

**A Self-Determination Theory Perspective of Women's Body Image and Eating-Related Concerns in Response to Media Portrayals of the Female Body**

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## ABSTRACT

Grounded in Self-Determination Theory (Deci & Ryan, 1985, 2000), the purpose of this thesis was to investigate the protective role of self-determined (i.e., autonomous motivation) relative to non self-determined motivation (i.e., controlled motivation) in response to various media portrayals of the female body. Findings from three laboratory experiments support these hypotheses. Women who felt less self-determined in their daily activities (Study 1 and Study 3) and in the regulation of their eating behaviors (Study 2), perceived more pressure from the media to be thin (Study 1), experienced more body dissatisfaction (Study 1 and Study 2), expressed greater concerns over the quantity of food in their diets (Study 1), and reported more negative affect (Study 2) following exposure to a video which exemplified the societal “thin ideal” compared to a video which did not. They also generated more negative self-appraisals of their body’s appearance and competence (Study 3), experienced more body shame (Study 3), and reported more introjected reasons for restricting their actual intake of chocolate (Study 3) following exposure to video which depicted the female body as an instrument of women’s actions compared to one which depicted the female body as object (Study 3). Conversely, women who felt more self-determined in their daily activities (Study 1 and Study 3) expressed greater concerns over the quality of food in their diet (Study 1) and reported less vitality (Study 3) in response to media portrayals of women engaged in self-care (Study 1) and physical activities (Study 3). However, body dissatisfied women who felt more self-determined in the regulation of their eating behaviors (Study 2) formulated more intentions to monitor their food intake and eat fewer unhealthy foods (Study 2) after viewing a video of thin female models compared to no models. Together, these findings support a protective function for self-determined motivation and a potentiating function for non self-determined motivation.

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### **Content of the thesis and contribution of authors**

The present thesis is comprised of a general introduction, three articles, a general discussion and conclusion followed by three appendices. The general introduction reviews the literature on the topic while exposing its limitations thereby stipulating the theoretical framework selected for addressing the research question which is at the heart of the thesis. These sections are followed by a brief introduction to the three articles including their main objectives. The first article entitled *The protective role of general self-determination against 'thin ideal' media exposure on women's body image and eating-related concerns* is published in the *Journal of Health Psychology*. The second article entitled *The effects of "thin ideal" media on women's body image concerns and eating-related intentions: The beneficial role of an autonomous regulation of eating behaviors* is published in the journal *Body Image*. The third article entitled *The differential roles of an autonomous and controlled motivation against "body-as-object" and "body-as-process" media on women's body image concerns and eating behaviors* will be submitted for publication in the coming weeks following the submission of the thesis. Next, the general discussion and conclusion summarize the findings documented in the three articles and acknowledge the limitations of the studies thereby offering fruitful avenues for future research. The final section of the thesis is comprised of three appendices which include the study materials that were used in each one the articles. The first two articles were prepared and formatted according the requirements of each journal to which they were submitted. The third article will follow suit. The author of the thesis appears as first author while the thesis supervisor appears as co-author on all three articles. Following are the contributions of the authors to the articles.

**Article 1.** The thesis supervisor conceptualized the research project described in Article 1 including the elaboration of the study hypotheses and preparation and completion of the project

submission form for approval from the Research and Ethics Board of the University of Ottawa. At that time, the third author of the paper was the supervisor's honors' student who participated in the discussions pertaining to the conceptualization of the project. She also designed the videos that were used as the experimental stimuli and recruited and tested participants in the laboratory. The first author of the article conducted the literature review, analyzed the data, and wrote the entire paper under the guidance of the supervisor. The first and second authors have requested the addition of the third author to the paper *Erratum* to the editor of the *Journal of Health Psychology*.

**Article 2.** The first author conceptualized the research project described in Article 2 including the elaboration of the study hypotheses and preparation and completion of the project submission form for approval from the Research and Ethics Board of the University of Ottawa. The first author also designed the videos that were used as the experimental stimuli and recruited and tested participants in the laboratory. The first author also conducted the literature review, analyzed the data, and wrote the entire paper. Every step of the research process was conducted in consultation with and under the guidance of the thesis supervisor.

**Article 3.** The first author conceptualized the research project described in Article 3 including the elaboration of the study hypotheses and preparation and completion of the project submission form for approval from the Research and Ethics Board of the University of Ottawa. The first author also designed the videos that were used as the experimental stimuli, conducted the literature review, analyzed the data, and wrote the entire paper. The third author of the paper was the supervisor's honors' student who helped to design the videos and tested participants in the laboratory. Every step of the research process was conducted in consultation with and under the guidance of the thesis supervisor.

## Table of Contents

Abstract.....	2
Acknowledgements.....	3
Content of the thesis and contribution of authors.....	4
Table of Contents.....	6
<b>INTRODUCTION.....</b>	<b>11</b>
 <b>ARTICLE 1: The Protective Role of General Self-Determination Against ‘Thin-Ideal’ Media Exposure on Women’s Body Image and Eating-Related Concerns</b>	
Abstract.....	23
Self-Determination Theory.....	25
Self-Determination Theory and Body Image.....	26
Overview of the Present Study.....	27
Method.....	28
Design.....	28
Participants.....	28
Experimental Stimuli.....	28
Procedure.....	29
Constructs and Measures.....	30
General self-determination.....	30
Perceived pressures from the media to be thin.....	30
Internalization of sociocultural beliefs surrounding thinness and obesity.....	30
Body dissatisfaction.....	31
Negative affect.....	31
Eating concerns.....	31
Results.....	31
Manipulation Check.....	31
Main Analyses.....	32
Discussion.....	33
References.....	40
Table 1. <i>Multivariate (MF) and Univariate F Values Across BMI, Video Condition, Level of GSD, and Video x GSD.....</i>	46
Table 2. <i>Means (SE) for all Dependent Measures Across Levels of GSD and Video Conditions.....</i>	47

*Figure 1.* Mean levels of perceptions of pressure from the media to be thin as a function of TPS versus TPNS video exposure and high versus low general self-determination (GSD).....48

*Figure 2.* Mean levels of body dissatisfaction as a function of TPS versus TPNS video exposure and high versus low general self-determination (GSD).....49

*Figure 3.* Mean levels of concerns over quantity of food as a function of TPS versus TPNS video exposure and high versus low general self-determination (GSD).....50

*Figure 4.* Mean levels of concerns over quality of food as a function of TPS versus TPNS video exposure and high versus low general self-determination (GSD).....51

**ARTICLE 2:** The Effects of "Thin Ideal" Media on Women's Body Image Concerns and Eating-Related Intentions: The Beneficial Role of an Autonomous Regulation of Eating Behaviors.

Abstract.....	53
Individual Responses to “Thin Ideal” Media.....	55
The Regulation of Eating Behaviors from Self-Determination Theory.....	56
Overview of the Present Study.....	58
Method.....	59
Design.....	60
Participants.....	60
Experimental Stimuli.....	61
Procedure.....	61
Measures.....	62
Autonomous and controlled regulation of eating behaviors.....	62
Trait body dissatisfaction.....	63
Size dissatisfaction and negative affect.....	63
Dieting intentions.....	63
Food consumption intentions.....	64
Results.....	64
Manipulation Check.....	64
Main Analyses.....	66
Negative affect.....	66
Size dissatisfaction.....	67
Dieting intentions: monitor food intake.....	68
Dieting intentions: abstain from eating.....	68
Food consumption intentions: eat healthy foods.....	69
Food consumption intentions: eat unhealthy foods.....	69
Discussion.....	70
Limitations.....	74

References.....	76
Table 1. Means (SDs) Across Video Exposure Conditions and Inter-Correlations Among Study Variables for the Entire Sample.....	83
Table 2. Standardized Regression Coefficients and $R^2$ change from Hierarchical Regression Models Across all Dependent Variables.....	84
Figure 1. Mean levels of post-exposure negative affect across “thin ideal” versus neutral video exposure as a function of high versus low trait body dissatisfaction at high and low levels of an autonomous regulation of eating behaviors (AREB).....	85
Figure 2. Mean levels of post-exposure size dissatisfaction across “thin ideal” versus neutral video exposure as a function of high versus low trait body dissatisfaction at high and low levels of an autonomous regulation of eating behaviors (AREB).....	86
Figure 3. Mean levels of intentions to monitor food intake across “thin ideal” versus neutral video exposure as a function of high versus low trait body dissatisfaction at high and low levels of an autonomous regulation of eating behaviors (AREB).....	87
Figure 4. Mean levels of intentions to eat unhealthy foods across “thin ideal” versus neutral video exposure as a function of high versus low trait body dissatisfaction at high and low levels of an autonomous regulation of eating behaviors (AREB).....	88
 <b>ARTICLE 3: The Effects of “Body-as-Object” and “Body-as-Process” Media on Women’s Body Image Concerns and Eating Behaviors: The Differential Roles of Autonomous and Controlled Motivation</b>	
Abstract.....	90
The Female Body as an Object.....	91
The Female Body as a Process.....	94
Self-Determination Theory and Body Image.....	97
Overview of the Present Study.....	99
Method.....	100
Design.....	100
Participants.....	100
Experimental Stimuli.....	101
Manipulation Check.....	103
Perceptions of video content.....	103
State self-objectification and state body competence.....	104
Procedure.....	106

Measures.....	107
Autonomous and controlled motivation.....	107
Self-appraisals of the body’s appearance and competence.....	107
Body shame.....	108
Vitality.....	109
Dietary restraint.....	109
Chocolate intake.....	110
Results.....	110
Self-appraisals of the body’s appearance.....	111
Self-appraisals of the body’s competence.....	112
Body shame.....	112
Vitality.....	113
Dietary restraint: introjected motives.....	113
Dietary restraint: identified motives.....	113
Chocolate intake.....	114
Discussion.....	115
Body Image Evaluations.....	115
Vitality.....	120
Restrained Eating.....	121
Future Directions.....	123
Summary.....	123
References.....	125
Footnotes.....	135
Table 1. Means (SDs) Across Video Exposure Conditions and Inter-Correlations Among Study Variables for the Entire Sample.....	136
Table 2. Means (SDs) of all study variables across chocolate groups.....	137
Table 3. Standardized Regression Coefficients and $R^2$ change from Hierarchical Regression Models Across all Dependent Variables.....	138
Figure 1. Mean levels self-appraisals of the body’s appearance as a function of “body-as-object” versus “body-as-process” video exposure and high versus low controlled motivation.....	139
Figure 2. Mean levels self-appraisals of the body’s competence as a function of neutral versus body-related video exposure and high versus low controlled motivation.....	140
Figure 3. Mean levels of body shame as a function of “body-as-object” versus “body-as-process” video exposure and high versus low controlled motivation.....	141

<i>Figure 4.</i> Mean levels of vitality as a function of “body-as-object” versus “body-as-process” video exposure and high versus low autonomous motivation.....	142
<i>Figure 5.</i> Mean levels of introjected motives as a function of neutral versus body-related video exposure and high versus low controlled motivation.....	143
<i>Figure 6.</i> Mean levels of chocolate intake as a function of neutral versus body-related video exposure and high versus low introjected motives.....	144
<b>GENERAL DISCUSSION</b> .....	145
Summary of Findings.....	146
Limitations.....	150
Conclusion.....	156
References.....	158
<b>APPENDIX A</b> .....	173
<b>APPENDIX B</b> .....	180
<b>APPENDIX C</b> .....	197

## INTRODUCTION

Extensive popular and scientific literatures indicate that the nature of a woman's relationship to her body is far from trivial. As many as 60% of American high school girls and college-aged women report using extreme measures to control their weight such as frequently skipping meals, eating fewer than 1200 calories a day, eliminating fats and carbohydrates from their diet, fasting for more than 24 hours, using laxatives and diuretics, and vomiting after eating (Mintz & Betz, 1988; Tylka & Subich, 2002). In a large nationally representative sample of Canadian girls and adult women ( $N = 20, 211$ ), 25.9% of 15 to 24 year olds and 21.9% of 25 to 44 year olds indicated that they had experienced a strong fear of becoming overweight over the past 12 months while approximately 40% of them reported a strong fear of becoming overweight in their lifetime (Piran & Gadalla, 2006). Other studies based on this sample indicated that the prevalence of disordered eating was 3.8% among 15-24 year olds and 3.0% among 25-44 year olds (Gadalla & Piran, 2008). Similar prevalence rates were documented in a large community sample of 30 year old women from Québec ( $n = 1501$ ) in which 3.9% met clinical levels of bingeing, 1.1% met clinical levels of purging (i.e., using laxatives or diuretics), 8.5% met clinical levels of compensation (i.e., by exercising very hard or restricting caloric intake to influence their weight and shape), and 6.9% admitted that their self-image was strongly influenced by their weight and shape (Gauvin, Steiger, & Brodeur, 2009). Among female university students, 1.1% would be considered disordered eaters (MacLaren & Best, 2009) while 2.8% would be considered putative bulimics (Pelletier, Dion, & Lévesque, 2004). Findings from a community sample of young girls in grade 6, 7, and 8 revealed that 31.1% were trying to lose weight, 17.3% skipped meals to control their weight, and 57.0% exercised to control their weight (McVey, Tweed, & Blackmore, 2005).

While lifetime prevalence rates of eating disorders (3%) are significantly smaller than prevalence rates of obesity (27.51% ) among Canadian women (e.g., Dutton & McLaren, 2011), body image and eating disturbances are not inconsequential as they have been linked to eating pathology, obesity, poor self-esteem, and depression (Grabe, Hyde, & Lindberg, 2007; Johnson & Wardle, 2005; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006) as well as licit (i.e., tobacco, alcohol, antidepressants) and illicit (i.e., cocaine, stimulants) drug use (e.g., Gadalla & Piran, 2009; Piran & Gadalla, 2006; Piran & Robinson, 2006). Disordered eating behaviors have also been associated with serious disruptions in one's occupational, academic, social and relational spheres of life (Hudson, Hiripi, Pope, & Kessler, 2007). Moreover, their estimated direct (i.e., hospitalization and rehabilitation services) and indirect (e.g., inability to work and premature death) costs are in the hundreds of millions (i.e., in Germany, see Krauth, Buser, & Vogel, 2002). Ergo, disordered eating practices incur a significant burden to both girls and women as individuals and as members of their larger social groups.

Decades of research on the putative causes of body image and eating disturbance indicate that they are determined by multiple factors including genetic and biological predispositions (e.g., for a review see Striegel-Moore & Bulik, 2007), personality traits such as neuroticism (e.g., Dalley, Buunk, & Umit, 2009; Eggert, Levendosky, & Klump, 2007; MacLaren & Best, 2009; Miller, Schmidt, Vaillancourt, McDougall, & Laliberte, 2006), perfectionism (Bardone-Cone, Wonderlich, Frost, Bulik, Mitchell, Uppala, et al., 2007), as well as obsessive-compulsive and borderline personality traits (Sansone & Sansone, 2011). Other important sources of influence are socio-cultural which include insecure attachments to early caregivers (e.g., Barone & Guiducci, 2009; Illing, Tasca, Balfour, & Bissada, 2010; Tasca, Ritchie, & Balfour, 2011), a

history of restrictive and critical messages from caregivers about eating (e.g., Kluck, 2010; Van Diest & Tylka, 2010), parental encouragement to diet (Kluck, 2010), a history of being teased about one's weight and appearance (Menzel, Schaefer, Burke, Mayhew, Brannick, & Thompson, 2010), having friends who value the importance of good looks (e.g., Jones & Crawford, 2006; Kluck, 2010), exposure to appearance-based conversations among peers (Jones, 2004; wShomaker & Furman, 2007; Stice, Maxfield, & Wells, 2003), and exposure to media images featuring thin beautiful female models. The focus of the present thesis was on the role of the media in shaping and fueling women's body image and eating-related concerns.

Findings from a number of content analyses suggest that the mass media is a pervasive and persuasive transmitter of the "thin ideal" standard of female attractiveness. These studies have revealed that cultural icons of beauty such as Playboy centerfolds, Miss America Pageant contestants (Spitzer, Henderson, & Zivian, 1999), fashion models (Sypeck, Gray, & Ahrens, 2004), and movie actresses (Silverstein, Perdue, Peterson, & Kelly, 1986) have become increasingly thin and less curvaceous since the 1950s (Byrd-Bredbenner, Murray, & Schlusel, 2005). On television, a thin female physique is portrayed as an object of desire and aspiration while an overweight physique is portrayed as an object of denigration and ridicule (Blaine & McElroy, 2002; Fouts & Burggraf, 1999, 2000). Women's magazines are also replete with product advertisements and advice on "how to lose weight and look your best" (APA Task Force, 2007; Sypeck et al., 2004; Ward, 2003). Collectively, these images depict a standard of attractiveness that is unattainable to most, yet highly desirable and considered central to a woman's happiness and societal success (Hesse-Biber, Leavy, Quinn, & Zoino, 2006).

According to the socio-cultural model of disordered eating (Stice, 1994), repeated exposure to unrealistic standards of female attractiveness (i.e., "thin ideal") espoused and

communicated by one's family, peers, and the media exert considerable pressure on girls and women to lose weight. Over time these socio-cultural pressures may become internalized as a set of beliefs concerning the importance of having a thin physique as a determinant of happiness and success. Given the discrepancy between the societal ideal body size conveyed and reinforced by one's various social agents and the body size of the average woman (Dittmar, Halliwell, & Stirling, 2009; Spitzer et al., 1999), body dissatisfaction becomes a normative part of the female experience (Bearman, Presnell, Martinez, & Stice, 2006) fueling in turn dysfunctional eating-related attitudes and behaviors through two central pathways: dieting and negative affect (Stice, 1994, 2002; Stice & Shaw, 2002).

Mounting empirical evidence synthesized in four recent meta-analyses provides support for the socio-cultural model of disordered eating, particularly the media's role in shaping and fueling women's body image and eating-related preoccupations. For instance, greater time spent reading fashion magazines and viewing appearance-related television was positively related to "thin ideal" internalization ( $r$ s ranged from .02 to .21), body dissatisfaction ( $r$ s ranged from .09 to .12), and disordered eating behaviors ( $r$ s ranged from .06 to .13) (Levine & Murnen, 2009). An early meta-analysis of 25 experimental studies concluded that brief exposure to thin female media models relative to average-sized models or inanimate objects exerted a small but detrimental effect on women's subsequent evaluations of their body ( $d = -0.31$ ) (Groesz, Levine, & Murnen, 2002). A recently updated paper which included findings from 47 laboratory experiments replicated the overall adverse effect of exposure ( $d = -0.35$ ) (Want, 2009). When correlational and experimental findings were considered together, self-reported and manipulated exposure were associated with greater internalization of the "thin ideal" ( $d = -0.39$ ), greater body

dissatisfaction ( $d = -0.28$ ), and more dysfunctional eating-related attitudes and behaviors ( $d = -0.30$ ) (Grabe, Ward, & Hyde, 2008).

By the same token, a growing body of literature indicates that not all girls and women respond to media portrayals of the “thin ideal” in the same manner. For instance, the magnitude and direction of effect sizes reported in the Want (2009) meta-analysis evidenced considerable variability ( $d$ s ranged from -1.48 to 1.16) as did the effect sizes reported in the Groesz et al. (2002) paper ( $d$ s ranged from -1.12 to 0.30). Indeed, findings from a number of individual studies suggest that the adverse effects of exposure may be limited to women who have internalized beliefs surrounding the “thin ideal” standard (Dittmar et al., 2009), who are prone to social comparison (Dittmar & Howard, 2004), who are chronically dissatisfied with their body (Trampe, Stapel, & Siero, 2007), or for whom appearance is an important dimension of the self such as those who self-objectify (Monro & Huon, 2005) and those who are appearance schematic (Hargreaves & Tiggemann, 2002). Conversely, women who diet appear to be positively impacted by exposure (e.g., Joshi, Herman, & Polivy, 2004; Mills, Polivy, Herman, & Tiggemann, 2002) arguably by imagining themselves as slender as the models in the media (e.g., Tiggemann, Polivy, & Hargreaves, 2009). While the above-mentioned moderators are distinct from another, they all imply some form of internalization of societal ideals concerning appearance thus rendering this sub-group of women particularly sensitive to “thin ideal” media.

Yet, it is unclear *why* some women may be more responsive to socio-cultural pressures of thinness and therefore more vulnerable to the internalization of these societal standards of attractiveness. Some have theorized that body image and eating-related disturbances maybe symptomatic of disturbances within the self; the body would therefore be viewed as a vehicle of self-definition (Dittmar, 2009; Polivy & Herman, 2007; Stein, & Corte, 2003). To illustrate,

higher levels of identity confusion have been reported in bulimics compared to non-bulimic controls (Schupak-Neuberg & Nemeroff, 1993). In samples of adolescent girls, self-esteem deficits prospectively predicted greater body dissatisfaction (Paxton, Eisenberg, & Neumark-Sztainer, 2006) and the onset of binge eating (Stice, Presnell, & Spangler, 2002). In samples of university students, greater self-esteem was negatively related to internalization of socio-cultural beliefs surrounding thinness (Clay, Vignoles, & Dittmar, 2005; Fingeret & Gleaves, 2004) as was a non-conformist attitude (Twamley & Davis, 1999), a feminist identity (Murnen & Smolak, 2009), and a clear self-concept (Vartanian, 2009). A confused identity has also been positively linked to psychological disturbances characteristic of eating pathology such as maturity fears, interpersonal distrust, feelings of ineffectiveness, poor interoceptive awareness, and perfectionism (Wheeler, Winter, & Polivy, 2003). Together, these findings suggest that a fragile sense of self or poorly defined identity may render a woman more susceptible to adopting externally defined ideas concerning attractiveness and body image.

In the present thesis, self-related disturbances were investigated from the perspective of self-determination theory (SDT; Deci & Ryan, 1985, 2000). SDT adopts a growth-oriented perspective of the self and thereby proposes that human beings are endowed with inherent tendencies toward greater organization, integration, and coherence both within their self-systems and as members of their social groups. However, the full expression of these natural processes is contingent upon the satisfaction of three psychological needs [e.g., competence (i.e., feeling optimally challenged and effective in one's abilities), autonomy (i.e., feeling that one is at the source of one's actions), and relatedness (i.e., feeling connected to and cared for by significant others)] afforded by one's social environment. Development would therefore result from the

dynamic interplay between organismic integrative tendencies and social environments that support or hinder this process.

From a behavioral standpoint, this interplay is reflected in the regulation of behavior which differs in degree of perceived autonomy or self-determination. From the least self-determined to the most self-determined style of behavior regulation they are: *amotivation* in which behaviors are experienced as unintentional, uncontrollable, and impersonally caused, *external regulation* whereby behaviors are enacted to obtain desirable end states (e.g., rewards, positive regard of others) or to avoid undesirable end states (e.g., punishments), *introjected regulation* in which behaviors are motivated from self-worth contingencies (e.g., to avoid feelings of guilt and shame), *identified regulation* in which behaviors are performed because they are consciously valued and deemed personally important, *integrated regulation* whereby behaviors are performed because they express one's deepest values and principles, and *intrinsic regulation* in which behaviors are performed for their own sake, free of separable outcomes.

The existence of a self-determination continuum implies that not all intentional actions flow from the self. The amotivated, external, and introjected styles of behavior regulation are considered non self-determined because while they are initiated by the person they are not self-endorsed. Therefore, they are experienced as coercive, controlling and pressured. Conversely, the identified, integrated, and intrinsic styles of behavior regulation are considered self-determined because they are informed by the needs and values of the self. Consequently, they are experienced as authentic, reflective, and freely chosen. In turn, these qualitatively different intra-psycho experiences predict qualitatively different outcomes. Findings from multiple studies conducted in the laboratory and across various life domains have consistently shown that self-determined relative to non self-determined styles of behavior regulation are associated with

greater performance, a healthy persistence, improved conceptual learning, enhanced creativity and psychological well-being as well as better physical health (for reviews see Deci & Ryan, 2000, 2002, 2008). A self-determination continuum also implies that not all socially valued proscriptions can be integrated into the self. Extrinsically-oriented values (i.e., financial success, popularity, and an attractive appearance) relative to intrinsically-oriented values (i.e., self-acceptance, community affiliation, and physical health) are not inherently satisfying to pursue (i.e., they do not satisfy psychological needs for autonomy, competence, and relatedness) as their attainment are instrumental to other desired rewards usually in the form of external or internal validation (Kasser & Ryan, 1993, 1996). Extrinsically-oriented values are therefore associated with self-worth contingencies and interpersonal comparisons; both which are antithetical to the growth-oriented perspective of the self (e.g., Vansteekiste, Matos, Lens, and Soenens, 2007).

Applied to the domain of body image, Pelletier and colleagues proposed that individual differences in self-determination may account for women's varying responses to socio-cultural influences espousing a "thin ideal" standard of female attractiveness. In an adapted version of the socio-cultural model of disordered eating, dispositional feelings of self-determination emerged as a negative predictor of perceptions of socio-cultural pressures of thinness, internalization of societal beliefs concerning thinness and obesity, and bulimic symptoms (Pelletier, Dion, & Levesque, 2004). Moreover, the inclusion of general self-determination to the model weakened a number of relationships suggesting that the more women feel self-determined toward their everyday activities, the less pressure they perceive from their various social agents (e.g., friends, partners, media, parents) to have a thin body and therefore the less vulnerable they are to internalizing the "thin ideal" standard consequently resulting in less body dissatisfaction and eating pathology. This model was further substantiated and extended to

include the regulation of eating behaviors. In agreement with SDT, Pelletier and colleagues proposed that people may approach the regulation of their eating behaviors in an autonomous (i.e., self-determined) or controlled (i.e., non self-determined) fashion (Pelletier, Dion, Slovinec-D'Angelo, & Reid, 2004). The inclusion of these two distinct motivational orientations to the Pelletier, Dion, and Levesque (2004) model suggest that elevated levels of body dissatisfaction resulting from “thin ideal” internalization do not always translate to dysfunctional eating behaviors. Indeed, body dissatisfaction was positively associated with both an autonomous and controlled regulation of eating behaviors which in turn were associated with healthy and dysfunctional eating habits (Pelletier & Dion, 2007).

The present thesis builds on the work of Pelletier and colleagues by investigating the protective role of self-determination in response to an important source of socio-cultural influence on women's body image, namely the media. It was hypothesized that the tendency to initiate and organize one's actions based on personal choices and well-integrated values would render women less vulnerable to external/societal definitions of female attractiveness extolled in the media. Conversely, the tendency to initiate one's behaviors in response to internal (e.g., shame, guilt) and/or external sources of pressure (e.g., to be positively viewed by others) would render women more responsive to the media's influence on their body image. These hypotheses were tested in three separate laboratory experiments described in three articles.

The study described in Article 1 examines the buffering role of self-determination in response to media images of female models which exemplified the societal “thin ideal” standard. In this study, self-determination was assessed at the dispositional level of analysis which refers to a person's enduring motivational orientation toward his/her everyday behaviors. Women who feel relatively less self-determined in their daily activities were expected to perceive greater

pressure from the media to be thin, experience greater body dissatisfaction and negative affect, report greater internalization of stereotypical beliefs surrounding thinness and obesity, and express greater concerns over the quantity rather than the quality of food in their diet following exposure to media images which typified the societal “thin ideal” standard of female attractiveness compared to media images which did not. Conversely, women who feel more self-determined in their daily activities were expected to produce a more uniform set of responses across the video exposure conditions.

The study described in Article 2 builds on the findings obtained from the first study by investigating the protective role of self-determination at the life-domain level of analysis, namely toward the regulation of eating behaviors. This study proposes that an autonomous regulation of eating behaviors may be particularly beneficial to women who display a pre-existing vulnerability to the media’s influence, namely who are dissatisfied with their body. Controlling for pre-exposure levels, an autonomous regulation of eating behaviors was expected to mitigate the vulnerability afforded by elevated levels of body dissatisfaction in response to thin female models compared to no models reflected by lower post-exposure ratings of size dissatisfaction and negative affect, greater intentions to monitor one’s food intake (e.g., count calories) and eat healthy foods (e.g., fruits and vegetables), and fewer intentions to abstain from eating (e.g., skip meals) and eat unhealthy foods (e.g., chocolate bars).

The study described in Article 3 sought to extend the potentiating and protective effects documented for varying degrees of self-determination in Article 1 and Article 2 by investigating the impact of exposure to a different portrayal of the female body; one that constructs the body as an instrument of women’s actions rather than as an object of gaze. Consistent with Objectification Theory (Fredrickson & Roberts, 1997) and SDT’s research on the categorization

of goals (i.e., intrinsic vs extrinsic), it was hypothesized that media images showcasing the functional/competence-based attributes of the female body would yield a beneficial effect of exposure in female viewers by triggering a “body-as-process” orientation toward the physical self. Conversely, media images showcasing the appearance-based attributes of the female body were expected to produce a detrimental effect of exposure by triggering a “body-as-object” orientation toward the physical self. These differential effects of exposure were investigated on women’s body image evaluations (e.g. self-appraisals of the body’s appearance, self-appraisals of the body’s competence, and body shame), vitality, and differing reasons (e.g., identified and introjected) for restricting their actual intake of chocolate bars. In this study, self-determination was again assessed at the dispositional level of analysis but was represented by two distinct motivational orientations: autonomous motivation (a composite of the three self-determined styles of behavior regulation, namely intrinsic, integrated, and identified) and controlled motivation (a composite of the three non self-determined styles of behavior regulation, namely introjected, external, and amotivated). Based on the findings of Study 1 and Study 2, it was hypothesized that a controlled motivation would render women more responsive to media portrayals of the female body compared to an autonomous motivation. To be specific, a controlled motivation was expected to produce a more positive set of responses to portrayals of the female body as a process while it was expected to yield a more negative set of responses to portrayals of the female body as an object. These three articles are included in the next sections of the thesis followed by a General Discussion of their findings.

Running Head: GENERAL SELF-DETERMINATION, MEDIA, AND BODY IMAGE

The Protective Role of General Self-Determination Against ‘Thin-Ideal’ Media Exposure on  
Women’s Body Image and Eating-Related Concerns

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### Abstract

Women's responses to 'thin ideal' media pending their level of general self-determination (GSD) were examined. High and low GSD women ( $N = 99$ ) viewed a 'thin physique salient' (TPS) video or a 'thin physique non-salient' (TPNS) video. Following exposure to the TPS video, perceptions of pressure from the media to be thin, body dissatisfaction, and concerns over quantity of food were greater for low but not high GSD women. However, high GSD women reported greater concerns over the quality of food they eat following exposure to the TPNS video. Prevention efforts aimed at enhancing GSD are discussed.

Keywords: media, body image, self-determination

## **The Protective Role of General Self-Determination Against ‘Thin Ideal’ Media Exposure on Women’s Body Image and Eating-Related Concerns**

Results from numerous studies indicate that brief exposure to manipulated media images of thin, beautiful female models has a detrimental effect on women’s body image and eating-related concerns. A recent meta-analysis of 47 laboratory experiments concluded that girls and women report greater dissatisfaction with their appearance following exposure to ‘thin ideal’ media ( $d = -0.35$ ) (Want, 2009). However, a growing and extensive body of literature indicates that not all women respond to ‘thin ideal’ media in the same manner. For example, the Want (2009) meta-analysis documented larger effect sizes among women with ‘pre-existing’ appearance concerns ( $d = -0.52$ ) compared to women without such concerns ( $d = -0.16$ ). Individual studies have also shown that the detrimental impact of exposure to thin female media models may be limited to women who report greater internalization of sociocultural beliefs surrounding thinness and obesity (e.g., Dittmar & Howard, 2004), who are prone to social comparison (Dittmar & Howard, 2004), have an appearance-based schema (Hargreaves & Tiggemann, 2002), and who self-objectify (Monro & Huon, 2005).

Collectively, these factors advance knowledge on individual differences in terms of women’s vulnerabilities. However, little is known on potential positive traits which may protect women from sociocultural pressures of thinness and specifically from those extolled in the media (Cash, 2005; Steck, Abrams, & Phelps, 2004). Correlational research has found support for some factors such as a non-conformist attitude (Twamley & Davis, 1999), the endorsement of feminist beliefs (Murnen & Smolak, 2009), self-esteem (Fingeret & Gleaves, 2004), and self-concept clarity (Vartanian, 2009). Together these factors suggest that individual responses to cultural prescriptions of female attractiveness and dieting may reflect underlying differences in

self and identity-related content and processes (Polivy & Herman, 2007; Stein & Corte, 2003).

A promising self-related variable is general self-determination which has recently been incorporated in an adapted version of the sociocultural model of disordered eating (Pelletier & Dion, 2007; Pelletier, Dion, & Levesque, 2004).

### **Self-Determination Theory**

According to Self-Determination Theory (Deci & Ryan, 1985b, 2002) people engage in their various behaviors and activities for different reasons. Deci and Ryan (1985b) postulate the existence of six styles of behavior regulation ordered along a continuum of perceived autonomy or self-determination, thought to reflect the degree to which the motive to act has been increasingly internalized and integrated into the self. From the least self-determined to the most self-determined style of behavior regulation they include: amotivation; external regulation; introjected regulation; identified regulation; integrated regulation; and intrinsic regulation. Each of these behavior regulations can be combined into a self-determination index indicative of individual differences in relative self-determination underlying a particular set of behaviors or activities. High self-determination scores reflect greater endorsement of behavior by the self and are thus hypothesized to result in healthier functioning compared to low self-determination scores.

In the present study, self-determination is assessed at the dispositional level which refers to a person's enduring motivational orientation toward his/her everyday activities. At this level of generality, high self-determination reflects a sense of self that is integrated, unified, and non-contingent. Behaviors are experienced as authentic, reflective, and freely chosen because they are initiated and enacted by the self (Ryan, 1993). Conversely, low self-determination is hypothesized to reflect a more compartmentalized and disintegrated sense of self. Behaviors are

experienced as controlling and pressured because while they are initiated by the person they are not self-endorsed. The beneficial role of high general self-determination on health and well-being-related outcomes has been demonstrated in the domains of education (Amiot, Blanchard, & Gaudreau, 2008), sports (Vallerand et al., 2006), work (Blanchard, Tremblay, Mask, & Perras, 2009), and more recently in the domain of women's body image and eating behaviors.

