5.7 (continued) Correlations of body change strategy and attitude change scores from time 1 to time 4 (control group).

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** p < .01 *** p < .001
### APPENDIX G

**Control and Program Groups Means and Standard Deviations for Four Time Points**

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decrease in Satisfaction with muscles, Satisfaction with lower body, Satisfaction with middle body, and Satisfaction with upper body. Respondents who reported a decrease in Satisfaction with muscles reported a decrease in Satisfaction with lower body, Satisfaction with middle body, and Satisfaction with upper body. Those who reported a decrease in Satisfaction with lower body also reported a decrease in Satisfaction with the middle body and upper body. Those who reported a decrease in Satisfaction with middle body reported a decrease in Satisfaction with upper body and in Strategies to increase muscles – exercise.

Respondents who reported a decrease in Importance of weight also reported a decrease in Importance of shape and Importance of lower body. A decrease in Importance of shape was associated with a decrease in Importance of muscles, and Importance of lower body, and a decrease in Importance of muscles was associated with a decrease in Importance of middle body. Respondents who reported a decrease in Importance of lower body also reported a decrease in Importance of middle body, Importance of upper body and Drive for thinness. A decrease in the Importance of middle body was associated with a decrease in the Importance of upper body.

Respondents who reported a decrease in Strategies to decrease weight – food also reported a decrease in Strategies to decrease weight – exercise, Strategies to increase muscles – food, and Drive for thinness. A decrease in Strategies to decrease weight – exercise was associated with a decrease in Strategies to increase muscles – exercise. A decrease in Strategies to increase muscles – food was associated with a decrease in Drive for thinness. A decrease in Strategies to increase muscles – exercise was associated with a decrease in Excessive exercise, and a decrease in
Excessive exercise was associated with an increase in Food supplements – steroids. A decrease in Food supplements – lose weight was associated with a decrease in Negative affect, and a decrease in Food supplements – steroids was associated with a decrease in Drive for thinness and Bulimic attitudes and behaviour. A decrease in Drive for thinness was associated with a decrease in Negative affect, and a decrease in Bulimic attitudes and behaviour was also related to a decrease in Negative affect.

**Summary.**

Changes in satisfaction with body parts correlated with changes in satisfaction with other body parts, but not with many body change strategies. Changes in satisfaction with weight were associated with changes in Strategies to increase muscles – food and Satisfaction with middle body was associated with Strategies to increase muscles – exercise. These correlations may be due to the high importance males place on muscles in defining their ideal body. The changes in satisfaction and strategies to increase muscles may occur slowly without specific intervention and therefore the change correlations are significant between time 1 and time 4, but not time 1 and time 2. Similar findings were evident with the importance of body parts, as the change scores for importance correlated with each other, but not with body change strategies. The changes in attitudes do not generalise to body change strategies in the control group.

No consistent pattern emerged in the body change strategies that correlated with each other. Some of the change correlations were between strategies that had the same goal, such as to decrease weight, some had the same mechanisms, such as using food to achieve the goal, and other correlations were between extreme body change strategy attitudes and behaviours, such as Food supplements – steroids and Drive for
thinness. Over time, more significant correlations were evident, possibly suggesting slow changes and low levels of relationships generally occurring between body change strategies for the control group.

Negative affect correlated with a number of extreme body change strategy attitudes and behaviours in the control group, such as Drive for thinness, whereas changes in Self-esteem did not correlate with body image or body change strategies. This may be because affect is something that may vary over a short period of time, whereas self-esteem is a more stable construct and may take longer to change without a specific intervention.

Control group summary.
Overall, looking at the change scores at each time point, there were few changes in attitudes and behaviour. In both the correlations for time 1 to time 2 and time 1 to time 4, changes in satisfaction of different body parts correlated with each other, as did change in importance of body parts, but neither correlated with many changes in body change strategies. In terms of body change strategies, more correlations were evident in change scores from time 1 to time 4 than time 1 to time 2. This may be due to changes occurring slowly, unless specific interventions are implemented with the goal to change attitudes and behaviour. Finally, changes in negative affect correlated more frequently with body change strategy attitudes and behaviour than did self-esteem. This may be due to the stable nature of self-esteem as opposed to affect.
Program Group

Correlations between pre-test and post-test (time 1 – time 2).

There were numerous significant correlations between the change scores from time 1 to time 2 (see Table 5.8). The correlations of the significant change scores between time 1 and time 2 indicated that respondents who experienced a decrease in Satisfaction with weight also experienced a decrease in Satisfaction with shape, Satisfaction with lower body, and an increase in Negative affect. Those who reported a decrease in Satisfaction with the lower body reported a decrease in Satisfaction with the upper body, an increase in the Importance of shape, an increase in the Importance of the lower body, as well as an increase in Strategies to increase muscles – food, and Strategies to increase muscles – exercise. Those who reported a decrease in Satisfaction with the middle body reported a decrease in Satisfaction with the upper body and in Strategies to increase muscles – exercise.

Participants who reported a decrease in Importance of weight also reported a decrease in Importance of shape, Importance of lower body, and Strategies to increase muscle – food. Those who reported a decrease in Importance of shape reported a decrease in Importance of muscles, Importance of lower body and Strategies to increase muscle – food. As Importance of muscles decreased, Importance of lower body also decreased. As Importance of lower body decreased Importance of upper body, Strategies to increase muscle – food, Food supplements – increase muscles, Food supplements – steroids, Drive for thinness, and Negative affect also decreased. As the Importance of middle body decreased, Importance of upper body also decreased, and as Importance of upper body decreased, Bulimic attitudes and behaviour decreased.
Table 5.8  Correlations of body image change scores from time 1 to time 2 (program group).

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** p < .01  *** p < .001
Table 5.8 (continued) Correlations of body change strategy and attitude change scores from time 1 to time 2 (program group).

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** p < .01  *** p < .001
Respondents who reported a decreased likelihood of engaging in Strategies to decrease weight – food also indicated a decreased likelihood of engaging in Strategies to decrease weight – exercise, Strategies to increase muscle tone – food, and Food supplements to lose weight. Those who reported a decreased likelihood of engaging in Strategies to increase muscles – food also reported a decreased likelihood of engaging in Strategies to increase muscles – exercise, Food supplements – increase muscles, and Food supplements – steroids, as well as lower levels of Drive for thinness and Negative affect. Those who reported a decreased likelihood of engaging in Strategies to increase muscles – exercise also reported a decreased likelihood of engaging in Food supplements – increase muscles, Food supplements – steroids, as well as lower levels of Bulimic attitudes and behaviours and Negative affect.

Decreases in Excessive exercise were associated with increases in Self-esteem. Decreases in food supplements to lose weight were associated with decreases in Food supplements – steroids. Decreases in Food supplements – increase muscles were associated with decreases in Food supplements – steroids, Drive for thinness and Negative affect. Decreases in Food supplements – steroids were associated with decreases in Drive for thinness, Bulimic attitudes and behaviour, and Negative affect. Decreases in Drive for thinness were associated with decreases in Bulimic attitudes and behaviour and Negative affect. Decreases in Bulimic attitudes and behaviour were associated with decreases in Negative affect.
Summary.

Correlations were evident between Satisfaction with different body parts, as well as with the Importance of different body parts. In addition, increases in Satisfaction were also related to decreases in some body change strategies. Increases in Satisfaction correlated with Strategies to increase muscles, using both food and exercise. Greater Satisfaction was also related to decreases in some attitudinal variables, including Importance of shape and the lower body, as well as Negative affect. Similarly, decreases in the Importance of body parts, including shape and the lower body, were related to decreases in use of body change strategies, such as Strategies to increase muscles and Food supplement variables. Decreases in the Importance of body parts were also related to decreases in Drive for thinness, Bulimia and Negative affect. The finding that attitude changes, such as the importance of body parts, correlated with changes in both attitude and behavioural variables suggests a range of factors can be influenced by changes in attitudes. This shows support for interventions to target attitudes, as changes may then generalise to other attitudes as well as to behaviours.

With the ideal body that males are striving for being both lean and muscular, there was an expected relationship between variables related to weight loss and to increases in muscles. Specifically, Strategies to decrease weight – food was found to be associated with Strategies to decrease weight – exercise, Strategies to increase muscle tone – food, and with Food supplements to lose weight. Also, Strategies to increase muscle tone were found to be associated with other Strategies to increase muscles, Food supplement variables to increase muscles and steroids, as well as Drive for thinness and Bulimia. In addition to providing support for the close
relationship between Strategies to decrease weight and Strategies to increase muscle tone, these correlations indicate that those boys who engaged in general strategies to lose weight were also more likely to use or consider using more extreme body change strategies, such as the use of food supplements to increase muscles. As such, interventions targeting both general and extreme body change strategies may result in a decrease in extreme body change strategies.

The use and consideration of one extreme body change strategy was found to increase the likelihood of using or considering using other extreme body change strategies. Males who increased their use or were more likely to consider using Food Supplements for one goal, such as to increase muscles, were also more likely to consider other types of Food Supplements, such as steroids. This relationship may be due to changes in attitude and behaviour to accept one extreme body change strategy generalising to other extreme body change strategies.

In addition to the potential health risks associated with the use of extreme body change strategies and the relationship between extreme body changes strategies, both general body change strategies (Strategies to decrease weight and increase muscles) and extreme body change strategies (Drive for thinness, Bulimia, Excessive exercise, Food supplements) were correlated with Negative affect, adding to the potential negative impact of the use of body change strategies. Self-esteem was also related to use and consideration of use of extreme body change strategies, such as Excessive exercise, with those who indicated an increase in Excessive exercise also indicating a decrease in Self-esteem. These findings indicate the broader impact of the use of extreme body change strategies on the psychological adjustment of adolescent boys,
such as Negative affect and Self-esteem. These relationships require further
investigation in order to understand more specifically how these factors relate to each
other.

Correlations between pre-test and three-month follow up (time 1 – time 4).

There were a number of changes in scores from time 1 to time 4 that correlated with
other change scores (see Table 5.9). Those boys who reported a decrease in
Satisfaction with weight reported a decrease in Satisfaction with shape, Satisfaction
with lower body, Satisfaction with middle body and Satisfaction with upper body.
Respondents who reported a decrease in Satisfaction with shape reported a decrease
in Satisfaction with lower body, Satisfaction with middle body, and Satisfaction with
upper body. Those that reported a decrease in Satisfaction with lower body reported
a decrease in Satisfaction with middle body and Satisfaction with upper body.
Decreases in Satisfaction with middle body were associated with decreases in
Satisfaction with upper body.

Decreases in Importance of weight were associated with decreases in
Importance of shape, Importance of muscles, Importance of lower body, Importance
of middle body and Importance of upper body. Decreases in Importance of shape
were associated with decreases in Importance of muscles, Importance of lower body,
Importance of middle body and Importance of upper body. Decreases in Importance
of lower body were associated with decreases in Importance of middle body, and
Importance of upper body. Decreases in Importance of middle body were associated
with decreases in Importance of upper body.
Table 5.9  Correlations of body image change scores from time 1 to time 4 (program group).

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Table 5.9 (continued) Correlations of body change strategy and attitude change scores from time 1 to time 4 (program group)

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Respondents who reported a decrease in Strategies to decrease weight – food also reported a decrease in Strategies to decrease weight – exercise, Strategies to increase muscles – food, Food supplements – lose weight and Food supplements – increase muscles. Those who reported a decrease in Strategies to decrease weight – exercise also reported a decrease in Strategies to increase muscles – food, Strategies to increase muscles – exercise, Food supplements – lose weight and Food supplements – increase muscles. Those who reported a decrease in Strategies to increase muscles – food reported a decrease in Strategies to increase muscles – exercise, Excessive exercise, Food supplements – lose weight, and Food supplements – increase muscles. Those that reported a decrease in Food supplements – lose weight reported a decrease in Food supplements – increase muscles.

Summary.
The correlations between change scores from time 1 to time 4 indicated three main trends. Firstly, correlations were evident between attitudes toward different body parts, including satisfaction and importance. Increases in Satisfaction with body parts were correlated with increases in Satisfaction with other body parts. In a similar way, decreases in the Importance of body parts were related to decreases in the Importance of other body parts.