### **Self-Determination Theory and Body Image**

In a recent set of papers, Pelletier and colleagues hypothesized that individual differences in general self-determination may account for women's varying responses to a societal climate emphasizing thinness as the standard of female attractiveness (Pelletier & Dion, 2007; Pelletier, Dion, & Levesque, 2004). According to the sociocultural model of disordered eating (Stice, 1994, 2001), perceptions of pressure to have a thin body from various social agents (e.g., media, parents, peers, partners) (e.g., Hesse-Biber, Leavy, Quinn, & Zoino, 2006) promote an internalization of stereotypical beliefs surrounding the 'thin ideal' (e.g., Stice, Schupak-Neuberg, Shaw, & Stein, 1994). Given the extremity of this ideal, body dissatisfaction becomes the common experience for most women (e.g., Keel, Baxter, Heatherton, & Joiner, 2007) and in turn fuels dysfunctional eating attitudes and behaviors (e.g., bulimic symptoms) through two central pathways: dieting and negative affect (Stice, 1994, 2002; Stice & Shaw, 2002).

In an adapted version of the sociocultural model of disordered eating, general self-determination emerged as a negative predictor of perceptions of sociocultural pressures of thinness, internalization of sociocultural beliefs surrounding thinness and obesity, and bulimic symptoms (Pelletier, Dion, & Levesque, 2004). Moreover, the inclusion of general self-determination to the model weakened the relationships among the variables suggesting that general self-determination may serve a protective function. This motivational model was further

substantiated and extended to include the regulation of eating behaviors (Pelletier & Dion, 2007) whereby general self-determination was differentially associated with an autonomous and a controlled regulation of eating behaviors predicting in turn qualitatively different eating habits (e.g., healthy eating and dysfunctional eating). The present study will test the buffering role of general self-determination against a manipulated and important source of sociocultural pressures of thinness, namely media depictions of the ‘thin ideal’ whereby a negative relationship is anticipated between general self-determination and perceptions of pressure from the media to be thin.

### **Overview of the Present Study**

The primary aim of the present research is to investigate the protective role of general self-determination against the negative impact of ‘thin-ideal’ media exposure on the correlates of women’s body image preoccupations. A secondary aim is to examine women’s differential concerns over the food they eat as a result of exposure and as a function of their level of general self-determination. In addition to the anticipated adverse main effects of video exposure (e.g., Want, 2009) and positive main effects of general self-determination (Pelletier, Dion, & Levesque, 2004), high general self-determination was hypothesized to mitigate the impact of ‘thin ideal’ media exposure on women’s body image preoccupations and differential eating concerns evidenced by fewer perceptions of pressure from the media to be thin, less internalization of sociocultural beliefs surrounding thinness and obesity, less body dissatisfaction, less negative affect, less concern over quantity of food, and more concern over quality of food.

## Method

### Design

The present study employed a between-subjects post-test only 2 x 2 factorial design. The independent variables were video condition (TPS, TPNS) and level of general self-determination (high, low). The outcomes included: perceptions of pressure from the media to be thin; internalization of sociocultural beliefs surrounding thinness and obesity; body dissatisfaction; negative affect; concern over quantity of food; and concern over quality of food.

### Participants

The sample was comprised of 99 female undergraduate students with a mean age of 20.52 ( $SD = 2.64$ ) years. The majority was Caucasian and most participants majored in psychology (75.8%). Participants' self-reported weight (lbs.) and height (feet and inches) were used to calculate their body mass index which ranged from 15.91 to 32.23 ( $M = 21.86$ ,  $SD = 2.95$ ) and used as a covariate in subsequent analyses. Finally, most of the participants ( $n = 69$ ) were recruited from an Integrated System of Participation in Research and received course credit for their participation while the remaining ( $n = 30$ ) were recruited on a volunteer basis and were not compensated. Participants were equivalent on age, BMI, and level of general self-determination across recruitment samples,  $F(3, 93) = 2.02$ ,  $p = .12$ .

### Experimental Stimuli

Two videos were created for this laboratory experiment: a 'thin physique salient' (TPS) video and a 'thin physique non-salient' (TPNS) video. Each video featured advertisements and portions of television programs and movies that were spliced together in order to create a continuous stimulus of four minutes in duration. Both videos featured images of beautiful, slim female models. However, the TPS video was designed to portray the societal 'thin ideal' stan-

standard of female attractiveness while the TPNS video was designed as a comparable control. The female models in the TPS video wore fitted clothing which revealed their thin physique. The song ‘Unbelievable’ by the pop band EMF was dubbed over the original soundtrack. By contrast, the female models in the TPNS video wore loose clothing and were depicted laughing, talking, or engaged in some activity (e.g., yoga); their thin physique was not the focal point of the image. The song ‘Don’t Need You To Tell Me I’m Pretty’ by Samantha Mumba was dubbed over the original soundtrack. The pop songs were selected in accordance with the content of each video. Both videos were created in a manner to replicate naturalistic television viewing at home.

### **Procedure**

All participants completed a measure of general self-determination and self-reported height and weight during class time at the beginning of the semester, prior to their arrival to the laboratory. Equivalency on age, BMI, and level of general self-determination across video conditions was tested and supported,  $F(3, 89) = .46, p = .71$ . In order to minimize self-selection based on pre-existing appearance concerns, all participants were under the guise that they were participating in a study on ‘Media and Memory Retention’. Participants were randomly assigned to view either the TPS video or the TPNS video and were instructed to watch the video attentively as they would be queried on its contents later. Afterwards, participants had three minutes to complete a memory retention exercise in which they were instructed to list any number of thoughts they had related to the video. Following the thought listing task, participants completed measures of the dependent constructs of interest. At the end of the experiment, participants were thanked for their participation, debriefed, and queried on their suspicions as to the real goal of the study. No participants suspected the hypotheses being tested.

## Constructs and Measures

**General self-determination.** The General Motivation Scale (GMS; Pelletier et al., 2005) was used to assess general self-determination. The GMS is comprised of six subscales of three items each that correspond to the six styles of behavior regulation proposed by Deci and Ryan (1985b). Participants rated the extent to which each of the 18 items corresponded to their reasons as to ‘why they do things in general’ [e.g., ‘... because they reflect the essence of who I am’ (integrated regulation) and ‘... because I want to be viewed more positively by certain people’ (external regulation)] on a scale from 1 (*does not correspond to my reasons at all*) to 7 (*corresponds exactly to my reasons*). Scores from each subscale were averaged across their respective three items (*as ranged from .70 to .80*). Individual differences in general self-determination were calculated using a self-determination index =  $+3*(\text{intrinsic}) + 2*(\text{integrated}) + 1*(\text{identified}) - 1*(\text{introjected}) - 2*(\text{external}) - 3*(\text{amotivation})$  (Ryan & Connell, 1989). Participants were blocked on general self-determination (GSD) at the median ( $Mdn = 9.33$ ) to create groups of women who were either high ( $M = 17.14, SD = 4.90$ ) or low ( $M = 3.47, SD = 3.41$ ) in GSD.

**Perceived pressures from the media to be thin.** This construct was assessed with two items from the Perceived Sociocultural Pressures to Have a Thin Body Scale (Stice & Agras, 1998). These items were: ‘I’ve perceived a strong message from the media (e.g., TV, magazines) to lose weight’ and ‘I’ve noticed a strong message from the media to have a thin body’. Responses were rated from 1 (*do not agree at all*) to 5 (*strongly agree*) and averaged together (TPS video:  $r = .60$ , TPNS video:  $r = .67$ ).

**Internalization of sociocultural beliefs surrounding thinness and obesity.** This construct was assessed using Boyer’s (1993) Internalization of Beliefs Surrounding Thinness and

Obesity Scale (eight items). Sample items included: ‘People who are thin are well liked’ (thinness) and ‘Deep down, those who are fat are not well adjusted’ (obesity). Responses were rated from 1 (*do not agree at all*) to 7 (*strongly agree*) and averaged together (TPS video:  $\alpha = .87$ , TPNS video:  $\alpha = .86$ ).

**Body dissatisfaction.** The Body Dissatisfaction subscale (nine items) of the Eating Disorder Inventory (Garner, Olmstead, & Polivy, 1983) was used to assess this construct. Participants rated their level of dissatisfaction from 1 (*never*) to 6 (*always*) with various parts of the body (e.g., hips, stomach, thighs, and buttocks). Responses were averaged together (TPS video:  $\alpha = .94$ , TPNS video:  $\alpha = .95$ ).

**Negative affect.** The Negative Affect subscale of the International Positive and Negative Affect Schedule Short Form was used to assess negative affect (Thompson, 2007). Participants rated the extent to which they felt ‘upset’, ‘hostile’, ‘ashamed’, ‘nervous’, and ‘afraid’ on a scale from 1 (*very slightly or not at all*) to 5 (*extremely*). Responses were averaged together (TPS video:  $\alpha = .76$ , TPNS video:  $\alpha = .80$ ).

**Eating concerns.** Differential eating concerns were assessed with the following items: ‘To what extent are you concerned by the quantity of food you’re eating?’ and ‘To what extent are you concerned by the quality of food you’re eating?’ Responses were rated from 1 (*not at all concerned*) to 7 (*very concerned*) (Pelletier, Dion, Slovinec-D’Angelo, & Reid, 2004).

## Results

### Manipulation Check

Those who viewed the TPS video were expected to generate more thoughts related to the models’ thinness (e.g., ‘skinny’, ‘thin/thinness’) and physical appearance (e.g., ‘beauty/beautiful’, ‘perfect’) in comparison to those who viewed the TPNS video. The perceived

‘thin-ideal’ content of the TPS video was supported whereby 48 references to the models’ thinness were made in comparison to eight references in the TPNS video  $\chi^2(1, N = 56) = 28.57, p < .001$ .

### **Main Analyses**

A 2 (GSD: high, low) x 2 (video: TPS, TPNS) MANCOVA was conducted on all six dependent variables with BMI as a covariate. Multivariate and univariate effects are reported in Table 1. BMI emerged as a significant multivariate covariate on two outcomes. Women with higher body mass indexes relative to women with lower body mass indexes reported less internalization of sociocultural beliefs surrounding thinness and obesity,  $r = -.27, p < .01$  and greater body dissatisfaction,  $r = .35, p < .01$ . No multivariate main effect for video was found while a multivariate main effect emerged for level of GSD. Women with high GSD relative to women with low GSD reported less internalization of sociocultural beliefs surrounding thinness and obesity ( $M = 2.79, SE = 0.16$  vs  $M = 3.34, SE = 0.16$ ), less negative affect ( $M = 0.19, SE = 0.03$  vs  $M = 0.27, SE = 0.03$ ), and greater concern over the quality of food they eat ( $M = 5.61, SE = 0.19$  vs  $M = 4.77, SE = 0.19$ ). Finally, a multivariate interaction effect emerged between First, low GSD women reported greater perceptions of pressure from the media to be thin following exposure to the TPS video compared to the TPNS video while high GSD women’s ratings were similar across video conditions. Second, high GSD women reported less body dissatisfaction following exposure to the TPS video compared to the TPNS video while low GSD women reported greater body level of GSD and video condition on four outcomes. Means, standard errors, and simple effects for all dependent variables across levels of general self-determination (GSD) and video conditions are displayed in Table 2.

First, low GSD women reported greater perceptions of pressure from the media to be thin following exposure to the TPS video compared to the TPNS video while high GSD women's ratings were similar across video conditions. This interaction is displayed in Figure 1. Second, high GSD women reported less body dissatisfaction following exposure to the TPS video compared to the TPNS video while low GSD women reported greater body dissatisfaction following exposure to the TPS video compared to the TPNS video. This interaction is displayed in Figure 2. Third, low GSD women expressed greater concern over the quantity of food they eat following exposure to the TPS video compared to the TPNS video while high GSD women did not significantly differ in their ratings across video conditions. This interaction is displayed in Figure 3. Finally, high GSD women reported marginally greater concern over the quality of food they eat following exposure to the TPNS video compared to the TPS video while low GSD women's ratings did not significantly differ across video conditions. This interaction is displayed in Figure 4.

### **Discussion**

Findings from the present study support the protective role of high general self-determination in response to an important source of sociocultural pressure about body image, namely the media. The more women engage in their everyday activities with a sense of autonomy and volition, the more protected they are from societal ideas of female attractiveness (e.g., having a thin body). Conversely, the more women feel coerced and controlled in their general behaviors, the more vulnerable they are to sociocultural influences on their body image and eating-related concerns.

First, hypotheses concerning main effects for general self-determination were partially supported. Consistent with the findings of Pelletier and colleagues (Pelletier & Dion, 2007;

Pelletier, Dion, & Levesque, 2004) women with high relative to women with low general self-determination reported less endorsement of sociocultural beliefs surrounding thinness and obesity. However, this effect was not qualified by a significant interaction between general self-determination and video condition. While correlational research supports a moderate positive association between ‘thin-ideal’ media exposure and internalization of sociocultural attitudes surrounding appearance (e.g., Levine & Murnen, 2009), few studies have investigated this relationship in a causal fashion and results from these are mixed (e.g., Hawkins, Richards, Granley, & Stein, 2004; Stice & Shaw, 1994; Stice, Spangler, & Agras, 2001). Thus, an internalization of sociocultural beliefs surrounding thinness and obesity may reflect a more stable individual difference between women not subject to situational changes (e.g., Dittmar & Howard, 2004). Women with high relative to women with low general self-determination also reported less negative affect. This finding is consistent with previous research linking general self-determination and an autonomous causality orientation to general indices of well-being such as life satisfaction (Blanchard et al., 2009), self-esteem and ego development (Deci & Ryan, 1985a) depression and anxiety (Ratelle, Vallerand, Chantal, & Provencher, 2004). However, this main effect was consistent across video conditions. More sensitive measures of negative affect (e.g., Visual Analogue Scales) should be included in future studies.

Second, hypotheses concerning the buffering and beneficial role of high general self-determination in response to ‘thin ideal’ media were largely supported. Controlling for differences in body mass index, women with low general self-determination reported greater perceptions of pressure from the media to be thin and greater body dissatisfaction following exposure to media images that portray an ultra slim physique as the ‘ideal’ body shape while women with high general self-determination did not differ in their responses across video conditions. Despite

the ubiquitousness of ‘thin ideal’ media, these findings indicate that not all women perceive and interpret these images in the same manner. These results support and extend those of Pelletier and colleagues (Pelletier & Dion, 2007; Pelletier, Dion, & Levesque, 2004) using an experimental design.

Our findings are also in line with Self-Determination Theory’s research on the general causality orientations (Deci & Ryan, 1985a). People who orient themselves in an autonomous manner toward their social environment (i.e., high general self-determination) are hypothesized to interpret relevant stimuli as inputs of information which are then evaluated against the needs, interests, and integrated values of the self in order to determine and regulate the appropriate course of action. For example, the autonomous orientation has been associated with less defensiveness (Knee & Zuckerman, 1998), greater openness to experience (Lewis & Neighbors, 2005), and better emotional regulation (Weinstein & Hodgins, 2009). By contrast, people who are more control-oriented (i.e., low general self-determination) are sensitive to contingencies both within themselves and in their social environment leading them to perceive and interpret relevant events as inputs of pressure to behave in a certain manner. Stimuli are thus evaluated against socially prescribed ideals which are internal to the person but reside outside of the self. For example, control-oriented college students were found to be more sensitive to social norms as they adjusted their alcohol consumption based on perceptions of how much their college peers drank (Neighbors, Lewis, Bergstrom, & Larimer, 2006).

In the present study, women with high general self-determination may have interpreted the TPS video as a *source of information* concerning societal ideals of female attractiveness (Pelletier, Dion, & Levesque, 2004). The information provided by the models in the TPS video was likely discarded in light of their own ideals and integrated values. Conversely, women with

low general self-determination may have interpreted the TPS video as a *source of pressure* as to how they *should* look in order to be attractive. The information provided by the models in the TPS video was likely retained in light of a socially prescribed and valued ideal of attractiveness (i.e., to be thin) and consequently used to make judgments about the self.

We also sought to investigate the extent to which exposure to societal ideals of thinness could shape women's differential preoccupations with the food they eat as a function of their level of general self-determination. In response to the TPS video, women with low general self-determination reported greater concern over the quantity of food they ate. However, in response to the TPNS video, women with high general self-determination expressed greater concern over the quality of food they ate. These findings are congruent with past research concerning self-determination at the contextual level of generality, namely the regulation of eating behaviors. A controlled regulation of eating behaviors characterized by pressures and obligations either from oneself or from others to exert control over what one eats has been linked to greater concerns over quantity of food ( $r = .41$ ) compared to quality of food ( $r = .13$ ). It has also been associated with bulimic symptoms (Pelletier, Dion, Slovinec-D'Angelo, & Reid, 2004) and an avoidance-based strategy to meal planning (Otis & Pelletier, 2008). By contrast, an autonomous regulation of eating behaviors characterized by self-endorsement, choice, and identification with eating healthy has been linked to greater concerns over quality of food ( $r = .43$ ) compared to quantity of food ( $r = .18$ ), healthy eating habits (Pelletier, Dion, Slovinec-D'Angelo, & Reid, 2004) and an approached-based strategy to meal planning (Otis & Pelletier, 2008). Our findings suggest that different media portrayals of women prime different food preoccupations in different women. Media representations of a societal 'thin ideal' appear to activate preoccupations with *how much one eats* in women who are generally motivated out of expectations, pressures, and obligations.

Conversely, media representations of a more ‘holistic’ ideal of health (e.g., laughing, spending time with friends, and engaging in self-care activities such as yoga) appear to activate preoccupations with *what one eats* in women who are generally motivated out of personal choice and interest. Future studies should investigate these propositions in a more systematic way by including measures of intentions to diet and intentions to eat healthy following exposure to ‘thin ideal’ media.

Taken together, findings from the present study indicate that not all women respond in the same manner to sociocultural pressures of thinness extolled in the media. While previous research has demonstrated the media’s role in shaping women’s body image concerns (Want, 2009) our study underscores the importance of individual differences in this causal relationship specifically with respect to an important protective factor, namely general self-determination. However, the generalizability of our findings warrant caution in light of some limitations. First, our results may not generalize to samples of older women or to samples of women with elevated body masses (BMI > 30). Moreover, weight and height were self-reported and thus may have been under-reported. Second, the majority of our sample was Caucasian; thus our findings may not generalize to samples of women from different ethnicities. Third, the nature of our selected exposure medium (video) excludes the possibility of creating identical and equivalent videos with exception to the models’ thinness. Fourth, we did not include a non-appearance (e.g., products-only) video as a baseline condition. Although meta-analytic moderator analyses revealed no significant differences in effect sizes between studies using images of average-weight or over-weight women and studies using no images of women as the control stimuli (Want, 2009), the inclusion of a baseline condition using a ‘products- only’ video devoid of images of women would substantiate our conclusions. Fifth, we did not assess pre-exposure

levels on the dependent constructs of interest. While pre-post media exposure designs were shown to produce similar effect sizes to post-test only designs (Want, 2009), future research should replicate the current findings using a pre-post design and include measures designed to capture state changes in the laboratory (e.g., Visual Analogue Scales). Finally, some measures were limited to one or two items. Although the pattern of our results is consistent with our hypotheses and research on Self-Determination Theory (Deci & Ryan, 1985b, 2002), replication of the current findings in future studies would substantiate the protective role of general self-determination against the media's effects on women's body image and eating-related concerns.

Despite these limitations, findings from present study have implications for prevention and intervention programs. First, general self-determination is considered a reflection of the degree to which underlying behavior regulations have been integrated into the self whereby greater self-endorsement of one's general actions ensues more healthy and optimal functioning. Therefore prevention efforts aimed at enhancing general self-determination should improve several body image and eating-related outcomes. Indeed, high general self-determination was shown to mitigate the negative impact of 'thin ideal' media exposure on perceptions of pressure from the media to be thin, body dissatisfaction, concerns over quantity of food, and concerns over quality of food. Second, the construct of general self-determination is grounded in a well-researched macro-theory of human motivation and self-development which articulates specific contextual and intra-individual antecedents of self-determination (Deci & Ryan, 1985b, 2002). On an interpersonal level, women could be encouraged to select relationships which support their needs for competence, autonomy, and relatedness. On an intrapersonal level, women could be encouraged to engage in daily activities which they find important and valuable for their personal growth and development and which provide them with feelings of satisfaction and enjoyment.

Third, no between-group differences emerged on any of the outcomes following exposure to the TPNS video with the exception to concerns over quality food. These findings suggest that portraying women in a more 'holistic' fashion in the media with minimal emphasis on achieving a thin body may be beneficial to women's self-evaluations.

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Table 1.

*Multivariate (MF) and Univariate F Values Across BMI, Video Condition, Level of GSD, and Video x GSD*

	BMI	Video	GSD	Video x GSD
	$MF(6, 83) = 7.13^{***}$	$MF(6, 83) = 0.33$	$MF(6, 83) = 3.65^{**}$	$MF(6, 83) = 2.48^*$
PP media	0.51	0.08	1.62	7.63**
IBTO	5.79*	0.34	6.10*	1.13
Body dissatisfaction	15.92***	0.01	1.55	6.18*
Negative affect (log)	0.44	1.44	4.94*	0.00
Concern: quantity of food	2.28	0.15	0.06	7.81**
Concern: quality of food	2.19	0.01	9.43**	5.26*

*Note.* GSD = general self-determination, PP media = perceived pressure from the media to be thin, IBTO = internalization of socio-cultural beliefs surrounding thinness and obesity

\* $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

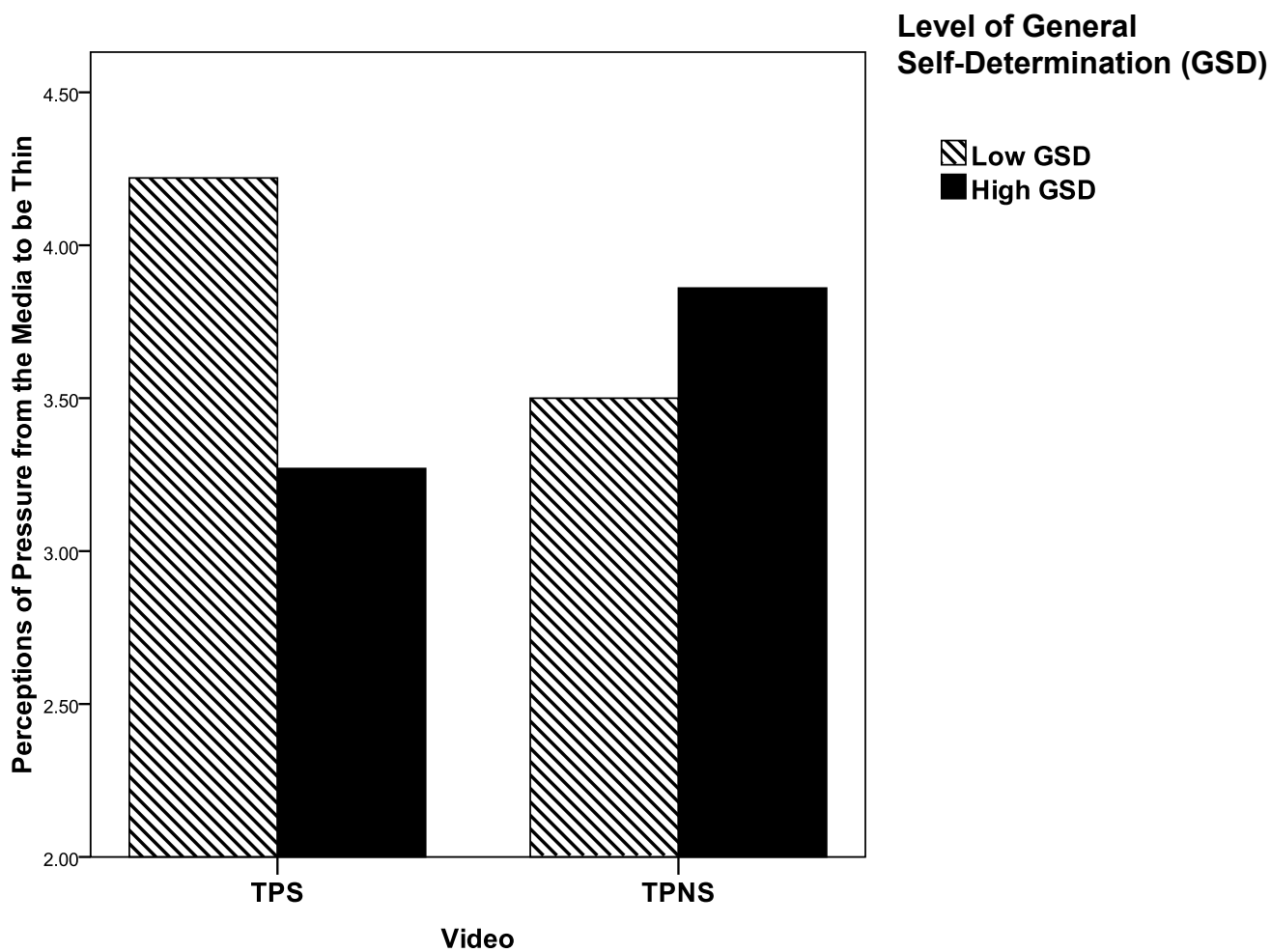
Table 2.

*Means (SE) for all Dependent Measures Across Levels of GSD and Video Conditions.*

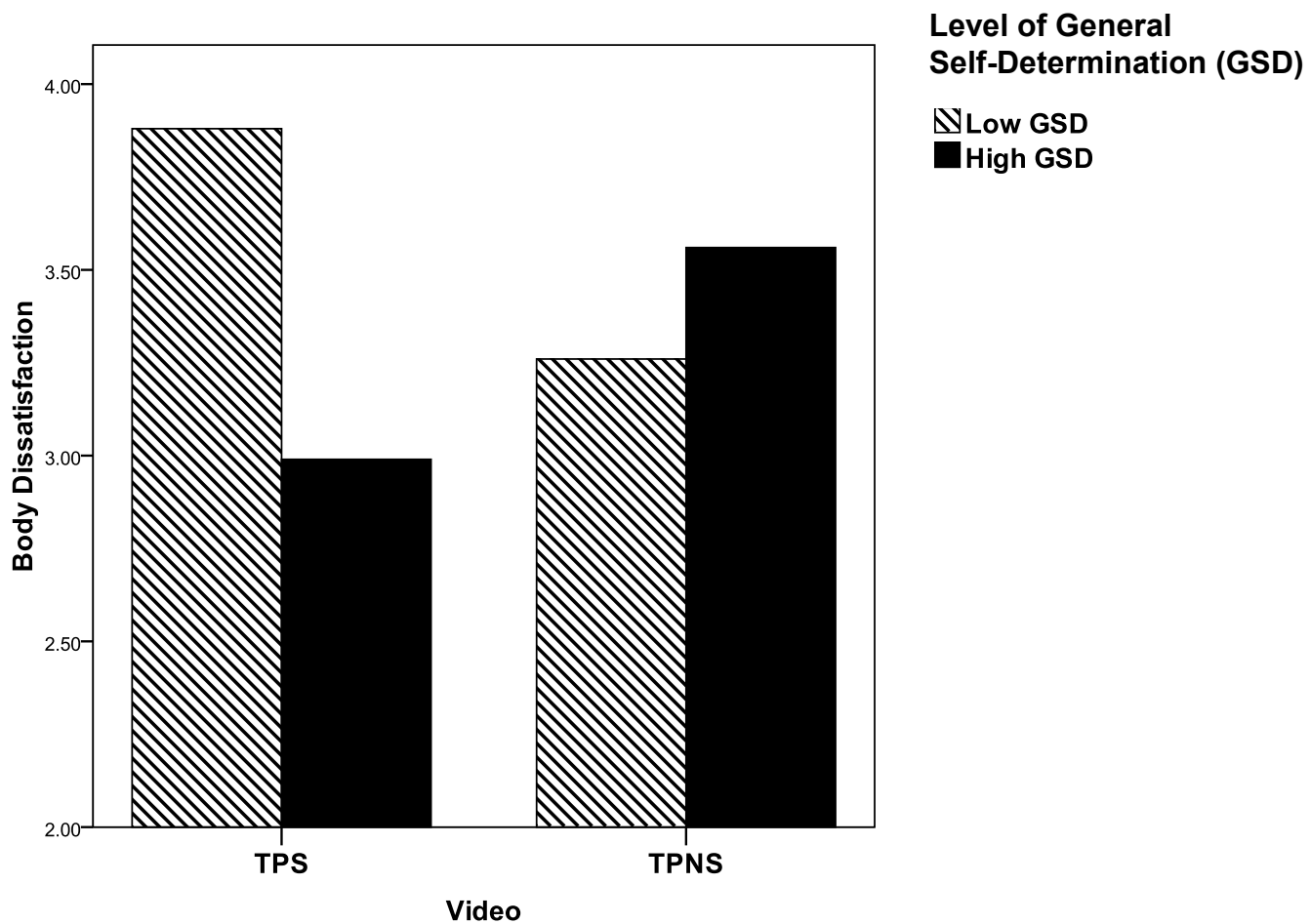
	High GSD			Low GSD		
	TPS	TPNS	<i>F</i> (1, 43)	TPS	TPNS	<i>F</i> (1, 44)
PP media	3.27 (.22)	3.86 (.26)	3.22	4.22 (.24)	3.50 (.22)	5.19*
IBTO	2.73 (.21)	2.84 (.25)	.28	3.53 (.23)	3.16 (.21)	1.62
Body dissatisfaction	2.99 (.22)	3.56 (.26)	4.38*	3.88(.25)	3.26 (.22)	4.10*
Negative affect (log)	.22 (.03)	.17 (.04)	1.12	.29 (.04)	.25 (.03)	.75
Concern: quantity of food	4.00 (.32)	4.84 (.38)	3.02	4.89 (.36)	3.78(.32)	6.75*
Concern: quality of food	5.28 (.25)	5.93 (.30)	3.66 <sup>a</sup>	5.07 (.28)	4.47(.25)	2.03

*Note.* GSDI = general self-determination, TPS = Thin physique salient video, TPNS = Thin physique non-salient video, PP media = perceived pressure from the media to be thin, IBTO = internalization of socio-cultural beliefs surrounding thinness and obesity

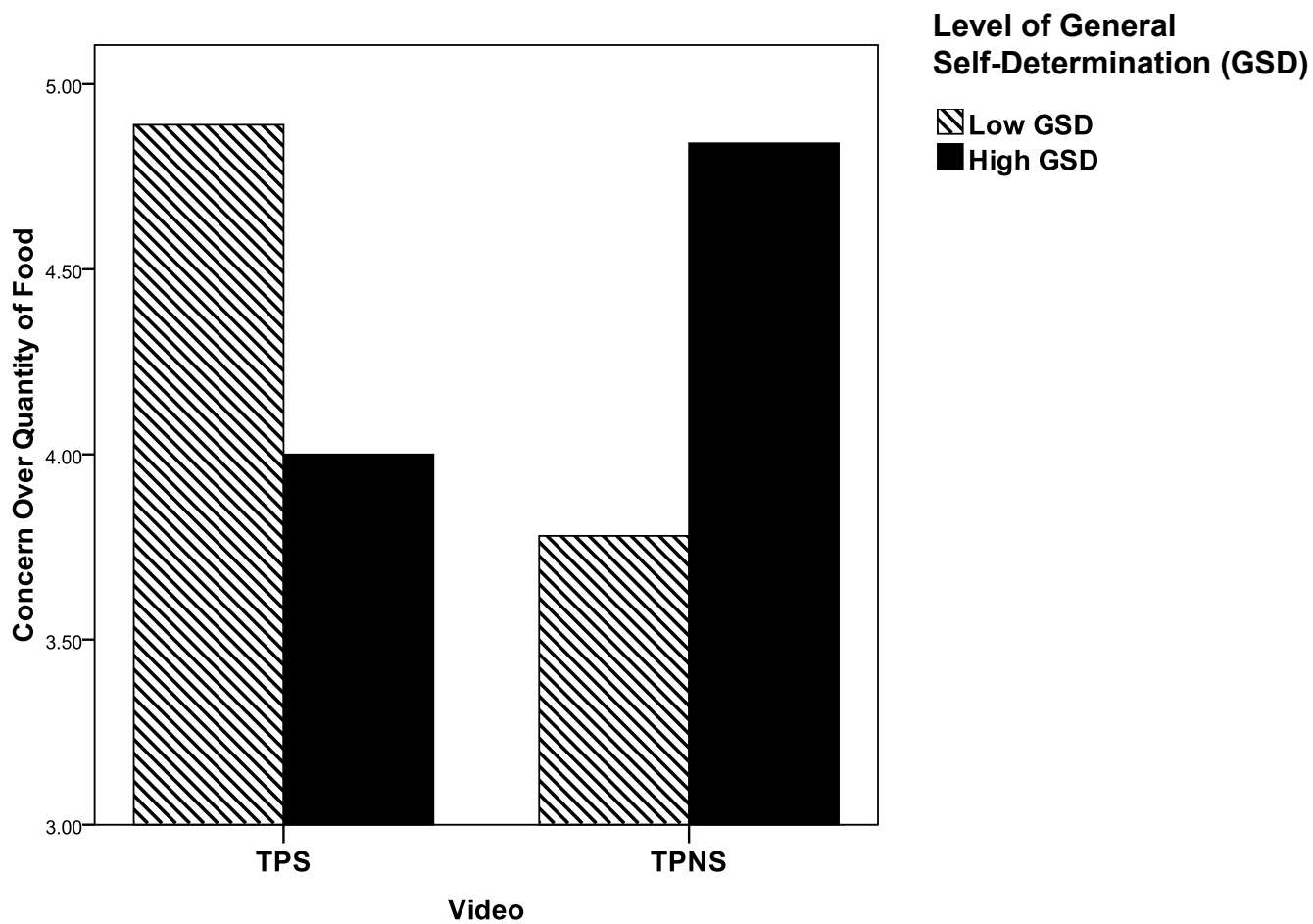
<sup>a</sup>  $p = .06$ , \* $p < .05$ , \*\*  $p < .01$



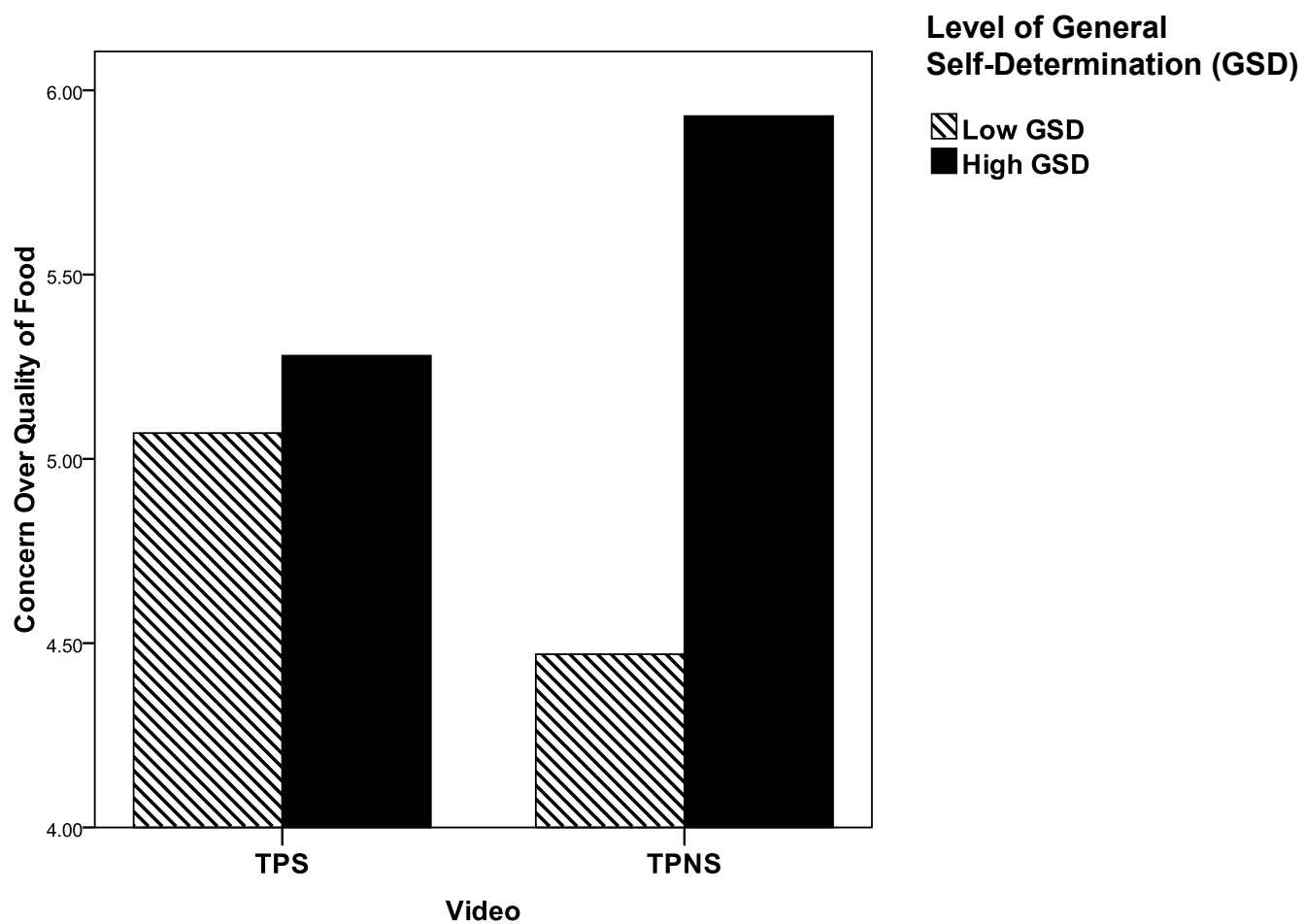
*Figure 1.* Mean levels of perceptions of pressure from the media to be thin as a function of TPS versus TPNS video exposure and high versus low general self-determination (GSD).



*Figure 2.* Mean levels of body dissatisfaction as a function of TPS versus TPNS video exposure and high versus low general self-determination (GSD).



*Figure 3.* Mean levels of concerns over quantity of food as a function of TPS versus TPNS video exposure and high versus low general self-determination (GSD).



*Figure 4.* Mean levels of concerns over quality of food as a function of TPS versus TPNS video exposure and high versus low general self-determination (GSD).

Running Head: AUTONOMOUS EATING, MEDIA, AND, BODY IMAGE

The Effects of "Thin Ideal" Media on Women's Body Image Concerns and Eating-Related Intentions: The Beneficial Role of an Autonomous Regulation of Eating Behaviors

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### Abstract

The present study examines the protective role of an autonomous regulation of eating behaviors (AREB) on the relationship between trait body dissatisfaction and women's body image concerns and eating-related intentions in response to "thin ideal" media. Undergraduate women ( $n = 138$ ) were randomly assigned to view a "thin ideal" video or a neutral video. As hypothesized, trait body dissatisfaction predicted more negative affect and size dissatisfaction following exposure to the "thin ideal" video among women who displayed less AREB. Conversely, trait body dissatisfaction predicted greater intentions to monitor food intake and limit unhealthy foods following exposure to the "thin ideal" video among women who displayed more AREB.

*Keywords:* autonomous motivation, "thin ideal" media, body image, eating intentions

## **The Effects of “Thin Ideal” Media on Women’s Body Image Concerns and Eating-Related Intentions: The Beneficial Role of an Autonomous Regulation of Eating Behaviors**

The media’s portrayal of thinness as a standard of female attractiveness is thought to play a determining role in women’s contentious relationship with their bodies by pressuring them to lose weight and be thin (e.g., Fouts & Burggraf, 1999, 2000; Spitzer, Henderson, & Zivian, 1999; Stice, 1994, 2002; Stice & Shaw, 2002; Sypeck, Gray, & Ahrens, 2004). Indeed, a meta-analysis of 47 experimental studies has shown that girls and women do report greater dissatisfaction with their body and overall appearance following acute exposure to media images of thin women compared to media images of average sized women or inanimate objects ( $d = -0.35$ )(Want, 2009).

By the same token, a growing body of literature indicates that not all women respond to “thin ideal” media in the same manner. To illustrate, the magnitude and direction of effect sizes reported in the Want (2009) meta-analysis evidenced considerable variability (ds ranged from  $-1.48$  to  $1.16$ ) as did the effect sizes reported in an earlier meta-analysis (ds ranged from  $-1.12$  to  $0.30$ ) (Groesz, Levine, & Murnen, 2002). These findings suggest that while some women are adversely affected by exposure to media portrayals of the “thin ideal”, others are not. For instance, samples of women with “pre-existing appearance concerns” produced larger effect sizes on average ( $d = -0.52$ ) than did samples of women without such concerns ( $d = -0.16$ ) (Want, 2009). Yet, the effect sizes reported in the former sub samples of women were not uniform. For example, inconsistencies were documented for body dissatisfaction and restrained eating. Part of this variability may be attributed to the interplay between these two factors which has not yet been investigated. We propose that a qualitatively different style of restrained eating

interacts with body dissatisfaction in a manner that mitigates women's responses to "thin ideal" media.

### **Individual Responses to "Thin Ideal" Media**

To date, body dissatisfaction and restrained eating have been investigated separately in the literature as moderators of the effects of exposure to "thin ideal" media on women's body image and eating related disturbances. While both imply a chronic preoccupation with one's appearance (Mills, Polivy, Herman, & Tiggemann, 2002; Posavac, Posavac, & Posavac, 1998), the former is limited to a negative evaluation of one's shape and weight while the latter includes intentional caloric restriction with the aim of losing or maintaining body weight (Herman & Mack, 1975; Stice, Fisher, & Lowe, 2004). A review of these studies reveals a mixed pattern of results.

For instance, body dissatisfaction did exacerbate undergraduate women's negative affect and body image disturbance (Hausenblas, Janelle, Gardner, & Hagan, 2002) following exposure to images of slender-looking women (Posavac et al., 1998) and even to images of slender-looking vases (Trampe, Stapel, & Siero, 2007). Yet, body dissatisfied adolescent girls did not significantly differ from their body satisfied counterparts in overall appearance dissatisfaction after viewing images of female fashion models (e.g., Champion & Furnham, 1999).

Inconsistencies have also been documented for restrained eating. For example, some studies evidenced a "self enhancement" effect among restrained eaters in response to "thin ideal" media, marked by significant increases in self-esteem, a more positive self-image, and a perceived smaller current body size (Joshi, Herman, & Polivy, 2004; Mills et al., 2002). Yet, restrained eaters consumed more snack food after viewing diet commercials featuring slim female models compared to unrestrained eaters (Mills et al., 2002; Seddon & Berry, 1996;

Strauss, Doyle, & Kreipe, 1994; Warren, Strauss, Taska, & Sullivan, 2005). In a more recent set of studies, the reverse pattern was documented; restrained eaters consumed less snack food in response to exemplars of restraint compared to unrestrained eaters (Anschutz, van Strien, & Engels, 2007, 2008). When viewing a movie clip featuring thin female models, restrained eaters compared to unrestrained eaters reported greater body dissatisfaction and consumed less snack food when the movie clip was viewed on a wide screen television which made the models appear larger compared to a standard size screen television (Anschutz, Engels, Becker, & van Strien, 2008). However, restrained eaters did report greater body dissatisfaction, lower appearance self-esteem, and marginally greater negative affect following exposure to information about a “thin bodied” peer (Trottier, Polivy, & Herman, 2007). While differences in the measurement of restrained eating may partially account for these contradictory findings (e.g., Restraint Scale; Polivy, Herman, & Warsh, 1978 vs the Restraint subscale of the Dutch Eating Behavior Questionnaire; van Strien, Frijters, Bergers, & Defares, 1986), we propose that women may also differ in their underlying reasons for engaging in dietary restraint.

### **The Regulation of Eating Behaviors from Self-Determination Theory**

Grounded in the framework of self-determination theory (Deci & Ryan, 1985b, 2002), Pelletier and colleagues have shown that people may approach the regulation of their eating behaviors in an autonomous or controlled fashion (Pelletier, Dion, Slovinec D’Angelo, & Reid, 2004). While both imply an intentional act of behavior regulation, these two broad motivational orientations differ in their degree of perceived autonomy or self-determination. An autonomous regulation of eating behaviors (AREB) is considered self-determined because it emanates from the self and is experienced as authentic and freely chosen. This motivational orientation is characterized by an identification with the importance of eating healthy as well as feelings of

pleasure and satisfaction in preparing healthy meals. By contrast, a controlled regulation of eating behaviors (CREB) is enacted by forces outside of the self and is thus experienced as coercive and controlling. This motivational orientation is marked by feelings of pressure and compliance (e.g., “other people expect me to regulate my eating behaviors”) as well as self-worth contingencies (e.g., “I would be ashamed of myself if I was not eating healthy”). In turn, these distinct motivational orientations are associated with qualitatively different health-related outcomes.

Given that perceptions of self-determination reflect an endorsement of behavior by the self, an AREB has been associated with healthier eating-related attitudes and behaviors compared to a CREB. For example, an autonomous orientation was positively and more strongly correlated with perceptions of importance, efforts, and success in the regulation of eating behaviors compared to a controlled orientation (Pelletier, Dion, Slovinec D’Angelo, et al., 2004). Women who regulated their eating behaviors in an autonomous fashion were also more preoccupied with the quality of food they ate (Pelletier, Dion, Slovinec D’Angelo, et al., 2004), engaged in more approach-based meal planning strategies (Otis & Pelletier, 2008), and reported healthier eating habits (Otis & Pelletier, 2008; Pelletier & Dion, 2007). By contrast, women who regulated their eating behaviors in a controlled fashion were more preoccupied with the quantity of food they ate (Pelletier, Dion, Slovinec D’Angelo, et al., 2004), engaged in more avoidance-based meal planning strategies (Otis & Pelletier, 2008), and dysfunctional eating behaviors (Otis & Pelletier, 2008; Pelletier & Dion, 2007). In a sample of adults at risk for coronary heart disease, greater perceptions of self-determination underlying the regulation of eating behaviors predicted significant decreases in dietary fat consumption evidenced by healthier blood lipid profiles 13 weeks following an intervention (Pelletier, Dion, Slovinec D’Angelo, et al., 2004).

The regulation of eating behaviors has recently been incorporated in an adapted version of the socio-cultural model of disordered eating (Pelletier & Dion, 2007). According to this model, repeated exposure to messages espousing slenderness as a determinant of women's happiness and societal success contributes to women's elevated levels of body image disturbance through an internalization of the "thin body ideal" stereotype (Stice, 1994, 1998). In turn, body dissatisfaction promotes disordered eating behaviors through dieting and negative affect (Stice, 2002). While body dissatisfaction appears to be a normative part of the female experience (e.g., Keel, Baxter, Heatherton, & Joiner, 2007), disordered eating is not. This suggests that not all body dissatisfied women approach their eating behaviors in the same manner. Some may pressure themselves to reduce their food intake in order to meet their goal weight, whereas others may take pleasure in fixing meals that are healthy (e.g., low in sugar and/or saturated fat) and nutritious. Findings from Pelletier and Dion (2007) provide support for this hypothesis; body dissatisfaction emerged as a significant predictor of both healthy and dysfunctional eating habits (i.e., bulimic symptoms) through an autonomous and controlled regulation of eating behaviors.

### **Overview of the Present Study**

Taken together, a number of individual studies have investigated whether women who are chronically preoccupied with their appearance marked by elevated levels of body dissatisfaction or restrained eating would be more vulnerable to the adverse effects of exposure to "thin ideal" media. Findings from these studies have produced a mixed pattern of results. To date, no study has examined whether these individual differences interact with one another to exacerbate or mitigate women's responses to "thin ideal" media. Moreover, no study has examined whether a qualitatively different style of dietary restraint – one grounded in self-

endorsed motives (i.e., an autonomous regulation of eating behaviors) – may protect women from the media’s adverse effects.

Based on the findings of Pelletier and Dion (2007), we propose that an AREB moderates the vulnerability afforded by elevated levels of trait body dissatisfaction in response to “thin ideal” media. The outcomes under investigation include: negative affect, size dissatisfaction, dieting intentions (i.e., monitor food intake and abstain from eating), and food consumption intentions (i.e., eat healthy foods and eat unhealthy foods). Controlling for women’s pre-exposure levels to a “thin ideal” video, we hypothesize that elevated levels of an AREB buffers the relationship between trait body dissatisfaction and post-exposure negative affect/size dissatisfaction. We also hypothesize that elevated levels of an AREB buffers the relationship between trait body dissatisfaction and dieting/food consumption intentions following exposure to a “thin ideal” video. More precisely, women with elevated levels of an AREB were expected to formulate greater intentions to monitor their food intake (e.g., keep track of calories) and eat healthy foods (e.g., fruits and vegetables), and fewer intentions to abstain from eating (e.g., skip meals) and eat unhealthy foods (e.g., chips).

## **Method**

### **Design**

The present study employed a between-subjects pretest–posttest experimental design for the outcomes of size dissatisfaction and negative affect while a between-subjects posttest-only design was employed for the outcomes of “dieting intentions” and “food consumption intentions”. In both designs, the between subjects variable was video exposure condition (“thin ideal”, neutral).

## Participants

The sample was comprised of 138 female undergraduate students with a mean age of 19.27 years ( $SD = 2.56$ ) who were predominantly Caucasian ( $n = 104$ ), followed by Black ( $n = 11$ ), Asian ( $n = 9$ ), Middle-Eastern ( $n = 5$ ), East Indian ( $n = 4$ ), Latin American ( $n = 1$ ), and Aboriginal ( $n = 1$ ). Three participants did not indicate their ethnicity. Participants' self-reported weight (lbs.) and height (feet and inches) were used to calculate their body mass index (BMI) which was used as a covariate in subsequent analyses ( $M = 22.00$ ,  $SD = 2.33$ ). All participants were recruited from an Integrated System of Participation in Research. The ISPR is a subject pool comprised of first year psychology students ( $N > 2000$ ) who elect to participate in psychological research studies in exchange for course credit. At the beginning of the semester, all ISPR students are required to complete a mass online pre-test comprised of several unrelated measures which are used as screening tools or baseline assessments. ISPR students then select from a list of available studies which ones they would like to take part in throughout the semester. In order to minimize a self-selection bias based on pre-existing appearance concerns, the present study was advertised as a study on "Media and Memory Retention" designed to investigate the visual aspects of television and advertising which make them memorable.

## Experimental Stimuli

Two videos were created for this laboratory experiment: a "thin ideal" video and a neutral video. Each video featured advertisements and portions of television programs selected from approximately 25 h of television recorded during prime time viewing hours. Clips were spliced together in order to create a continuous stimulus of 7 minutes in duration. The "thin ideal" video featured stereotypical images of beautiful, slim female models who exemplified the societal standard of female attractiveness (Heinberg & Thompson, 1995). Sample clips included an

advertisement for Victoria Secret and a segment from Fashion File. The ratio of “thin ideal” content to neutral content (i.e., products only) was 65:35. The neutral video was created in the same manner but was devoid of human images. Sample clips included an advertisement for a cell phone and an advertisement for a mattress. An instrumental piece of music of neutral tone was dubbed over the original soundtracks of both videos.

### **Procedure**

All participants completed the Regulation of Eating Behaviors Scale (an assessment of the two broad motivational orientations [i.e., autonomous and controlled] underlying the regulation of eating behaviors) and the Body Dissatisfaction subscale of the Eating Disorder Inventory (an assessment of trait body dissatisfaction) at the beginning of the semester during the mass online pre-test. Participation in our laboratory study occurred four weeks later under the guise of a study on “Media and Memory Retention”. Upon arrival to the laboratory and following informed consent, participants completed pre-exposure levels of body dissatisfaction, weight dissatisfaction, anger, and depression using Visual Analogue Scales (VAS). Participants were then randomly assigned to view either the “thin ideal” video or the neutral video and were instructed to watch the video as though they were watching television in their own homes. Afterwards, participants completed a series of questions pertaining to the contents of the video followed by post-exposure levels of body dissatisfaction, weight dissatisfaction, anger, and depression (VAS), dieting intentions (i.e., monitor food intake and abstain from eating), and food consumption intentions (i.e., eat healthy foods and eat unhealthy foods). The time span between completion of the pre- and post-exposure assessments was approximately 15 min. At the end of the experiment, participants were thanked for their participation, debriefed, and queried on their

suspicious as to the real goal of the study. No participants suspected the hypotheses being tested.

## Measures

**Autonomous and controlled regulation of eating behaviors.** Participants' autonomous and controlled orientations underlying the regulation of their eating behaviors were assessed with the Regulation of Eating Behaviors Scale (REBS; Pelletier, Dion, Slovic D'Angelo, et al., 2004). The REBS is comprised of six subscales of four items each which correspond to the six styles of behavior regulation proposed by Deci and Ryan (1985b). Participants rated the extent to which each of the items corresponded to their reasons as to "why they are trying to regulate their eating behaviors" on a scale from 1 (*does not correspond to my reasons at all*) to 7 (*corresponds exactly to my reasons*). Sample items include: ". . . because it's fun to create meals that are good for my health" (intrinsic regulation), ". . . because eating healthy is part of the way I have chosen to live my life" (integrated regulation), ". . . because I think it's a good idea to try to regulate my eating behaviors" (identified regulation), ". . . because I would be humiliated if people thought I wasn't in control of my eating behaviors" (introjected regulation), ". . . because other people close to me insist that I do" (external regulation), and ". . . honestly, I don't know. I can't really see what I'm getting out of it" (amotivation).

An autonomous regulation of eating behaviors (AREB) motivation composite was created by averaging scores across the identified, integrated, and intrinsic regulation items ( $\alpha = .88$ ) whereas a controlled regulation of eating behaviors (CREB) motivation composite was created by averaging scores across the amotivation, external regulation, and introjected regulation items ( $\alpha = .87$ ). Scores on the AREB and the CREB motivation composites ranged from 1 to 7 whereby higher scores were indicative of greater autonomous/controlled motivation underlying the regulation of eating behaviors.

**Trait body dissatisfaction.** The Body Dissatisfaction subscale (nine items) of the Eating Disorder Inventory (Garner, Olmstead, & Polivy, 1983) was used to assess trait levels of body dissatisfaction. Participants rated their level of dissatisfaction from 1 (*never*) to 6 (*always*) with various parts of the body (e.g., hips, stomach, thighs, and buttocks). Responses were averaged together whereby greater scores reflected greater body dissatisfaction ( $\alpha = .93$ ).

**Size dissatisfaction and negative affect.** Pre- and post-exposure levels of body dissatisfaction, weight dissatisfaction, anger, and depression were assessed with Visual Analogue Scales (Heinberg & Thompson, 1995) which consisted of 10 cm horizontal lines anchored with “none or no feelings” on the far left (0 cm) and “extreme feelings” on the far right (10 cm). Participants indicated “how they felt right now” toward each attribute by making a slash somewhere along the line. Responses were derived by measuring the markings to the nearest 0.1 cm. The four baseline ratings were subjected to a principal component analysis with an oblique rotation. Two components emerged: a Size Dissatisfaction component which accounted for 54.43% of the total variance and a Negative Affect component which accounted for 30.48% of the total variance. All factor loadings were superior to .73 and there were no cross-loadings. Thus, a “size dissatisfaction” composite was derived by averaging the body dissatisfaction and weight dissatisfaction ratings together while a “negative affect” composite was derived by averaging the anger and depression ratings together.

**Dieting intentions.** The Dietary Intent Scale (DIS; Stice, 1998) was used to assess participants’ intentions to engage in several “concrete behaviors that individuals use to reduce caloric intake” (Stice et al., 2004, p. 57) “over the next few weeks”. Responses were rated from 1 (*never*) to 5 (*always*). The items were slightly modified to reflect intentions by omitting the “I” at the beginning of each item. Consistent with the work of Sherry and Hall (2009), a principal

component analysis on the nine items of the DIS revealed the presence of two components. The first component termed Intentions to Monitor Food Intake accounted for 55.26% of the total variance (e.g., “Count calories to try to prevent weight gain”). The second component termed Intentions to Abstain from Eating accounted for 11.77% of the total variance (e.g., “Sometimes avoid eating in an attempt to control my weight”). All factor loadings were superior to .53 and there were no cross loadings. Factor scores were retained for subsequent analyses. Higher factor scores were indicative of greater intentions to monitor food intake/abstain from eating “over the next few weeks”.

**Food consumption intentions.** The Healthy Eating Behavior Scale (HEBS; Pelletier, Dion, Slovinec D’Angelo, et al., 2004) was used to assess intentions to consume healthy and unhealthy foods “over the next few weeks”. The HEBS is comprised of two subscales of four items each: a Healthy Foods subscale (e.g., “I eat vegetables, fruits, and grain products) and a Foods to be Eaten in Moderation/ Unhealthy Foods subscale (e.g., “I eat foods such as chips, chocolate, and candies”). Responses were rated from 1 (*never*) to 5 (*always*). The items were slightly modified to reflect intentions by omitting the “I” at the beginning of each item. Two composites were created by averaging scores across each subscale’s respective four items: “intentions to eat healthy foods” ( $\alpha = .56$ ) and “intentions to eat unhealthy foods” ( $\alpha = .64$ ). Scores on these composites ranged from 1 to 5 whereby higher scores reflected greater intentions to eat healthy/unhealthy foods “over the next few weeks”.

## Results

### Manipulation Check

First, the ecological validity of each video was assessed with a single item: “To what extent do you think that the clips you’ve just watched are representative of those you would

usually see in an hour of television viewing?” Responses were rated from 1 (*not at all representative*) to 5 (*very representative*). Those who viewed the “thin ideal” video ( $M = 3.42$ ,  $SD = 1.02$ ) and those who viewed the neutral video ( $M = 3.57$ ,  $SD = 1.06$ ) both judged their respective contents to be “somewhat representative” of a typical hour of television viewing,  $t(134) = -0.83$ ,  $p > .10$ .

Second, the construct validity of the “thin ideal” video was assessed with the following items: (1) The women were attractive; (2) The women had beautiful bodies; (3) The women depicted in this video were representative of the “thin ideal” a lot of women would like to achieve; and (4) The women were sexually desirable. Responses were rated from 1 (*do not agree at all*) to 7 (*strongly agree*) and subjected to a principal component analysis which supported a one component structure accounting for 66.82% of the total variance. Responses were averaged together across these four items and evaluated against the scale’s theoretical midpoint of 4. Perceptions of the “thin ideal” content in this video were supported ( $M = 5.15$ ,  $SD = 1.14$ ),  $t(69) = 8.48$ ,  $p < .001$ .

Finally, exposure to the “thin ideal” video was hypothesized to activate an appearance and weight related schema which was assessed with a word stem completion task (Tiggemann, Hargreaves, Polivy, & McFarlane, 2004). Participants were presented with 20 three-letter word stems that could be completed to form either an appearance/weight-related word (e.g., PRE-ty, THIn) or a neutral word (e.g., PRE-sent, THI-nk). As expected, those who viewed the “thin ideal” video generated more appearance/weight related words ( $M = 5.78$ ,  $SD = 2.34$ ) compared to those who viewed the neutral video ( $M = 4.65$ ,  $SD = 2.10$ ),  $t(136) = 2.99$ ,  $p = .003$ .

## Main Analyses

Descriptive statistics and inter-correlations among all study variables are displayed in Table 1. A series of hierarchical multiple regression analyses were conducted on each of the six dependent variables. Step 1 included the covariates of BMI and either baseline ratings or corresponding subscale ratings. Step 2 included the main effects of video exposure condition (coded 0 for the neutral video and 1 for the “thin ideal” video), trait body dissatisfaction, an AREB, and a CREB. Step 3 included the double interactions of video exposure condition by trait body dissatisfaction, video exposure condition by AREB, and trait body dissatisfaction by AREB. Step 4 included the triple interaction of interest of video exposure condition by trait body dissatisfaction by AREB.

Standardized regression coefficients and changes in  $R^2$  for all six hierarchical regression models are displayed in Table 2. When significant, the triple interaction of interest was depicted by estimating and probing the trait body dissatisfaction by AREB interaction within each video exposure condition using the SPSS macro MODPROBE (Hayes & Matthes, 2009). Both the focal predictor (i.e., trait body dissatisfaction) and the moderator (i.e., AREB) were entered as continuous variables in the macro. A moderating effect of an AREB on the relationship between trait body dissatisfaction and the criterion would be evidenced if (1) the trait body dissatisfaction by AREB interaction term was significant in the “thin ideal” video exposure condition and not in the “neutral” video exposure condition; (2) the magnitude/direction of the relationship between trait body dissatisfaction and the criterion was different at varying levels ( $\pm 1SD$ ) of the moderator (AREB) within the “thin ideal” video condition.

**Negative affect.** Controlling for pre-exposure levels in Step 1,  $F(2, 124) = 46.01, p < .001, f^2 = 0.74$ , significant main effects emerged in Step 2,  $\Delta F(4, 120) = 5.78, p < .001, f^2 = 0.19$ :

exposure to the “thin ideal” video and a CREB predicted an increase in post-exposure negative affect. The double interactions in Step 3 also made marginal contributions to the criterion,  $\Delta F(3, 117) = 3.48, p = .018, f^2 = 0.09$ . However, the regression model in Step 4 which included the significant triple interaction of interest provided the best fit to the data,  $\Delta F(1, 116) = 13.67, p < .001, f^2 = 0.12$  and accounted for 60.50% ( $R^2_{\text{adj.}} = 57.10\%$ ) of the total variance in post-exposure negative affect.

In the “thin ideal” video condition, greater trait body dissatisfaction predicted an increase in post-exposure negative affect for those who were low ( $B = 0.82, SE = 0.22, p < .001$ ) but not for those who were high ( $B = -0.11, SE = 0.23, p > .60$ ) on an AREB,  $F(4, 57) = 8.76, p = .005$ . In the neutral video condition, the relationship between trait body dissatisfaction and post-exposure negative affect was non-significant,  $F(4, 61) = 0.72, p > .40$ . This interaction is displayed in Figure 1.

**Size dissatisfaction.** Controlling for pre-exposure levels in Step 1,  $F(2, 127) = 118.41, p < .001, f^2 = 1.87$ , significant main effects emerged in Step 2,  $\Delta F(4, 123) = 7.06, p < .001, f^2 = 0.23$ : exposure to the “thin ideal” video and trait body dissatisfaction predicted an increase in post-exposure size dissatisfaction while an AREB predicted a decrease. The double interactions in Step 3 did not significantly contribute to the criterion,  $\Delta F(3, 120) = 1.31, p > .10, f^2 = 0.03$ . However, the triple interaction of interest in Step 4 did,  $\Delta F(1, 119) = 6.88, p = .010, f^2 = 0.06$  and accounted for 74.00% ( $R^2_{\text{adj.}} = 71.80\%$ ) of the total variance in post-exposure size dissatisfaction.

In the “thin ideal” video condition, greater trait body dissatisfaction predicted an increase in post-exposure size dissatisfaction for those who were low ( $B = 0.77, SE = 0.24, p = .002$ ) but not for those who were high ( $B = 0.03, SE = 0.32, p > .90$ ) on an AREB,  $F(4, 62) = 4.78, p = .03$ .

In the neutral video condition, the relationship between trait body dissatisfaction and post-exposure size dissatisfaction was non-significant,  $F(4, 60) = 2.24, p > .10$ . This interaction is displayed in Figure 2.

**Dieting intentions: monitor food intake.** Controlling for a significant effect of BMI, greater intentions to abstain from eating predicted fewer intentions to monitor food intake in Step 1,  $F(2, 129) = 30.45, p < .001, f^2 = 0.47$ . Significant main effects also emerged in Step 2,  $\Delta F(4, 125) = 9.34, p < .001, f^2 = 0.30$  whereby trait body dissatisfaction, an AREB, and a CREB predicted greater intentions to monitor food intake. The double interactions in Step 3 did not significantly contribute to the criterion,  $\Delta F(3, 122) = 1.28, p > .10, f^2 = 0.03$ . However, the triple interaction of interest in Step 4 did,  $\Delta F(1, 121) = 4.74, p = .031, f^2 = 0.04$  and accounted for 51.20% ( $R^2_{\text{adj.}} = 47.20\%$ ) of the total variance in intentions to monitor food intake.

In the “thin ideal” video condition, greater trait body dissatisfaction predicted an increase in intentions to monitor food intake for those who were high ( $B = 0.59, SE = 0.12, p < .001$ ) but not for those who were low ( $B = 0.10, SE = 0.14, p > .40$ ) on an AREB,  $F(5, 60) = 9.15, p = .004$ . In the neutral video condition, the relationship between trait body dissatisfaction and intentions to monitor food intake was non-significant,  $F(5, 60) = 0.62, p > .40$ . This interaction is displayed in Figure 3.

**Dieting intentions: abstain from eating.** Controlling for a marginally significant effect of BMI, greater intentions to monitor food intake predicted fewer intentions to abstain from eating in Step 1,  $F(2, 127) = 36.33, p < .001, f^2 = 0.57$  as did a CREB in Step 2,  $\Delta F(4, 123) = 5.30, p < .001, f^2 = 0.17$ . The double interactions in Step 3,  $\Delta F(3, 120) = 1.20, p > .10, f^2 = 0.03$  did not significantly contribute to the criterion nor did the triple interaction in Step 4,  $\Delta F(1, 119)$

= 0.59,  $p > .10$ ,  $f^2 = 0.01$ . Together, these models accounted for 47.60% ( $R^2_{\text{adj.}} = 43.20\%$ ) of the total variance in intentions to abstain from eating.

**Food consumption intentions: eat healthy foods.** Intentions to eat unhealthy foods predicted fewer intentions to eat healthy foods in Step 1,  $F(2, 131) = 6.47$ ,  $p = .002$ ,  $f^2 = 0.10$  while an AREB predicted greater intentions to eat healthy foods in Step 2,  $\Delta F(4, 127) = 6.02$ ,  $p < .001$ ,  $f^2 = 0.19$ . The double interactions in Step 3,  $\Delta F(3, 124) = 1.16$ ,  $p > .10$ ,  $f^2 = 0.03$  did not significantly contribute to the criterion nor did the triple interaction in Step 4,  $\Delta F(1, 123) = 0.87$ ,  $p > .10$ ,  $f^2 = 0.01$ . Together, these models accounted for 26.10% ( $R^2_{\text{adj.}} = 20.10\%$ ) of the total variance in intentions to eat healthy foods.

**Food consumption intentions: eat unhealthy foods.** Intentions to eat healthy foods predicted fewer intentions to eat unhealthy foods in Step 1,  $F(2, 132) = 7.17$ ,  $p < .001$ ,  $f^2 = 0.11$  as did trait body dissatisfaction in Step 2,  $\Delta F(4, 128) = 2.03$ ,  $p = .094$ ,  $f^2 = 0.06$ . The double interactions in Step 3 did not significantly contribute to the criterion,  $\Delta F(3, 125) = 0.37$ ,  $p > .10$ ,  $f^2 = 0.01$ . However, the triple interaction of interest in Step 4 did (marginally),  $\Delta F(1, 124) = 3.69$ ,  $p = .057$ ,  $f^2 = 0.03$  and accounted for 18.40% ( $R^2_{\text{adj.}} = 11.80\%$ ) of the total variance in intentions to eat unhealthy foods.

In the “thin ideal” video condition, greater trait body dissatisfaction predicted a marginal decrease in intentions to eat unhealthy foods for those who were high ( $B = -0.21$ ,  $SE = 0.11$ ,  $p = .048$ ) but not for those who were low ( $B = 0.04$ ,  $SE = 0.10$ ,  $p > .70$ ) on an AREB,  $F(4, 63) = 2.88$ ,  $p = .09$ . In the neutral video condition, the relationship between trait body dissatisfaction and intentions to eat unhealthy foods was non-significant,  $F(4, 64) = 0.82$ ,  $p > .30$ . This interaction is displayed in Figure 4.

## Discussion

Past research indicates that the adverse effects of exposure to “thin ideal” media on women’s self-evaluations and eating-related attitudes may be particularly damaging to those who are chronically preoccupied with their appearance (e.g., Want, 2009). Body dissatisfaction and restrained eating both reflect an enduring concern with how one looks and both have been investigated individually as moderators of women’s responses to “thin ideal” media. However, findings from these individual studies have produced a mixed pattern of results. We hypothesized that a qualitatively different style of dietary restraint interacts with trait body dissatisfaction in a manner that protects women from the media’s ill-effects. Findings from the present study support our hypotheses and underscore the beneficial role of an autonomous regulation of eating behaviors (AREB) particularly among women with a preexisting vulnerability to “thin ideal” media.

Our first set of findings concern the independent and interactive effects of our predictors on women’s negative affect and size dissatisfaction. Controlling for pre-exposure levels, women reported more negative affect and size dissatisfaction after viewing media images of thin female models vs inanimate objects. These findings support the overall adverse effects of exposure documented in the literature (e.g., Groesz et al., 2002; Want, 2009). The vulnerability afforded by elevated levels of trait body dissatisfaction was also demonstrated as the latter was directly related to post-exposure size dissatisfaction (Durkin & Paxton, 2002; Trampe et al., 2007). Both motivational orientations (i.e., autonomous and controlled) also made unique contributions to women’s mood and dissatisfaction. For instance, a CREB was positively associated with post-exposure negative affect while an AREB was negatively associated with post-exposure size dissatisfaction (Mask & Blanchard, 2011; Pelletier, Dion, Slovinec D’Angelo, et al., 2004).