Secondly, the close relationship between losing weight and increasing muscles was evident, with changes in Strategies to increase muscle tone being associated with Strategies to decrease weight, Food supplements to lose weight, Food supplements to increase muscles, and Excessive exercise. In order for males to achieve their ideal
body they need to decrease fat and increase muscles, leading to multiple strategies being used to achieve their ideal body.

The other trend relates to extreme body change strategies, such as Food supplements. The use of one extreme body change strategy was associated with the use of others. If an adolescent boy increases or considers increasing one extreme body change strategy, such as the use of Food supplements, they are more likely to use or consider another extreme body change strategy, such as Bulimic behaviour. Therefore, the use of an extreme body change strategy needs to be considered in the light of the other extreme body change strategies that adolescent boys are at risk for, and interventions need to consider each of these strategies and how they may interact.

Program group summary.

Changes in Satisfaction and Importance correlated with each other across time 1 to time 2 and time 1 to time 4, and while changes in Satisfaction and Importance correlated with changes in body change strategies from time 1 to time 2, these same correlations were not evident from time 1 to time 4. This may be because the intervention led to changes which became apparent in the short term, but that over the longer term changes were not occurring in the same way. This, in turn, may be due to attitudinal variables changing mostly in the short term and behavioural variables changing across a longer period of time, resulting in little change to attitudes from time 1 to time 4 relative to behaviour.
For the adolescent boys in the experimental condition, clear relationships were evident in Strategies to decrease weight and increase muscles. These correlations would suggest that males may both want to lose fat and increase muscle. As one variable changed the others also changed to achieve this goal. In adolescent boys, the various body change strategies do not contradict each other, multiple strategies may be used to achieve the ideal body. The results also support the generalisation of change, in that changes in one body change strategy were often associated with changes in other body change strategies.

In terms of eating attitudes and behaviour, changes in Drive for thinness and Bulimia were not correlated with changes in many other variables from time 1 to time 2, but were correlated from time 1 to time 4. These more extreme attitudes and behaviour may take longer to change, and therefore it is only by time 4 that patterns have established themselves.

Changes in Negative affect were correlated with numerous extreme body change strategies, such as the different Food supplement variables, Drive for thinness, and Bulimic attitudes and behaviour. While Negative affect was associated with extreme body change strategies in adolescent males, it was not found to be correlated with the more general body change strategies such as Strategies to decrease weight, and increase muscle tone. Changes in Negative affect also did not correlate with body image Satisfaction and Importance. These findings suggest that it may be the more extreme body change strategies that are associated with psychological adjustment, such as negative affect. At the same time it is important that the more general body change strategies are still recognised as important, as they
have been found to be associated with both general body change strategies and more extreme body change strategies.

In contrast, changes in Self-esteem were not found to correlate with many changes in other variables, indicating that in adolescent males, Self-esteem may not be very closely linked to body image related variables. Self-esteem may be a more stable trait than affect, and therefore changes in self-esteem are not strongly associated with factors more easily changed, such as body change strategies. Overall, there were more changes in attitudes and behaviours across the four time points for the program group than for the control group.

Comparison of Control Group and Program Group
Numerous similarities were evident in the correlations for the control group and program group, such as correlations between satisfaction of different body parts. To varying extents, correlations were evident between weight loss variables and muscle increase variables, although more significant correlations were evident for the program group than for the control group.

Furthermore, control group correlations were generally between variables with similar goals or attitudes, such as satisfaction ratings of different body parts. This suggests that changes are not based on a factor that generalises to other factors, such as body change strategies. In contrast, participants in the program group indicated correlations between change scores of different attitudes and behaviours, such as between satisfaction with a body part and body change strategies. These correlations suggest that changes in variables may be related to the prevention program acting as
an overarching factor that influences both body image and body change strategies. Interventions targeting one variable, such as attitudes, may therefore generalise to influence other factors, such as body change strategies. These findings support the hypothesis that the intervention would lead to changes that generalise to other attitudes and behaviours.

**Summary of Results**

The body image attitudes and body change strategy scores were within healthy ranges, indicating a need for prevention of unhealthy attitudes and behaviour, rather than interventions to change existing unhealthy attitudes and behaviour. The two groups were generally similar to each other on attitude and behaviour scores, although some variations were evident at time 1, such as with the importance of different body parts.

In terms of differences between the groups across the four time points, there were no significant differences in body image satisfaction. When muscles were considered separately, boys in the program group indicated greater levels of satisfaction across time, whereas the control group maintained their level of satisfaction. The program may have influenced satisfaction with muscles and this change appeared to be maintained. No differences were evident between groups across time for body image importance. With general body change strategies, differences were not evident across the four time periods, but were present from time 1 to time 2, indicating short-term effects of the program. Participants in the program group maintained their very low levels of general body change strategies (Strategies to decrease weight and increase muscles), whereas those in the control group
indicated a decrease in use of general body change strategies, but still did not report levels as low as the program group. In terms of extreme body change strategies no differences were evident between the groups across the four time points, indicating the program did not result in statistically significant changes to the adolescent boys' attitudes or behaviour to extreme body change strategies. The program also appeared to impact on self-esteem and negative affect, with the program group having a greater improvement in self-esteem over the four time points, as well as more stable and lower levels of negative affect.

Close relationships were evident between decreasing weight and increasing muscles, particularly for the program group, with changes in one body change strategy relating to changes in other body change strategies. This supports the desire for adolescent boys to decrease fat and increase muscle in order to achieve their ideal body.

A greater number of significant change correlations were evident for the program group than for the control group. For the program group, correlations were evident between attitudes and behaviours, whereas correlations for the control group were generally between similar attitudes. These correlations suggest the program may have impacted on the participants in numerous areas, and then these changes were further associated with other attitudes or behaviours.

While some changes were evident between the groups, these may have been limited due to the low levels of dissatisfaction and body change strategies at the commencement of the program. Therefore, the program may have been successful in
achieving its goal of preventing the onset of unhealthy attitudes and behaviour, although longer follow up would be needed to determine whether this is the case. It is difficult to have an impact when body image satisfaction is high and use of body change strategies is low. The goal of prevention may have been achieved in the longer term by increasing self-esteem and maintaining low negative affect.
CHAPTER SIX

Discussion

The aim of this thesis was to obtain a better understanding of adolescent boys' body image, including their ratings of satisfaction and importance of body parts, the messages they receive about their body and the body change strategies they utilise. The thesis also evaluated the effectiveness of a program designed to prevent the onset of unhealthy body image attitudes and behaviours in adolescent boys. This involved the development, implementation and evaluation of a new prevention program designed specifically for adolescent boys.

Study 1 investigated body image satisfaction of different body parts, including upper, middle and lower body, as well as weight, shape and muscles. Body change strategies were also evaluated, including general strategies, such as strategies to decrease weight and increase muscles, as well as more extreme body change strategies, such as the use of food supplements. Messages from parents, peers and the media about body goals and behaviours were evaluated, and the influence of these messages on body satisfaction and body change strategies was explored. The relationship between Body Mass Index (BMI) and body satisfaction, body change strategies and sociocultural messages was also evaluated.

Study 2 involved the development, implementation and evaluation of a prevention program aimed at preventing the onset of unhealthy body image attitudes and behaviours in adolescent boys. The program was based on the findings of study 1, which indicated the factors and concerns that were most important to adolescent boys, as well as the past empirical and theoretical literature. A social cognitive
framework was used, and the program targeted attitudes such as body satisfaction and self-esteem, and behaviours, including strategies to increase muscles. The prevention program was evaluated to determine its effectiveness in preventing the onset of unhealthy attitudes and behaviours and changing existing attitudes and behaviours.

Discussion of the findings related to body image satisfaction and importance are presented below. This is followed by findings about the body change strategies utilised by adolescent boys, and what factors predicted these behaviours. The effectiveness of the program in preventing the onset of unhealthy attitudes and behaviours are then discussed. Following this, the implications of the findings are presented. Finally, the limitations of the research are identified, along with recommendations about future research.

*Body Image*

The results of study 1 demonstrated that the ideal body that adolescent boys are striving toward is lean and muscular. This finding is consistent with the literature that indicates adolescent boys desire a mesomorphic body shape that includes broad, muscular shoulders, and lean, narrow hips (Furnham & Calnan, 1998; McCrery & Sasse, 2000; Raudenbush & Zellner, 1997). With adolescent boys having a lean and muscular body as their ideal body (McCreary & Sasse, 2000), it is important to evaluate satisfaction and importance associated with different body parts and body attributes. Body image in terms of satisfaction and importance of the body is discussed first, with an exploration of the role of BMI. Following this, factors found
to predict body image are explored, including messages from parents, peers and the media, as well as individual attitudes, such as negative affect and self-esteem.

From the descriptive statistics, it is apparent that adolescent boys rate their body satisfaction as slightly more satisfied than dissatisfied. Early adolescence is a period of transition between childhood and adolescence, and, as the literature indicates, body image concerns increase with age (Davies & Furnham, 1986; Thelen et al., 1992). The adolescent boys in the current study are experiencing a transition from childhood to adulthood, and so they may be moving from satisfaction to dissatisfaction with their appearance. Respondents reported being most satisfied with their upper body and least satisfied with their muscles, suggesting a distinction between these two body attributes which are often found to be related (Moore, 1990). In terms of body parts, they indicated lower satisfaction with the middle body than the upper or lower body. This finding is in contrast to previous research that has found males to be most dissatisfied with the upper body (Moore, 1993). Males generally strive for a larger chest and arms (Moore, 1990) and desire an increase in muscles (Cohane & Pope, 2001; Raudenbush & Zellner, 1997). These conflicting findings may be related to the boys in this study being early adolescent boys, as opposed to the boys being in later adolescence in previous studies. Boys at later adolescence may be more focused on a larger upper body, as more of their peers may have achieved this body shape. While puberty moves males closer to their ideal of a muscular body (Frisch, 1983; McCabe et al., 2002), these boys are only in the early stages of pubertal development, and changes to muscles may not have yet occurred, and they may not be as focused on the goal of large muscles as boys in late adolescence.
In terms of the importance of their body, adolescent boys rated the different body parts to be moderately important compared to other things in life. Muscles were rated as the most important aspect of the body, and weight the least important aspect. Research supports the importance of muscles, as increased muscle size is something most males desire, regardless of whether they also desire a larger or smaller body (Cohane & Pope, 2001; Raudenbush & Zellner, 1997). Concern arises with muscles being rated as the most important body attribute, but also the body attribute with the lowest satisfaction. This dissatisfaction increases the likelihood of body change strategies being utilised, including behaviours that may put adolescents at health risk, as well as increasing the possible negative impact on affect and self-esteem.

Correlations were evident between ratings of satisfaction and ratings of importance with most body attributes. Greater importance of a body part was associated with lower satisfaction. Increased dissatisfaction may influence the salience of the body attribute, which may, in turn, lead to increased importance. Ratings of importance of muscles and the upper body did not correlate with ratings of satisfaction. The lack of correlation between importance and satisfaction for muscles and upper body may be due to the fact that muscles and the upper body are important to all adolescent boys, regardless of levels of satisfaction (Cohane & Pope, 2001).

When importance ratings were combined with other variables, such as sociocultural influences in regression equations, importance was only found to predict satisfaction with shape and the middle body. Higher ratings of importance were associated with lower levels of satisfaction. This finding may be due to
adolescent boys placing importance on these body attributes, but perceiving that they
do not live up to the ideal. This discrepancy between importance and satisfaction
may then reinforce the importance of these attributes. On the other hand, those boys
who are satisfied with the body parts may not focus on them and therefore not rate
them as important.

BMI was evaluated in order to compare an objective measure of the individual’s
body with his subjective rating of body satisfaction. Boys with high BMI indicated
lower satisfaction with all body parts and attributes, apart from muscles and the
upper body. Similarly, BMI predicted satisfaction with all body attributes apart from
muscles and the upper body. Higher BMI may be due to either higher levels of fat or
muscles. The lower ratings of satisfaction with weight, shape, lower and middle body
may indicate concerns with the amount of fat. On the other hand, boys did not differ
in their satisfaction with muscles according to BMI, supporting the proposal that all
boys desire muscles regardless of size (Cohane & Pope, 2001; Raudenbush &
Zellner, 1997). Dissatisfaction with muscles may occur in boys of any size, and not
only in overweight or underweight males. This supports the findings of Raudenbush
and Zellner (1997), who found that many males in the healthy range reported that
they saw themselves as underweight and wanted to be heavier.