Consistent with our hypotheses, these main effects were also qualified by a significant triple interaction between video exposure condition, trait body dissatisfaction, and an AREB.

As expected, the vulnerability afforded by trait body dissatisfaction in response to “thin ideal” media was buffered by elevated levels of an AREB. Controlling for pre-exposure levels and a CREB, trait body dissatisfaction was associated with greater post-exposure negative affect and size dissatisfaction among women who felt less autonomous in the regulation of their eating behaviors but not among women who felt more autonomous. These findings suggest that not all body dissatisfied women are equally vulnerable to the media’s adverse effects. Feelings of agency and volition underlying the regulation of eating behaviors appear to protect women from state increases in body image and mood disturbances despite overall feelings of dissatisfaction with their body. These results are consistent with those documented at the dispositional level of autonomy. In response to a video which portrayed very thin female models, women with low but not high levels of relative self-determination toward their everyday activities reported greater perceptions of pressure from the media to be thin and greater body dissatisfaction (Mask & Blanchard, 2011).

Our findings are also in line with previous research on self-determination theory’s general causality orientations (Deci & Ryan, 1985a). People with a strong autonomous orientation toward their environment operate from the intrinsic needs, values, and interests of the self. Consequently, external events are evaluated as sources of information in determining the appropriate course of action. By contrast, people who display little autonomy toward their environment (i.e., who are more control-oriented) operate mainly from expectations and obligations whether self or other imposed thus rendering them more sensitive to environmental contingencies. Consequently, external events are perceived as inputs of pressure or threat as to

what they “should” do (Deci & Ryan, 1985a). For example, an autonomous orientation was associated with less defensiveness (Hodgins, Yacko, & Gottlieb, 2006; Knee & Zuckerman, 1998), fewer self-presentation strategies (Lewis & Neighbors, 2005), and fewer self-serving biases following success and failure feedback (Knee & Zuckerman, 1996). In a word finding task designed to induce comparisons with a better performing confederate, people with low but not high levels of dispositional autonomy experienced a drop in positive affect and performance self-esteem (Neighbors & Knee, 2003). People with greater autonomy also responded to threatening health information in a more adaptive manner than people with low autonomy (Pavey & Sparks, 2008, 2009). Our results therefore suggest that the female models portrayed in the “thin ideal” video conveyed qualitatively different information to women pending their level of autonomy underlying the regulation of their eating behaviors. To women with elevated levels of autonomy, the models likely conveyed societal ideals of female attractiveness. Yet, to women with lower levels of autonomy, the same female models likely conveyed standards as to how their bodies should look (Mask & Blanchard, 2011; Pelletier, Dion, & Levesque, 2004).

Our second set of findings concern the independent and interactive effects of our predictors on women’s eating related intentions. First, trait body dissatisfaction exerted an independent effect on intentions to monitor food intake and consume unhealthy foods “over the next few weeks”. These findings suggest that body dissatisfied women may be more inclined to formulate avoidance-based meal planning strategies (e.g., avoid eating dessert) in an effort to ensure successful dietary self-regulation. Second, a direct effect was documented for an AREB on intentions to monitor food intake and consume healthy foods “over the next few weeks”. A direct effect also emerged for a CREB on intentions to abstain from eating. These results are consistent with those documented in previous studies whereby women who displayed an AREB

were more preoccupied with the quality rather than the quantity of food they ate while the reverse pattern emerged for those who displayed a CREB (Mask & Blanchard, 2011; Pelletier & Dion, 2007; Pelletier, Dion, Slovenic- D'Angelo, et al., 2004). Consistent with our hypotheses, an AREB moderated the relationship between trait body dissatisfaction and women's dieting/food consumption intentions in the "thin ideal" video condition but not in the neutral video condition.

Controlling for BMI, food restriction intentions, and a CREB, trait body dissatisfaction predicted greater intentions to monitor food intake in response to media images of the "thin ideal" among women who felt more autonomous in the regulation of their eating behaviors but not among women who felt less autonomous. These findings are in line with those of previous studies linking an AREB to successful dietary self-regulation. For example, an AREB has been associated with perceptions of success as well as behavioral indications of success evidenced by greater weight loss goal attainment and healthier blood lipid profiles (Otis & Pelletier, 2008; Pelletier, Dion, Slovenic D'Angelo, et al., 2004). Our results therefore suggest that body dissatisfied women respond differently to societal exemplars of "successful" dietary self-regulation (i.e., thin female media models) pending their level of autonomy toward the regulation of their eating behaviors. To women with elevated levels of autonomy, they may serve as gentle reminders to continue their self-regulatory efforts. To women with lower levels of autonomy, the presence of "successful" exemplars appears to disengage them (at least momentarily) from their self-regulatory efforts.

Controlling for BMI, intentions to eat healthy foods, and a CREB, trait body dissatisfaction also predicted fewer intentions to eat unhealthy foods in response to media images of the "thin ideal" among women who felt more autonomous in the regulation of their eating

behaviors but not among women who felt less autonomous. According to Otis and Pelletier (2008), women who regulate their eating behaviors in an autonomous fashion are more successful in their efforts because they plan more toward healthy eating ( $r = .62$ ) such as “trying new and healthy recipes” than plan away from unhealthy eating ( $r = .30$ ) such as “avoid reading the desert menu”. When asked to formulate approach-focused implementation intentions, high autonomous women experienced greater weight loss goal attainment compared to their low autonomous counterparts (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008). Thus, women who regulate their eating behaviors in an autonomous fashion seem to favor approach-based strategies when planning their meals to ensure successful dietary self-regulation. However, this does not negate the use of avoidance-based meal planning strategies. While high autonomous women may be naturally inclined to formulate approach-based intentions, our results suggest that chronic feelings of body dissatisfaction coupled with reminders of restraint weigh in favor of an avoidance-based approach to meal planning and dietary self-regulation.

### **Limitations**

The interpretation of our findings does warrant caution in light of some limitations. The study sample was fairly homogeneous with respect to age, body mass, and ethnicity. Thus, our conclusions may not apply to populations of older women, women with elevated body masses ( $BMI > 30$ ), or women of different ethnicities. Responses were also limited to self-report data. Future studies should include an unobtrusive objective measure of food intake, particularly an unhealthy food (e.g., chocolate). Finally, the reliability estimates for the subscales of the Healthy Eating Behavior Scale were low which likely limited the power to detect a significant triple interaction, particularly for intentions to eat healthy foods. While the hypothesized triple

interaction emerged for intentions to eat unhealthy foods, its effect remains marginal ( $p = .057$ ) and thus its interpretation warrants caution.

Despite these limitations, findings from the present study contribute to the growing body of literature on moderators of the effects of exposure to “thin ideal” media on women’s body image and eating disturbances—which to date has been largely limited to the study of vulnerabilities or risk factors (Cash, 2005; Steck, Abrams, & Phelps, 2004). This is the second study to investigate a factor which could potentially protect women from the media’s ill effects (Mask & Blanchard, 2011). Findings from the present study coupled with those of an earlier investigation (Mask & Blanchard, 2011) underscore the beneficial role of autonomy in mitigating women’s response to “thin ideal” media; particularly women with a pre-existing vulnerability. While the average woman may be dissatisfied with her shape and weight, our results suggest that not all body dissatisfied women respond to socio cultural pressures of thinness extolled in the media in the same manner. Hence prevention and intervention efforts aimed at diminishing risk factors might also benefit from the inclusion of strategies aimed at increasing a protective factor. For example, interventionists could be encouraged to deliver their programs in an autonomy supportive manner by providing girls and women with a meaningful rationale, minimizing pressures and acknowledging their perspective so that they come to internalize the importance of healthy eating which should ensure lasting benefits on their body image and eating behaviors (Ryan, Patrick, Deci, & Williams, 2008).

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Table 1.  
*Means (SDs) Across Video Exposure Conditions and Inter-Correlations Among Study Variables for the Entire Sample.*

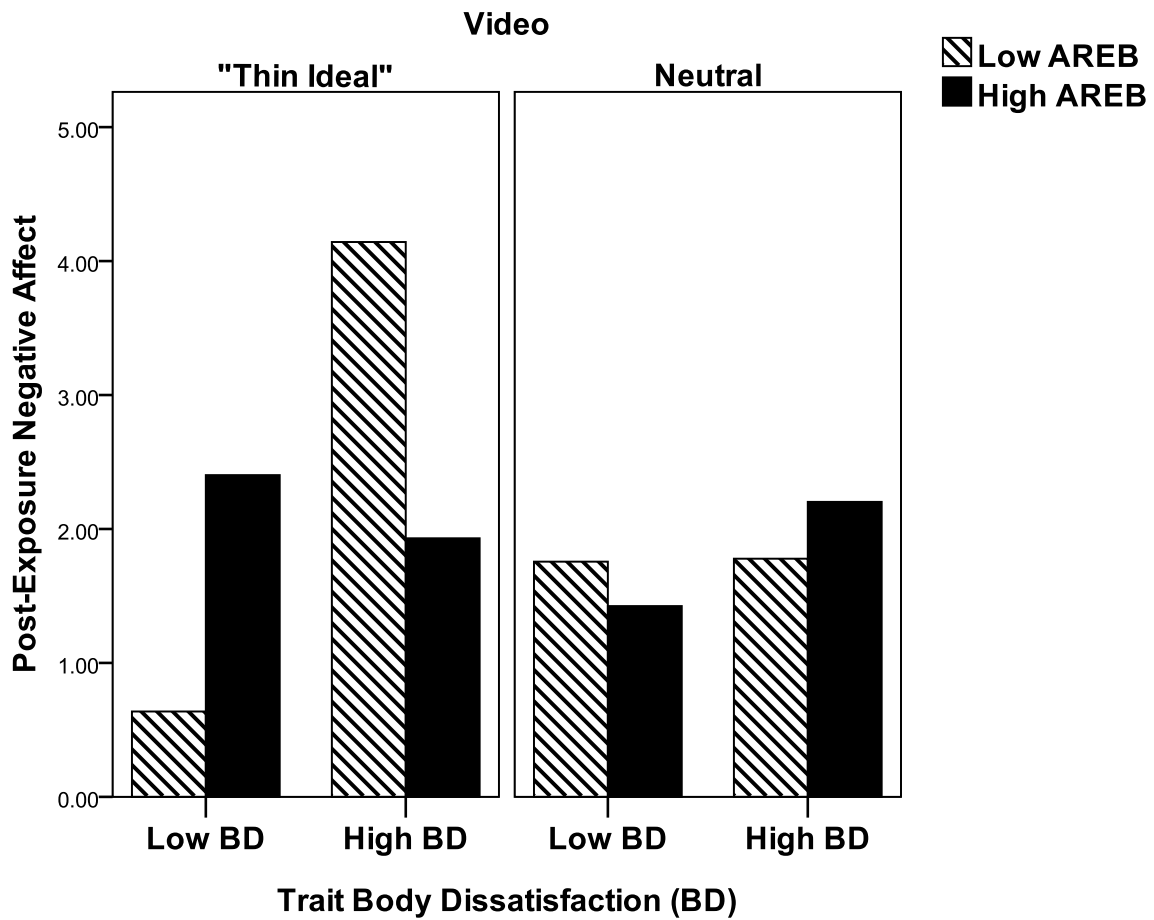
Variables	“Thin Ideal” ( <i>n</i> = 69)	Neutral ( <i>n</i> = 69)	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. BD ( <i>n</i> = 138)	3.30 (1.15)		-.11	.55**	.34**	.71**	.36**	.66**	.59**	-.51**	.04	-.22**
2. AREB ( <i>n</i> = 138)	4.63(.91)			-.04	-.15	-.07	-.18*	-.17*	.10	.03	.42**	-.22*
3. CREB ( <i>n</i> = 138)	2.56(.99)				.32**	.56**	.40**	.49**	.50**	-.52**	-.02	-.09
4. Negative affect 1	2.60(1.63)	2.86(2.07)				.28**	.65**	.26**	.22*	-.30**	-.15	.01
5. Size dissatisfaction 1	3.92(2.38)	4.59(2.60)					.31**	.81**	.60**	-.57**	.00	-.16
6. Negative affect 2	2.35(1.89)	1.79(1.48)						.44**	.23*	-.38**	-.22*	.13
7. Size dissatisfaction 2	4.63 (2.68)	4.20(2.54)							.54**	-.59**	-.03	-.14
8. Monitor food intake	-.03 (1.04)	.03(.97)								-.54**	.28**	-.29**
9. Abstain from food	-.01(1.06)	.01(.94)									-.02	.07
10. Eat healthy foods	3.83(.62)	3.85(.55)										-.31**
11. Eat unhealthy foods	2.94(.73)	2.87(.64)										----

*Note* . BD = Trait Body Dissatisfaction; AREB = Autonomous Regulation of Eating Behaviors; CREB = Controlled Regulation of Eating Behaviors; Negative affect 1 and Size dissatisfaction 1 = pre-exposure levels of Negative affect and Size dissatisfaction; Negative affect 2 and Size dissatisfaction 2 = post-exposure levels of Negative affect and Size dissatisfaction; \**p* < .05. \*\**p* < .01

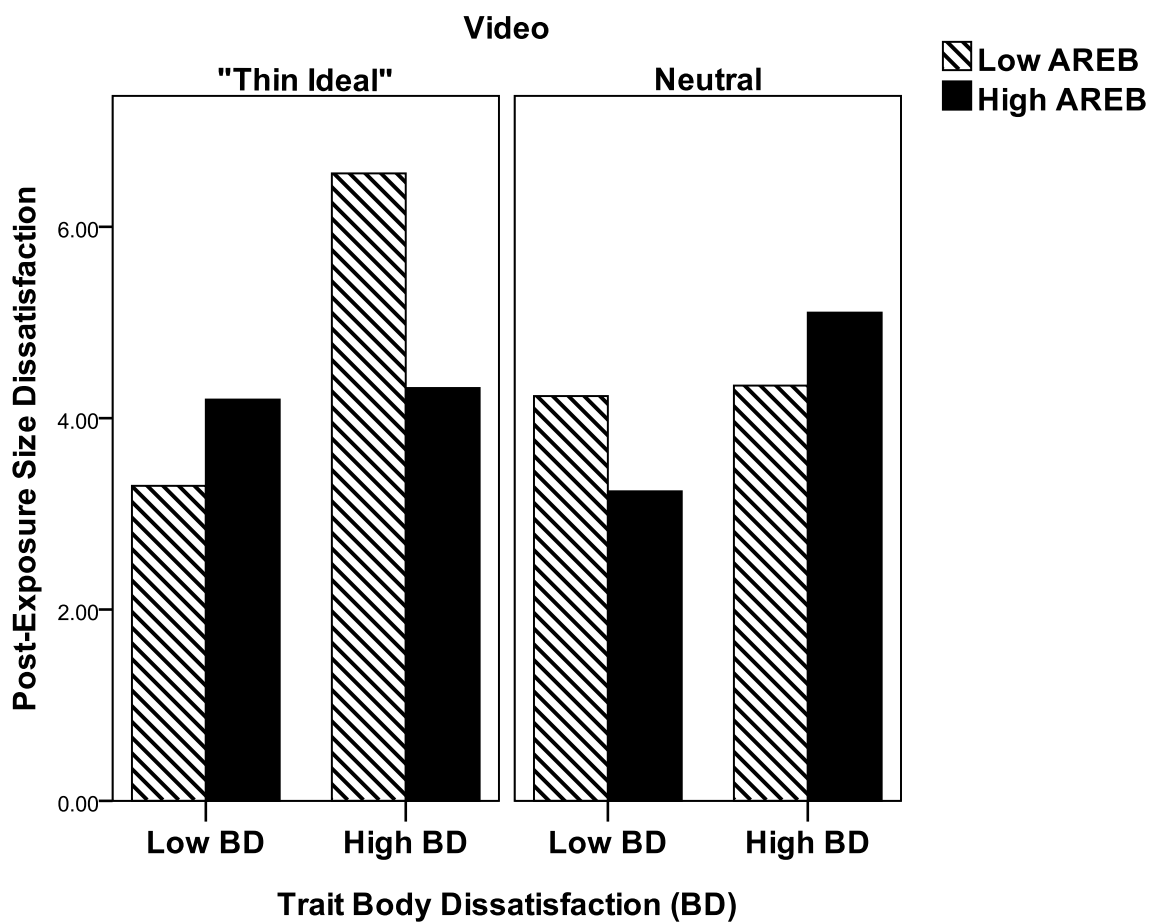
Table 2.  
*Standardized Regression Coefficients and R<sup>2</sup> change from Hierarchical Regression Models Across all Dependent Variables*

Predictors	Dependent variables											
	Negative affect 2		Size dissatisfaction 2		Monitor food intake		Abstain from eating		Eat healthy foods		Eat unhealthy foods	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
<i>Step 1</i>												
BMI	.07	.426***	.07	.651***	.17*	.321***	-.14 <sup>a</sup>	.364***	-.04	.090**	-.07	.098**
Negative affect 1	.64***		----		----		----		----		----	
Size dissatisfaction 1	----		.78***		----		----		----		----	
Abstain from eating	----		----		-.49***		----		----		----	
Monitor food intake	----		----		----		-.54***		----		----	
Eat unhealthy foods	----		----		----		----		-.30***		----	
Eat healthy foods	----		----		----		----		----		-.31***	
<i>Step 2</i>												
Video	.21**	.093***	.20***	.065***	.03	.156***	-.05	.093**	.01	.145***	.02	.054 <sup>a</sup>
BD	.06		.17*		.39***		-.08		.04		-.26*	
AREB	-.10		-.11*		.16*		.07		.39***		-.15	
CREB	.18*		.01		.15 <sup>a</sup>		-.30***		-.06		.04	
<i>Step 3</i>												
Video x BD	.17 <sup>a</sup>	.039*	.08	.009	-.01	.016	-.12	.016	.06	.021	.11	.007
Video x AREB	-.16 <sup>a</sup>		-.11		-.06		-.14		.22		.01	
BD x AREB	-.12 <sup>a</sup>		-.03		.13 <sup>a</sup>		.06		.01		-.06	
<i>Step 4</i>												
Video x BD x AREB	-.34***	.047***	-.19*	.015*	.21*	.019*	.08	.003	-.11	.005	-.24 <sup>a</sup>	.024 <sup>a</sup>

*Note.* BMI = Body Mass Index; BD = Trait Body Dissatisfaction; AREB = Autonomous Regulation of Eating Behaviors; CREB = Controlled Regulation of Eating Behaviors; Negative affect 1 and Size dissatisfaction 1 = pre-exposure levels of Negative affect and Size dissatisfaction; Negative affect 2 and Size dissatisfaction 2 = post-exposure levels of Negative affect and Size dissatisfaction; <sup>a</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$



*Figure 1.* Mean levels of post-exposure negative affect across “thin ideal” versus neutral video exposure as a function of high versus low trait body dissatisfaction at high and low levels of an autonomous regulation of eating behaviors (AREB).



*Figure 2.* Mean levels of post-exposure size dissatisfaction across “thin ideal” versus neutral video exposure as a function of high versus low trait body dissatisfaction at high and low levels of an autonomous regulation of eating behaviors (AREB).

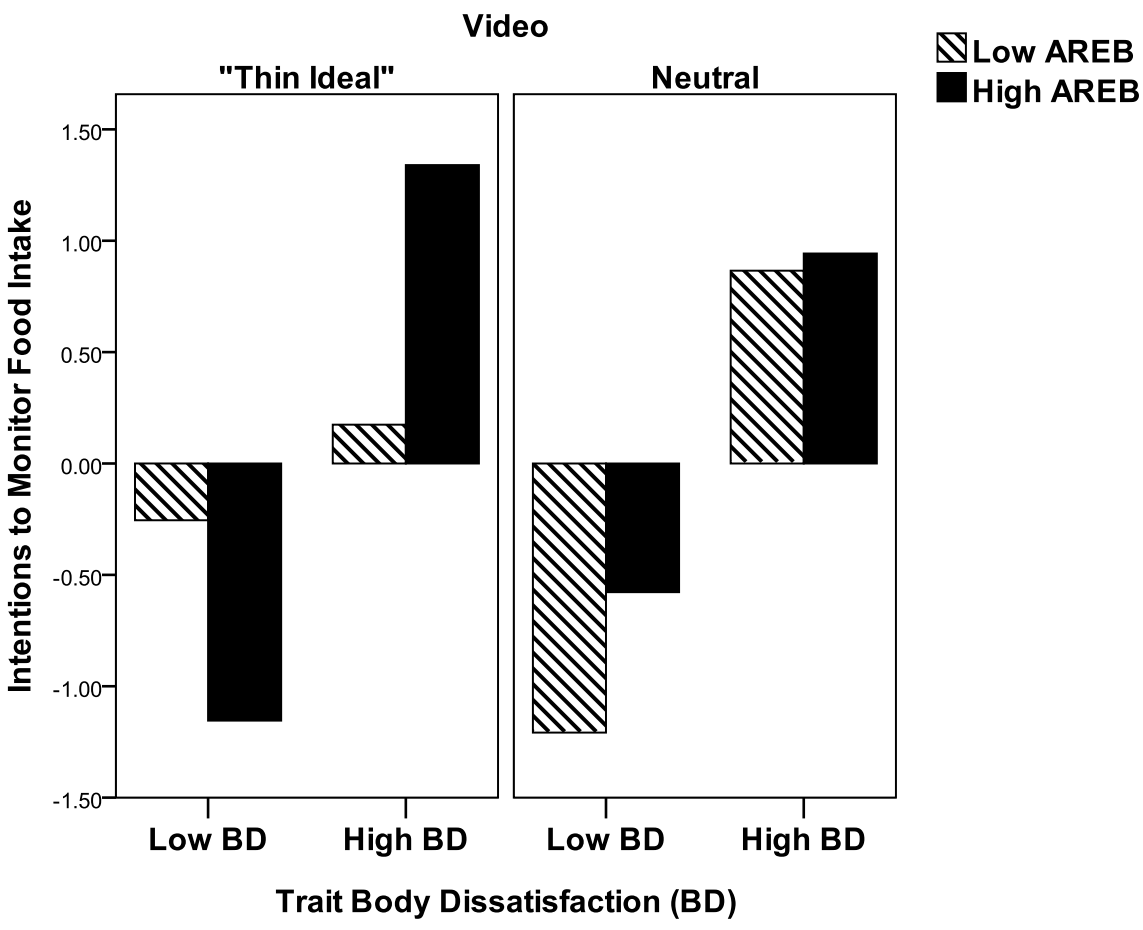
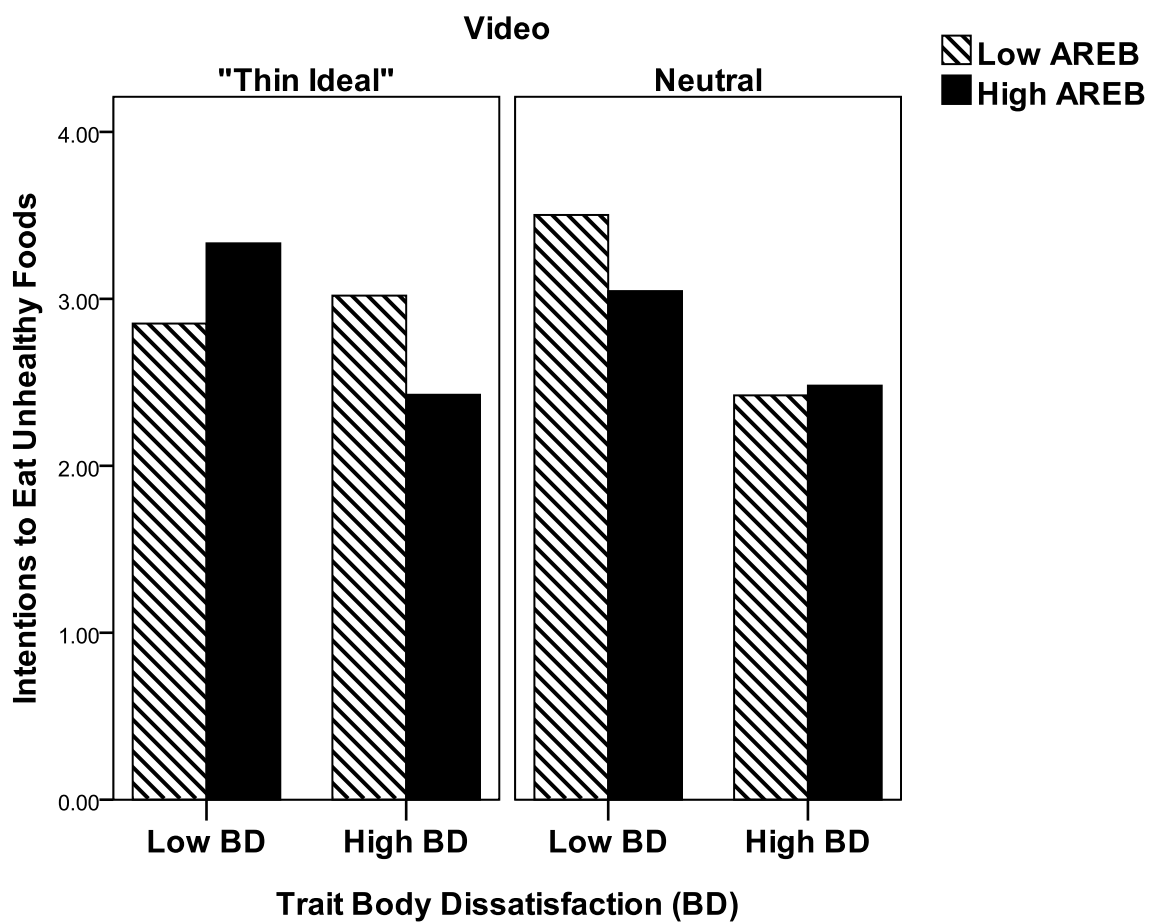


Figure 3. Mean levels of intentions to monitor food intake across “thin ideal” versus neutral video exposure as a function of high versus low trait body dissatisfaction at high and low levels of an autonomous regulation of eating behaviors (AREB).



*Figure 4.* Mean levels of intentions to eat unhealthy foods across “thin ideal” versus neutral video exposure as a function of high versus low trait body dissatisfaction at high and low levels of an autonomous regulation of eating behaviors (AREB).

Running Head: AUTONOMOUS MOTIVATION, MEDIA, AND BODY IMAGE

The Differential Roles of Autonomous and Controlled Motivation Against “Body-as-Object” and “Body-as-Process” Media on Women’s Body Image Concerns and Eating Behaviors

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### Abstract

The present study investigated the moderating roles of an autonomous and controlled motivation in response to various portrayals of the female body on women's body image evaluations and restrained eating. A sample of undergraduate women ( $N = 91$ ) were randomly assigned to view one of three videos: a "body-as-object" video which portrayed the female body as an object, a "body-as-process" video which portrayed the female body as an instrument of women's actions or a neutral video. Results demonstrated that exposure to the "body-as-process" video compared to the "body-as-object" video produced more negative self-appraisals of the body's appearance, body shame, and introjected motives for restricting one's actual intake of chocolate among women who displayed a controlled motivation. These findings suggest that an autonomous motivation serves a protective function while a controlled motivation serves a potentiating function in response to various depictions of the female body.

*Keywords:* media, autonomous motivation, controlled motivation, body image, eating behaviors

## **The Differential Roles of Autonomous and Controlled Motivation Against “Body-as-Object” and “Body-as-Process” Media on Women’s Body Image Concerns and Eating Behaviors**

The manner with which we relate to our body is multifaceted and complex; comprised of cognitions, emotions, attitudes, and behaviors (Cash, 2004; Cash & Pruzinsky, 2002). Franzoi (1995) proposes that embodiment is experienced in two distinct manners: as an object and as a process. To conceptualize the body as an object is to view it as a collection of body parts (e.g., stomach, legs) which are observable to others. Conversely, to conceptualize the body as a process is to view it as an instrument of one’s actions which is not directly observable by others (e.g., strength, agility) unless to demonstrate one’s physical competence (Franzoi & Shields, 1984). To date, scientific inquiry has been largely focused on the “body-as-object” presumably because it is subject to public scrutiny. Consequently, knowledge on the antecedents, correlates, and consequences of the “body-as-process” is limited (e.g., Abbott & Barber, 2010). The present study contributes to this literature by investigating media portrayals of the female as an object against media portrayals of the female as a process on women’s subsequent evaluations of their body image and eating behaviors.

### **The Female Body as an Object**

Theoretical formulations and empirical investigations suggest that the dual-based nature of one’s relation to their body is gendered. Women think predominantly in terms of how their body looks (“body-as-object”) while men think predominantly in terms of what their body can do (“body-as-process”) (e.g. Cash & Brown, 1989; Franzoi, 1995). According to feminist scholars, these gender differences in physical self-perceptions are rooted in the differential meaning assigned to the female and male body at the broader socio-cultural level, namely that women are sexual objects while men are not (e.g., Bordo, 1993; Wolfe, 1991). When sexually objectified, a woman’s internal attributes (i.e., intellectual abilities, feelings, personality, talents, etc...) are

disregarded in favor of her external attributes (i.e., outward appearance) as though “they were capable of representing her” (Bartky, 1990, p. 35).

According to objectification theory (Fredrickson & Roberts, 1997), repeated exposure to socio-cultural beliefs and practices of women’s sexual objectification including unrealistic standards of attractiveness (i.e., having a thin physique) socialize girls and women to adopt a “body-as-object” perspective toward their physical selves termed *self-objectification* which is experienced as an enduring trait or a transient state. At the trait level, self-objectification is manifested by a chronic preoccupation with how the body looks (e.g., McKinley & Hyde, 1996). At the state level, self-objectification is triggered in response to environmental stimuli which call attention to body’s outward appearance (e.g., trying on swimwear, viewing idealized images of female models). Whether chronic or acute, the experience of self-objectification is that of being a “body” on display; seeing it through the eyes of real or imaged others (Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998). In turn, self-objectification incurs a number of intra-personal costs such as body shame, appearance anxiety, poor interoceptive awareness, and diminished opportunities to experience peak motivational states. These negative experiences would accumulate over time rendering women vulnerable to eating disorders, depression, and sexual dysfunction (for reviews see Calogero, Tantleff-Dunn, & Thompson, 2011 and Moradi & Huang, 2008).

Although varied in form and severity (e.g., sexual harassment, sexual violence), the most pervasive yet insidious depiction of women’s sexual objectification occurs in the mass media. Indeed, content analytic research indicates that female media models have become increasingly thin (e.g., Byrd-Bredbenner, Murray, & Schluskel, 2005; Sypeck, Gray, & Ahrens, 2004), sexualized, and objectified over the last few decades (for reviews see APA Task Force, 2007 and

Ward, 2003). On television, female characters are not only thin (Fouts & Burgraff, 1999) but they are also referred to as “chick”, “fox” and “babe” by their male counterparts (Grauerholz & King, 1997; Montemurro, 2003). By showcasing the external attributes of women’s bodies (e.g., legs, stomach), particularly how they look, these images construct the female body as an object “valued predominantly for its use to (or consumption by) others” (Fredrickson & Roberts, 1997, p. 174).

Mounting empirical evidence suggests that media portrayals of the female body as an object may be detrimental to women’s self-evaluations. For instance, findings from a recent meta-analysis indicate that girls and women report more dissatisfaction with their body and overall appearance after viewing media depictions of thin female models compared to media depictions of average sized women or inanimate objects (Want, 2009). Other investigations have found that women reported less body esteem (Hamilton, Mintz, & Kashubeck-West, 2007), greater appearance anxiety, more body shame (Monro & Huon, 2005), and consumed more sweet biscuits (Monro & Huon, 2006) following exposure to magazine advertisements which included thin models compared to magazine advertisements which included no models. Women who viewed sexist television advertisements also rated their current body size larger and felt further away from their ideal body size than women who viewed non-sexist television advertisements (Lavine, Sweeney, & Wagner, 1999). Exposure to magazine advertisements high in “body-ism” (i.e., advertisements which depict only certain body parts of the model such as the stomach or the legs) also produced more body dissatisfaction and appearance anxiety in a sample of female viewers than did exposure to magazine advertisements low in “body-ism” (i.e., advertisements which depict the model’s entire body including the face) (Tiggemann & McGill, 2004).

A more recent set of studies found that media portrayals of the female body as an object could also shift women's physical self-perceptions to that of being "a body" on display. For instance, women generated more appearance-related self-statements (e.g., "I am not thin enough") in response to full-body images of female models compared to images of female body parts in isolation (Aubrey, Henson, Hopper, & Smith, 2009). Women who viewed photographs of thin female models depicted as an object of a male model's gaze also experienced greater state self-objectification, negative mood, body dissatisfaction, and appearance anxiety than women who viewed photographs of inanimate objects but no more than women who viewed photographs of the same thin models depicted alone (Harper & Tiggemann, 2008). However, when women viewed photographs of thin female models in the *actual* presence of another man gazing at the models they reportedly felt more negative toward their appearance than women who viewed these same photographs alone (Henderson-King, Henderson-King, & Hoffmann, 2001). Taken together, the studies reviewed herein suggest that media images which portray the female body as an object may be harmful to women's evaluations of their body image presumably because they trigger a "body-as-object" orientation or state of self-objectification.

### **The Female Body as a Process**

In the present study, we investigated women's responses to media images which portray the female body as an instrument of women's actions rather than as an object of gaze. We propose that media images showcasing the functional/competence-based attributes of women's bodies (e.g., strength, flexibility, endurance) may be beneficial to women's subsequent evaluations of their body image because they would elicit a "body-as-process" orientation toward the physical self termed, *body-competence*. Past research has found that girls and women who displayed a positive body image also expressed an appreciation for how their body functioned

and served their various needs (Frisén & Holmqvist, 2010; Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). High school girls who were more invested in the functional dimension of their body also evidenced higher levels of self-esteem and lower levels of depressed mood (Abbott & Barber, 2010). Fredrickson and Roberts (1997) alluded that thinking in terms of what the body can do (body-competence) may be cultivated through participation in sports and other physical activities. For instance, high school sports participation was associated with more positive evaluations of one's functional/competence-based attributes (e.g., coordination, strength) and of one's instrumentality which in turn predicted more positive evaluations of one's appearance-based attributes during college (Greenleaf, Boyer, & Petrie, 2009). When discussing their athletic achievements, college female athletes felt that their sport had empowered them through the development of strength and skill which reportedly spilled over into other areas of their life (Krane, Choi, Baird, Aimar, & Kauer, 2004).