In terms of body image, the greatest concern among adolescent males appears to
be the discrepancy between high importance of muscles and relatively low
satisfaction with muscles. Due to the potentially negative impact of this discrepancy,
进一步理解肌肉欲望的重要性，包括探索什么因素影响对肌肉的欲望。在获得一个更
understanding of the factors that influence the desire for muscles, a greater understanding is also needed about the impact this desire may have on body change strategies. From this understanding, strategies may be implemented to reduce the discrepancy between satisfaction and importance, and to decrease the impact of this discrepancy on other aspects of life, such as body change strategies, negative affect and self-esteem.

*Sociocultural Influences on Body Image*

*Parents.*

Past research has indicated that parents influence their children’s body image through both the direct and indirect messages they provide (Vincent & McCabe, 2000). The results of this study partially supported this finding, with parental messages being found to predict satisfaction with some body attributes, but not all.

Perceived messages from fathers about body shape and increasing muscles predicted satisfaction with different body parts. Specifically, messages from fathers were predictive of satisfaction with weight, and satisfaction with the upper and middle body. These findings support previous research (e.g., McCabe & Ricciardelli, 2003). Messages from parents encouraging change were associated with lower body satisfaction, while positive messages about a body attribute or behaviour were associated with higher body satisfaction. In terms of the messages about muscles, fathers may be acting as role models, as muscles are important for men of all ages (Cohane & Popc, 2001), and therefore the development of muscles is also a goal for fathers.
In terms of the role of positive and negative messages from fathers, previous research has found that criticism from parents increases with the age of the child (Striegel-Moore & Kearney-Cooke, 1994). It would therefore be expected that in early adolescence there may be a moderate amount of both praise and criticism provided by parents. The correlation between positive messages and body satisfaction in this study is important to consider, with positive messages decreasing through adolescence. In order to improve body satisfaction, strategies are needed to increase the perception of positive messages or decrease the perception of negative messages.

While fathers were found to influence satisfaction with numerous body attributes in this study, mothers were found to play a lesser role. Messages provided by mothers about losing weight were predictive of satisfaction with weight. As with messages from fathers, the greater the number of messages received from mothers, the lower the satisfaction with weight. Interestingly, influential parental messages appeared to be related to the parent's own ideal body, with messages from fathers about muscles predicting satisfaction with weight, and messages from mothers about losing weight predicting satisfaction with weight. It therefore appears mothers may hold a slim ideal for both themselves (Raudenbush & Zellner, 1997) and for their sons. This finding is consistent with the findings of Thelen and Cormier (1995), who found more encouragement to decrease weight is perceived to come from the mother than the father.

Interestingly, messages from both fathers and mothers were predictive of satisfaction with weight but not satisfaction with shape. Parents may be more
concerned with the health and functioning of their child's body, which is associated with weight, rather than appearance, which is associated with shape. As such, parents may provide more effective messages about weight than shape.

Parental messages were not found to be predictive of satisfaction with shape, muscles or the lower body. This may be due either to parents not providing messages related to these body attributes, or it may be that adolescent boys' satisfaction with these attributes is influenced by factors other than parental messages. Interestingly, messages from fathers about muscles were predictive of satisfaction with weight, but not satisfaction with muscles. This finding supports the hypothesis that other factors influence satisfaction with muscles in adolescent boys.

The overall greater influence of fathers than mothers in predicting body satisfaction adds support to the hypothesis of fathers operating as a same-sex role model (McCabe & Ricciardelli, 2003). Fathers desire the same muscular ideal as adolescent boys. They have similar desires in terms of body shape, size and composition. With fathers playing such an important and significant role in shaping adolescent boys' body image, strategies need to be implemented to encourage fathers to act as positive role models, leading to greater satisfaction, rather than contributing to lower satisfaction.

Peers.

Peers were found to play a lesser role in predicting body satisfaction than parents. As the respondents in this study were early adolescent boys, the greater role of parents compared to peers supports previous research that has found that parents decrease in
importance throughout adolescence, while peers increase in importance (McCabe & Ricciardelli, 2001a). In early adolescence, parents have a greater influence than peers on body satisfaction and then throughout adolescence the influence of peers increases in importance.

Perceived messages from male peers about shape predicted satisfaction with shape and the middle body. As with parental messages, the greater the encouragement to change weight and shape, the lower the ratings of body satisfaction, and the more positive the messages about bodily appearance and behaviour, the greater the body satisfaction. While peer messages were not influential in predicting satisfaction with weight in the same way as parental messages, peer messages were predictive of satisfaction with shape. This supports the hypothesis that peers may focus on appearance and provide more influential messages about shape, whereas parents focus more on health, providing messages about weight, which is associated with health.

Same-sex role modelling appears to also be a factor with peers, as male peers were reported to provide influential messages, whereas female peers were not reported to provide any significant messages that predicted body image satisfaction. Messages from male friends may be predictive of body satisfaction because they have the same ideal muscular shape. Female friends may not be providing messages about shape to boys at this age, or the messages may be considered unimportant. The findings of this study are consistent with research that has indicated messages from male peers predicts body satisfaction to a greater extent than female peers (Ricciardelli & McCabe, 2001a), but are inconsistent with previous research that has
found positive messages from female peers are associated with positive feelings about their body (Ricciardelli et al., 2000). The impact of messages from female peers increases in importance during adolescence (McCabe & Ricciardelli, 2001a). As these boys are early adolescents, female peer messages may not yet be important, or the boys may not be aware of the messages that are being provided.

As with parents, peer messages were not predictive of satisfaction with lower body or muscles, nor did they predict satisfaction with weight or the upper body. Again, it may be that peers are not providing messages to influence these body attributes or there may be other factors that are shaping satisfaction with these areas and so peer messages are relatively unimportant.

In summary, peer messages were found to be less predictive of satisfaction than parental messages, particularly messages from father. The greater role of parents may be related to the age of participants. Also, both fathers and male peers appeared to be acting as same-sex role models, and having a greater influence on satisfaction than mothers or female peers. With peer messages increasing in importance during adolescence, it is important that the role of male peers is considered in a similar way to that of fathers. Strategies are needed to encourage male peers to have a positive, rather than negative, influence on adolescent boys’ body image.

Media.

The results of this study indicated that media messages about losing weight, increasing weight or increasing muscles were not predictive of satisfaction with any of the body parts or attributes. Previous literature has found conflicting findings. In
support of the findings of this study, McCabe and Ricciardelli (2003) and McCabe et al. (2002) found that the media had little impact on boys’ body image, and suggested they may not be detecting the messages or may not be aware of the influence of these messages. The media has been shown to provide less clearly defined ideals for males than for females (McCabe & Ricciardelli, 2001a), and provides a wider range of acceptable bodies for males (Anderson & DiDomenico, 1992). With the messages being less clearly defined, they may not have such a great impact on adolescent boys’ body satisfaction. In a study that asked adults to reflect on the role of the media in shaping body image when young, 23% of adult females reported media influencing body image when young, whereas only 13% of men reported being influenced (Garner, 1997). Again, this difference may be due to a smaller influence of the media on body image, or it may be due to males not being aware of the messages or the influence the messages have on their body image. All of the above findings are based on self-report data and are therefore strongly influenced by the awareness of messages. An experimental study that involved exposure to media ads found both men and women were influenced by exposure (Lavine et al., 1999). This finding supports the proposal that the lack of media influence may be related to males not being aware of the messages they are receiving and not being aware of the influence these messages have on their body image.

Further research is required to determine if adolescent boys are unaware of the messages and the influence the media has on their body image. In addition, it is important that skills are developed and awareness increased of the possible messages so adolescent boys may learn to refute and challenge the messages, and therefore the media’s influence on body satisfaction is decreased.
Self-esteem and Negative Affect

The relationship between body satisfaction and both self-esteem and negative affect allows an understanding of the relationship between body satisfaction and psychological adjustment, with self-esteem and negative affect representing psychological adjustment.

Self-esteem was predictive of satisfaction with all body attributes except weight. Higher levels of self-esteem were predictive of higher levels of body satisfaction. This finding is partially supported by previous research, with some research indicating a close relationship between self-esteem and body satisfaction (Siegel et al., 1999; Stowers & Durm, 1996) and others indicating no relationship (Furnham & Calnan, 1998). The lack of relationship between self-esteem and satisfaction with weight may be explained by the low importance adolescent boys place on weight. Mendelson et al. (2000) found importance rating mediated the relationship between self-esteem and body satisfaction, and as such the low importance of weight to adolescent boys may be mediating the relationship between satisfaction and self-esteem.

While self-esteem predicted body satisfaction, negative affect was not found to be a strong predictor of body satisfaction. Negative affect was only predictive of satisfaction with lower body, with lower levels of negative affect predicting higher levels of satisfaction. This is in contrast to past research, that has found negative affect to be related to body dissatisfaction (Koenig & Wasserman, 1995; Kostanski & Gullone, 1998; Tomori & Rus-Makovec, 2000).
The greater role of self-esteem than negative affect in predicting body satisfaction, supports the close relationship between people’s view of themselves in general and their view of their body. This close relationship may be reciprocal, and therefore strategies may be implemented that lead to reciprocal positive effects.

Summary of Influences on Body Image
In terms of the factors that shape body satisfaction, it appears that fathers and male peers operate as same-sex role models and strategies are needed to increase the positive influence of fathers and male peers. In addition, self-esteem predicts body satisfaction and therefore the close relationship between people’s general view of themselves and their view of their body may be used to promote greater self-esteem and body satisfaction.

Body Change Strategies

Body Mass Index (BMI)
Boys with higher BMI received more messages from parents and peers to lose weight than boys with lower BMI. Fathers, in particular, were perceived to provide more negative messages and more messages to change their body to boys with higher BMI. Interestingly, there was no difference between BMI groups in messages to increase muscles, indicating that parents and peers provide similar messages about muscles to boys regardless of their BMI, and as such, provide the message that muscles are important for all males.

Boys also differed in some of the body change strategies they adopted according to BMI. Boys with higher BMI were more likely to utilise strategies to dcccasc
weight than boys with lower BMI. Adolescent boys did not differ on body change strategies related to muscles according to BMI. These findings again support the value of muscles to all boys regardless of size, and the importance of losing weight to those boys with higher BMI (Cohane & Pope, 2001).

*General Body Change Strategies*

In general, the adolescent boys in the current study reported engaging in few body change strategies, suggesting low levels of risk behaviours. In terms of general body change strategies, such as using food or exercise to decrease weight or increase muscles, the boys reported sometimes utilising these strategies. Exercise was reported more frequently than eating to both decrease weight and increase muscles. These findings indicate that existing body change strategies are not generally at concerning levels in early adolescent boys, but that there is some use or consideration of these strategies is of concern.

Body satisfaction and importance were not found to be consistent predictors of general body change strategies, with only satisfaction and importance of weight and importance of muscles predicting general body change strategies. While weight has been indicated to be of low importance to adolescent boys in this study, both satisfaction and the importance of weight have been found to be predictors of body change strategies. This finding suggests weight may be an important factor even though the boys do not consider it to be important. Additionally, the importance but not satisfaction with muscles was predictive of general body change strategies, adding support to the importance of muscles to adolescent boys, regardless of body satisfaction (Cohane & Pope, 2001).
Sociocultural messages were found to have limited influence on general body change strategies. The only parental messages that were significant predictors of body change strategies were messages from fathers about increasing muscles. Previous research supports the role of fathers in shaping body change strategies, with fathers found to influence eating and exercise behaviours (Ricciardelli et al., 2000). Messages about losing weight did not predict the use of general body change strategies in this study. Other research has found messages are provided to lose weight, and that the messages from mothers and fathers influence general body change strategies, such as weight loss (Ricciardelli et al., 2000; Vincent & McCabe, 2000), countering the findings of this study. Interestingly, the findings of Thelen and Cormier (1995) support the influence of parental messages on some behaviours, but not all. Thelen and Cormier explored the influence of parental messages on weight loss behaviours and found that boys’ behaviours did not always relate to the messages they received from their parents. These conflicting findings may be related to the other influences that are evaluated. Parents may provide messages about body image and body change strategies, but the influence of the messages may relate to the boys’ awareness of the messages.