Yet, studies which have investigated the impact of exposure to women's sports media on viewers' body image and eating-related concerns have not produced a uniform pattern of results. For instance, reading sports magazines was positively associated with body dissatisfaction among younger adolescents (Harrison, 2000) while it was negatively associated with body shame and eating disorder symptoms among older adolescents (Harrison & Fredrickson, 2003). In samples of female university students, reading fitness and sports magazines was not related to respondents' trait self-objectification (Morry & Staska, 2001), body dissatisfaction, or self-reported disordered eating behaviors (Bissell & Zhou, 2004; Morry & Staska, 2001). However, sports magazine reading was positively associated with anorexia, bulimia, and a drive for thinness among female varsity athletes (Bissell, 2004). Concerning televised sports, self-reported exposure predicted less body dissatisfaction in a sample of adolescents (Tiggemann &

Pickering, 1996) but not in a sample of college students (Bissell & Zhou, 2004). Exposure to televised sports was also unrelated to disordered eating behaviors among high school and college students (Bissell & Zhou, 2004; Tiggemann & Pickering, 1996) while it was negatively related to body dissatisfaction, bulimia, and a drive for thinness among female varsity athletes (Bissell, 2004). We propose that these contradictory results may be attributed in part to differences in media content and in part to differences among viewers.

Concerning media content, a handful of studies suggest that not all sports media portray a functional/process-oriented view of the female body. For instance, some sports/fitness magazines tend to depict women as passive and non-sporting while others depict women as actively engaged in team sports (Hardin, Lynn, & Walsdorf, 2005). Some sports also place greater value on the aesthetic dimension of their athletes' than others. Sports such as cheerleading, gymnastics, and figure skating are reputed for their emphasis on leanness in comparison to sports such as basketball, soccer, and hockey (e.g., Parsons & Betz, 2001). Thus, the portrayal of women practicing "lean sports" may potentially reinforce cultural notions of the female body as an object; especially when the athletes' skills and achievements are downplayed in favor of their physical attractiveness and/or sex appeal (e.g., Duncan, 1990). Indeed, self-reported exposure to media portrayals of women practicing "lean sports" was positively related to a drive for thinness, bulimia, and anorexia among female college students (Bissell & Zhou, 2004).

In contrast, portrayals of women practicing "non-lean sports" may potentially convey a different perspective of the female body, one grounded in physical competence and prowess which in turn might exert a more positive effect on female viewers. To illustrate, adolescent girls who watched a televised sports cast of women practicing "non-lean sports" subsequently

described themselves less in terms of their appearance and more in terms of their physical competence than did girls who watched a televised sports cast of women practicing “lean sports” (Harrison & Fredrickson, 2003). High school girls and college women who viewed photographs of performance athletes (i.e., who were engaged in their sport) also described themselves more in terms of their physical competence than their appearance while the reverse pattern was observed for girls and women who viewed photographs of sexualized athletes (i.e., posing in a swimsuit) (Daniels, 2009). This study also noted that self-descriptions pertaining to physical competence were largely positive (e.g., “I am good at sports”) while self-descriptions pertaining to physical appearance were largely negative (e.g., “I am too fat”) (Daniels, 2009).

Taken together, these findings suggest that the type of sport and the manner in which an athlete is portrayed can trigger qualitatively different self-perspectives of the body; that of an object (self-objectification) or that of a process (body competence). In the current study, we examined whether different portrayals of the female body (as a process vs as an object) would translate into qualitatively different body image, motivational, and eating-related outcomes. Consistent with a growing body of literature, we also investigated individual differences in these effects pending women’s motivational orientations (e.g., Mask & Blanchard, 2011a, 2011b; Pelletier & Dion, 2007; Pelletier, Dion, & Levesque, 2004).

### **Self-Determination Theory and Body Image**

Self-determination theory (Deci & Ryan, 1985) proposes that the regulation of behavior can take many forms which vary in degree of perceived autonomy or self-determination. Self-determined or autonomous styles of behavior regulation are those which are performed because they are deemed important to the individual (identified regulation), because they express a person’s deepest values (integrated), or because they generate feelings of pleasure and

satisfaction while doing them (intrinsic regulation). Consequently, these behaviors are experienced as authentic, freely chosen, and reflective because they are informed by the needs and values of the self. On the other hand, non self-determined or controlled styles of behavior regulation are those which are performed out of guilt and internal pressure (introjected regulation), because other people expect it (external regulation), or in the absence of intention (amotivation). These behaviors are therefore experienced as controlling and pressured because while they are initiated by the person they are not self-endorsed.

In a recent set of papers, Mask and Blanchard (2011a, 2011b) demonstrated that individual differences in the regulation of behaviors (autonomous, controlled) could account for women's varying responses to "thin ideal" media. For instance, women who felt more controlled in the regulation of their everyday behaviors perceived more pressure from the media to be thin, reported greater body dissatisfaction, and expressed more concern over the quantity of food they ate in response to a video which epitomized thinness as a standard of female attractiveness compared to a video which did not (Mask & Blanchard, 2011a). Body dissatisfied women who felt less autonomous in the regulation of their eating behaviors also expressed more dissatisfaction with their appearance and negative affect after viewing media images of thin female models compared to media images of "products-only" (Mask & Blanchard, 2011b). Conversely, women who displayed more autonomy in the regulation of their behaviors expressed more concern over the quality of food they ate and formulated more intentions to monitor their food intake and eat fewer unhealthy foods in the coming weeks following exposure to media depictions of other women (Mask & Blanchard, 2011a, 2011b).

## Overview of the Present Study

Objectification theory (Fredrickson & Roberts, 1997) posits that a perspective of the body as an object or state self-objectification incurs a set of detrimental consequences such as negative evaluations of one's body image, a depletion of one's motivational/energetic resources, and restrained eating. We propose that a perspective of the body as a process or state body-competence would yield the reverse pattern of responses. Moreover, we advance that these differential effects are moderated by women's general motivational orientations (autonomous vs controlled). In the present study, media portrayals of the female body as an object and media portrayals of the female body as a process were used to trigger the corresponding state of self-objectification and state body competence in female viewers. Body image evaluations were represented by three constructs: self-appraisals of the body's appearance (e.g., stomach, thighs), self-appraisals of the body's competence (e.g., level of physical fitness, muscular endurance), and body shame. Energy was represented by the construct of vitality—a “positively toned and energized state” (Ryan & Deci, 2008, p. 703). Finally, dietary restraint was represented by women's introjected (e.g., “because I felt guilty”) and identified (e.g., “because I feel better when I don't eat this type of snack food) motives for restricting their actual intake of chocolate<sup>1</sup>.

We hypothesized that portrayals of the female body as a process would produce more positive effects on female viewers evidenced by positive self-appraisals of the body's appearance, positive self-appraisals of the body's competence, less body shame, more vitality, and more identified motives (rather than introjected) for restricting one's intake of chocolate. Conversely, we expected the reverse pattern of results in response to media portrayals of the female body as an object. Based on the findings of Mask and Blanchard (2011a, 2011b), we also hypothesized that a controlled motivation would render women more responsive to media

portrayals of the female body compared to an autonomous motivation. To be specific, a controlled motivation was expected to produce a more positive set of responses to media portrayals of the female body as a process while it was expected to yield a more negative set of responses to media portrayals of the female body as an object.

## **Method**

### **Design**

The present study employed a between-subjects posttest-only experimental design. The between-subjects variable was video exposure with three levels: “body-as-object”, “body-as-process”, and neutral. The latter was included to obtain baseline assessments of women’s body image evaluations, vitality, and restrained eating in the absence of any body-related stimuli. The outcomes under investigation included self-appraisals of the body’s appearance, self-appraisals of body’s competence, body shame, vitality, and restrained eating represented by women’s introjected and identified motives for restricting their actual intake of chocolate.

### **Participants**

The sample was comprised of 91 female undergraduate students enrolled in first year psychology courses. Their ages ranged from 17 to 42 years ( $M = 20.81$ ,  $SD = 4.26$ ) and the majority was Caucasian ( $n = 56$ ), followed by Asian ( $n = 11$ ) and Black ( $n = 11$ ), Middle-Eastern ( $n = 5$ ), Latin American ( $n = 1$ ), and Indian ( $n = 1$ ). Six women did not indicate their ethnicity. Participants self-reported weight (lbs) and height (feet and inches) were used to calculate their body mass index (BMI) which served as a covariate in subsequent analyses ( $M = 23.35$ ,  $SD = 4.27$ ). Most participants ( $n = 51$ ) were recruited from an Integrated System of Participation in Research (ISPR) and received course credit in exchange for their participation. The remaining ( $n = 40$ ) were recruited on a volunteer basis and were not compensated. Participants’ BMI,  $F(1, 89)$

= 0.24,  $p > .60$ , age,  $F(1, 89) = 0.84$ ,  $p > .30$ , and autonomous motivation,  $F(1, 89) = 0.17$ ,  $p > .60$  did not vary across methods of recruitment,  $F(4, 86) = 2.21$ ,  $p = .075$ . However, controlled motivation was somewhat higher among women who were recruited from the ISPR ( $M = 3.82$ ,  $SD = 0.86$ ) compared to women who were recruited on a volunteer basis ( $M = 3.31$ ,  $SD = 0.92$ ),  $F(1, 89) = 7.39$ ,  $p = .008$ .

### **Experimental Stimuli**

Three videos were created for this laboratory experiment: a “body-as-object” video, a “body-as-process” video, and a neutral video. Each video was comprised of a series of advertisements downloaded from the popular video sharing website “YouTube” ([www.youtube.com](http://www.youtube.com)). Advertisements (ad) considered for the “body-as-object” video had to meet the following criteria: (1) the ad showcased the appearance-based attributes of the female body (e.g., legs, buttocks) (2) the importance of having an appealing physique was highlighted in the ad (3) the ad featured images of women who were mainly “posing” for the camera rather than engaged in an activity (i.e., passive vs active). Sample advertisements included ones for moisturizer, lingerie, and summer clothing. Advertisements considered for the “body-as-process” video had to meet the following criteria: (1) the ad showcased what women could do and accomplish with their body (2) the ad featured images of strong, healthy, active women (3) the ad featured images of women who were engaged in an activity rather than “posing” for the camera (i.e., active vs passive). Sample advertisements included ones for sports apparel, an energy drink, and cold medication. Advertisements considered for the “neutral” video had to meet the following criteria: (1) the ad included minimal images of humans (2) when humans were included in the ad neither the appearance nor the competence-based attributes of the body

were the focal point of the image. Sample advertisements included ones for a computer, toilet paper, and laundry detergent.

Twenty-two advertisements in total were initially downloaded from the “YouTube” website. To ensure that they were of equal appeal and interest (e.g., Hargreaves & Tiggemann, 2002), the 22 ads were viewed and evaluated by a sample of undergraduate women ( $n = 51$ ). Students indicated to what extent (1) the ad was appealing (2) the ad was pleasant to watch (3) their reaction to the ad was favorable (4) their initial reaction to the product advertised was positive and (5) the product advertised was clearly depicted in the ad. Responses ranged from 1 (*do not agree at all*) to 7 (*strongly agree*). These five items were deemed internally consistent with estimates ranging from .67 to .93 across the 22 ads. Responses were therefore averaged together in order to obtain an overall appeal rating for each advertisement which was subsequently evaluated against the scale’s theoretical average (i.e., 4). Fourteen ads were rated significantly “above average” ( $p < .05$ ) and one ad was rated marginally “above average”,  $t(15) = 2.04, p = .06$ . The remaining seven ads were rated “about average” ( $n = 4$ ) and “below average” ( $n = 3$ ). Of these, one was discarded completely while five were replaced with ads that were matched in content and appeal from the users of “YouTube” (i.e., ads which had received a rating of at least 4.5/5 on the “YouTube” rating scale)<sup>2</sup>.

The final three sets of advertisements were spliced together in order to create three continuous stimuli of five minutes in duration: (1) a “body-as-object” video comprised of six ads which showcased the appearance-based attributes of the female body plus three neutral ads (2) a “body-as-process” video comprised of five ads which showcased the competence-based attributes of the female body plus the same three neutral ads and (3) a “neutral” video which included nine neutral ads in total. The inclusion of neutral ads within each of the body-related

videos was done to reduce possible demand characteristics (e.g., Hargreaves & Tiggemann, 2004; Mills, Polivy, Herman, & Tiggemann, 2002).

### **Manipulation Check**

A manipulation check was conducted on the two body-related videos. One group of undergraduate women viewed the “body-as-object” video ( $n = 44$ ) while another group viewed the “body-as-process” video ( $n = 59$ ). Students were instructed to view the advertisements in each video as though they were viewing them on “YouTube”. Immediately following exposure, students rated the extent to which the video portrayed the female body as an object or as a process and the extent to the video triggered a state of self-objectification or a state of body-competence.

**Perceptions of video content.** Perceptions of the video’s portrayal of the female body as an object were assessed with the following items: (1) The models’ physical attractiveness was highlighted in the ads (2) The models’ sexual appeal was highlighted in the ads (3) The models’ shape/figure was the focal point of the ads (4) The models’ thinness was showcased in the ads (5) The ads portrayed women as decorative objects to sell the product (6) The models in some ads showed a lot of skin (7) The models in some ads were “posing” for the camera rather than engaged in an activity (8) The ads showcased the appearance-based attributes of the female body (9) Some ads featured images of women without their face exposing only certain body parts (i.e., legs, back, breasts, stomach). Perceptions of the video’s portrayal of the female body as a process were assessed with the following items (1) The ads featured images of women who were physically coordinated (2) The ads featured images of women who were physically fit (3) The ads featured images of women who were energetic and had stamina (4) The ads portrayed women who had physical endurance (i.e., were strong) (5) The ads portrayed healthy, active women (6)

The women in the ads were fully clothed or dressed appropriately for their sport (7) The women in the ads were engaged in an activity rather than “posing” for the camera (8) The ads highlighted the competence-based attributes of the female body (i.e., what the female body can do) (9) Women’s faces and entire bodies were included in the ads rather than certain body parts in isolation. Each item was rated from 1 (*do not agree at all*) to 7 (*strongly agree*).

The 18 content-based items were subjected to a principal component analysis. The initial solution revealed the presence of three components which accounted for 71.88% of the total variance. One Body-as-Object and two Body-as-Process components emerged. Although a two-component structure was expected, there were no cross-component loadings. The nine items concerning perceptions of the female body as an object were therefore averaged together as were the nine items concerning perceptions of the female body as a process.

The two content-based variables were subjected to a 2 (video: “body-as-object” vs “body-as-process”) x 2 (content: “body-as-object” vs “body-as-process”) mixed ANOVA with repeated measures on the second factor. A significant video x content interaction emerged,  $F(1, 101) = 167.28, p < .001$ . As expected, perceptions of the female body as an object ( $M = 6.14, SD = 0.57$ ) were greater than perceptions of the female body as a process ( $M = 4.30, SD = 0.78$ ) among those who viewed the “body-as-object” video,  $t(43) = 14.25, p < .001$ . Conversely, perceptions of the female body as a process ( $M = 6.00, SD = 0.66$ ) were greater than perceptions of the female body as an object ( $M = 4.15, SD = 1.34$ ) among those who viewed the “body-as-process” video,  $t(58) = -8.18, p < .001$ .

**State self-objectification and state body competence.** Following the content-based ratings, students indicated to what extent “watching the ads in the video made them self-conscious or think about their own “\_\_\_\_\_”. The following appearance-based attributes were

used to assess state self-objectification: (1) weight (2) sexual appeal (3) physical attractiveness (4) measurements (i.e., chest, waist, hips) (5) overall appearance of the body (6) shape/figure (7) how certain parts of the body looked (i.e., breast, hips, stomach, thighs, buttocks). The following competence-based attributes were used to assess state body-competence: (1) physical coordination (2) energy/stamina level (3) health (4) physical fitness level (5) cardiovascular endurance (6) muscular endurance (7) the overall functionality of the body (i.e., what the body can do and accomplish). Each item was rated from 0 (*not at all*) to 6 (*very much so*) with a mid-scale rating of 3 (*somewhat*).

The 14 state-based items were subjected to a principal component analysis. The initial solution revealed the presence of two components which accounted for 75.52% of the total variance. One State Self-Objectification and one State Body-Competence component emerged and there were no cross-loadings. The seven items concerning state self-objectification were therefore averaged together as were the seven items concerning state body-competence.

The two state-based variables were subjected to a 2 (video: “body-as-object” vs “body-as-process”) x 2 (state: self-objectification vs body-competence) mixed ANOVA with repeated measures on the second factor. A significant video x state interaction emerged,  $F(1, 101) = 69.21, p < .001$ . As expected, those who viewed the “body-as-object” video experienced greater state self-objectification ( $M = 3.39, SD = 1.82$ ) than state body-competence ( $M = 1.62, SD = 1.52$ ),  $t(43) = 7.29, p < .001$  while those who viewed the “body-as-process” video experienced greater state body-competence ( $M = 3.77, SD = 1.46$ ) than state self-objectification ( $M = 2.95, SD = 1.57$ ),  $t(58) = -4.13, p < .001$ .

## Procedure

The present study was advertised as a study on “Advertising and YouTube” which aimed “to better understand how advertisers are reaching potential consumers on one of the world’s largest online communities known as “YouTube”. Following informed consent, participants were randomly assigned to view one of three videos: the “body-as-object”, the “body-as-process” or the neutral video. Participants were informed that the advertisements they were about to watch were downloaded from the “YouTube” website and spliced together into one continuous video in order to avoid potential problems that may arise when connecting to the internet. Participants were instructed to watch the advertisements in the video as though they were watching them on “YouTube” on any personal computer. They were also instructed to view the advertisements attentively as they would be queried on their contents later.

Prior to exposure, participants completed assessments of their general autonomous and controlled motivation. Immediately following exposure, appraisals of the products advertised in the video along with self-appraisals of the body’s appearance and competence were assessed with a number of Visual Analogue Scales (VAS: Heinberg & Thompson, 1995). Afterwards, participants completed measures of state body shame and state vitality among other filler items ostensibly for another study. Given that the present study was on “advertising”, participants were invited to sample and evaluate a new line of chocolate bars, namely “Hershey’s 100 Calories Chocolate Wafer Bars”. Participants were given a basket which contained approximately 30 chocolate bars of three different varieties (chocolate, mint, peanut butter). Participants were instructed to help themselves to as many bars as they wanted in order to form an accurate evaluation using the attached “Taste Test Survey”. The reverse side of this survey featured assessments of participants’ introjected and identified motives for restricting their actual

intake of chocolate. Finally, the appeal and effectiveness of the advertisements were rated along with some demographic questions (e.g., age, ethnicity, height, weight). At the end of the experiment, participants were thanked for their participation, debriefed, and queried on their suspicions as to the real goal of the study. No participants suspected the hypotheses being tested.

## Measures

**Autonomous and controlled motivation.** Participants' general autonomous and controlled motivation were assessed with the General Motivation Scale (GMS; Pelletier, Blanchard, Sharp, Otis, Vallerand, & Guay, 2005). The GMS is comprised of six subscales of three items each that correspond to the six styles of behavior regulation proposed by Deci and Ryan (1985). Participants rated the extent to which each of the 18 items corresponded to their reasons as to 'why they do things in general' on a scale from 1 (*does not correspond to my reasons at all*) to 7 (*corresponds exactly to my reasons*). Sample items included: "...because I like making interesting discoveries" (intrinsic regulation), "...because they reflect what I value most in life" (integrated regulation), "...because I chose them as means to attain my objectives" (identified regulation), "...because otherwise I would feel guilty for not doing them" (introjected regulation), "...because I want to be viewed more positively by certain people" (external regulation), and "...although it does not make a difference whether I do them or not" (amotivation). An autonomous motivation composite was created by averaging scores across the identified, integrated, and intrinsic regulation items ( $\alpha = .79$ ) whereas a controlled motivation composite was created by averaging scores across the amotivation, external regulation, and introjected regulation items ( $\alpha = .76$ ).

**Self-appraisals of the body's appearance and competence.** Participants' self-appraisals of the body's appearance and competence were assessed with a number of Visual

Analogue Scales (VAS; Heinberg & Thompson, 1995). These VAS consisted of 20 cm horizontal lines anchored with “extreme negative feelings” on the far left (-10 cm) and “extreme positive feelings” on the far right (+10 cm). The middle point was labeled as “no feelings either way” (0 cm). Attributes pertaining to the body’s appearance (hips, waist, buttocks, weight, stomach, and thighs) were inspired from the Weight Concern subscale of the Body Esteem Scale (BES; Franzoi & Shields, 1984) while attributes pertaining to the body’s competence (muscular endurance, flexibility, energy/stamina, cardiovascular endurance, health, and physical fitness level) were inspired from the Physical Condition subscale of the BES. Participants were instructed to indicate “How they felt right now” toward each attribute by marking a slash somewhere along the line. Responses were derived by measuring the markings to the nearest 0.1cm departing from the scale’s mid-point (0cm). A composite of “self-appraisals of the body’s appearance” was created by averaging scores across the six appearance-based attributes which was deemed internally consistent across video exposure conditions ( $\alpha$ s ranged from .89 to .91). A composite of “self-appraisals of the body’s competence” was created by averaging scores across the six competence-based attributes which was also deemed internally consistent across video exposure conditions ( $\alpha$ s ranged from .66 to .88).

**Body shame.** Participants’ body shame was assessed with the eight-item Body Shame subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996) which was adapted to capture state levels of body shame in the laboratory (Martins, Tiggemann, & Kirkbride, 2007). Sample items included: “Right now, I’m angry at myself because I haven’t made the effort to look my best” and “At this time, I would be ashamed if people knew what I really weigh”. Responses were rated from 1 (*not at all*) to 7 (*extremely*) and averaged together.

Internal consistency estimates were satisfactory across video exposure conditions ( $\alpha$  ranged from .87 to .90).

**Vitality.** Participants' vitality was assessed with the seven-item State Vitality Scale (Ryan & Frederick 1997). Sample items include: "At this moment, I feel alive and vital" and "I feel energized right now". Responses were rated from 1 (*not at all*) to 7 (*extremely*) and averaged together. Internal consistency estimates were satisfactory across video exposure conditions ( $\alpha$  ranged from .87 to .90).

**Dietary restraint.** Participants' motives for restricting their actual intake of chocolate were assessed with the Introjected and Identified Regulation subscales of the Regulation of Eating Behaviors Scale (Pelletier, Dion, Slovenic-D'Angelo, & Reid, 2004). Both trait-level subscales were adapted to capture participants' situational motives for restricting their current eating behavior. Participants rated the extent to which each of the items corresponded to their reasons as to 'why they stopped eating the bar(s)'. Introjected motives included the following: "...because I felt guilty", "...because I have to lose weight", "...because I feel that I must be thin", and "...because I don't want to be ashamed of myself". Identified motives included the following: "...because this type of snack food is not part of a healthy way of eating for me", "...because I feel better when I don't eat this type of snack food", "...because it's important for me to choose healthier, natural snacks instead", and "...because my goal is to gain long-term health benefits by avoiding this type of snack food". Responses were rated from 1 (*does not correspond at all*) to 7 (*corresponds exactly*) and averaged across each subscale's respective four items. Internal consistency estimates were satisfactory across subscales and video exposure conditions ( $\alpha$  ranged from .87 to .90 for introjected motives and  $\alpha$  ranged from .87 to .90 for identified motives).

**Chocolate intake.** Participants were offered three different varieties of Hershey's 100 Calories Chocolate Wafer Bars™. Five samples from each variety were weighed and averaged together in order to obtain the following standards: Hershey's Chocolate™ = 20.94g, Reese Peanut Butter™ = 19.84g, and York Peppermint™ = 21.10g. Participants' total chocolate intake (g) was determined by subtracting their leftovers from the standards and summing the differences across each variety.

## Results

Descriptive statistics and inter-correlations among all study variables are displayed in Table 1. Participants were equivalent on age, BMI, autonomous, and controlled motivation across video conditions,  $F(8, 172) = 1.43, p > .10$ . A series of hierarchical multiple regression analyses were conducted on each of the dependent variables. Step 1 included the covariate of BMI. Step 2 included the main effects of general autonomous and general controlled motivation as well as the main effects of video exposure which were represented by two orthogonal comparison contrasts: C1 compared exposure to the body-related videos with exposure to the neutral video while C2 compared exposure to the "body-as-object" video with exposure to the "body-as-process" video. Step 3 included the moderation effects which were represented by four cross-products: autonomous motivation by C1, controlled motivation by C1, autonomous motivation by C2, and controlled motivation by C2. In the prediction of women's self-appraisals of the body's appearance, self-appraisals of the body's competence, body shame, and vitality, the regression models were based on the entire sample of study participants ( $n = 91$ ).

In the prediction of women's motives for restricting their intake of chocolate (introjected, identified), the regression models were based on a sub-sample of participants ( $n = 51$ ) who exhibited restraint by eating less than one chocolate bar from each variety. While all participants

were free to eat the entire chocolate bar in order to form an accurate evaluation of the product, 51 participants refrained from finishing the bars (i.e., restraint group), 13 participants ate exactly 3 or 4 bars (i.e., no restraint group), and 27 participants did not leave any evidence of leftovers (i.e., unknown group). A series of ANOVAs were conducted comparing mean levels of all study variables across the three groups of chocolate eaters. These results are displayed in Table 2.

Standardized regression coefficients and changes in  $R^2$  across all dependent variables are displayed in Table 3. When significant, a moderating effect of motivation (autonomous, controlled) on the relationship between video exposure (C1, C2) and the criterion was depicted by estimating the simple slopes of the regression lines at low and high levels ( $\pm 1SD$ ) from the mean of the moderator using the SPSS macro MODPROBE (Hayes & Mattes, 2009).

**Self-appraisals of the body's appearance.** Controlling for a significant effect of BMI in Step 1,  $F(1, 89) = 25.06, p = .001, R^2 = .22$  significant main effects emerged in Step 2,  $\Delta F(4, 85) = 4.63, p = .002, \Delta R^2 = .14$ . The first comparison contrast (C1) revealed that self-appraisals of the body's appearance were more negative following exposure to the body-related videos ( $M = -0.43, SE = 0.39$ ) compared to the neutral video ( $M = 1.40, SE = 0.56$ ). However, self-appraisals of the body's appearance were consistent across the body-related videos (C2). A direct and positive effect for autonomous motivation on the criterion was also observed. Yet, the regression model in Step 3 which included a significant interaction between controlled motivation and the second comparison contrast (C2) provided the best fit to the data,  $\Delta F(4, 81) = 2.94, p = .002, \Delta R^2 = .08$  and accounted for 44.0% of the variance in self-appraisals of the body's appearance. Exposure to the "body-as-process" video produced more negative self-appraisals of the body's appearance than exposure to the "body-as-object" video for those who were high ( $B = -0.98, SE$

= 0.50,  $p = .056$ ) but not for those who were low ( $B = 0.58$ ,  $SE = 0.52$ ,  $p > .20$ ) on controlled motivation,  $F(9, 81) = 4.66$ ,  $p = .034$ . This interaction is displayed in Figure 1.

**Self-appraisals of the body's competence.** Controlling for a significant effect of BMI in Step 1,  $F(1, 88) = 9.84$ ,  $p = .002$ ,  $R^2 = .10$  a significant main effect emerged in Step 2,  $\Delta F(4, 84) = 7.32$ ,  $p = .001$ ,  $\Delta R^2 = .23$  in which autonomous motivation was positively related to the criterion. However, the regression model in Step 3 which included a significant interaction between controlled motivation and the first comparison contrast (C1) provided the best fit to the data,  $\Delta F(4, 80) = 2.64$ ,  $p = .040$ ,  $\Delta R^2 = .08$  and accounted for 41.1% of the variance in self-appraisals of the body's competence. Exposure to the body-related videos produced less positive self-appraisals of the body's competence than exposure to the neutral video for those who were high ( $B = -0.89$ ,  $SE = 0.29$ ,  $p = .003$ ) but not for those who were low ( $B = 0.38$ ,  $SE = 0.27$ ,  $p > .10$ ) on controlled motivation,  $F(9, 80) = 9.65$ ,  $p = .003$ . This interaction is displayed in Figure 2.

**Body shame.** Controlling for a significant effect of BMI in Step 1,  $F(1, 84) = 44.43$ ,  $p = .001$ ,  $R^2 = .35$  significant main effects emerged in Step 2,  $\Delta F(4, 80) = 3.38$ ,  $p = .013$ ,  $\Delta R^2 = .09$  in which autonomous motivation was negatively related while controlled motivation was positively related to body shame. However, the regression model in Step 3 which included a significant interaction between controlled motivation and the second comparison contrast (C2) provided the best fit to the data,  $\Delta F(4, 76) = 3.53$ ,  $p = .011$ ,  $\Delta R^2 = .09$  and accounted for 52.8% of the variance in body shame. Exposure to the "body-as-process" video produced more body shame than exposure to the "body-as-object" video for those who were high ( $B = 0.53$ ,  $SE = 0.17$ ,  $p = .002$ ) but not for those who were low ( $B = -0.32$ ,  $SE = 0.17$ ,  $p = .073$ ) on controlled motivation,  $F(9, 76) = 12.46$ ,  $p = .001$ . This interaction is displayed in Figure 3.

**Vitality.** Controlling for a significant effect of BMI in Step 1,  $F(1, 87) = 5.63, p = .020$ ,  $R^2 = .06$  significant main effects emerged in Step 2,  $\Delta F(4, 83) = 6.81, p = .001, \Delta R^2 = .23$  in which autonomous motivation was positively related while controlled motivation was negatively related to vitality. However, the regression model in Step 3 which included a significant interaction between autonomous motivation and the second comparison contrast (C2) provided the best fit to the data,  $\Delta F(4, 79) = 3.50, p = .011, \Delta R^2 = .11$  and accounted for 39.9% of the variance in vitality. Exposure to the “body-as-process” video resulted in less vitality than exposure to the “body-as-object” video for those who were high ( $B = -0.63, SE = 0.22, p = .005$ ) but not for those who were low ( $B = 0.21, SE = 0.22, p > .30$ ) on autonomous motivation,  $F(9, 79) = 7.31, p = .008$ . This interaction is displayed in Figure 4.

**Dietary restraint: introjected motives.** Identified motives were positively related to introjected motives in Step 1,  $F(3, 43) = 8.42, p = .001, R^2 = .37$ . While no main effects emerged in Step 2,  $\Delta F(4, 39) = 2.10, p > .10, \Delta R^2 = .11$  a significant moderation effect emerged in Step 3,  $\Delta F(4, 35) = 2.83, p = .039, \Delta R^2 = .13$  between controlled motivation and the first comparison contrast (C1). The final model accounted for 60.8% of the variance in participants’ introjected motives for restricting their intake of chocolate. Exposure to the body-related videos triggered more introjected motives for restricting one’s intake of chocolate than exposure to the neutral video for those who were low ( $B = 0.34, SE = 0.16, p = .034$ ) but not for those who were high ( $B = -0.21, SE = 0.15, p > .10$ ) on controlled motivation,  $F(11, 35) = 5.84, p = .021$ . This interaction is displayed in Figure 5.

**Dietary restraint: identified motives.** Introjected motives were positively related while enjoyment of the bars were negatively related to identified motives in Step 1,  $F(3, 43) = 12.86, p = .001, R^2 = .47$ . A direct and positive effect for autonomous motivation also emerged in Step 2,

$\Delta F(4, 39) = 2.94, p = .03, \Delta R^2 = .12$ . However, no moderation effects emerged in Step 3,  $\Delta F(4, 35) = 1.02, p > .40, \Delta R^2 = .042$ . The final model accounted for 63.7% of the variance in identified motives.

**Chocolate intake.** A model trimming process was applied to the prediction of chocolate intake from participants' introjected and identified motives. Controlling for non-significant effects of BMI ( $\beta = .00, p > .80$ ), satiety ( $\beta = -.15, p > .80$ ), and enjoyment of the bars ( $\beta = .03, p > .80$ ) in Step 1,  $F(3, 43) = 0.36, p > .70, \Delta R^2 = .05$  no main effects emerged in Step 2,  $\Delta F(4, 39) = 0.57, p > .60, \Delta R^2 = .05$  and no moderation effects emerged in Step 3,  $\Delta F(4, 35) = 1.87, p = .14, \Delta R^2 = .05$ . Given that none of the covariates were significantly related to the criterion in Step 1 they were removed and a revised regression model was tested.

In the first revised model, no main effects emerged in Step 1,  $F(4, 42) = 0.76, p > .50, R^2 = .07$ . However, a marginally significant interaction emerged between introjected motives and the first comparison contrast (C1) ( $\beta = -.44, p = .034$ ) in Step 2,  $\Delta F(4, 38) = 2.03, p = .10, \Delta R^2 = .16$ . Given that neither interaction term between identified motives and C2 ( $\beta = -.21, p > .20$ ) and between introjected motives and C2 ( $\beta = .25, p > .20$ ) approached significance, they were removed and a second revised regression model was tested.

Controlling for non-significant main effects in Step 1,  $F(3, 43) = 0.88, p > .40, R^2 = .06$  a significant moderation effect emerged in Step 2,  $\Delta F(2, 41) = 2.83, p = .070, \Delta R^2 = .11$  between introjected motives and the first comparison contrast (C1) ( $\beta = -.45, p = .023$ ) but not between identified motives and the first comparison contrast (C1) ( $\beta = .35, p = .078$ ). The final model accounted for 17.2% of the variance in chocolate intake. Exposure to the body-related videos yielded less intake of chocolate for those who were high ( $B = -6.14, SE = 2.32, p = .012$ ) but not

for those who were low ( $B = 2.49$ ,  $SE = 2.22$ ,  $p > .20$ ) on introjected motives,  $F(5, 41) = 5.56$ ,  $p = .023$ . This interaction is displayed in Figure 6.