In terms of peer messages, perceived messages from male and female peers did not predict any general body change strategies. This finding is in contrast to past research that has found encouragement from both male and female friends to change body shape predicts body change strategies, such as weight loss behaviours (Ricciardelli et al., 2000; Vincent & McCabe, 2000). Previous research has also found adolescent boys perceive peers to provide a positive influence, and yet peers influence body change strategies (Ricciardelli et al., 2000), which may be considered
a negative influence. The lack of influence of peers in the current study may be due
to male and female peers providing inconsistent messages about general body change
strategies or not providing messages at all, the boys not being aware of the messages,
or not considering the messages important. Due to the boys being in early
adolescence, it may be most likely that they are not detecting the messages.

Drive for thinness, an extreme body change strategy attitude, was a significant
predictor of strategies to decrease weight. The influence of drive for thinness may
have overshadowed the influence of parents and peers on strategies to decrease
weight. In terms of the influence of sociocultural factors on general body change
strategies, fathers were the only significant influence on general body change
strategies with their messages about increasing weight.

While self-esteem was an important predictor of body satisfaction, it was not
found to be a significant unique predictor of any general body change strategies,
countering past research which has found self-esteem to be a predictor of strategies
to decrease weight (Ricciardelli & McCabe, 2001a). This discrepancy in findings
may be due to the high levels of self-esteem reported by the adolescent boys in this
study. On the other hand, negative affect was a significant predictor of strategies to
increase muscles, which supports previous research (McCabe & Ricciardelli, 2003;
Ricciardelli & McCabe, 2001a). Negative affect may predict strategies to increase
muscles because of the importance of muscles for adolescent boys. These findings
suggest that negative affect may predict highly important body attributes.
In summary, ratings of satisfaction and ratings of importance of the various body parts predicted the use of few general body change strategies. This suggests other factors may shape the use of general body change strategies. The only ratings of satisfaction and importance that were significant were ratings of satisfaction and importance of weight and importance of muscles. Parents and peers also had little predictive influence on general body change strategies, relative to negative affect and other body related attitudes, such as drive for thinness. Interestingly, the one significant message with general body change strategies was from fathers about muscles, supporting the role of fathers in shaping boys' body image and behaviour related to muscles. Parents and peers may provide messages related to general body change strategies, but adolescent boys may not allow the messages to influence their behaviour, parents and peers may provide few messages, or adolescent boys may be unaware of the messages provided. As the boys are early adolescents, they may not be detecting the messages. The lack of influence of parental and peer messages on body change strategies may be related to the low levels of body change strategies reported by the adolescent boys. Regardless of the reason for limited parent and peer influence, strategies are needed to prevent the potential impact negative affect may have on body change strategies.

*Extreme Body Change Strategies*

The adolescent boys in this study reported low to very low use of extreme body change strategies, such as food supplements, and extreme exercise and eating behaviours. The use of any extreme body change strategy may be considered to be risk behaviour, due to the potential health implications. In terms of food supplements, the boys reported very low use of food supplements to increase muscles
or decrease weight, as well as very low use of steroids. The most positive attitudes or highest use was to increase muscles, which is in line with their strong desire for muscles (Cohan & Pope, 2001). Excessive exercise, bulimic attitudes and behaviours, and drive for thinness were all reported at low levels. As with general body change strategies, these findings indicate that existing body change strategies are not generally at concerning levels in early adolescent boys, but that there is some use or consideration of use is of concern.

The predictors of extreme body change strategies were similar to the predictors of general body change strategies. As with general body change strategies, body satisfaction and importance were not found to be consistent predictors of extreme body change strategies. The only significant ratings of body satisfaction and importance were with satisfaction and importance of weight predicting extreme body change strategies. The influence of weight appears to be occurring even with adolescent boys reporting weight to be unimportant. As with general body change strategies, weight may be an important predictor of extreme body change strategies even though the boys do not consider it to be important body attribute. Also, the importance of muscles, rather than satisfaction with muscles, emerged as a predictor of extreme body change strategies, again supporting the importance of muscles as opposed to satisfaction with muscles in determining body change strategies.

As with general body change strategies, messages from fathers, particularly about muscles, were predictive of extreme body change strategies. Messages from male peers about increasing muscles were also predictive of utilising extreme body change strategies. These findings together support the role of males as same sex role
models, and support previous research supporting the role of father and male peers in determining body change strategies (Ricciardelli et al., 2000; Vincent & McCabe, 2000).

While messages about losing weight were not predictive of any general body change strategies, they were influential in predicting extreme body change strategies. Messages from fathers, mothers, and male friends about losing weight were predictive of extreme body change strategies related to weight loss, supporting the findings of past research (Ricciardelli et al., 2000; Striegel-Moore & Kearney-Cooke, 1994; Vincent & McCabe, 2000). The different findings between general and extreme body change strategies supports the findings of Thelen and Cormier (1995), who found parents influenced some behaviours, but not all. It may be that other factors are influential with general body change strategies, but that parent and peers are important predictors of extreme body change strategies. Adolescent boys may look to people who are close to them for guidance with the use of extreme body change strategies.

As with general body change strategies, messages from female friends were not predictive of any extreme body change strategy, countering past research which found messages from female peers were predictive of extreme body change strategies, such as binge eating (Vincent & McCabe, 2000). Similar to general body change strategies, this may be due to them not providing messages, the boys not being aware of their messages, or not considering their messages important. It may also be because these boys are early adolescent boys, and so girls are not yet playing
a significant part in their lives and therefore are not shaping their body change strategies.

As with general body change strategies, self-esteem was not found to be a predictor of extreme body change strategies. Negative affect, on the other hand, was found to be a predictor of most extreme body change strategies, supporting some previous research which found emotional distress predicts extreme body change strategies, such as disordered eating (Grubb et al., 1993; Hetherington & Baumeister, 1991; Leon et al., 1999; Wichstrom, 2000). Other research has found that negative affect may not be a predictor of extreme body change strategies, including binge eating and other bulimic behaviours, among adolescent boys (Keel et al., 1997; Wertheim et al., 1992). These different findings may be due to the age of participants, with different relationships possibly evident at different ages. They may also be related to the other variables included, with some variables possibly overriding the role of other variables. Thirdly, the different findings may be related to the very low levels of extreme body change strategies not allowing clear patterns to emerge.

In summary, the factors that predict extreme body change strategies are similar to those that predict general body change strategies. The main difference is the role of parents and peers in shaping extreme body change strategies, suggesting an important area for intervention. Strategies may be implemented to increase the positive role of parents and peers in shaping body change strategies, particularly extreme methods.
Body Change Strategy Summary

Satisfaction and importance of different body parts predicted few body change strategies. The role of importance of muscles as opposed to satisfaction and the role of attitudes to weight were significant predictors of body change strategies. In terms of sociocultural influences, fathers were clearly the most important influence in predicting body change strategies. In terms of messages about losing weight, messages from parents or peers did not predict general body change strategies, but did predict extreme body change strategies. Finally, while self-esteem was not predictive of body change strategies, negative affect played a significant role, indicating how psychological adjustment influences body change strategies.

Satisfaction, importance, parents and peers had limited predictive value with body change strategies, suggesting the importance of other factors. Negative affect was a significant predictor of most body change strategies, suggesting the importance and close relationship between negative affect and body change strategies.

Intervention strategies are needed that target the factors that predict both general and extreme body change strategies, such as negative affect, so that adolescent boys' levels of negative affect or body change strategies do not increase. Strategies may aim to increase adolescent boys' resilience to the potential negative effects of messages, such as helping them critically evaluate messages. Strategies may also encourage a focus on the importance of health, as opposed to appearance. This may encourage adolescent boys to engage in healthy body change strategies as opposed to health risk behaviours.
Effectiveness of Prevention Program

Prevention and intervention programs may be implemented to influence body image knowledge, attitudes and behaviours. Study 2 of this thesis aimed to design an intervention to influence body image in relation to attitudes and behaviours, but did not aim to increase knowledge about the potential negative effects of body image and body change strategies. While previous research has been successful in changing knowledge, changes in knowledge have not been found to strongly impact on attitudes and behaviours (e.g., Levine et al., 1996). Changes in attitudes and behaviours were considered to be more important variables to target due to their relationship with an individual’s psychological adjustment, as measured by negative affect and self-esteem (e.g., Ricciardelli & McCabe, 2001a; Siegel et al., 1999). The findings from the program related to attitudes will be presented first, followed by behaviours, and then an exploration of the relationship between attitudes and behaviours will be presented.

Attitudes

Changes in satisfaction ratings of different body attributes correlated with each other in both the control and program group, as did importance ratings of different body attributes. This finding suggests that changes in body satisfaction and importance with a particular body attribute may generalise to changes in other body attributes. While individual attributes may be important and need to be considered separately, there is an underlying global body image related to evaluations of different parts of the body that leads to a generalisation of change between body parts (Slade, 1994). For example, if satisfaction with weight improves, there is generally a correlated change in satisfaction with other body attributes, such as shape.
As the program in the current thesis was a prevention program, it is not surprising that there were few changes in attitudes between groups over time. The adolescent boys in both the control group and program group reported being generally satisfied with their body. As levels of dissatisfaction were not high, there was less likely to be changes occurring as a result of the program. One reason for few changes is a possible ceiling effect of satisfaction, which was proposed by Moreno and Thelen (1993) to be an explanation for small and non-significant changes. Body image satisfaction and importance for all the body attributes did not improve over time for the program group, relative to the control group.

While overall body image did not change, some change was evident in satisfaction with muscles, the body attribute of most importance to males. Satisfaction improved for the program group, but remained constant in the control group. The program by O'Dea and Abraham (2000) focused on accepting differences and also found improvements in body satisfaction in the program group but not in the control group. This finding is encouraging, particularly in light of the finding in study 1 that satisfaction with muscles was rated as the lowest satisfaction level, and the importance of muscles was rated as being of the highest importance. This discrepancy between ratings of satisfaction and importance of muscles leads to a greater likelihood of body changes strategies being utilised, higher levels of negative affect and lower self-esteem. As such, the improvement in satisfaction with muscles may suggest a decreased risk of the program group engaging in maladaptive body change strategies or experiencing negative effects of affect and self-esteem, relative to the control group.
In terms of changes in negative affect and self-esteem, the program was found to be effective. Self-esteem increased in the program group over time, while it decreased in the control group. This suggests the program was successful in targeting the broader context of the person. Previous research has demonstrated mixed success in influencing self-esteem, with some studies improving self-esteem (e.g., O'Dea & Abraham, 2000), and other studies not finding a change (e.g., Neumark-Sztainer et al., 1995). While self-esteem improved as a result of the program, a prevention effect was evident with negative affect. Negative affect was evident at low levels in both the program and program group, and remained generally constant for the program group followed by a slight decrease, but fluctuated for the control group. Maintenance of low levels of negative affect may be less psychologically damaging than the fluctuation that was apparent in the control group.

Overall, the findings of this study support previous research that suggests attitudes are amenable to change, but that change can be somewhat difficult (e.g., Levine et al., 1996). The improvements in satisfaction with muscles are encouraging, as with further intervention it may be possible to improve satisfaction with other body attributes. Also, the benefits of the program in terms of self-esteem and negative affect are encouraging, both in terms of psychological adjustment, and in terms of the effect self-esteem and negative affect may have on body satisfaction and body change strategies.

**Behaviours**

The program was also designed to target behaviours, both in terms of preventing the onset of unhealthy behaviours and reducing existing levels of unhealthy behaviours.
While this program focused on preventing the onset of unhealthy behaviours, the results indicated a generalisation of changes in the use of body change strategies. Changes in body change strategies used by the program group correlated with changes in other body change strategies. Changes were evident between different general body change strategies, between different extreme body change strategies, and between general and extreme body change strategies. This finding supports the proposal that the program led to changes in attitudes and behaviours that generalised across different body change strategies. Those boys who decreased their use of a particular body change strategy as a result of the program were likely to decrease their use of other body change strategies. This finding is encouraging in terms of future interventions, as programs may either change a higher order factor that then impacts on many body change strategies, or intervene with a particular body change strategy that may generalise to other body change strategies.