## Discussion

The media's role in shaping and fueling women's body image and eating disturbances has garnered extensive empirical attention. Indeed, findings from two published meta-analyses suggest that brief exposure to media images emphasizing the appearance-based attributes of women's bodies (i.e., "body-as-object"), particularly 'thinness' trigger negative appearance evaluations and dysfunctional eating-related attitudes in female viewers (Grabe, Ward, & Hyde, 2008; Want, 2009). Unknown, is whether exposure to media images emphasizing the functional/competence-based attributes of women's bodies (i.e., "body-as-process") would produce a different (or similar) set of responses. We sought to address this gap by contrasting media portrayals of the female as a process against media portrayals of the female body as an object on women's subsequent evaluations of their body image, vitality, and dietary restraint. We also examined individual differences in these effects pending women's general motivational orientations (Pelletier et al., 2005). Consistent with objectification theory (Fredrickson & Roberts, 1997), a detrimental effect of exposure was anticipated for the "body-as-object" video while a beneficial effect of exposure was anticipated for the "body-as-process" video. We also expected that these effects would be moderated by women's controlled but not autonomous motivation.

### Body Image Evaluations

Our first set of results concerned those obtained for women's body image evaluations. It was hypothesized that exposure to media portrayals of the female body as a process would yield more positive self-appraisals of the body's appearance and competence as well as less body

shame than exposure to media portrayals of the female body as an object. First, we contrasted the effects of exposure to body-related stimuli against neutral stimuli. Results indicated that women who viewed portrayals of the female body produced more negative appraisals of their body's appearance than women who viewed minimal portrayals of the female body. However, self-appraisals of the body's competence and body shame were consistent across video exposure conditions. These findings would suggest that either media depiction of the female body has the capacity to shift women's evaluations of how their body looks but not of what their body can do. Moreover, the unpleasant emotions women experienced as a result of exposure appear to be only skin deep as self-appraisals were negatively impacted but not self-worth.

Second, we contrasted the effects of exposure to media portrayals of the female body as a process against media portrayals of the female body as an object. Our results showed that self-appraisals of the body's appearance, self-appraisals of the body's competence, and body shame did not vary as a function of exposure. Yet, media portrayals of the female body as an object/process were shown to trigger the corresponding state of self-objectification/body competence in a pre-test sample of female viewers. These findings would therefore suggest that a "body-as-object" and a "body-as-process" perspective of the physical self do not translate into subsequent evaluations of the body.

Although contrary to expectations, these findings are consistent with those documented in past research. For instance, studies which have relied on the Weight Concern and Physical Condition subscales of the Body Esteem Scale (Franzoi & Shields, 1984) on which our assessments of self-appraisals were based, have produced similar null effects of exposure to "thin ideal" media (Barlett & Harris, 2008; Henderson-King et al., 2001; Posavac, Posavac, & Posavac, 1998; Wilcox & Laird, 2000). Likewise, subtle exposure to objects suggestive of

appearance/weight-related concerns (e.g., bathroom scales, mirrors, and covers of fashion magazines), did not impact women's levels of body shame either (e.g., Tiggemann & Boundy, 2008). While brief encounters (5 minutes) with media portrayals of the female body may be too subtle to impact body image evaluations in all women, our results suggest that they do impact body image evaluations in a sub-set of women.

Consistent with our predictions, a controlled motivation did produce greater variations in women's body image evaluations as a result of exposure than did an autonomous motivation. For instance, a controlled motivation predicted less positive self-appraisals of the body's competence in response to body-related stimuli but not neutral stimuli. Moreover, a controlled motivation was associated with more negative self-appraisals of the body's appearance as well as greater body shame in response to the "body-as-process" video compared to the "body-as-object" video. Conversely, an autonomous motivation was related to more positive evaluations of the body's external (e.g., appearance) and internal (e.g., competence) attributes as well as less body shame independent of exposure.

These findings suggest that a controlled motivation may serve a *potentiating* function while an autonomous motivation may serve a *protective* function in response to an important source of socio-cultural influence about body image, namely the media. This reasoning is congruent with past empirical work in this area. For instance, women who felt more controlled in their general activities perceived more pressure from the media to be thin and reported more body dissatisfaction following exposure to a video which epitomized the societal "thin ideal" compared to a video which did not (Mask & Blanchard, 2011a). Body dissatisfied women who felt less autonomous in the regulation of their eating behaviors also experienced an increase in negative affect and size dissatisfaction from pre to post exposure to thin female models (Mask &

Blanchard, 2011b). Conversely, ratings of perceived pressure from the media, body dissatisfaction, negative affect, and size dissatisfaction were uniform across exposure conditions for women who felt more autonomous in the regulation of their general and eating behaviors.

Although a potentiating function of controlled motivation was supported, the documented effects were in the opposite direction of our hypotheses. We had predicted that a portrayal of the functional rather than the aesthetic dimension of the female body would yield a *relief effect* (Dittmar & Howard, 2004) among those who were shown to be more responsive to the media (Mask & Blanchard, 2011a, 2011b). Our reasoning was informed by the burgeoning work in this area (e.g., Daniels, 2009; Harrison & Fredrickson, 2003) coupled with self-determination theory's research on the categorization of peoples' goals/values. Kasser and Ryan (1993, 1996) distinguished extrinsic goals (e.g., fame, financial success, and an attractive image)—ones which are pursued to bolster feelings of self-worth—from intrinsic goals (e.g., personal growth, community contributions, health)—ones which are inherently satisfying to pursue. Cross-culturally, the valuing and pursuit of intrinsic goals relative to extrinsic goals is associated with greater self-actualization and vitality, less depression and anxiety, and fewer physical symptoms (Kasser & Ryan, 1993, 1996; Kim, Kasser, & Lee, 2003; Ryan, Chirkov, Little, Sheldon, Timoshina, & Deci, 1999; Schmuck, Kasser, & Ryan, 2000). A learning activity framed in the service of a future intrinsic goal rather than a future extrinsic goal also yielded better learning and achievement outcomes. For example, adolescents who were informed that regular physical activity could help them remain strong and healthy and ward off sickness throughout their life, reported more autonomous reasons for doing the activity, deployed more effort during the activity, and persevered longer at the activity evidenced at 1-week, 1-month and 4-months follow-up than adolescents who were informed that regular physical activity could help them

prevent weight gain and remain physically attractive throughout their life (Vansteekiste, Simons, Soenens, & Lens, 2004). Reading a 2-page leaflet outlining the benefits of a nutritional diet for staying healthy rather than looking good also yielded a better conceptual understanding of the material through increased task involvement (Vansteekiste, Simons, Lens, Soenens, & Matos, 2005).

Applied to the physical self, findings from the present study suggest that the salutary effects anticipated from exposure to the intrinsic (e.g., “body-as-process”) relative to the extrinsic (e.g., “body-as-object”) dimension of the female body may not readily apply to women who regulate their day to day activities in a more controlled manner. Rather, the general tendency to structure one’s actions based on pressures and controls (i.e., meeting expectations, seeking approval, obtaining rewards, and avoiding feelings of shame and guilt) may have lead this sub-group of women to perceive a depiction of the functional dimension of the female body without an explicit focus on appearance as a source of pressure about body image. To these women, the models in the “body-as-process” video may have communicated an ideal that is both attractive and athletic (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). Results from the pre-test would corroborate this proposition as perceptions of the female body as an object averaged 4.15 ( $SD = 1.34$ ) on a scale from 1 (*do not agree at all*) to 7 (*strongly agree*) relative to perceptions of the female body as a process ( $M = 6.00$ ,  $SD = 0.66$ ). Moreover, exposure to the “body-as-process” video was also shown to induce a state of self-objectification ( $M = 2.95$ ,  $SD = 1.57$ ) alongside a state of body competence ( $M = 3.77$ ,  $SD = 1.46$ ). Similar findings have been reported by Daniels (2009) whereby women produced almost as many self-descriptions related to their appearance ( $M = 2.34$ ,  $SD = 1.78$ ) as ones related their physicality ( $M = 2.46$ ,  $SD = 2.16$ ) after viewing photographs of performance athletes. These findings and

ours suggest that media images of women in action may unavoidably invite the viewer to gaze upon the model's looks in concert with the model's physical abilities (e.g., Daniels, 2009). Yet, the information garnered from this gaze is subjectively different pending women's general motivational orientation. To women who feel more controlled in their day to day behaviors, the models in the "body-as-process" video may have conveyed a standard as to *how they should look* (e.g., lean and attractive) and *how they should be* (e.g., strong and toned). Evaluations of their current standing in relation to this ideal that is both attractive and athletic left them feeling ashamed of their looks and probably incompetent in their physical abilities.

### **Vitality**

Our next set of findings concerned those obtained for subjective vitality. According to objectification theory (Fredrickson & Roberts, 1997), self-objectification should reduce women's opportunities to experience peak motivational states. While correlational research has documented a negative link between self-objectification and flow (e.g., Tiggemann & Kuring, 2004; Szymanski & Henning, 2007), no study has investigated this relationship in a causal fashion. In the present study we examined women's subjective vitality as a proxy for motivation. Exposure to media images emphasizing appearance were therefore expected to deplete women of their psychological energy in comparison to media images emphasizing endurance and stamina. However, no main effects of exposure were documented. These results would suggest that the negative relationship documented between an extrinsic value orientation and vitality at the dispositional level (e.g., Kasser & Ryan, 1993, 1996) may not translate to vitality assessed at the state level in response to a particular extrinsic value, that of the body's outward appearance. Consistent with past research, an autonomous motivation was positively related to vitality while a controlled motivation was negatively related to vitality (e.g., Pelletier

et al., 2005). Above and beyond these independent effects, a significant moderation effect also emerged in which an autonomous motivation was associated with less vitality in response to the “body-as-process” video compared to the “body-as-object” video. Although not hypothesized, these findings are congruent with those of Mask and Blanchard (2011a) in which media depictions of women engaged in self-care activities (e.g., yoga, spending time with friends) vs media depictions of the societal “thin ideal” triggered more concerns with the quality of one’s diet among women who were feel more autonomous in their daily activities. To this subset of female viewers, media portrayals of women in action may have communicated an ideal as to how *they would like to be* (e.g., strong, healthy, powerful) which in turn may have primed a discrepancy between their actual and ideal self, one which encompasses predominantly a way of being (i.e., healthy) rather than a way of looking (i.e., lean).

### **Restrained Eating**

Our final set of results concern those obtained for restrained eating. Consistent with our predictions for vitality, we expected that exposure to portrayals of women who were healthy and active in comparison to portrayals of women who emphasized the importance of an attractive appearance would trigger more identified (e.g., “because it’s important for me to choose healthier, natural snacks instead) rather than introjected (e.g., “because I don’t want to be ashamed of myself”) reasons for restricting one’s intake of chocolate. Our analyses were based on a sub-sample of women (56%) who exhibited actual restraint; they sampled each variety of chocolate bar, enjoyed the taste of the bars ( $M = 4.54$ ,  $SD = 1.26$ ,  $t(50) = 3.03$ ,  $p = .004$ ), yet, refrained from finishing the bars. Moreover, those who exhibited restraint ( $n = 51$ ) did not significantly differ from those who did not exhibit restraint ( $n = 13$ ) nor from those who did not

leave any evidence of leftovers ( $n = 27$ ) on all study variables with the exception of self-appraisals of the body's appearance and introjected motives.

Controlling for satiety levels and enjoyment of the bars, an autonomous motivation predicted more identified motives for restricting one's intake of chocolate independent of exposure. These findings are consistent with those of Pelletier and Dion (2007) and support the hypothesized top-down relationship between motivation at one level of generality (i.e., general) and motivation and the adjacent level of generality (i.e., motivation underlying the regulation of eating behaviors) proposed by the hierarchical model of motivation (Vallerand, 1997). Our findings also documented a significant moderation effect whereby a controlled motivation was associated with more introjected motives for restricting one's intake of chocolate. These results support and extend those documented in past research. For instance, women who felt less volitional in their day to day activities expressed more concern over the quantity of food in their diet in response to a video emphasizing thinness as a criterion of female attractiveness compared to a video which did not (Mask & Blanchard, 2011a). Findings from the present study would suggest that portrayals of the female body with or without an explicit focus on appearance triggers concerns with how much one is actually eating in those who engage in their daily activities in a more controlled manner. To these women, it would seem that the feelings of shame and dissatisfaction they incurred toward their body's appearance as a result of exposure may have spilled over to feelings of guilt and shame about their current eating behavior which may *potentially* have lead to restrained eating. However, it is important to note that women in the 'restraint' group reported more positive self-appraisals of the body's appearance ( $M = 1.06$ ,  $SD = 3.57$ ) and less introjected motives for restricting their actual intake of chocolate ( $M = 2.11$ ,  $SD = 1.26$ ) compared to women who did not leave any evidence of leftovers (see Table 2).

## **Future Directions**

It worth mentioning that results from the present study were based on self-reported data obtained from a limited sample of predominantly Caucasian female undergraduate students who displayed a healthy BMI recruited from two different sources. The methodology described herein remains to tested in samples of women who are ethnically diverse, who may be older, who are not pursuing their university studies, and whose body mass may be considerably discrepant from the models featured in the body-related videos. Future research should also investigate whether the body image distress reported by a sub-set of women in response to media images without an explicit focus on appearance translate into a physiological stress-response (e.g., increased cortisol). Although media depictions of strong, healthy, active women were shown to impact a correlate of motivation (e.g., vitality) in a subset of women, future work in this area is encouraged to include a more direct assessment of women's motivation by having them work on a task subsequent to their video exposure and assessing their feeling of self-determination during the task in concert with how much time they spend on the task. Given the limited number of participants who exhibited actual restrained eating in the present study, the documented moderations effects may have capitalized on chance. By including a larger number of participants and perhaps a food item that is more sensitive to measurement (e.g., a bowl of individual M&Ms chocolates), future studies could examine disinhibition effects as a function of exposure and women's motivation.

## **Summary**

Notwithstanding these limitations, findings from the present study do contribute to the literature in the following manner. First, state based assessments of self-objectification and body competence were developed in the context of the present study. Contrary to the Twenty

Statements Test used in previous studies (e.g., Fredrickson et al., 1998), these assessments are reliable, short to complete, and do not necessitate lengthy coding procedures. Therefore, they may be useful in studies wishing to use more subtle inductions of self-objectification and/or body competence. Second, media displays of women in action may potentially convey an “athletic” ideal which may be just as detrimental to women’s body image evaluations as media images emphasizing an attractive appearance alone. Third, not all women respond to media portrayals of the female body in the same manner. This is the third study to document a detrimental effect of exposure among women who regulate their behaviors in a more controlled manner and minimal effects of exposure among women who regulate their behaviors in a more autonomous manner (Mask & Blanchard, 2011a, 2011b). Women are therefore encouraged to select activities which they find meaningful and which procure them with feelings of competence, autonomy, and relatedness thus strengthening in turn their autonomous motivation.

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## Footnotes

<sup>1</sup> Pelletier and colleagues have proposed that people may exhibit dietary restraint or regulate what they eat for a variety of reasons that vary in degree of perceived autonomy (i.e., amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation) which are assessed with the Regulation of Eating Behaviors Scale (REBS; Pelletier, Dion, Slovenic-D'Angelo, & Reid, 2004). In the present study, only two of the six motives were used to capture restrained eating (i.e., actual intake of chocolate) following exposure to various media portrayals of the female body namely, introjected and identified motives. Our reasoning was based on the mixed results documented in past research between state self-objectification and dietary restraint whereby body shame emerged as a significant mediator of this relationship in one study (e.g., Fredrickson et al., 1998) but not in another (Hebl, King, & Lin, 2004). These findings would suggest that while some women may feel more controlled in their decision to restrict their intake of chocolate (i.e., because they feel ashamed), others may feel more autonomous (i.e., because this is not part of a healthy way of eating). These distinct reasons were represented by introjected and identified regulation; two adjacent motives on the continuum of self-determination which are qualitatively different from one another. Moreover, we reasoned that the Introjected and Identified Regulation subscales of the REBS could easily be adapted to a more situational level of analysis (i.e., in response to specific environmental stimuli) in comparison to the other four motives.

<sup>2</sup> One ad rated “about average”,  $t(16) = 1.40$ ,  $p = .18$  was retained by accident.

Table 1.

*Means (SDs) Across Video Exposure Conditions and Inter-Correlations Among Study Variables for the Entire Sample.*

Variables	“Body-as-Object” ( <i>n</i> = 30)	“Body-as-Process” ( <i>n</i> = 31)	Neutral ( <i>n</i> = 30)	2.	3.	4.	5.	6.	7.	8.	9.
1. Autonomous <sup>1</sup>	5.09 (0.80)			.08	.36**	.49**	-.29**	.44**	-.08	.28	-.09
2. Controlled <sup>1</sup>	3.60 (0.92)				-.10	-.10	.32**	-.23*	.32*	.39**	-.03
3. Appearance	-0.10 (3.67)	-0.92 (3.30)	1.57 (3.37)			.55**	-.58**	.53**	-.15	-.06	-.12
4. Competence	1.50 (3.45)	0.40 (3.23)	1.71 (2.58)				-.42**	.48**	-.08	.20	-.23
5. Body Shame	1.99 (1.11)	2.35 (1.35)	2.09 (1.26)					-.48**	.62**	.25	.12
6. Vitality	3.92 (1.70)	3.47 (1.34)	3.75 (1.30)						-.30*	-.13	-.08
7. Introjected	1.75 (1.12)	2.44 (1.37)	2.14 (1.27)							.61**	-.06
8. Identified	3.27 (1.97)	3.34 (1.88)	3.60 (1.87)								-.16
9. Chocolate (g)	23.65 (11.58)	26.84 (12.90)	29.73 (14.72)								

*Note.* \**p* < .05. \*\**p* < .01

<sup>1</sup> Means (SDs) are based on the entire sample (*n* = 91)

Table 2.

*Means (SDs) of all study variables across chocolate groups.*

	Unknown ( <i>n</i> = 27)	Restraint ( <i>n</i> = 51)	No restraint ( <i>n</i> = 13)	<i>F</i> value
BMI	23.50 (3.92)	22.81 (3.91)	25.19 (5.89)	1.66
Autonomous	5.27 (.82)	5.08 (.79)	4.75 (.68)	1.90
Controlled	3.54 (1.01)	3.55 (.82)	3.89 (1.06)	.77
SAs of appearance	-1.25 (3.65) <sup>a</sup>	1.06 (3.57) <sup>b</sup>	-.37 (2.20) <sup>b</sup>	4.18*
SAs of competence	.25 (3.49)	1.71 (2.92)	1.14 (2.82)	1.95
Body shame	2.47 (1.47)	1.89 (1.08)	2.46 (1.15)	2.33
Vitality	3.61 (1.56)	3.76 (1.48)	3.69 (1.12)	.09
Introjected motives <sup>1</sup>	3.23 (1.79) <sup>a</sup>	2.11 (1.26) <sup>b</sup>	3.43 (1.51) <sup>a</sup>	6.08**
Identified motives <sup>1</sup>	3.69 (2.23)	3.40 (1.86)	3.58 (1.66)	.14
Satiety levels <sup>1</sup>	3.30 (2.78)	3.76 (2.22)	3.25 (2.45)	.35
Concerns of quality <sup>1</sup>	3.58 (1.88)	3.57 (1.96)	3.83 (1.80)	.09
Concerns of quantity <sup>1</sup>	3.00 (2.44)	3.38 (1.95)	3.08 (1.31)	.25
Difficulty to stop <sup>1</sup>	2.41 (1.83)	2.27 (1.63)	3.16 (2.16)	1.22
Taste of bars <sup>2</sup>	5.01 (1.41)	4.53 (1.26)	5.14 (.79)	1.74

*Note.* Means with different superscripts significantly differ from one another at  $p < 05$ .

<sup>1</sup> Unknown (*n* = 12), Restraint (*n* = 47), and No restraint (*n* = 12)

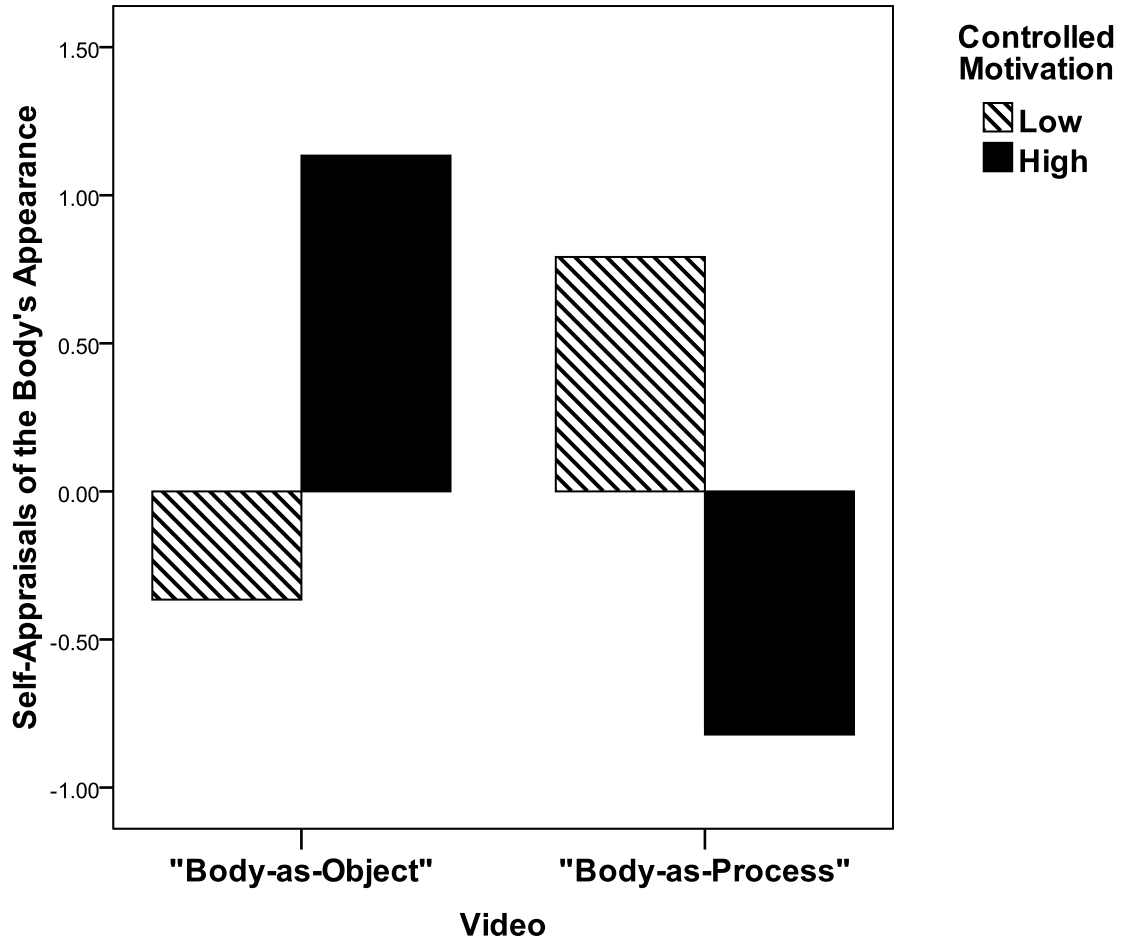
<sup>2</sup> Unknown (*n* = 12), Restraint (*n* = 51), and No restraint (*n* = 13)

Table 3.

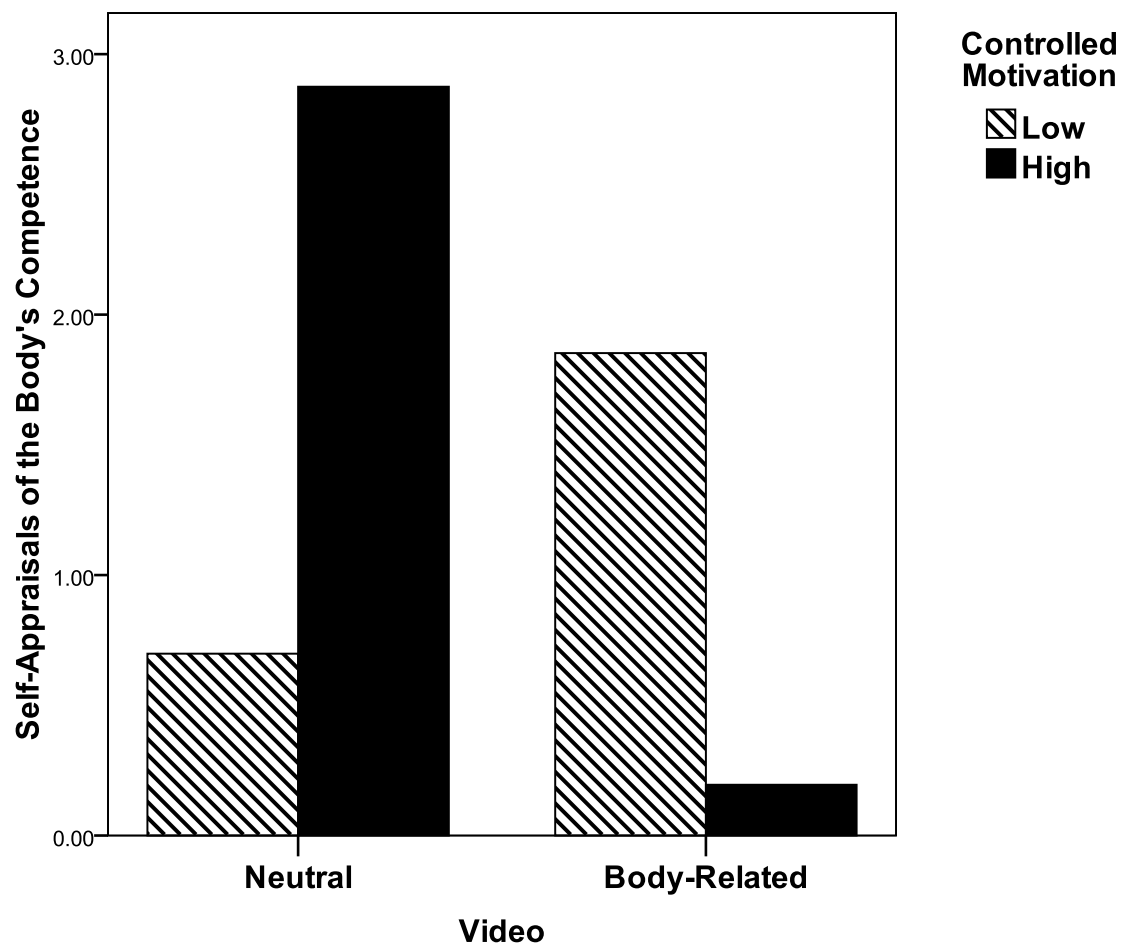
*Standardized Regression Coefficients and R<sup>2</sup> change from Hierarchical Regression Models Across all Dependent Variables*

Predictors	Dependent variables											
	Appearance (n = 91)		Competence (n = 91)		Body Shame (n = 91)		Vitality (n = 91)		Introjected (n = 51)		Identified (n = 51)	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
<i>Step 1</i>												
BMI (log)	-.47***	.22	-.32**	.10	.59***	.35	-.25*	.06	----	.37	----	.47
Absence of hunger	----		----		----		----		.00		.08	
Enjoyment of bars	----		----		----		----		.02		-.31*	
Identified motives	----		----		----		----		.62***		----	
Introjected motives	----		----		----		----		----		.52***	
<i>Step 2</i>		.14		.23		.09		.23		.11		.12
C1	-.25**		-.10		-.02		.01		.06		-.05	
C2	-.06		-.14		.08		-.13		.18		.02	
Autonomous	.29**		.47***		-.18*		.44***		-.25		.28*	
Controlled	-.05		-.11		.26**		-.25*		.13		.18	
<i>Step 3</i>		.08		.08		.09		.11		.13		.04
Autonomous x C1	.04		.07		-.04		.11		-.11		.18	
Controlled x C1	-.15 <sup>a</sup>		-.28**		-.06		-.15		-.30*		.08	
Autonomous x C2	-.14		.01		.08		-.25**		.14		-.04	
Controlled x C2	-.19*		-.07		.29**		-.09		.04		-.05	

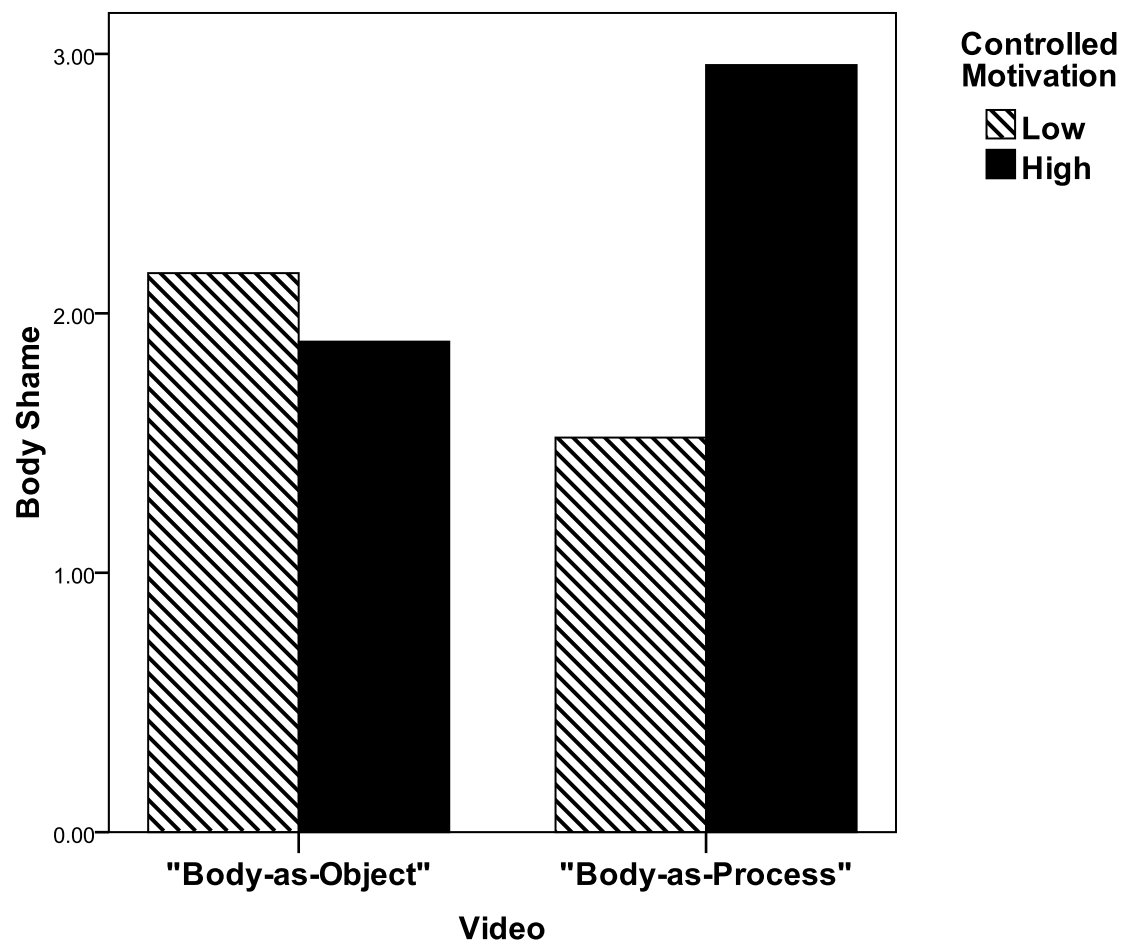
*Note.* BMI = Body Mass Index; C1 = Comparison Contrast 1 (“Body-Related” vs Neutral); C2 = Comparison Contrast 2 (“Body-as-Object” vs “Body-as-Process”) <sup>a</sup> $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$



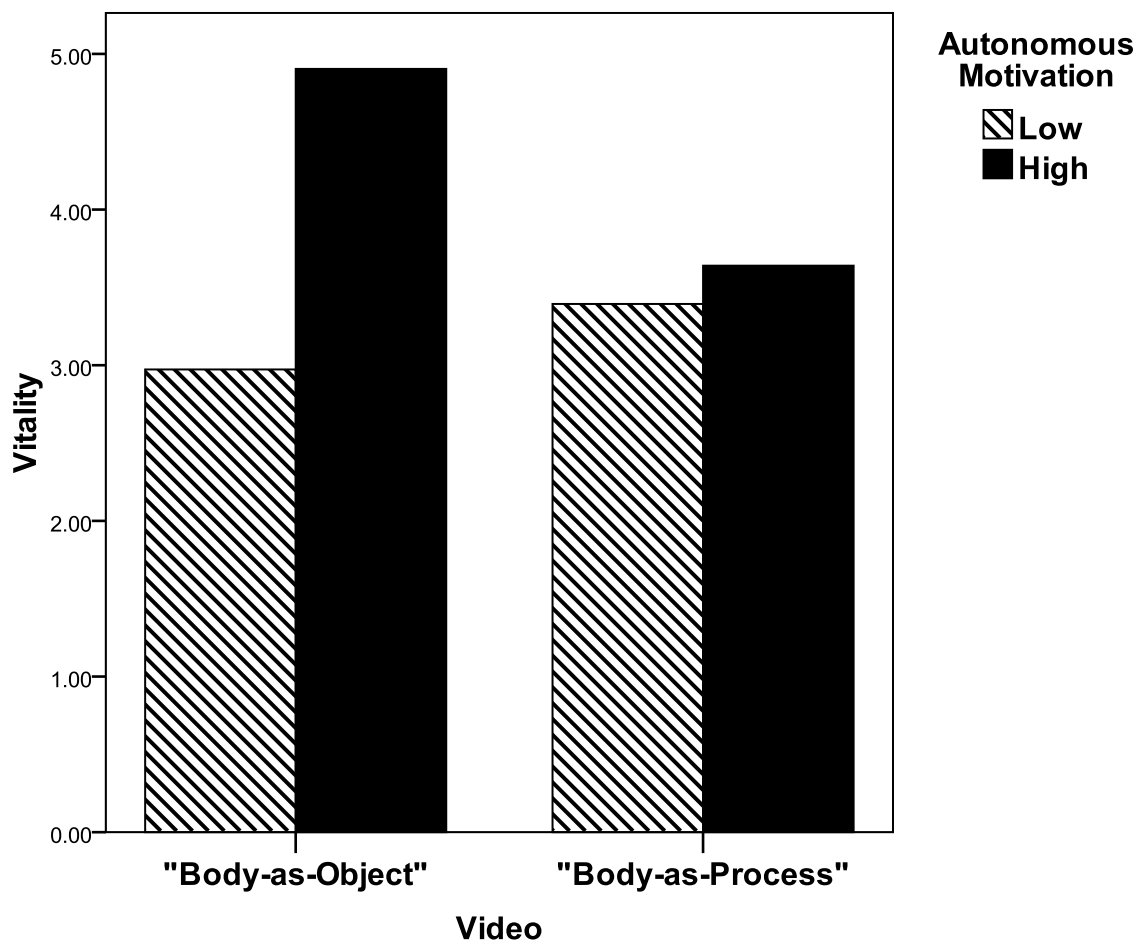
*Figure 1.* Self-appraisals of the body's appearance across video exposure conditions at high and low levels of controlled motivation.