The strong relationship between strategies to decrease weight and strategies to increase muscles is of particular interest. While the relationship was evident in both the program and control group, it was stronger for the program group. This finding supports the importance of the lean and muscular ideal (Moore, 1993), in that when boys increase or decrease in their body change strategies they alter both strategies to decrease weight and increase muscles. The difference between the two groups may relate to the generalisation of change that has already been identified in the program group. With decreases in different body change strategies influencing other body change strategies, future interventions may be able to target specific behaviours in order to have an effect on other behaviours, or influence the higher order factor that then relates to other body change strategies.
In terms of the amenability of body change strategies to change, it appears that extreme body change strategies, such as eating attitudes and behaviours take longer to change than general body change strategies, with change correlations only evident in the longer term for the program group. Changes may only be apparent over the longer term, due to the low levels of use of extreme body change strategies that were reported by the adolescent boys. Fewer correlations between change scores may emerge as fewer changes in the behaviours occur. The longer time frame of changes in extreme body change strategies has important implications for future programs, as interventions and evaluations need to occur over a longer period of time in order to see changes in more extreme body change strategies.

Both general and extreme body change strategies were difficult to change, supporting previous research that has found behaviours more difficult to change than both knowledge and attitudes (e.g., Levine et al., 1996). The difficulties in altering body change strategies may be related to low levels in which these behaviours occur in adolescent boys. With prevention programs it is also important to look for maintenance of low levels of behaviours in the program group, relative to the control group. A short term prevention effect was evident in the program group with general body change strategies. There appeared to be a floor effect in the program group, as they maintained their very low use of general body change strategies. This prevention finding supports findings of Neumark-Sztainer et al. (1995), who found a prevention effect with body change strategies in adolescent girls. The program by Neumark-Sztainer et al. was also based within a social cognitive framework, and the similarity in findings suggests this framework may be applicable to both adolescent girls and boys.
Interactions Between Attitudes and Behaviours

While the program appeared to have some success in improving attitudes, and limited success with behaviours, it is important to consider the relationship between both attitudes and behaviours in order to gain a greater understanding of boys’ body concerns and how prevention effects may generalise across attitudes and behaviours.

In terms of the relationship between body image satisfaction and importance and body change strategies, differences were evident between the two groups. Changes in satisfaction and importance correlated with behaviours for the program group, to a much greater degree than for the control group. This suggests that little generalisation of change occurs between attitudes and behaviours without specific intervention, such as between satisfaction and body change strategies. Other programs have also been successful in influencing both attitudes and behaviours (e.g., O'Dea & Abraham, 2000), supporting the benefits of targeting both attitudes and behaviours. Interestingly, the changes for the program group were greater in the short term than the longer term. This may suggest the intervention led to changes, which became apparent in the short term, leading to correlations between change scores. Changes may be maintained rather than continue to change over the longer term. The finding may also be due to attitudinal variables, such as satisfaction, changing mostly in the short term and behavioural variables, such as strategies to decrease weight, changing across a longer period of time. These differences in time frames may result in little change to attitudes relative to behaviours in the longer term, as the changes in attitudes have already occurred and do not continue to change.
In terms of negative affect and self-esteem, changes in negative affect correlated with body change strategies more in the control group. This may be related to the fluctuating nature of negative affect in the control group relative to the program group. Negative affect correlated only with extreme body change strategies in the program group, suggesting the importance of preventing body change strategies, particularly extreme body change strategies. Self-esteem did not appear to be strongly related to body change strategies in either the control or program group. The greater role of negative affect than self-esteem may be due to the stable nature of self-esteem. This may lead to fewer significant change correlations with self-esteem than with negative affect. Self-esteem may not be directly related to body change strategies, and in fact may only influence body change strategies via the influence it has on body satisfaction.

**Components of the Prevention Program**

As the prevention program was somewhat successful in preventing and intervening with unhealthy attitudes and behaviours, it is important to consider the components of the program that may have contributed to the success of the program, in order to further develop prevention programs for adolescent boys. The program was based on social cognitive theory, which was considered to be the most appropriate for implementation with adolescent boys. As such, this program will be compared with other programs based on social cognitive theory that have been implemented with adolescents (Carter et al., 1997; Kator et al., 2000; Levine et al., 1996; Moreno & Thelen, 1993; Neumark-Sztainer et al., 1995; O'Dea & Abraham, 2000).
Many of the programs based within social cognitive theory utilised education, discussion and activities (Carter et al., 1997; Kater et al., 2000; Levine et al., 1996; Ncumark-Sztainer et al., 1995; O’Dea & Abraham, 2000), with the goals of influencing knowledge, attitudes and behaviours. Each of these programs was somewhat successful in influencing knowledge, attitudes and behaviours. The program evaluated in this thesis did not aim to increase knowledge, but the focus of the program was similar to the program by Moreno and Thelen (1993) and centred on discussion and activities. Since the program achieved some success in influencing attitudes and behaviours, it appears discussion and activities are important components of a prevention program. The limited change in body change strategies may be related to a lack of knowledge about the health risks associated with some body change strategies, and therefore education may be a useful supplement to a prevention program for adolescent boys.

While some changes in attitudes and behaviours were apparent, the limited success of the program in influencing body satisfaction and body change strategies may be related to the format of the program. The program by O’Dea and Abraham (2000) consisted of nine sessions and was more successful in both changing existing attitudes and behaviours, as well as preventing the onset of unhealthy behaviours, and therefore a greater number of sessions may enhance the success of the program. Both the implementation in a school setting and the use of a researcher to implement the program appear to be appropriate, as both this program and previous programs have been successful in school settings and with the researcher implementing the program (Moreno & Thelen, 1993).
While none of the previous programs that have been conducted with adolescents have specifically targeted adolescent boys, it appears the strategies utilised within the program may be useful with adolescent boys. A social cognitive framework appears to be a useful approach, as both the program in this thesis and past research have provided support for the effectiveness of this framework with both adolescent girls and boys (Neumark-Sztainer et al., 1995; O’Dea & Abraham, 2000). Furthermore, the format of the program used in this program and in past research appears applicable to both adolescent girls and boys. The area in which a different approach is needed for boys and girls is with regard the specific focus of the program, such as the body change strategies that may be used and the motives for using them. Issues relevant to males, such as the desire for muscles, need to be incorporated and evaluated in a program designed for adolescent boys, rather than the issues relevant to females, such as the desire to lose weight.

Implications

It is important to address the increasing body image concerns that are occurring among adolescent boys. It is important to prevent young adolescent boys developing the same concerns as older adolescent boys and adult men. Additionally, it is important that strategies are implemented to prevent male body image concerns reaching the same level as female body image concerns. In order to prevent the development of boys’ body image concerns, it is important to increase understanding of the key elements of adolescent boys’ body image, and then incorporate this understanding into interventions to prevent the development of concerns and unhealthy behaviours.
While adolescent boys report being generally satisfied with their body, the main concern for all boys is a desire for increased muscles. With the male ideal being both lean and muscular (Moore, 1990), it is not surprising all males desire muscles. However, it is only boys with a high BMI relative to their peers that want to decrease weight. Muscles are of concern to all males; weight loss only to larger boys.

Same-sex role modelling appears to be one of the main methods through which boys adopt attitudes and behaviours. Fathers, in particular, were reported to influence attitudes and behaviours, and as peers increase in importance during adolescence (McCabe & Ricciardelli, 2001a) it is likely that peers will increase in influence through the adolescent period. As such, interventions are needed that counter the negative messages, increase the positive messages, or decrease the impact of the messages on body image and body change strategies.

While body change strategies are utilised at minimal levels in early adolescence, the presence of any body change strategies during development is of concern. Of concern are body change strategies for the purpose of appearance rather than health. While general body change strategies may be utilised for health benefits, the consideration or use of any extreme body change strategy is of particular concern due to the potential negative effects on health. Also, with the desire for muscles being strong, concern arises as about the use of extreme body change strategies to increase muscles.

Adolescent boys' self-esteem and negative affect may both impact on body image and body change strategies, or may be impacted by these variables. Self-
esteem is strongly associated with body satisfaction, and therefore higher levels of satisfaction are important for psychological adjustment (Ricciardelli & McCabe, 2001a). Negative affect, on the other hand, is strongly related to body change strategies (Ricciardelli & McCabe, 2001a). The relationship between negative affect and body change strategies indicates the importance of preventing and intervening with body image and body change strategies, in order to prevent the negative impact of body dissatisfaction on adolescent boys’ mood. Body image is not an isolated issue, with it impacting on many different aspects of the individual. This wider impact increases the importance of obtaining a greater understanding, which may then lead to effective interventions with body image.

The use of discussion and activities appears appropriate for interventions with this age group, with the goal of preventing the onset of unhealthy attitudes and behaviours. With the strongest changes in this program occurring with self-esteem, it appears the program was successful in influencing psychological adjustment. At the same time, the limited influence of the program on other attitudes and behaviours suggests the need for further interventions.

The format of the program should consist of more than two sessions over a longer period of time, in order to assist consolidation of the information. Also, the implementation of booster sessions throughout adolescence, as well as conducting a longer follow up, may be necessary to ensure long term beneficial effects of the program.
Social cognitive theory also still appears to be the most appropriate theoretical underpinning for a prevention program with young adolescent boys. Social cognitive theory does not require participants to have existing unhealthy attitudes and behaviours and it allows intervention to occur at numerous levels.

Finally, in terms of the targeted variables, previous research has indicated knowledge is easily changed, but that knowledge does not necessarily impact on attitudes and behaviours (Smolak et al., 1998). As such, targeting attitudes and behaviours appears to be important, both in terms of specific body image attitudes and behaviours as well as psychological adjustment, such as negative affect and self-esteem.

Limitations/Future Research

Further research should more closely evaluate the desire for muscles among young adolescent boys, including where the desire is coming from, and the impact of the desire on attitudes and behaviours. Additionally, a greater understanding of the lower satisfaction with the middle body, relative to the upper and lower body, is needed, as previous research has found the upper body to be more important, and has considered this to be due to the close relationship between the upper body and muscles.

The role of fathers and male friends throughout adolescence requires further exploration. The influence of males suggests they are acting as same-sex role models, and greater understanding of how fathers and male peers influence adolescent boys’ body image attitudes and behaviours is important, as it is only with this knowledge that strategies can be implemented to counter their effect.
In terms of body change strategies, a greater understanding of the motive underlying the behaviours is important to achieve. A healthy lifestyle consists of a low fat diet and regular exercise, and as such, it is important that greater understanding is obtained about the motives behind body change strategies and what differentiates healthy behaviours from health risk behaviours.

As this is the first prevention program that has targeted young adolescent boys' body image, it is important that future programs build on the findings of this study. In terms of format, future programs should ideally consist of booster sessions to assist the maintenance of effects, and should consist of a long term follow-up to determine the duration of effects. Furthermore, consideration of how to influence the sociocultural messages that are received by adolescent boys is needed, in order to comprehensively intervene to prevent the development of excessive body image concerns in adolescent boys.

The actual activities and discussion may be more effective in influencing attitudes and behaviours if they consisted of a greater focus on body change strategies, including some education about healthy behaviours. It may be beneficial to focus on health rather than body image when looking at body change strategies, in order to increase the importance of health as opposed to appearance.

Finally, in terms of evaluation of the effectiveness of the program it may be helpful to develop scales that are more sensitive to subtle differences that exist between adolescent boys in terms of their satisfaction and use of body change strategies. As adolescent boys are generally satisfied with their appearance and
engage in few body change strategies, floor and ceiling effects may be preventing the effects of the program becoming apparent.
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APPENDICES
APPENDIX A

SAMPLE QUESTIONNAIRE
Adolescent Body Image and Health Risk Behaviours

Your answers are completely anonymous. No-one will know what answers you provide.

There are no right or wrong answers. We just want to know how you feel and what you do. It is important not to take too long to answer each question. Simply circle the response that best applies to you. Extremely satisfied means very happy, extremely dissatisfied means very unhappy.

Body Image Satisfaction

1. How satisfied are you with your weight?

   extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied

2. How satisfied are you with your body shape?

   extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied

3. How satisfied are you with your muscle size?

   extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied

The remainder of the questions in this section ask about your level of satisfaction with particular body parts.

4. Your hips.

   extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied

5. Your thighs.

   extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied

6. Your chest.

   extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied


   extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied

8. The size/width of your shoulders.

   extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied

9. Your legs.

   extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied

10. Your arms.

    extremely satisfied  fairly satisfied  in between  fairly dissatisfied  extremely dissatisfied
Body Image Importance

1. How important to you is what you weigh compared to other things in your life?
   extremely important fairly important in between fairly unimportant not important at all

2. How important is the shape of your body compared to other things in your life?
   extremely important fairly important in between fairly unimportant not important at all

3. How important is the size and strength of your muscles compared to other things in your life?
   extremely important fairly important in between fairly unimportant not important at all

The remainder of the questions in this section ask about the importance of the appearance of different parts of your body.

4. Your hips.
   extremely important fairly important in between fairly unimportant not important at all

5. Your thighs.
   extremely important fairly important in between fairly unimportant not important at all

6. Your chest.
   extremely important fairly important in between fairly unimportant not important at all

   extremely important fairly important in between fairly unimportant not important at all

8. The size/width of your shoulders.
   extremely important fairly important in between fairly unimportant not important at all

9. Your legs.
   extremely important fairly important in between fairly unimportant not important at all

10. Your arms.
    extremely important fairly important in between fairly unimportant not important at all

Background Information

Sex: Male/Female
Age: 
Grade/Year: 
Height: 
Weight: 

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Body Change Strategies to Decrease Weight

1. How often do you feel like changing the types of foods you eat so that you can lose weight?
   always  almost always  frequently  sometimes  never

2. How often do you change your eating to decrease your body size?
   always  almost always  frequently  sometimes  never

3. How often do you change your levels of exercise to decrease your body size?
   always  almost always  frequently  sometimes  never

4. How often do you think about changing your levels of exercise to decrease your body size?
   always  almost always  frequently  sometimes  never

5. How often do you worry about changing your eating to decrease your body size?
   always  almost always  frequently  sometimes  never

6. How often do you think about exercising to lose weight?
   always  almost always  frequently  sometimes  never

Body Change Strategies to Increase Muscle Tone

1. How often do you change your levels of exercise to increase the size of your muscles?
   Always  almost always  frequently  sometimes  never

2. How often do you change your food supplements to increase the size of your muscles?
   Always  almost always  frequently  sometimes  never

3. How often do you think about changing your eating to increase the size of your muscles?
   Always  almost always  frequently  sometimes  never

4. How often do you think about changing your levels of exercise to increase the size of your muscles?
   Always  almost always  frequently  sometimes  never

5. How often do you worry about changing your eating to increase the size of your muscles?
   Always  almost always  frequently  sometimes  never

6. How often do you worry about changing your levels of exercise to increase the size of your muscles?
   Always  almost always  frequently  sometimes  never
Food Supplements

1. How often do you take food supplements (for example, diet pills) to lose weight?
   - Always
   - Almost always
   - Frequently
   - Sometimes
   - Never

2. How often do you feel like taking food supplements (for example, diet pills) to lose weight?
   - Always
   - Almost always
   - Frequently
   - Sometimes
   - Never

3. How often do you think about taking food supplements (for example, diet pills) to lose weight?
   - Always
   - Almost always
   - Frequently
   - Sometimes
   - Never

4. How often do you worry about taking food supplements (for example, diet pills) to lose weight?
   - Always
   - Almost always
   - Frequently
   - Sometimes
   - Never

5. How often do you take food supplements (for example, sustagen) to increase your muscles?
   - Always
   - Almost always
   - Frequently
   - Sometimes
   - Never

6. How often do you feel like taking food supplements (for example, sustagen) to increase your muscles?
   - Always
   - Almost always
   - Frequently
   - Sometimes
   - Never

7. How often do you think about taking food supplements (for example, sustagen) to increase your muscles?
   - Always
   - Almost always
   - Frequently
   - Sometimes
   - Never

8. How often do you take steroids?
   - Always
   - Almost always
   - Frequently
   - Sometimes
   - Never

9. How often do you feel like taking steroids?
   - Always
   - Almost always
   - Frequently
   - Sometimes
   - Never

10. How often do you think about taking steroids?
    - Always
    - Almost always
    - Frequently
    - Sometimes
    - Never
## Exercise Scale

1. **Is exercise a more important part of your life than anything else (e.g. schoolwork, family)?**
   - always
   - almost always
   - frequently
   - sometimes
   - never

2. **How often do you think about exercise?**
   - always
   - almost always
   - frequently
   - sometimes
   - never

3. **Do you feel angry or upset when you do not exercise?**
   - always
   - almost always
   - frequently
   - sometimes
   - never

4. **Do you follow a regular exercise plan?**
   - always
   - almost always
   - frequently
   - sometimes
   - never

5. **Do you feel a strong need to exercise?**
   - always
   - almost always
   - frequently
   - sometimes
   - never

6. **Do you still exercise if you are tired, injured or sick?**
   - always
   - almost always
   - frequently
   - sometimes
   - never

7. **If you eat too much, do you try to make up for it by increasing the amount of exercise?**
   - always
   - almost always
   - frequently
   - sometimes
   - never

8. **How often do you exercise?**
   - once a day or more
   - several times a week
   - once a week
   - monthly
   - not at all

9. **On average, how long do you exercise on each occasion?**
   - hours or more
   - 1-2 hours
   - 35-60 minutes
   - 15-30 minutes
   - I do not exercise
### Eating Scale

1. **I eat sweets and carbohydrates without feeling nervous.**
   - Always
   - Usually
   - Often
   - Sometimes
   - Rarely
   - Never

2. **I think about dieting.**
   - Always
   - Usually
   - Often
   - Sometimes
   - Rarely
   - Never

3. **I feel extremely guilty after overeating.**
   - Always
   - Usually
   - Often
   - Sometimes
   - Rarely
   - Never

4. **I am terrified of gaining weight.**
   - Always
   - Usually
   - Often
   - Sometimes
   - Rarely
   - Never

5. **I exaggerate or magnify the importance of weight.**
   - Always
   - Usually
   - Often
   - Sometimes
   - Rarely
   - Never

6. **I am preoccupied with the desire to be thinner.**
   - Always
   - Usually
   - Often
   - Sometimes
   - Rarely
   - Never

7. **If I gain a pound, I worry that I will keep gaining.**
   - Always
   - Usually
   - Often
   - Sometimes
   - Rarely
   - Never

8. **I eat when I am upset.**
   - Always
   - Usually
   - Often
   - Sometimes
   - Rarely
   - Never

9. **I stuff myself with food.**
   - Always
   - Usually
   - Often
   - Sometimes
   - Rarely
   - Never

10. **I have gone on eating binges where I felt that I could not stop.**
    - Always
    - Usually
    - Often
    - Sometimes
    - Rarely
    - Never

11. **I think about bingeing (overeating).**
    - Always
    - Usually
    - Often
    - Sometimes
    - Rarely
    - Never

12. **I eat moderately in front of others and stuff myself when they’re gone.**
    - Always
    - Usually
    - Often
    - Sometimes
    - Rarely
    - Never

13. **I have the thought of trying to vomit in order to lose weight.**
    - Always
    - Usually
    - Often
    - Sometimes
    - Rarely
    - Never

14. **I eat or drink in secrecy.**
    - Always
    - Usually
    - Often
    - Sometimes
    - Rarely
    - Never
The Parent and Peer Influences Questionnaire

Type of Feedback (Comments) from Father (or important adult male in your life e.g. uncle or step-father). If you do not have such a person in your life, leave this page blank. Extremely positive means good comments, extremely negative means bad comments.

1. What type of feedback do you get from your father about the size or shape of your body?
   - extremely positive
   - positive
   - neutral
   - negative
   - extremely negative

2. What type of feedback do you get from your father about your eating patterns to change your body size or shape?
   - extremely positive
   - positive
   - neutral
   - negative
   - extremely negative

3. What type of feedback do you get from your father about how much you exercise to change your body size and shape?
   - extremely positive
   - positive
   - neutral
   - negative
   - extremely negative

4. Does your father encourage you to lose weight?
   - always
   - almost always
   - frequently
   - sometimes
   - never

5. Does your father encourage you to gain weight?
   - always
   - almost always
   - frequently
   - sometimes
   - never

6. Does your father encourage you to become more muscular?
   - always
   - almost always
   - frequently
   - sometimes
   - never

7. Does your father dict to lose weight?
   - always
   - almost always
   - frequently
   - sometimes
   - never

8. Does your father try to put on weight?
   - always
   - almost always
   - frequently
   - sometimes
   - never

9. Does your father try to become more muscular?
   - always
   - almost always
   - frequently
   - sometimes
   - never

10. Does your father tease because you are too thin?
    - always
    - almost always
    - frequently
    - sometimes
    - never

11. Does your father tease because he thinks you are too large?
    - always
    - almost always
    - frequently
    - sometimes
    - never

12. Does your father tease because he thinks you are not muscular enough?
    - always
    - almost always
    - frequently
    - sometimes
    - never

13. How important to you is what your father thinks about the size or shape of your body?
    - extremely important
    - fairly important
    - in between
    - fairly unimportant
    - extremely unimportant
Type of Feedback (Comments) from Mother (or important adult female in your life (e.g. aunt or step-mother). If you do not have such a person in your life leave this page blank. Extremely positive means good comments, extreme negative means bad comments.

1. What type of feedback do you get from your mother about the size or shape of your body?
   - extremely positive
   - positive
   - neutral
   - negative
   - extremely negative

2. What type of feedback do you get from your mother about your eating patterns to change your body size or shape?
   - extremely positive
   - positive
   - neutral
   - negative
   - extremely negative

3. What type of feedback do you get from your mother about how much you exercise to change your body size or shape?
   - extremely positive
   - positive
   - neutral
   - negative
   - extremely negative

4. Does your mother encourage you to lose weight?
   - always
   - almost always
   - frequently
   - sometimes
   - never

5. Does your mother encourage you to gain weight?
   - always
   - almost always
   - frequently
   - sometimes
   - never

6. Does your mother encourage you to become more muscular?
   - always
   - almost always
   - frequently
   - sometimes
   - never

7. Does your mother diet to lose weight?
   - always
   - almost always
   - frequently
   - sometimes
   - never

8. Does your mother try to put on weight?
   - always
   - almost always
   - frequently
   - sometimes
   - never

9. Does your mother try to become more muscular?
   - always
   - almost always
   - frequently
   - sometimes
   - never

10. Does your mother tease you because you are too thin?
    - always
    - almost always
    - frequently
    - sometimes
    - never

11. Does your mother tease you because she thinks you are too large?
    - always
    - almost always
    - frequently
    - sometimes
    - never

12. Does your mother tease you because she thinks you are not muscular enough?
    - always
    - almost always
    - frequently
    - sometimes
    - never

13. How important to you is what your mother thinks about the size or shape of your body?
    - extremely important
    - fairly important
    - in between
    - fairly unimportant
    - extremely unimportant
**Type of Feedback (Comments) from Best Male Friend**

Extremely positive means good comments, extremely negative means bad comment.

1. **What type of feedback do you get from your best male friend about the size or shape of your body?**

   | extremely positive | positive | neutral | negative | extremely negative |

2. **What type of feedback do you get from your best male friend about your eating patterns to change your body size or shape?**

   | extremely positive | positive | neutral | negative | extremely negative |

3. **What type of feedback do you get from your best male friend about how much you exercise to change your body size or shape?**

   | extremely positive | positive | neutral | negative | extremely negative |

4. **Does your best male friend encourage you to lose weight?**

   | always | almost always | frequently | sometimes | never |

5. **Does your best male friend encourage you to gain weight?**

   | always | almost always | frequently | sometimes | never |

6. **Does your best male friend encourage you to become more muscular?**

   | always | almost always | frequently | sometimes | never |

7. **Does your best male friend diet to lose weight?**

   | always | almost always | frequently | sometimes | never |

8. **Does your best male friend try to put on weight?**

   | always | almost always | frequently | sometimes | never |

9. **Does your best male friend try to become more muscular?**

   | always | almost always | frequently | sometimes | never |

10. **Does your best male friend tease you because you are too thin?**

    | always | almost always | frequently | sometimes | never |

11. **Does your best male friend tease you because he thinks you are too large?**

    | always | almost always | frequently | sometimes | never |

12. **Does your best male friend tease you because he thinks you are not muscular enough?**

    | always | almost always | frequently | sometimes | never |

13. **How important to you is what your best male friend thinks about the size or shape of your body?**

    | extremely important | fairly important | in between | fairly unimportant | extremely unimportant |
Type of Feedback (Comments) from Best Female Friend
Extremely positive means good comments, extremely negative means bad comments.