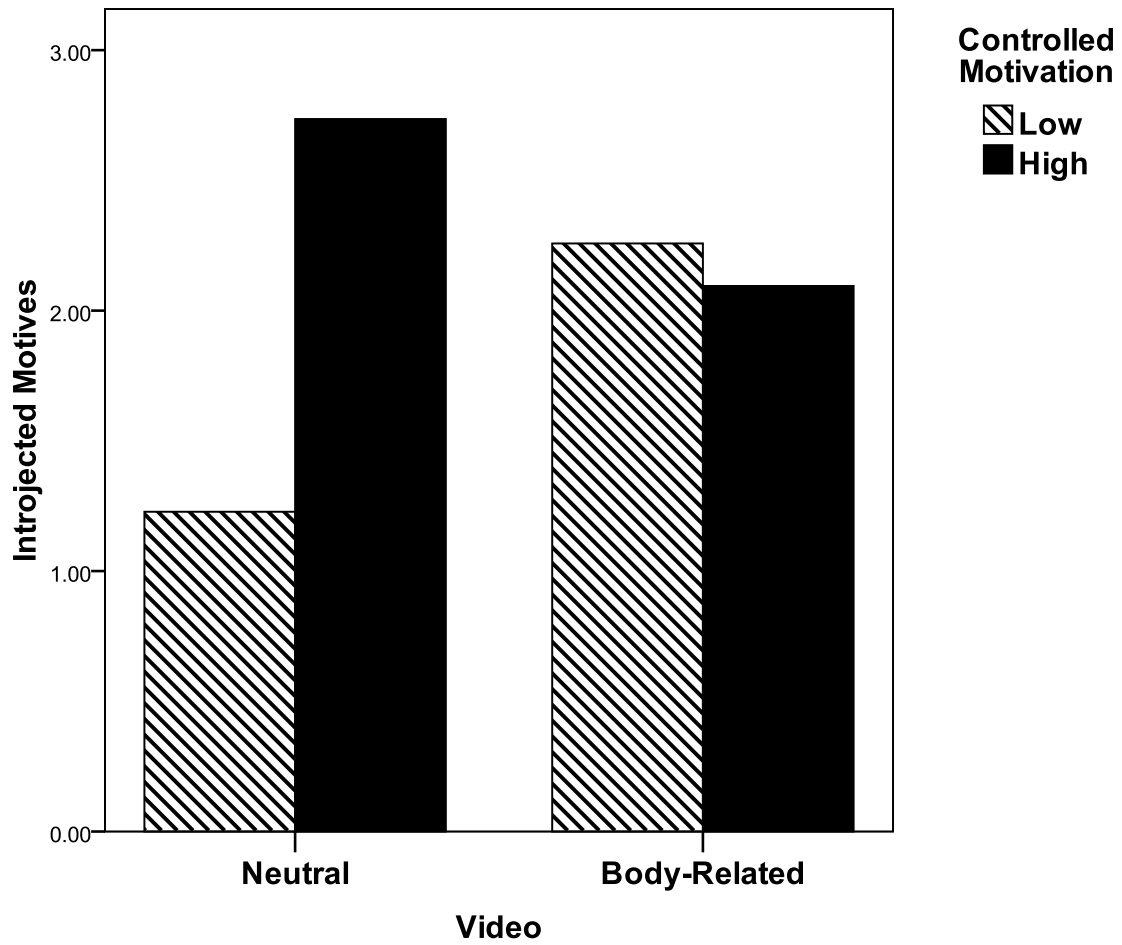
*Figure 2.* Self-appraisals of the body's competence across video exposure conditions at high and low levels of controlled motivation.



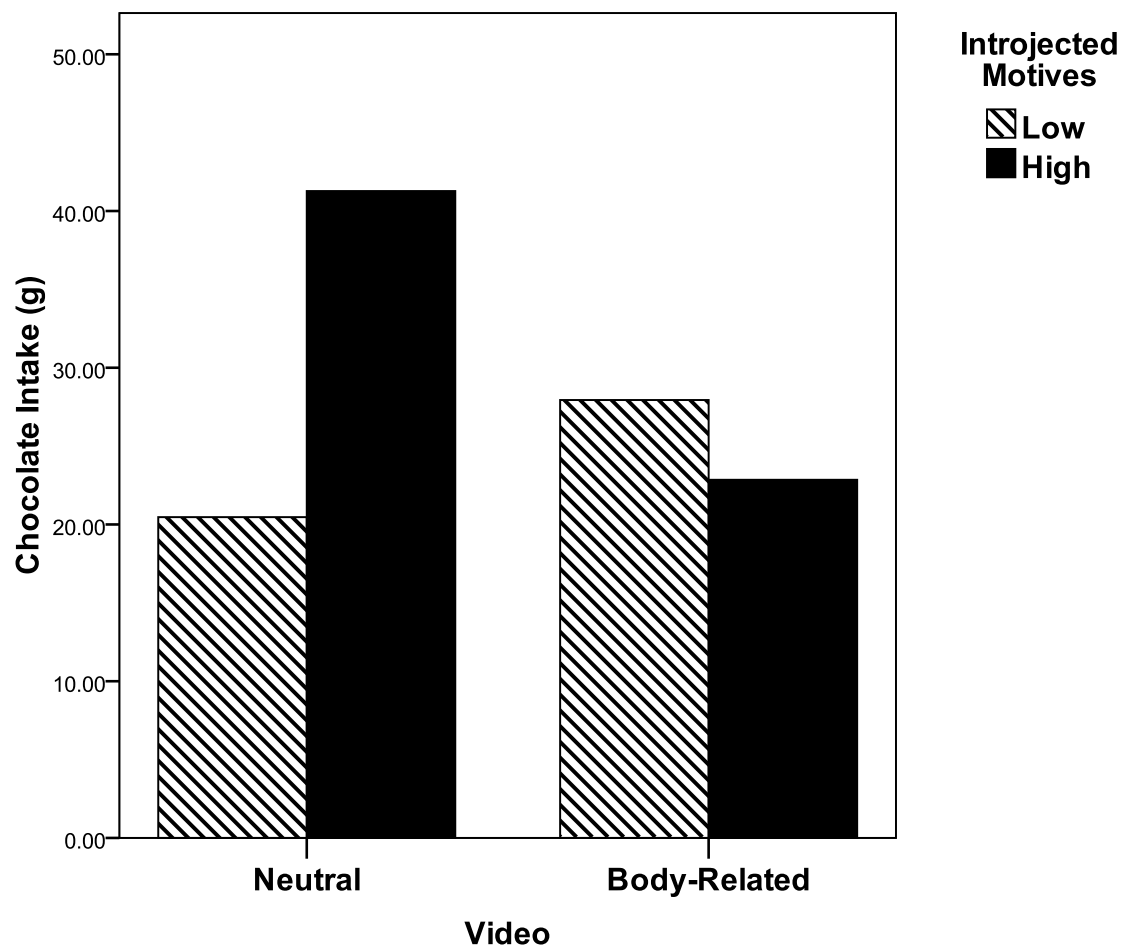
*Figure 3.* Body shame across video exposure conditions at high and low levels of controlled motivation.



*Figure 4.* Vitality across video exposure conditions at high and low levels of autonomous motivation.



*Figure 5.* Introjected motives across video exposure conditions at high and low levels of controlled motivation.



*Figure 6.* Chocolate intake across video exposure conditions at high and low levels of introjected motives.

## GENERAL DISCUSSION

Grounded in Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000), the purpose of the present thesis was to investigate the protective role of self-determination in response to an important source of socio-cultural influence on women's body image, namely the media. It was hypothesized that the tendency to initiate and organize one's actions based on personal choices and well-integrated values would render women less vulnerable to societal definitions of female attractiveness projected by the media. Conversely, the tendency to initiate and structure one's behaviors in response to internal and/or external sources of pressure or controls (i.e., meeting expectations, seeking approval, obtaining rewards, and avoiding feelings of shame and guilt) should render women more responsive to the media's influence on their body image. These hypotheses were tested in three laboratory experiments reported in three different articles.

The aim of Article 1 was to examine the buffering role of general self-determination in response to a video which portrayed thinness in a conspicuous manner against a video which portrayed thinness in a non-conspicuous manner on women's subsequent perceptions of pressure from the media to be thin, body dissatisfaction, internalization of societal beliefs surrounding thinness and obesity, negative affect, and dietary concerns. Using a more robust design, Article 2 investigated whether the buffering role of self-determination documented in Article 1 could be extended to the regulation of eating behaviors among women with a pre-existing vulnerability to the media's effects, namely those who are dissatisfied with their body. Exposure to a video which included thin female models was contrasted with exposure to a video which included no models on women's post-exposure levels of size dissatisfaction, negative affect, intentions to monitor food intake, intentions to abstain from eating, and intentions to eat healthy and unhealthy foods as a function of women's trait body dissatisfaction and autonomous regulation

of eating behaviors. Finally, the aim of Article 3 was to evaluate the impact of exposure to a novel portrayal of the female body; that of an instrument of women's actions rather than as an object of gaze on women's subsequent evaluations of their body image, vitality, and restrained eating as function of their general autonomous and controlled motivation.

### **Summary of Findings**

Consistent with the overall hypotheses of the thesis, women who were less autonomy-oriented in their general and eating behaviors were more influenced by the various portrayals of the female body than women who were more autonomy-oriented. For instance, women who felt less self-determined in their daily activities perceived more pressure from the media to be thin, experienced more body dissatisfaction, and expressed greater concerns over the quantity of food they eat following exposure to models which exemplified the societal "thin ideal" compared to models which did not (Article 1). Body dissatisfied women who felt less autonomous in the regulation of their eating behaviors also reported an increase in size/weight dissatisfaction as well as negative affect from pre to post-exposure to media images of thin female models compared to media images of no models (Article 2). Finally, women who approached their daily activities in a more controlling manner generated more negative self-appraisals of their body's appearance and competence, experienced more body shame, and reported more introjected reasons for restricting their actual intake of chocolate following exposure to media portrayals of the female body as a process compared to media portrayals of the female body as an object (Article 3).

By contrast, women who were more autonomy-oriented in their general and eating behaviors were hardly influenced by the various models in the video. For instance, perceptions of pressure to be thin, body dissatisfaction, and concerns over quantity of food were consistent

across conditions which contrasted exposure to thinness depicted in a conspicuous manner with exposure to thinness depicted in a non-conspicuous manner among women who felt more self-determined in their daily activities (Article 1). Post-exposure ratings of weight/size dissatisfaction and negative affect were also consistent across conditions which contrasted exposure to images of thin models with exposure to images of no models in body dissatisfied women who felt more autonomous in the regulation of their eating behaviors (Article 2). Likewise, self-appraisals of the body's appearance and competence, body shame, and differential reasons (e.g., introjected, identified) for exerting restraint over one's actual intake of chocolate did not vary as a function of exposure to portrayals of the female body as an object against portrayals of the female body as a process among women who approached their daily activities in a more autonomous manner (Article 3). However, women who felt more self-determined in their daily activities expressed greater concerns over the quality of food in their diet (Article 1) and reported less vitality (Article 2) following exposure to videos which did not solely focus on the importance of having an attractive physique but instead portrayed other dimensions of the female physical experience such as practicing sports, developing strength and stamina, and nurturing the body through self-care related activities (e.g., practicing yoga). Results also demonstrated that body dissatisfied women who felt more autonomous in the regulation of their eating behaviors formulated more intentions to monitor their food intake and eat fewer unhealthy foods "over the next few weeks" after viewing a video of thin female models compared to a video of no models (Article 2).

Together, the results from the present thesis contribute to a growing body of literature suggesting that not all women respond to the media in the same manner (e.g., Want, 2009). The more women approach their daily activities and eating behaviors with a sense of autonomy

and volition, the more protected they are from a persuasive and pervasive socio-cultural force on their body image (i.e., the media), even if they display a pre-existing vulnerability to the media's effects (i.e., body dissatisfaction). Conversely, the more women feel pressured, controlled or coerced in their daily activities and in the regulation of their eating behaviors, the more responsive they are to externally defined ideas of female attractiveness. Consistent with the overall hypotheses of the thesis, a self-determined or autonomous motivation appears to serve a *protective* function while a non self-determined or controlled motivation appears to serve a *potentiating* function. This was particularly evident in women's self-evaluations in which various portrayals of the female body shifted self-evaluations among women who felt less self-determined but not among women who felt more self-determined.

These results would therefore suggest that the media's ability to shape women's body image and eating-related concerns are largely in the eye of the beholder rather than in the image. Of course this does not imply that media images which do not emphasize the importance of having an appealing appearance/physique would not be refreshing. However, the potentiating function associated with a controlled motivation may lead women to perceive any portrayal of the female body as a source of pressure as to how *they should look*. This would suggest that the potentiating function associated with a controlled motivation would occur through a social comparison process assuming that the evaluative dimension (e.g., appearance) is relevant to the perceiver. To women who were more control-oriented, the models in the videos likely portrayed a desirable end state (e.g., an attractive appearance) considered as "exemplars or standards" of female attractiveness which resulted in a contrast effect; self-evaluations were displayed away from the model when they evaluated their *current* standing (i.e., current appearance/body size). However, comparison others can also evoke possible selves (e.g., ideal/feared) which would

result in an assimilation effect (e.g., Blanton, 2001). This proposition would suggest that to women who are more prone to social comparison (i.e., who are more control-oriented), portrayals of realistic (e.g., average-sized or plus-sized) rather than unrealistic (e.g., “thin ideal”) models in the media would not produce positive changes in their body image. To this sub-group of women, realistic models would likely be perceived as a source of pressure as to how *they should not look*. Indeed, societal beliefs surrounding the “thin ideal” standard of female attractiveness include an idealization of thinness alongside a denigration of fatness. Thus, average-sized and plus-sized models would likely portray an undesirable end state (e.g., being overweight) to women who are more control-oriented predicting in turn an assimilation effect; self-evaluations would be displaced toward the model when evaluating their standing in relation to a feared possible self. This may explain why exposure to average-sized models decreased women’s body anxiety in one study (Dittmar & Howard, 2004) but not in another and in fact produced more depressed feelings and restrained eating (Anschutz, Engels, Becker, van Strien, 2009).

By contrast, the protective function associated with an autonomous motivation would suggest that this effect does not occur through a social comparison process given that self-evaluations were not affected. Indeed, women who were more autonomy-oriented did not perceive pressure from the media to be thin (Article 1), nor did they generate negative appraisals of their body’s appearance and competence (Article 1, Article 2, and Article 3), nor did they feel ashamed for not meeting cultural prescriptions of female attractiveness (Article 3) in response to various portrayals of the female body. However, they did express greater concerns over the quality of food in their diet (Article 1) and reported less vitality (Article 3) after viewing images portraying a more functional rather than an objectified view of the female body. They also

formulated more intentions to monitor their food intake and eat fewer unhealthy foods after viewing “thin ideal” models compared to no models but only if they were dissatisfied with their body. These results would suggest that thin objectified media models likely convey a source of information concerning societal ideals of attractiveness to women who approach their behaviors in an autonomous fashion. In the case of self-evaluations, the information garnered from exposure to these models (i.e., an attractive appearance) was likely not considered a relevant dimension of social comparison in light of their well-integrated values. In the case of eating-related behaviors, thin objectified media models appear to serve as gentle reminders to continue self-regulatory efforts to women who approach the regulation of their eating behaviors in a more autonomous fashion, despite overall feelings of body dissatisfaction. However, models of women in action likely convey an ideal as to how they would like be (i.e., healthy, strong, active). Unlike women who are more control-oriented, the information garnered from exposure to models of women in action was not used for self-evaluative purposes in women who are more autonomy-oriented.

### **Limitations**

Findings obtained in the present thesis must be interpreted in light of some limitations which offer fruitful directions for future research. First, the study samples consisted of female undergraduate students, who were predominantly Caucasian, close in age (18-25 years), and who may be somewhat more self-determined than non-student samples (Sharp, Pelletier, & Levesque, 2006). The documented effects therefore remain to be tested in samples of women who might be less self-determined such as adolescent girls whose sense of self is not quite fully developed as well as women of lower socio-economic status for whom feelings of self-control, autonomy, and competence may be seriously comprised in the face of economic hardship. Future studies should

also examine whether self-determination interacts with other documented protective factors such as age/maturity (McKinely, 2006), race/ethnicity (DeBraganza & Hausenblas, 2010; Frisby, 2004; Grabe & Hyde, 2006) and religiosity (Droogsma, 2007; Dunkel, Davidson, & Qurashi, 2010).

Second, the covariate of BMI was based on self-reports rather than objective measures of height and weight. Although BMI was homogenous across exposure conditions in Study 1 [ $F(1, 93) = 1.14, p > .20$ ], in Study 2 [ $F(1, 134) = 1.77, p > .10$ ], as well as in Study 3 [ $F(2, 88) = 0.53, p > .50$ ], past research has noted that 6.0% of North American adult women classified as being overweight (BMI > 25) and 1.9% of North American adult women classified as being obese (BMI > 30) under-report their weight (Krul, Daanen, & Choi, 2010). It is therefore possible that 2-3 women in Study 1, 6-7 women in Study 2 and 3-4 women in Study 3 classified as 'normal weight or overweight' may have under-reported their actual weight thus potentially lowering the average BMI of each study sample. Yet, other research indicates that the average difference between self-reported and actual weight is 1.90kg (0.12) among women classified as overweight and 4.48kg (0.32) among women classified as being obese. This same study also noted that the average correlation between self-reported and actual BMI was 0.95 among adult Caucasian women (McAdams, Van Dam, & Hu, 2007). Together, these results suggest that while confidence in the findings would be enhanced had BMI been based on objective assessments, the documented effects would have likely remained. However, future studies could investigate the protective role of self-determination in samples of women who are visibly more discrepant from the societal "thin ideal", namely women with elevated levels of BMI (based on objective assessments) (Dalley, Buunk, & Umit, 2009; Durkin & Paxton, 2002).

Third, the videos were not entirely equivalent across exposure conditions with exception to the dimension of interest. Future studies would therefore benefit from using photographs of models as experimental stimuli (rather than videos) whose body size could easily be modified with imaging software such as Adobe Photoshop (e.g., Dittmar & Howard, 2004). The findings were also obtained in a controlled laboratory setting following a brief period of exposure. It is unknown whether the documented potentiating and protective effects of controlled and autonomous motivation last beyond the immediate experiment and beyond the laboratory in more ecologically-valid settings. Past exposure levels to “thin ideal” media were also not controlled for and may have exerted an undue influence on the results. Although random assignment (theoretically) rendered participants homogenous across exposure conditions on this potential confound, there is no way to rule out a possible interaction between a media diet high in appearance-focused/“thin ideal” content and women’s self-determination. Indeed, it is possible that the general tendency to initiate one’s behavior based on pressures, controls, and contingencies may render this sub-group of women more likely to seek out external sources of attractiveness such as those found in the media. Future experimental work would therefore benefit by examining the interactive effects of self-determination and past-exposure levels to media sources high in appearance-focused/“thin ideal” content following exposure to various portrayals of the female body.

Fourth, the documented effects were obtained in response to portrayals of the female body found in more “traditional” sources of media such as clips from television shows, movies, and commercials. It is therefore unknown whether the results would generalize to other more “modern” and interactive sources of media such as those found on the internet. For instance, researchers and health professionals have expressed concern over the growing number of

websites advocating anorexia nervosa and/or bulimia nervosa as a lifestyle choice rather than a disease (Borzekowski, Schenk, Wilson, & Peebles, 2010). Content analyses based on a sample of 180 websites, revealed that a minority of these sites (38%) do offer “recovery” information and may thus represent an important source of solace and a sense of community for those suffering with an eating disorder (Borzekowski et al., 2010; Norris, Boydell, Pinhas, & Katzman, 2006; Ransom, La Guardia, Woody, & Boyd, 2010). However, the large majority of these websites (85%) feature “thinspiration” content in the form of images and photos of fashion models, celebrities and real people who are emaciated—intended to serve as models of encouragement to sustain one’s weight loss efforts—as well as “tips and tricks” to lose weight (e.g., fasting, purging, laxatives & diuretics use, exercise, and other ways to burn calories) and/or hide one’s eating disorder from others. Such “thinspiration” content is communicated through message boards, discussion forms, online diaries (i.e., “blogs”), artistic expression (e.g., videos, music, poetry, artwork) as well as “Letters from Ana”, “The Thin Commandments”, and the “Ana Creed” (Borzekowski et al., 2010; Norris et al., 2006). Burgeoning work in this area suggests that female visitors of these websites display elevated levels of body image and eating disturbances in comparison to non-visitors of these websites but that they do represent a minority (13%) of undergraduate women (Harper, Sperry, & Thompson, 2008). An experimental study also found that women who were exposed to a pro-eating disorder website reported greater levels of social comparison, body image dissatisfaction, negative affect, and intentions to exercise and think about their weight post-exposure compared to women who were exposed to websites featuring fashion models or home décor (Bardone-Cone & Cass, 2007).

A second interactive and immensely popular form of media is social media, particularly online social networks such as “Facebook”, “Twitter”, “Friendster”, “Youtube”, and “Myspace”.

Facebook alone counts 500 million users worldwide (Hepburn, 2011), 15 million of whom are in Canada who spend an average of 400 minutes per month on the site (Breikss, 2011). Unlike traditional forms of media (e.g., television, movies, magazines) which are “consumed” by the end-user, social media is created and generated by the users in the form of online profiles, blogging, and sharing of photos and videos. Despite the tremendous popularity of these websites, particularly among 18-34 year olds, research has only begun to examine the antecedents, correlates, and consequences of online social behavior. Burgeoning work in this area suggests that dispositions such as extraversion (Correa, Hinsley, de Zúñiga, 2010), narcissism (e.g., Buffardi & Campbell, 2008; Bergman, Fearington, Davenport, & Bergman, 2011), and contingencies of self-worth (e.g., Stefanone, Lackaff, & Rosen, 2011) are positively associated with the size of one’s online social network (i.e., number of friends), time spent online, and number of photos shared online. While the creators and generators of social media content have been the object of study, little is known on the experiences of the “recipients” (i.e., those who are exposed to its contents), particularly whether contents created by users of social media have the capacity to shift self-evaluations in the recipients.

The intense popularity of these websites suggests that social media may become a more powerful transmitter of societal expectations surrounding appearance and attractiveness (i.e., thinness) than more traditional forms of media (e.g., television, magazines, movies) as visual depictions of attractive women (whether famous or not) are communicated and reinforced by one’s peers in the form of photo/video/message sharing. Indeed, past experimental research supports the influential role of peers in shaping women’s body image. For instance, brief interactions with a thin-bodied peer produced more body dissatisfaction than brief interactions with an average-sized peer (Krones, Stice, Batres, & Orjada, 2005). Other studies using a mere

exposure paradigm noted similar effects when women read a short passage describing a thin bodied peer (Trottier, Polivy & Herman, 2007), exercised next to a peer who was fit (Wasilenko, Kulik, & Wanic, 2007), and overheard an appearance-based conversation among peers (Shomaker & Furman, 2007; Stice, Maxfield, & Wells, 2003). Within the realm of social media, one study noted that people experienced a drop in self-esteem after viewing profiles of other users than after viewing their own profile (Gonzales & Hancock, 2011). Results from another study found that exposure to same-sex profiles of attractive users produces a drop in positive emotions and body satisfaction than exposure to same-sex profiles of unattractive users (Haferkamp & Krämer, 2011). Future studies could therefore investigate the impact of exposure to online profiles of thin bodied peers and/or appearance-based conversations among peers on social networking sites on women's subsequent body image evaluations and eating-related concerns and whether these effects would be moderated by women's relationship self-determination toward their peers (e.g., La Guardia & Patrick, 2008).

Fifth, responses were limited to self-report data with exception to actual intake of chocolate (Article 3). Future studies would benefit from including an indirect unobtrusive measure of self-evaluation such as signature size (e.g., Blanton & Stapel, 2008). Finally, the documented effects obtained for restrained eating and chocolate intake were limited in power due to a limited sample size. Although three different varieties of chocolate bars were made available, this may not have represented a meaningful choice to participants who refused the bars for reasons other than satiety and behaviors regulation (e.g., who don't like this particular brand of chocolate bars, who monitor their blood glucose levels, etc...). Future studies could therefore include a choice between a healthy vs unhealthy snack as a measure of actual regulation of behavior.

Despite these limitations, the protective and potentiating function associated with an autonomous and controlled motivation produced a robust pattern of results. Across three different experiments, findings did not vary as a function of video content [e.g., advertisements (Article 3), clips from television programs (Article 2), or movie clips (Article 1)], soundtracks [e.g., a dubbed-over pop song (Article 1), a dubbed-over neutral piece of instrumental music (Article 3), or the original soundtracks (Article 3)], duration of exposure [e.g., four minutes (Article 1) versus seven minutes (Article 2)], proportion of target content [e.g., 100% (Article 1) versus 65% (Article 2 and 3)], and when controlling for pre-exposure levels (Article 2). The results were also consistent across motivational assessments [e.g., general (Article 1 and 3) and contextual (Article 2)], motivational indicators [e.g., a self-determination index (Article 1) versus autonomous and controlled motivation (Article 2 and 3)], and whether treated as categorical (Article 1) or continuous predictors (Article 2 and 3). The findings were also uniform across various assessments of body image [(e.g., body dissatisfaction (Article 1), size/weight dissatisfaction (Article 2), self-appraisals of the body's appearance and competence (Article 3), and body shame (Article 3)] and restrained eating [e.g., a two-item concerns scale (Article 1), intentions to monitor food intake (Article 2), intentions to limit unhealthy foods (Article 2), introjected reasons for exerting restraint (Article 3), and actual restriction of chocolate (Article 3)].

## **Conclusion**

Overall, findings from the present thesis are consistent with Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000). Coupled with the findings of Pelletier and colleagues (Pelletier & Dion, 2007; Pelletier, Dion, & Levesque, 2004; Pelletier, Dion, Slovinec-D'Angelo, & Reid, 2004), these results underscore the beneficial role of self-determination in protecting

women from externally defined ideals of female attractiveness promoted in the media; particular those which are unrealistic yet depicted as desirable and attainable. Hence prevention and intervention efforts aimed at diminishing risk factors (e.g., Stice, Presnell, Gau, & Shaw, 2007; Stice, Shaw, Burton & Wade, 2006) might also benefit from the inclusion of strategies aimed at increasing a protective factor (Cash, 2005; Steck, Abrams, & Phelps, 2004). For example, interventionists could be encouraged to deliver their programs in an autonomy supportive manner by providing girls and women with a meaningful rationale, minimizing pressures and acknowledging their perspective so that they come to construct their own definition of attractiveness; one that is congruent with deeply integrated values which should ensure lasting benefits on their body image and eating behaviors (e.g., Ryan, Patrick, Deci, & Williams, 2008).

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**APPENDIX A**

(Study Materials described in Article 1)

## Experimental script

### Part 1. Introduction

Hi, welcome to the social psychology lab. My name is ----- and I will guide you during this experiment. First, I want to thank you for accepting to take part in this experiment. Before we start, I will take a few minutes to explain the procedure. I will then ask you to read this consent form and sign at the bottom if you accept to continue the experiment.

In this experiment, you will be asked to watch a short video and then to fill out a questionnaire. If you have any questions about the tasks during the experiment, please don't hesitate to ask me and I will be glad to answer them.

So, if you don't have any questions, we will begin with the first task.

### Part 2. Task 1. Memory and perceptions of televised images

During this first task, I will ask you to watch a video for about 5 minutes and while you are watching the video to retain as many images as you possibly can. When you are done viewing the video, you will be asked to list as many items as you can remember from the video. Afterwards, you will be asked to list as many elements of the video you can remember.

I will return in 5 minutes.

### Part 2. Task 2. Thought-listing task

I will now ask you to list your current thoughts after viewing the video. The column on the left are for thoughts related to the video while the column on the right are for thoughts not related to the video. I will return in 3 minutes.

### Part 2. Task 3. Questionnaire

I will now ask that you complete this questionnaire.

### **Part 3. Evaluation of suspicions**

The laboratory experiment is now over.

*(The research assistant will take note of the participant's answers to the following questions).*

Before leaving, I would like you to tell me:

- 1) What was the purpose of the study?
- 2) Are you suspicious that the study may have another purpose? Yes or No?
- 3) *IF participant answers yes to question 3, the research assistant asks the following question:*  
What other purpose do you think the study may have?

### **Part 4. Debriefing**

Actually, the study in which you participated did have another purpose. The goal of this experiment was to study people's motivation and health behaviours. Please read the following debriefing form.

Do you have any questions? After reading this form, we also ask that you do not reveal the purpose of this experiment or what you did in this experiment to anyone (e.g., friends or schoolmates) Doing so could bias the results of the study.

This is the end of the experiment. Do you have any more questions?

Thank you for your participation!

### GENERAL ATTITUDES

*Indicate to what extent each of the following reasons corresponds to why you do things in general.*

Does not correspond to my reasons at all			Moderately Corresponds to my reasons			Corresponds exactly to my reasons
1	2	3	4	5	6	7

#### **In general, I do things....**

... in order to help myself become the person I aim to be	1	2	3	4	5	6	7
... because I like making interesting discoveries	1	2	3	4	5	6	7
... because I want to be viewed more positively by certain people	1	2	3	4	5	6	7
... because I choose them as means to attain my objectives	1	2	3	4	5	6	7
... for the pleasure of acquiring new knowledge	1	2	3	4	5	6	7
... because otherwise I would feel guilty for not doing them	1	2	3	4	5	6	7
... because by doing them I am living in line with my deepest principles	1	2	3	4	5	6	7
... although it does not make a difference whether I do them or not	1	2	3	4	5	6	7
... for the pleasant sensations I feel while I am doing them	1	2	3	4	5	6	7
... in order to show others what I am capable of	1	2	3	4	5	6	7
... because I chose them in order to attain what I desire	1	2	3	4	5	6	7
... because I would beat myself up for not doing them	1	2	3	4	5	6	7
... even though I do not have a good reason for doing them	1	2	3	4	5	6	7
... in order to attain prestige	1	2	3	4	5	6	7
... even though I believe they are not worth the trouble	1	2	3	4	5	6	7
... because I would feel bad if I do not do them	1	2	3	4	5	6	7
... because by doing them I am fully expressing my deepest values	1	2	3	4	5	6	7
... because they reflect what I value the most in life	1	2	3	4	5	6	7

## **THOUGHT LISTING TASK**

*In the space provided below, please take up to three minutes to list all thoughts you are having right now after watching the video. These thoughts can be thoughts related to the video and thoughts not related to the video.*

<b><u>Thoughts related to the video</u></b>	<b><u>Thoughts not related to the video</u></b>

## YOUR PERCEPTIONS

Please indicate to what extent you agree with each of the statements listed below. Please use the scale provided below:

**I've feel pressure from the media (e.g., TV, magazines) to lose weight.**

1	2	3	4	5
Do not agree at all		moderately agree		strongly agree

**I noticed a strong message from the media to have a thin body.**

1	2	3	4	5
Do not agree at all		moderately agree		strongly agree

---

## YOUR THOUGHTS

Please indicate what you personally believe to be true. Answer each question using the scale provided below:

	Do not agree at all				Moderately agree		Strongly agree
1. People who are thin are well liked.	1	2	3	4	5	6	7
2. To be honest, I don't think very highly of people who can't keep their weight down.	1	2	3	4	5	6	7
3. Women who have nice bodies are popular.	1	2	3	4	5	6	7
4. Having a thin body makes a person sexually desirable.	1	2	3	4	5	6	7
5. People who are fat don't have any self-control.	1	2	3	4	5	6	7
6. Being thin is extremely important.	1	2	3	4	5	6	7
7. When you think about it, being fat is really unattractive.	1	2	3	4	5	6	7
8. Deep down, those who are fat are not well adjusted.	1	2	3	4	5	6	7

**YOUR FEELINGS**

Using the scale below, please indicate how you feel right now...

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a lot	extremely
_____ alert		_____ afraid		_____ hostile
_____ ashamed		_____ active		_____ attentive
_____ upset		_____ inspired		_____ determined
_____ nervous				

**YOUR BODY**

Using the following 6 point scale, please indicate how often the following statements are true. Please write in the appropriate number in the space provided (please choose only one number):

NEVER	RARELY	SOMETIMES	OFTEN	VERY OFTEN	ALWAYS
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

1. I think that my stomach is too big. \_\_\_\_\_
2. I think that my thighs are too large. \_\_\_\_\_
3. I think that my stomach is just the right size. \_\_\_\_\_
4. I feel satisfied with the shape of my body. \_\_\_\_\_
5. I like the shape of my buttocks. \_\_\_\_\_
6. I think that my hips are too big. \_\_\_\_\_
7. I think that my thighs are just the right size. \_\_\_\_\_
8. I think that my buttocks are too large. \_\_\_\_\_
9. I think that my hips are just the right size. \_\_\_\_\_

**YOUR EATING CONCERNS**

1. To what extent are you concerned by the **quantity** of food you're eating?

Not concerned at all		Moderately concerned		Very concerned
1	2	3	4	5
			6	7

2. To what extent are you concerned by the **quality** of food you're eating?

Not concerned at all		Moderately concerned		Very concerned
1	2	3	4	5
			6	7

**APPENDIX B**

(Study Materials described in Article 2)

## MIND AND MEDIA

I am invited to participate in a laboratory experiment entitled “Mind and Media” that is currently being conducted by and Lisa Mask under the supervision of Céline Blanchard, Ph.D., both from the School of Psychology at the University of Ottawa.

I understand that the purpose of this study is to investigate people’s memory retention capacities for images depicted in the media. My participation will consist essentially of attending to this one laboratory session, which will be approximately 30 minutes in duration. During this session, I will be asked to perform two tasks: (1) to watch a 7-minute video as if I was watching television at home and (2) to complete a questionnaire comprised of questions pertaining to the images in the video, feelings I may have, and general questions about myself.