1. What type of feedback do you get from your best female friend about the size or shape of your body?
   
   extremely positive | positive | neutral | negative | extremely negative

2. What type of feedback do you get from your best female friend about your eating patterns to change your body size or shape?
   
   extremely positive | positive | neutral | negative | extremely negative

3. What type of feedback do you get from your best female friend about how much you exercise to change your body size or shape?
   
   extremely positive | positive | neutral | negative | extremely negative

4. Does your best female friend encourage you to lose weight?
   
   always | almost always | frequently | sometimes | never

5. Does your best female friend encourage you to gain weight?
   
   always | almost always | frequently | sometimes | never

6. Does your best female friend encourage you to become more muscular?
   
   always | almost always | frequently | sometimes | never

7. Does your best female friend diet to lose weight?
   
   always | almost always | frequently | sometimes | never

8. Does your best female friend try to put on weight?
   
   always | almost always | frequently | sometimes | never

9. Does your best female friend try to become more muscular?
   
   always | almost always | frequently | sometimes | never

10. Does your best female friend tease you because you are too thin?
    
    always | almost always | frequently | sometimes | never

11. Does your best female friend tease you because she thinks you are too large?
    
    always | almost always | frequently | sometimes | never

12. Does your best female friend tease you because she thinks you are not muscular enough?
    
    always | almost always | frequently | sometimes | never

13. How important to you is what your best female friend thinks about the size or shape of your body?
    
    extremely important | fairly important | in between | fairly unimportant | extremely unimportant
Media Influences Questionnaire

1. Do you think that the media (i.e. T.V., Movies, Magazines and Newspapers) give the idea that you should be slimmer?

   | Always | Almost always | frequently | sometimes | never |

2. Do you think that the media give the idea that you should eat less to lose weight?

   | Always | Almost always | frequently | sometimes | never |

3. Do you think that the media give the idea that you should exercise more to lose weight?

   | Always | Almost always | frequently | sometimes | never |

4. Do you think that the media give the idea that you should gain weight?

   | Always | Almost always | frequently | sometimes | never |

5. Do you think that the media give the idea that you should eat more to gain weight?

   | Always | Almost always | frequently | sometimes | never |

6. Do you think that the media give the idea that you should exercise more to gain weight?

   | Always | Almost always | frequently | sometimes | never |

7. Do you think that the media give the idea that you should be more muscular?

   | Always | Almost always | frequently | sometimes | never |

8. Do you think that the media give the idea that you should eat less to be more muscular?

   | Always | Almost always | frequently | sometimes | never |

9. Do you think that the media give the idea that you should eat more to be more muscular?

   | Always | Almost always | frequently | sometimes | never |

10. Do you think that the media give the idea that you should exercise more to be more muscular?

    | Always | Almost always | frequently | sometimes | never |

11. How important to you is what the media communicates about the size or shape of your body?

    | extremely important | fairly important | in between | fairly unimportant | extremely unimportant |
Negative Affect

For each of the statements below, please circle the number which best indicates how much the statement applied to you, OVER THE PAST WEEK. There are no right or wrong answers. Please do not spend too long on any one statement.

<table>
<thead>
<tr>
<th>0</th>
<th>did not apply to me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>applied to me to some degree, or some of the time</td>
</tr>
<tr>
<td>2</td>
<td>applied to me a considerable degree, or a good part of the time</td>
</tr>
<tr>
<td>3</td>
<td>applied to me very much, or most of the time</td>
</tr>
</tbody>
</table>

1. I felt down hearted and blue 0 1 2 3
2. I felt life was meaningless 0 1 2 3
3. I couldn't seem to experience any good feeling at all 0 1 2 3
4. I found it difficult to work up the energy to do things 0 1 2 3
5. I felt that I was using a lot of nervous energy 0 1 2 3
6. I felt I was close to panic 0 1 2 3
7. I tended to over-react to situations 0 1 2 3
8. I felt I wasn't worth much as a person 0 1 2 3
9. I was aware of my heart rate increasing without doing any exercise 0 1 2 3
10. I found it hard to slow down 0 1 2 3
11. I was aware of dryness in my mouth 0 1 2 3
12. I felt scared without any good reason 0 1 2 3
13. I experienced breathing difficulty (example: excessively rapid breathing, breathlessness in the absence of physical exertion) 0 1 2 3
14. I experienced trembling (example: in the hands) 0 1 2 3
15. I was unable to become enthusiastic about anything 0 1 2 3
16. I felt I was rather touchy 0 1 2 3
17. I was cross about anything that kept me from getting on with what I was doing 0 1 2 3
18. I found myself getting anxious 0 1 2 3
19. I was worried about situations in which I might panic and make a fool of myself 0 1 2 3
20. I felt that I had nothing to look forward to 0 1 2 3
21. I found it difficult to relax 0 1 2 3
Self Description Scale

This is a chance to look at yourself. It is not a test. There are no right and wrong answers, and everyone will have different answers. Be sure that your answers show how you feel about yourself. PLEASE DO NOT TALK ABOUT YOUR ANSWERS WITH ANYONE ELSE. We will keep your answers private and not show them to anyone.

When you are ready to begin, please read each sentence and choose an answer. There are six possible answers for each question: “True”, “False”, and four answers in between. There are six boxes next to each sentence, one for each of the answers. The answers are written at the top of each column. Choose your answer to a sentence and place a tick in the box for the answer you choose. DO NOT say your answer aloud or talk about it with anyone else.

<table>
<thead>
<tr>
<th></th>
<th>False</th>
<th>Mostly False</th>
<th>More False Than True</th>
<th>More True Than False</th>
<th>Mostly True</th>
<th>True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overall, I have a lot to be proud of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Overall, I am no good</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Most things I do, I do well</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Nothing I do ever seems to turn out right</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Overall, most things I do turn out well</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I don’t have much to be proud of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I feel that my life is not very useful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I can do things as well as most people</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
MEMORANDUM

TO: Ms Jacqui Stanford  
Psychology  
Melbourne

FROM: Secretary, Deakin University Human Research Ethics Committee (DUHREC)

DATE: 1 October 2001

SUBJECT: PROJECT: EC 106-2001  
EXPLORATION AND PREVENTION OF BODY IMAGE CONCERNS IN ADOLESCENT BOYS

(Please quote this project number in future communication.)

This application was considered by the Committee on 6 August 2001.

APPROVAL HAS BEEN CONFIRMED FOR JACQUI STANFORD UNDER THE SUPERVISION OF PROF MARITA MCCABE, PSYCHOLOGY, TO UNDERTAKE THIS PROJECT FROM 30 JULY 2001 TO 30 NOVEMBER 2003.

Interim approval by the Executive of DU-HREC on 30 July 2001, was confirmed at the Committee meeting of 6 August 2001.

The approval given by the Deakin University Human Research Ethics Committee is given only for the project and for the period as stated in the application and approval. It is your responsibility to contact the Secretary immediately should any of the following occur:

· Serious or unexpected adverse effects on the participants
· Any proposed changes in the protocol, including extensions of time.
· Any events which might affect the continuing ethical acceptability of the project.
· The project is discontinued before the expected date of completion.

In addition you will be required to report on the progress of your project at least once every year and at the conclusion of the project. Failure to report as required will result in suspension of your approval to proceed with the project.

Signature Redacted by Library

Victoria Emery  
Secretary, DU-HREC  
(03) 9251 7123  
vemery@deakin.cdu.au
APPENDIX C

PLAIN LANGUAGE STATEMENT AND CONSENT FORM – STUDY 1
DEAKIN UNIVERSITY ETHICS COMMITTEE
PLAIN LANGUAGE STATEMENT

You are invited to participate in research exploring feelings about yourself and your body. This project is being conducted by Jacqui Stanford, under the supervision of Professor Marita McCabe, for her Doctor of Psychology (Health) degree.

The aims of the project are to explore factors that influence the body image and self-esteem of adolescent boys. The questions will examine how adolescent feel about their bodies, what methods they use to lose or gain weight, and how they feel about themselves. The questionnaire will ask students to rate their level of agreement with a number of statements.

Some of the questions that may be asked include:
- How satisfied are you with your weight?
- How often do you feel like changing the types of foods you eat so that you can lose weight?
- Overall, most things I do turn out well (indicate level of agreement).

The questionnaire requires about 30 minutes to complete. The school principal has a copy of the questionnaire should you wish to view the entire content.

Student's participation is completely confidential, anonymous and voluntary. No names or identifying personal information will be requested on the questionnaire, participants will place their questionnaire in a sealed envelope and then in a closed box following completion. You can obtain a copy of the group results from the school principal. After the analysis of data, your school will be provided with a copy of the results. This may be of assistance to the school in identifying problem areas and planning health education programs for their students.

Participants will be asked questions about their views of themselves, their bodies, and their related behaviour. If participants feel discomfort with any question they are free to refrain from responding or cease participation at any time, without any consequences, and any information obtained from them will be destroyed. Anyone who experiences discomfort is able to speak to the school counsellor or contact the Kid's Helpline on 1800 551 800, about any problems.

All data will be confidential and names will not be associated with the information, and consent forms will be stored separately to the data. All data will be secured in accordance with Deakin University guidelines, for a minimum of 6 years, after which time it will be destroyed. Only the researcher and the supervisor shall have access to the data.

For further information on this study please contact Jacqui Stanford on 9251 7367 or Marita McCabe on 9244 6856.

Should you have any concerns about the conduct of this research project, please contact the Secretary, Ethics Committee, Research Services, Deakin University, 221 Burwood Highway, BURWOOD VIC 3125. Tel (03) 9251 7123 (International +61 3 9251 7123).
DEAKIN UNIVERSITY ETHICS COMMITTEE

CONSENT FORM:

Student Consent

I agree to participate in the research study conducted by Jacqui Stanford and Professor Marita McCabe. I understand that the purpose of the research is to explore the body image, body change strategies, and self-esteem of adolescent boys.

I acknowledge:
1. That the aims, methods, and anticipated benefits, and possible risks/hazards of the research study, have been explained to me.
2. That I voluntarily and freely give my consent to my participation in such research study.
3. I understand that aggregated results will be used for research purposes and may be reported in scientific and academic journals.
4. Individual results will not be released to any person except at my request and on my authorisation.
5. That I am free to withdraw my consent at any time during the study, in which event my participation in the research study will immediately cease and any information obtained from me will not be used.

Name of student:______________ Signature:_________________ Date:__________

Parent Consent

I agree for my son to participate in the research study conducted by Jacqui Stanford and Professor Marita McCabe. I understand that the purpose of the research is to explore the body image, body change strategies, and self-esteem of adolescent boys.

I acknowledge:
1. That the aims, methods, and anticipated benefits, and possible risks/hazards of the research study, have been explained to me.
2. That I voluntarily and freely give my consent to my participation in such research study.
3. I understand that aggregated results will be used for research purposes and may be reported in scientific and academic journals.
4. Individual results will not be released to any person except at my request and on my authorisation.
5. That I am free to withdraw my consent at any time during the study, in which event my participation in the research study will immediately cease and any information obtained from me will not be used.

Name of Parent:________________ Signature:_________________ Date:__________
Questionnaire Instructions

Information to be given to students:

- General introduction- my name is ..... and I am from Deakin University

- We are interested in finding out what your concerns are in relation to how you look and how important these concerns are to you. The questionnaire we would like you to complete also asks questions about how you go about making changes to the way you look. So, there are no right or wrong answers. Just circle the response that best applies to you.

- Please answer each question and do not discuss how to answer the questionnaire with your friends because we are interested in each person’s own point of view. The questionnaires are completely confidential and anonymous.

- If you need to ask any questions as you are filling out the questionnaire please raise your hand and we will help you. Also, try to answer every question as honestly as you can and try not to leave any questions blank or record more than one response for a question. With some of the questionnaires the questions are on both sides of the page, so please make sure you answer all questions and when you have finished the questionnaire please go back and check both sides of each page.

- Finally, thank you all for participating in this study. The information you provide us with will help us be able to have a greater understanding of this area and the aspects that are important to adolescent males.

NOTE- if student becomes distressed or uncomfortable about answering the questions and does not wish to continue, thank the student for attempting to answer the questionnaire and he/she can withdraw from the research project and return to the classroom to participate in alternative activities. If the student does not wish to answer one particular question then he/she can leave that question blank.
APPENDIX E

PLAIN LANGUAGE STATEMENT AND CONSENT FORM – STUDY 2
DEAKIN UNIVERSITY ETHICS COMMITTEE
PLAIN LANGUAGE STATEMENT

You are invited to participate in a program to improve feelings about yourself and your body. This project is being conducted by Jacqui Stanford, under the supervision of Professor Marita McCabe, for her Doctor of Psychology (Health) degree.

The aims of the project are to explore factors that influence the body image and self esteem of adolescent boys. This study will involve discussion about attitudes and behaviours that adolescent boys have about their bodies, and how these attitudes and behaviours relate to their general self esteem. Through discussion of these areas and related activities, it is expected that boys' views of their body and themselves will improve, as well as preventing health risk behaviours aimed at changing their bodies.

You are invited to participate in this program. Participation will involve two forty minute sessions exploring these factors. Information about attitudes and behaviour will be collected through a questionnaire at four time points prior to the program, in order to gain an understanding of body image over time.

Participants will be asked questions about their views of themselves, their bodies, and their related behaviour. If participants feel discomfort with any topic being discussed, they are free to refrain from responding or cease participation at any time, without any consequences, and any information obtained from them will be destroyed. Anyone who experiences discomfort is able to speak to the school counsellor or contact the Kid's Helpline on 1800 551 800, about any problems.

Some of the questions that may be asked include:

- Where does the strongest message about what you should look like come from?
- How much time do you spend exercising each week?
- How often would you think about taking supplements to change your body?

All data will be confidential, with questionnaires placed into a sealed envelope. Consent forms will be stored separately to the data. Names will not be associated with the information, with each participant receiving a code number to link their results over time. All data will be secured in accordance with Deakin University guidelines, for a minimum of 6 years, after which time it will be destroyed. Only the researcher and the supervisor shall have access to the data.

Following completion of the study, results of the overall findings, without any individual information, will be made available to the school.

For further information on this study please contact Jacqui Stanford on 9251 7364 or Marita McCabe on 9244 6856.

Should you have any concerns about the conduct of this research project, please contact the Secretary, Ethics Committee, Research Services, Deakin University, 221 Burwood Highway, BURWOOD VIC 3125. Tel (03) 9251 7123 (International +61 3 9251 7123).
DEAKIN UNIVERSITY ETHICS COMMITTEE

CONSENT FORM:

Student Consent

I agree to participate in the research study conducted by Jacqui Stanford and Professor Marita McCabe. I understand that the purpose of the research is to evaluate the effectiveness of a prevention program of body image problems and related behaviour.

I acknowledge:
1. That the aims, methods, and anticipated benefits, and possible risks/hazards of the research study, have been explained to me.
2. That I voluntarily and freely give my consent to my participation in such research study.
3. I understand that aggregated results will be used for research purposes and may be reported in scientific and academic journals.
4. Individual results will not be released to any person except at my request and on my authorisation.
5. That I am free to withdraw my consent at any time during the study, in which event my participation in the research study will immediately cease and any information obtained from me will not be used.

Name of student:........................ Signature:.......................Date:...........

Parent Consent

I agree for my son to participate in the research study conducted by Jacqui Stanford and Professor Marita McCabe. I understand that the purpose of the research is to evaluate the effectiveness of a prevention program of body image problems and related behaviour.

I acknowledge:
1. That the aims, methods, and anticipated benefits, and possible risks/hazards of the research study, have been explained to me.
2. That I voluntarily and freely give my consent for my son to participate in the research study.
3. I understand that aggregated results will be used for research purposes and may be reported in scientific and academic journals.
4. Individual results will not be released to any person except at my request and on my authorisation.
5. That I am free to withdraw my consent at any time during the study, in which event my son’s participation in the research study will immediately cease and any information obtained will not be used.

Name of Parent:............................Signature:..........................Date:...........
Body Image Prevention Program

Activity One
Introduce yourself and explain to the class that today we will be looking at what makes up a person and then look at the messages we receive about our looks. To start with we are going to look at pictures from magazines, and then list all the things we can find that are different between people about their looks. (Each group will be provided with a folder of pages from different magazines)

Ask them to think about what the differences are in the pictures they have in front of them. Ask them to volunteer differences and write them on the board. (Before writing on the board please divide it into three to ensure you don’t run out of room for the later lists that need to be written. Keep each list till end of session)

Some of the potential differences may be... Gender, age, hair colour, skin colour, height, weight, shape..., try to get them to stick to things that are observable, although they don’t have to all come from the pictures, if they can think of a difference and it’s not in the pictures it can still be added.

Activity Two
Developmental stages
Explain that “we are going to explore the physical changes that are visible by others and occur to boys in adolescence. To begin with I am going to draw a time line on the board which represents boys aged between 8.5 years and 18 years. (Draw this time line – see time line handout for how it should look – erase after this session because need space for part C)
Changes start between 9 and 14 years. Draw line under time line with arrows to represent the beginning of change. This is a large range of years in which things begin. It may be that someone is in grade 5 and they start to notice changes in their body, and their best friend may not start noticing changes until year 9. And both of these boys are completely normal.
Emphasise that this range is when changes start to occur. Not all things begin at the same time and change at the same rate.
Height spurt begins between 10.5 and 16 years. Draw and label line. While you may be growing all the time there is a period of rapid growth that boys go through to reach adult height. This happens at different times for different people.
Facial hair begins to grow 12.5 and 15.5. Draw and label line. For some people this may grow quite quickly, whereas for others it may be slow. This is the period of time in which hair begins to grow.

Voice begins to deepen 12.5 and 15.5. Draw and label line. Again, this is when the voice begins to deepen. For some boys it will happen over night, one day they will wake up and have a much deeper voice, for others it may take a while, with some words being spoken more deeply, and others coming out more as a squeak. Both of these situations are normal, and you can’t change which way things happen for you. Each person just has to wait until their voice breaks itself.

Peak of strength spurt 13 – 17. The development and changes in muscles. Draw and label line. In a similar way to the growth spurt muscles also have growth spurt, where they develop in size and strength.

Adult stature reached 13.5 to 17.5. Draw and label line. It is somewhere during this period where each boy’s body will become a man’s body in appearance. Again this happens at different times for different people, and with every change that happens a person can’t change the speed with which it happens, or when it happens. It is predetermined in each of us, and therefore it shouldn’t influence how we feel about ourselves or about others.

** Give each boy a copy of the timeline and a scenario

Scenarios – Divide class into three groups and each group is given a different scenario (give a couple of copies out so each boy can see one)

Explain that each boy is going to be given a scenario on piece of paper, along with a couple of questions. They are to read the scenario and think about the question about whether the boy’s experience is normal, and how they may be feeling. They are to refer to the timeline to help them determine the answer. Explain that they have about 3 minutes and then as a group each scenario is going to be discussed in order, so that group one knows they will be first.

** Scenario 1

A 15 year old boy hasn’t grown any taller in over a year, he is the shortest in his class. He is told by people not to worry and that he will have his growth spurt soon, but his voice has already broken and other changes have occurred to his body. Does he need to worry? How may he be feeling?

** Scenario 2

A 15 year old boy’s voice hasn’t changed. Everyone else in his class now speaks more deeply and like men, but he doesn’t. Should he worry? Is he normal? How may he be feeling?
Scenario 3
A 14 year old boy’s body has change heaps, more than others in his class. Instead of having a boy’s body his body is more like a man’s body. Is he normal? How may he be feeling?

Gather back as a group and discuss the first question about normality for each scenario and then discuss the second question about how each boy may have been feeling about their body and about the changes that have happened, and have not happened.

Conclusion: Basically, whatever time one begins to change, everyone goes through each stage at some point during adolescence.

Activity Three
Brainstorm all the different aspects of a person as a class (write on the board after erasing time line, keep first list there!). Ensure that physical characteristics are recognised, but also ensure other aspects are covered. If people stick to appearance, ask about personality, hobbies, mood, attitudes… (these are just some examples of things that may get them thinking…come up with anything you can)

Ask the boys to identify the components that are important in a best friend

Compare the three lists and determine the differences between them. Try to get the boys to come up with differences they can see but ensure by the end they can recognise that:
List two is more complete, when first meet someone or watch media, really only see list one, list three is more important to us in others.

Conclusion thus far: So far we have explored some of the differences between people and some of the different aspects that make up a person. It is important we remember to consider the different aspects of a person, and don’t just judge other people or ourselves on one aspect, such as looks. We are made up of many aspects and we all have some things we are better at than others.

Activity Four
In groups of two or three, provide them with the question prompts, but also go through what they are to do. Also tell each group which questions they will be asked to report back to the group on.
Find picture of ‘ideal’ body from the magazine pages

- Identify what is ideal about the image, talk about what is ideal (eg. Muscular, slim, tanned, nice jaw, eyes…etc)
- Who presents this message? (eg. media, peers, parents, teachers, siblings) – you may need to assist them with this. It is okay if you need to suggest sources, as long as they understand how etc. and don’t just agree with you.
- How important is this image to the different people who present it?

How important is the image to you?

Once the boys have discussed this, ask each group to share their responses to a couple of the questions, so every question is answered by a group.

Activity Five

In groups of 2 or 3 ask the boys to discuss the following three points about the ideal image talked about in part A, get them to consider both positive and negative effects.

Give them a card with the questions

- How could this make you feel? (both good and bad emotions) – sad, angry, happy, proud etc
- How could this make you feel about yourself? (both good and bad feelings - Self esteem). Like myself, dislike myself, make me want to change etc.
- What other effects may it have on people? What behaviour may this result in? - here they may come up with behaviours such as exercise, diet, suicide, steroids etc. Hopefully they won’t come up with the really severe ones, but if they do acknowledge their benefits, but also point out briefly the down side. Try to move on, and if they don’t come up with anything, but appear to have tried, move on.

After they have discussed in groups, get them to come back together as a class and discuss what they came up with. Ensure both positive and negative responses are discussed. If any unhealthy body change strategies are mentioned, acknowledge that they may help one achieve the goal, but that at the same time they can have very damaging effects on the body.

Draw attention back to how each person is made up of many different factors and how looks are just one part of the person. For some people they may have good feelings about their looks and for others they may wish they looked differently to what they do look like. Encourage them to focus on the aspects of themselves with which they are most happy.
Activity Six

Cartoon – Ask the boys to take their cartoon back to their desk and to complete the 3rd boy’s thought and speech bubble. The thought bubble can be whatever the boy may be thinking, whereas the speech bubble needs to be a positive response. Tell them they will be invited to share their response. Wander around to see if any of the boys need help. After 5 minutes gather everyone back and see if anyone wants to share their cartoon.

Scenario – brainstorm in the group of about 10. Your younger sibling comes to you because they are being teased about their looks. What advice could you give them? If negative responses are given such as “bash him up” acknowledge that yes, that is a response, but that it might not be the best response as there would be negative consequences.

Recap on session: ask the boys to mention some of the things we have covered. Prompt if needed
changes begin

height spurt begins

facial hair begins to grow

voice begins to deepen

peak of strength spurt

adult stature reached
He can't play with us because he's bigger
APPENDIX G
CONTROL AND PROGRAM MEANS AND STANDARD DEVIATIONS FOR FOUR
TIME POINTS
### APPENDIX G

Control and Program Groups Means and Standard Deviations for Four Time Points

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
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