The experimenter has informed that the content of the video is comprised of current everyday clips one would encounter when channel surfing while watching television. Although I have most likely seen these clips before on television, it is possible that certain images may cause me to reflect upon certain things about myself. In doing so, I may experience some psychological discomfort. I may also experience some emotional or psychological discomfort when answering certain questions in the questionnaire because I am asked to respond as honestly and as accurately as possible. However I have received assurance from the researcher that I do not have to answer any questions that I do not feel comfortable answering. In the event that I may experience emotional or psychological discomfort from participating in this study, I may contact the Center for Psychological Services here at the University of Ottawa. Finally, I have been reminded that my participation in this research is entirely voluntary and I am free to withdraw from the experiment at any time without incurring any negative consequences. If I choose to withdraw, the data I will have provided will be destroyed and thus will not be used for further analyses.

I have been assured that my anonymity in this project is guaranteed. I am not required to provide the researchers my name nor any personal contact information. Instead, I will be asked to indicate on the questionnaire the same unique code I used to sign up for the study. I understand that this unique number code, rather than names will be used to (1) identify participants and (2) match my responses from this experiment to the on-line questionnaire I completed prior to signing up for this study. I understand that the answers I provide in the questionnaire will then be entered in an electronic data file for analyzing the results. I am aware that the results obtained from this project are for research purposes only and publication of the results will be limited to group responses (rather than individual) in scientific journals.

I have been assured that the answers I provide will be kept strictly confidential. Only the researcher and investigator will have access to the information I provide in this experiment. I also understand that the data collected from this study will be stored in locked cabinets in the researchers’ laboratory for a period of 5 years.

I, \_\_\_\_\_, agree to participate in the study entitled “Mind and Media”, conducted by Lisa Mask under the supervision of Céline Blanchard, Ph.D. I understand that by accepting to participate I am in no way waiving my right to withdraw from the study.

If I have any questions about the study, or if I would like to receive a report of the results when they come available, I may contact the investigator Lisa Mask. If I have any ethical concerns regarding my participation in this study, I may contact the Protocol Officer for Ethics in Research, at the University of Ottawa.

There are two copies of the consent form, one of which is mine to keep.

Participant’s signature: \_\_\_\_\_ Date: \_\_\_\_\_

Investigator’s signature: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor’s signature: \_\_\_\_\_ Date: \_\_\_\_\_

Lisa Mask &  
Céline Blanchard, Ph.D.  
School of Psychology  
University of Ottawa

## LES MÉDIAS ET LA MÉMOIRE

Je suis invité(e) à participer à une étude en laboratoire intitulée « Les médias et la mémoire », qui est présentement en cours à l'École de psychologie à l'Université d'Ottawa sous la supervision Lisa Mask et Céline Blanchard, Ph.D.

Je comprends que le but de cette étude est d'examiner les capacités mnésiques pour des images telles que présentées dans les médias. Ma participation dans cette étude requiert ma présence à une seule séance en laboratoire pour une durée d'environ 30 minutes. Durant cette séance, on me demandera d'accomplir deux tâches : (1) de visionner un court vidéo (7 minutes) comme si je regardais la télévision à la maison et (2) de compléter un questionnaire en **anglais**, comprend des questions sur le contenu du vidéo, mes sentiments ainsi que des questions générales sur mes habitudes et ma personnalité.

L'expérimentatrice m'a informé que le vidéo est composé d'images courantes que l'on rencontre quotidiennement à la télévision. Il est donc fort probable que je les ai déjà vus à un moment donné. Toutefois, on m'a informé que certaines images dans le vidéo peuvent susciter des pensées de nature plutôt personnelle et que ces pensées pourraient me causer un peu d'inconfort psychologique. Il se pourrait aussi que je sois mal à l'aise avec certaines questions du questionnaire, car on me demande d'y répondre de façon la plus honnête et la plus précise possible. Cependant, on m'a informé que je ne suis pas obligé(e) de répondre aux questions qui me causent de l'inconfort. Dans l'éventualité où je ressens de l'inconfort, je peux contacter le Centre des services psychologiques ici, à l'Université d'Ottawa. Je comprends que ma participation à ce projet est complètement volontaire et je suis libre de me retirer de l'étude à tout moment sans aucune conséquence négative. Si je choisis de me retirer de l'étude, les données que j'aurais fournies seront détruites et ne seront pas utilisées pour des analyses ultérieures.

On m'a assuré que l'anonymat de mes réponses sera respecté car je ne suis pas obligé de fournir mon nom ni d'autres informations personnelles (p.ex., adresse à la maison, adresse électronique, numéro de téléphone). Au lieu, on me demandera d'indiquer sur le questionnaire le même code numérique que j'ai utilisé pour m'inscrire à l'étude. Je comprends que ce code, au lieu des noms, sera utilisé pour (1) identifier les participants (2) paier mes réponses au questionnaire que j'ai remplis en ligne, avant de m'inscrire à cette étude. On m'a informé que les réponses que je fournirai par le biais de ce questionnaire sera entrées dans un fichier électronique pour l'analyse des résultats. Les résultats obtenus dans le cadre de cette étude seront utilisés uniquement pour des fins de recherche et seront publiés dans des périodiques scientifiques sous forme de moyennes de groupe, plutôt qu'individuelle. On m'a aussi assuré que l'information que fournis par le biais de ma participation à cette étude sera conservée de manière confidentielle. Seuls les membres de l'équipe de recherche auront accès aux questionnaires ainsi qu'aux données qui seront conservées pour une période de 5 ans dans un laboratoire de recherche verrouillé de l'Université d'Ottawa.

Je, \_\_\_\_\_, accepte de participer à l'étude intitulée « Les médias et la mémoire », dirigée par Lisa Mask, sous la supervision de Céline Blanchard. Par contre, je suis consciente que je peux me retirer de l'étude à tout moment.

Si je désire obtenir plus de renseignements sur cette étude ou si j'aimerais recevoir une copie du rapport des résultats de l'étude, une fois qu'ils seront disponibles, je peux communiquer avec Lisa Mask. Par ailleurs, si j'ai des questions d'ordre déontologique, je peux communiquer avec la responsable de déontologie en recherche de l'Université d'Ottawa.

Il y a deux copies du formulaire de consentement, dont une que je conserve.

Signature du participant(e): \_\_\_\_\_ Date: \_\_\_\_\_

Signature du chercheur : \_\_\_\_\_ Date: \_\_\_\_\_

Signature du superviseur: \_\_\_\_\_ Date: \_\_\_\_\_

Lisa Mask &  
Céline Blanchard, Ph.D.  
École de psychologie  
Université d'Ottawa

## MIND AND MEDIA: DEBRIEFING FORM

The purpose of this study was twofold. First, we wanted to examine people's memory retention capacities for visual images depicted on television. Second, we also wished to examine how certain images may affect people's thoughts and feelings they may have about themselves. Specifically, we wanted to examine how people with different personality traits respond differently to images that are more focused on appearance. These personality traits were measured when you completed the on-line questionnaire prior to signing up for this study. Specific thought and feelings you may have about yourself as a result of watching the video you just watched were assessed when you completed this questionnaire.

This investigation is important because people are exposed to different messages from television on a regular basis and some messages affect people differently, pending their personality. While some studies have shown that viewing images focused mainly on appearances may sometimes make people feel worse about themselves, other studies have shown that viewing these images can actually have a positive impact on certain individuals. We wanted to tease apart these contradictory findings by examining how certain personality traits interact with certain images, thus affecting people differently.

Although you only viewed one video, there were two different types of video: one containing more 'appearance-based' clips than the other.

If you felt any discomfort during the experiment, please contact the Center for psychological services here on campus.

In closing, we would kindly like to inform you that it is extremely important that you do not reveal the purpose of this study, what you did while you were here nor any other detail about the research to anyone. Doing so could bias people's attitudes when entering the experiment and may lead to erroneous results.

Lisa Mask &  
Céline Blanchard, Ph.D.  
School of Psychology  
University of Ottawa

We would like to thank you for participating in this study. Please sign your name below and indicate that you have read this explanation and agreed not to discuss this experiment with anyone.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Experimental script

### Part 1. Introduction

Hi, welcome to the social psychology lab. My name is ----- and I will guide during this experiment. First, I want to thank you for accepting to take part in this experiment. I will ask you to read this consent form and sign at the bottom if you accept to continue the experiment. If you have any questions about the tasks at any time during the experiment don't hesitate to ask and I will be glad to answer them. Otherwise, I'll be able to answer more specific questions at the end of the experiment.

### Part 2. Task 1. Watching a video

Well as you know, you've signed-up for an experiment entitled "Mind and Media". The purpose of this experiment is to investigate people's retention capacities for different images depicted in the media. You will be asked to perform two different tasks.

The first task requires you to watch a 7-minute video comprised of various clips at random that you would encounter on TV during prime time viewing hours such as ads for products and clips of television shows. I will ask you to watch the video as if you are watching television at home. You'll notice however that the original soundtrack of the clips has been cut out and replaced by some neutral background music. This is because we are interested in the memory processes for visual stimuli only.

For the second task you will be asked to answer some questions about the contents of the video and some general questions about yourself.

When you are finished please come and get me, I will be sitting right outside the testing room.

### Part 2. Task 2. Completing the questionnaire

I will now ask you to complete a questionnaire pertaining to the content of the video, your media use and general questions about yourself. When you are finished, please come and get me, I will be sitting right outside the testing room.

### Part 3. Evaluation of suspicions

The laboratory experiment is now over.

*(The research assistant will take note of the participant's answers to the following questions).*

Before leaving, I would like you to tell me:

- 4) What was the purpose of the study?
- 5) Are you suspicious that the study may have another purpose? Yes or No?
- 6) *IF participant answers yes to question 3, the research assistant asks the following question: What other purpose do you think the study may have?*

**Part 4. Debriefing**

The laboratory experiment is now over.

Before leaving, I would ask you to read and sign this debriefing form.

After reading this form, I would ask that you do not reveal the purpose of this experiment or what you did in this experiment to anyone. Doing so could bias the results of the study.

This is the end of the experiment. Do you have any more questions?

*(If the participant inquires about when or how the results from this study will be available, please inform them that a copy of the results will be available at the end of term)*

Thank you for your participation!

## MY EATING BEHAVIORS

Listed below are several statements concerning **possible reasons why people might try to regulate their eating behaviors**. Using the scale from 1-7 below, please indicate the degree to which the proposed reasons **correspond to your reasons** for *regulating your eating behaviors* (i.e., "try to eat healthy" or "pay attention to your eating habits"). Circle the appropriate number to the right of the item.

### Why are you trying to regulate your eating behaviors?

	Does not Correspond at all			Corresponds Moderately			Corresponds Exactly	
	1	2	3	4	5	6	7	
1. I don't know why I bother.	1	2	3	4	5	6	7	
2. Because I take pleasure in fixing healthy meals.	1	2	3	4	5	6	7	
3. Because it is expected of me.	1	2	3	4	5	6	7	
4. Because I like to find new ways to create meals that are good healthy.	1	2	3	4	5	6	7	
5. Because eating healthy is a way to ensure long-term health benefits.	1	2	3	4	5	6	7	
6. I don't know. I can't see how my efforts to eat healthy are helping my health situation.	1	2	3	4	5	6	7	
7. Because I feel I must absolutely be thin.	1	2	3	4	5	6	7	
8. Because I don't want to be ashamed of how I look.	1	2	3	4	5	6	7	
9. Because other people insist that I do.	1	2	3	4	5	6	7	
10. Because eating healthy is an integral part of my lifestyle.	1	2	3	4	5	6	7	
11. For the satisfaction of eating healthy.	1	2	3	4	5	6	7	
12. Because I would feel ashamed of myself if I was not eating healthy.	1	2	3	4	5	6	7	
13. Because other people close to me (e.g., my partner or parents) will be upset if I don't.	1	2	3	4	5	6	7	
14. Honestly, I don't know, I can't see what I'm getting out of it.	1	2	3	4	5	6	7	
15. Because people around me nag me to do it.	1	2	3	4	5	6	7	

	Does not Correspond at all		Corresponds Moderately			Corresponds Exactly	
16. Because I think it's a good idea to try to regulate my eating behaviors.	1	2	3	4	5	6	7
17. Because eating healthy is part of the way I've chosen to live my life.	1	2	3	4	5	6	7
18. Because I would be humiliated if people thought I wasn't in control of my eating behaviors.	1	2	3	4	5	6	7
19. I don't really know; I truly have the impression that I'm wasting my time trying to regulate my eating behaviors.	1	2	3	4	5	6	7
20. Because regulating my eating behaviors has become a fundamental part of who I am.	1	2	3	4	5	6	7
21. Because eating healthy is congruent with other important aspects of myself.	1	2	3	4	5	6	7
22. Because I believe that eventually it will allow me to feel better.	1	2	3	4	5	6	7
23. Because I believe it's a good thing I can do to feel better about myself in general.	1	2	3	4	5	6	7
24. Because it's fun to create meals that are good for my health.	1	2	3	4	5	6	7

### YOUR THOUGHTS

*Using the following 6 point scale, please indicate how often the following statements are true. Please write in the appropriate number in the space provided (please choose only one number):*

<b>NEVER</b>	<b>RARELY</b>	<b>SOMETIMES</b>	<b>OFTEN</b>	<b>VERY OFTEN</b>	<b>ALWAYS</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>

1. I think that my stomach is too big. \_\_\_\_\_
2. I think that my thighs are too large. \_\_\_\_\_
3. I think that my stomach is just the right size. \_\_\_\_\_
4. I feel satisfied with the shape of my body. \_\_\_\_\_
5. I like the shape of my buttocks. \_\_\_\_\_
6. I think that my hips are too big. \_\_\_\_\_
7. I think that my thighs are just the right size. \_\_\_\_\_
8. I think that my buttocks are too large. \_\_\_\_\_
9. I think that my hips are just the right size. \_\_\_\_\_



<b>No / none knowledge of current events</b>	←————→	<b>Extreme knowledge of current events</b>
<b>Pay no / none attention to ads on TV</b>	←————→	<b>Extremely pay attention to ads on TV</b>
<b>No / none vitality or energy</b>	←————→	<b>Extreme vitality or energy</b>
<b>No / none pride</b>	←————→	<b>Extreme pride</b>
<b>No / none depression</b>	←————→	<b>Extreme depression</b>
<b>Very poor memory (in general)</b>	←————→	<b>Excellent memory (in general)</b>
<b>No / None physical fitness satisfaction</b>	←————→	<b>Extreme physical fitness satisfaction</b>
<b>No / none anger</b>	←————→	<b>Extreme anger</b>

**ID CODE:** \_\_\_\_\_ (This is the same ID code you used to sign up for the experiment)

---

## THOUGHTS ABOUT THE VIDEO

Please write down the **first 10 thoughts you have as a result of looking at the video**. Write each thought in a separate box. Try to write down everything that comes to mind. Please let your thoughts flow naturally, as they normally would.

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Now, please write down **the first 5 thoughts you have about yourself as a result of looking at the video**. Write each thought in a separate box. Try to write down everything that comes to mind. Please let your thoughts flow naturally, as they normally would.

1.
2.
3.
4.
5.

## VIDEO RECALL

Of the advertised products and television shows, list the ones you remember the most.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

## WORD COMPLETION

*Please complete the following word stems with whatever word comes to your mind first.*

For example:

EXA\_\_\_\_\_ → EXAmple or EXAmination or EXAm....

FRE\_\_\_\_\_ → FREeze or FREe or FREe....

1. PRE \_\_\_\_\_

11. SKI \_\_\_\_\_

2. CAL \_\_\_\_\_

12. HAN \_\_\_\_\_

3. BIN \_\_\_\_\_

13. BLO \_\_\_\_\_

4. SCA \_\_\_\_\_

14. GRO \_\_\_\_\_

5. GOR \_\_\_\_\_

15. OBE \_\_\_\_\_

6. DIE \_\_\_\_\_

16. PET \_\_\_\_\_

7. THI \_\_\_\_\_

17. CHE \_\_\_\_\_

8. SLE \_\_\_\_\_

18. MUS \_\_\_\_\_

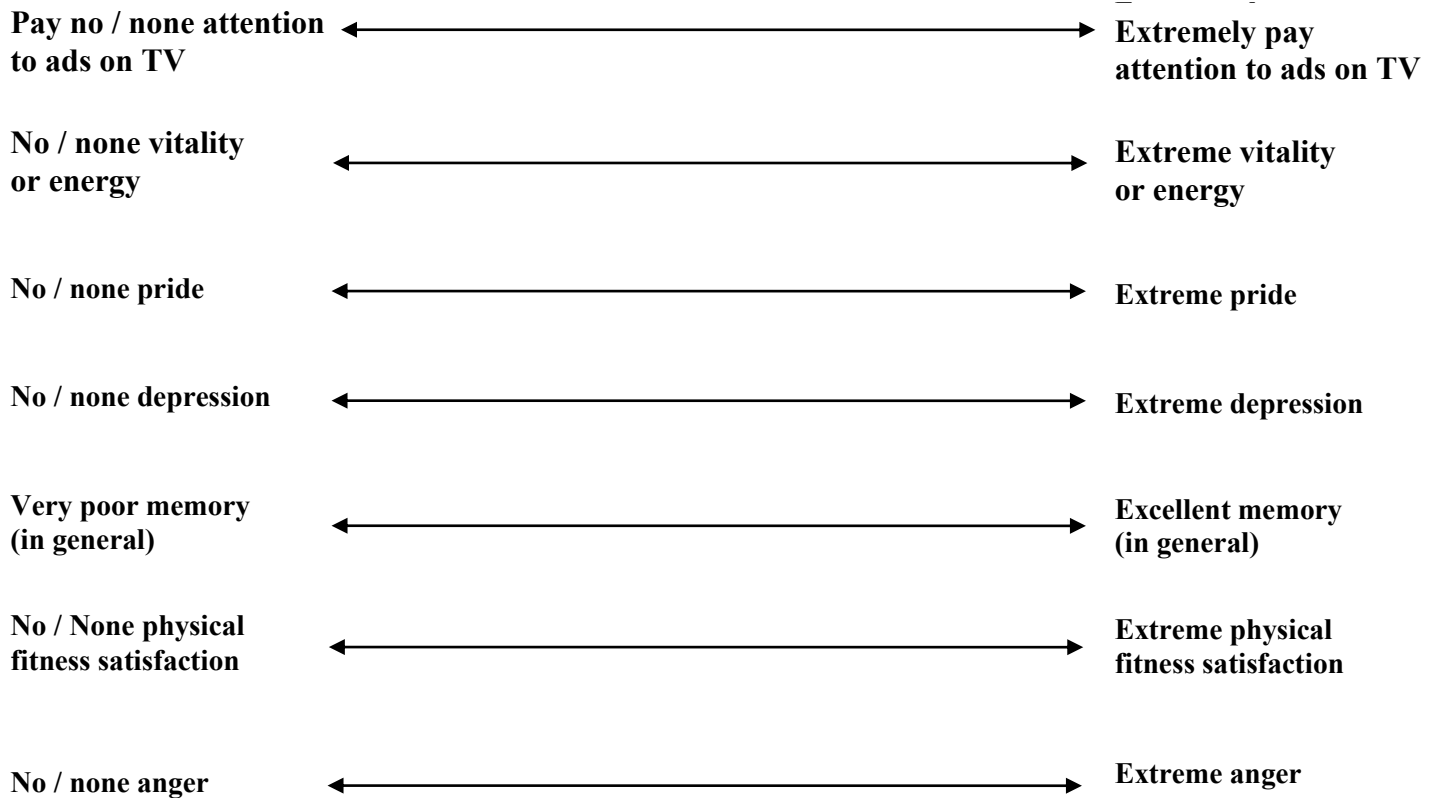
9. PLU \_\_\_\_\_

19. CEL \_\_\_\_\_

10. SLI \_\_\_\_\_

20. WAI \_\_\_\_\_





## GENERAL BEHAVIOURS AND INTENTIONS

Using the following 5-point scale, please indicate **how likely you are** to engage in the behaviors described in the items listed below **over the next few weeks**:

Never	Seldom	Sometimes	Often	Always
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

1. Take small helpings in an effort to control my weight.	1	2	3	4	5
2. Sleep 7-8 hours a day.	1	2	3	4	5
3. Eat a variety of foods from each of the four groups recommended by the Canadian Food Guide (cereals, fruits and vegetables, milk products, and meats and substitutes)	1	2	3	4	5
4. Hold back at meals in an attempt to prevent weight gain.	1	2	3	4	5
5. Turn off the lights when I leave a room.	1	2	3	4	5
6. Use white sugar.	1	2	3	4	5
7. Limit the amount of food I eat in an effort to control my weight.	1	2	3	4	5
8. Watch television.	1	2	3	4	5
9. Eat foods that are low in fat, saturated fat, and cholesterol	1	2	3	4	5
10. Limit alcoholic intake.	1	2	3	4	5
11. Sometimes, avoid eating in an attempt to control my weight.	1	2	3	4	5
12. Eat foods such as chips, chocolate and candies.	1	2	3	4	5
13. Recycle.					
14. Skip meals in an effort to control my weight.	1	2	3	4	5
15. Drink water.	1	2	3	4	5
16. Participate in social activities	1	2	3	4	5
17. Praise people easily.	1	2	3	4	5
18. Plan my meals in advance.	1	2	3	4	5
19. Sometimes eat only 1-2 meals a day to try to limit my weight.	1	2	3	4	5
20. Spend time with family members.	1	2	3	4	5
21. Eat diet foods in an effort to control my weight.	1	2	3	4	5
22. Eat fried foods.	1	2	3	4	5
23. Read food labels.	1	2	3	4	5
24. Avoid using tobacco products.	1	2	3	4	5
25. Count calories to try to prevent weight gain.	1	2	3	4	5
26. Use salt	1	2	3	4	5
27. Read class notes / book chapters before each lecture.	1	2	3	4	5
28. Eat low-calorie foods in an effort to avoid weight gain.	1	2	3	4	5
29. Eat vegetables, fruits and grain products (e.g., pastas, cereals, and grain mixtures)	1	2	3	4	5
30. Plan my workout/ training schedule in advance.	1	2	3	4	5
31. Take time to relax every day.	1	2	3	4	5
32. Avoid drinking and driving.	1	2	3	4	5

## VIDEO CONTENT

1. Using an “X”, please indicate which of the following ads/clips were featured in the video?

A camera	_____	An album	_____	Cars/vans	_____	A cell phone	_____
Victoria secret	_____	“Fashion”	_____	Mattresses	_____	Swimwear	_____
Watches	_____	Food	_____	“Advil”	_____	Alcohol	_____
CJOH news	_____	Travel	_____	“Stitches”	_____	Life insurance	_____
Computers	_____	Sears	_____	Shaving products	_____	Stereos	_____

2. Were humans prominently featured in any of the clips?    Yes \_\_\_\_\_                      No \_\_\_\_\_

3. What percentage of the video do you think contained “appearance” related clips?                      \_\_\_\_\_%

4. What percentage of the video do you think contained “non-appearance” related clips?                      \_\_\_\_\_%

**(Note. The total to questions 2 and 3 should be 100%)**

5. To what extent do you think that the clips you’ve just viewed in the video are representative of those you would usually see in an hour of regular television viewing?

<b>Not at all Representative</b>	<b>Not very Representative</b>	<b>Somewhat Representative</b>	<b>Mostly Representative</b>	<b>Very Representative</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

Based on the clips you’ve just viewed, please indicate to what extend you agree with the following statements, using the following scale:

	Do not agree agree at all		Agree moderately		Strongly agree
1. The women were beautiful.	1	2	3	4	5
2. The women were attractive.	1	2	3	4	5
3. The women had beautiful bodies.	1	2	3	4	5
4. The women depicted in the appearance-based clips were representative of the ‘thin-ideal’ a lot of women would like to achieve.	1	2	3	4	5
5. The women were sexually desirable.	1	2	3	4	5
6. I wish my body looked like most of the women’s bodies in the “appearance-based” clips.	1	2	3	4	5

**What did you think the purpose of the study was? Write your thoughts below.**

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## BACKGROUND INFORMATION

**Sex (circle one):**      Female      Male

**Age:** \_\_\_\_\_

**Program of Study:** \_\_\_\_\_

**Mother Tongue (circle one):** English \_\_\_\_\_      French \_\_\_\_\_      Other: \_\_\_\_\_

**Do you consider yourself to be:**      French-Canadian: \_\_\_\_\_ (e.g., franco-ontarien ou Québécois)

English-Canadian: \_\_\_\_\_

Other: (please indicate) \_\_\_\_\_

**Height (feet and inches):** \_\_\_\_\_      OR      **Height (meters and cm):** \_\_\_\_\_

**Weight (pounds):** \_\_\_\_\_      OR      **Weight (kg)** \_\_\_\_\_

**Please indicate your racial/cultural group:**

Caucasian: \_\_\_\_\_

Black-Caribbean: \_\_\_\_\_      Black-African: \_\_\_\_\_

Arab / Middle-Eastern: \_\_\_\_\_

East Asian (e.g., Chinese, Japanese, Korean): \_\_\_\_\_

South-East Asian (e.g., Filipino, Vietnamese, Thai, Indonesian, Cambodian): \_\_\_\_\_

Latin (e.g., from a Central or South American country): \_\_\_\_\_

Aboriginal (e.g., Métis, Inuit, Native-Canadian): \_\_\_\_\_

Other (please indicate): \_\_\_\_\_

**APPENDIX C**

(Study Materials described in Article 3)

## ADVERTISING AND YOUTUBE

### Consent form for participants recruited from the ISPR

I am invited to participate in a laboratory experiment entitled “Advertising and Youtube” that is currently being conducted by Céline Blanchard, Ph.D. and Lisa Mask, both from the School of Psychology in the Faculty of Social Sciences, at the University of Ottawa. The purpose of this study is to better understand how advertisers are reaching potential consumers on the internet’s most popular on-line community: Youtube.

My participation in this study will consist of attending this one laboratory session, which will be approximately 60 minutes in duration. During this session, I will be asked to perform a series of tasks: (1) watch a 5 minute video comprised of different commercials that were downloaded from Youtube (2) complete a questionnaire comprised of questions pertaining to the advertisements in the video, my thoughts & feelings, and general questions about myself (3) classify a series of words that will appear at random on the computer screen. In agreement with the Integrated System of Participation in Research (ISPR), hosted by the School of Psychology, I will be granted one point for participating in this study.

The risks and inconveniences associated with participating in this study are minimal. However, it is possible that I may experience some discomfort while watching the video and responding to the questionnaire as some images and questions may cause me to think about myself. However I have received assurance from the researcher that my participation in this study is **entirely voluntary**. I am free to withdraw from the experiment at any time without incurring any negative consequences. Should I choose to withdraw, I will still be granted my participation point from the ISPR and the data that I will have provided will be destroyed and thus will not be used for any analyses. Furthermore, I do not have to engage in any behaviors or perform any tasks that make me uncomfortable. In the event that I may experience emotional or psychological discomfort from participating in this study, I may contact the Center for Psychological Services here at the University of Ottawa.

My anonymity in this project will be protected. This consent form will be kept in a separate box from the questionnaires that I will be asked to complete during the experiment. The questionnaire & cognitive task will be identified by my unique number code that I use for participating in studies hosted by the ISPR. I am not required to provide my name nor any personal contact information. I have also been assured that the information that I provide will be kept strictly confidential. The data collected from this study will be stored in a locked cabinet in the researchers’ laboratory for a period of 5 years. I have been informed that only the researchers will have access to the data whether it is the original questionnaires or the data file on the computer. I am aware that the results obtained from this project are for research purposes only and publication of the results in scientific journals will be limited to group responses rather than individual ones.

I, \_\_\_\_\_, agree to participate in the study entitled “Advertising and Youtube”, conducted by Céline Blanchard, Ph.D. and Lisa Mask. I understand that by accepting to participate in this study, I am in no way waiving my right to withdraw from the study.

If I have any questions about the study, or if I would like to receive a report of the results when they come available, I may contact Céline Blanchard, Ph.D. or Lisa Mask at the coordinates below.

If I have any ethical concerns regarding my participation in this study, I may contact the Protocol Officer for Ethics in Research.

There are two copies of the consent form, one of which is mine to keep.

Lisa Mask &  
Céline Blanchard, Ph.D.  
School of Psychology  
University of Ottawa

Participant’s signature: \_\_\_\_\_

Date: \_\_\_\_\_

## LA PUBLICITÉ ET YOUTUBE

### Formulaire de consentement pour les participants recrutés au sein du SIPR

Je suis invitée à participer à une étude en laboratoire intitulée « La publicité et Youtube », qui est présentement en cours à l'École de psychologie à l'Université d'Ottawa sous la supervision de Céline Blanchard, Ph.D. et Lisa Mask. Cette étude a comme but de mieux comprendre comment les annonceurs (c'est-à-dire la publicité) réussissent à capter l'attention de la communauté la plus populaire sur l'internet, c'est-à-dire Youtube.

Ma participation dans cette étude requiert ma présence à une seule séance en laboratoire pour une durée d'environ 45 minutes. Durant cette séance, on me demandera d'accomplir une série de tâches : (1) visionner un vidéo d'une durée de 5 minutes compris d'annonces publicitaires qui ont été téléchargées de Youtube (2) compléter un questionnaire en anglais qui porte sur le contenu du vidéo, mes pensées et mes sentiments ainsi que des questions générales sur mes habitudes et ma personnalité (3) compléter une tâche de discrimination de mots à l'ordinateur. En accord avec le Système Intégré de Participation à la Recherche (SIPR) de l'École de psychologie, on m'accordera un point de participation à cette étude.

Les risques et inconvénients associés à la participation à cette étude sont minimes. Cependant, il est possible que le vidéo ou des items dans le questionnaire suscite de l'inconfort psychologique et/ou émotionnel. Toutefois, l'expérimentatrice m'a informé que le vidéo est composé d'images courantes que l'on rencontre fréquemment sur l'internet ainsi qu'à la télévision. Il est donc fort probable que je les ai déjà vu à un moment donné. Cependant, je comprends que ma participation à cette étude est entièrement volontaire. Je suis libre de me retirer en tout temps et ce, sans être pénalisé. Si je décide de me retirer de l'étude une fois l'avoir débutée, on m'accordera tout de même mon point de participation du SIPR et les données que j'aurai fournies seront immédiatement détruites. De plus, je suis libre de me retirer de certaines tâches en laboratoire pour lesquelles je ne suis pas à l'aise. Dans l'éventualité que je ressente de l'inconfort lors de cette étude, je peux communiquer avec le Centre des services psychologiques à l'Université d'Ottawa.

Les chercheurs m'ont assuré que mon anonymat sera respecté par deux moyens. Premièrement, ce formulaire de consentement sera mis dans une boîte à part des questionnaires qu'on me demandera de compléter durant l'étude. Deuxièmement, les questionnaires ainsi que mes réponses à la tâche de discrimination de mots seront identifiés par le code numérique que j'utilise pour m'inscrire aux études du SIPR. Je ne suis pas obligé de fournir mon nom ni d'autres informations personnelles. On m'a également assuré que les données que j'aurai fournies resteront confidentielles. Les questionnaires et données recueillies seront conservés dans une armoire verrouillée dans le laboratoire de recherche de Céline Blanchard. Seuls les chercheurs responsables de l'étude auront accès aux questionnaires ainsi qu'au fichier de données électronique. On m'a informé que les résultats de cette étude seront utilisés uniquement à des fins de recherche et seront publiés dans des périodiques scientifiques sous forme de moyennes de groupe, plutôt qu'individuelle.

Je, \_\_\_\_\_, accepte de participer à l'étude intitulée « La publicité et Youtube », dirigée par Céline Blanchard, Ph.D. et Lisa Mask de l'École de psychologie de l'Université d'Ottawa. Par contre, je suis consciente que je peux me retirer de l'étude en tout temps.

Lisa Mask &  
Céline Blanchard, Ph.D.  
École de psychologie  
Université d'Ottawa

Si je désire obtenir plus de renseignements sur cette étude ou si j'aimerais recevoir un rapport des résultats de l'étude lorsqu'ils seront disponibles, je peux communiquer avec les chercheurs aux coordonnées indiqués ci-bas. Par contre pour toute question déontologique, je peux communiquer avec la responsable de déontologie en recherche de l'Université d'Ottawa.

Il y a deux copies du formulaire de consentement, dont une que je conserve.

Signature de la participant(e): \_\_\_\_\_ Date: \_\_\_\_\_

## ADVERTISING AND YOUTUBE

### Consent form for participants recruited outside of the ISPR

I am invited to participate in a laboratory experiment entitled “Advertising and Youtube” that is currently being conducted by Céline Blanchard, Ph.D. and Lisa Mask, both from the School of Psychology in the Faculty of Social Sciences, at the University of Ottawa. The purpose of this study is to better understand how advertisers are reaching potential consumers on the internet’s most popular on-line community: Youtube.

My participation in this study will consist of attending this one laboratory session, which will be approximately 60 minutes in duration. During this session, I will be asked to perform a series of tasks: (1) watch a 5 minute video comprised of different commercials that were downloaded from Youtube (2) complete a questionnaire comprised of questions pertaining to the advertisements in the video, my thoughts & feelings, and general questions about myself (3) classify a series of words that will appear at random on the computer screen.

The risks and inconveniences associated with participating in this study are minimal. However, it is possible that I may experience some discomfort while watching the video and responding to the questionnaire as some images and questions may cause me to think about myself. However I have received assurance from the researcher that my participation in this study is **entirely voluntary**. I am free to withdraw from the experiment at any time without incurring any negative consequences. Should I choose to withdraw the data that I will have provided will be destroyed and thus will not be used for any analyses. Furthermore, I do not have to engage in any behaviors or perform any tasks that make me uncomfortable. In the event that I may experience emotional or psychological discomfort from participating in this study, I may contact the Center for Psychological Services here at the University of Ottawa.

My anonymity in this project will be protected. This consent form will be kept in a separate box from the questionnaires that I will be asked to complete during the experiment. The questionnaire & cognitive task will be identified by my unique number code that I use for participating in studies hosted by the ISPR. I am not required to provide my name nor any personal contact information. I have also been assured that the information that I provide will be kept strictly confidential. The data collected from this study will be stored in a locked cabinet in the researchers’ laboratory for a period of 5 years. I have been informed that only the researchers will have access to the data whether it is the original questionnaires or the data file on the computer. I am aware that the results obtained from this project are for research purposes only and publication of the results in scientific journals will be limited to group responses rather than individual ones.

I, \_\_\_\_\_, agree to participate in the study entitled “Advertising and Youtube”, conducted by Céline Blanchard, Ph.D. and Lisa Mask. I understand that by accepting to participate in this study, I am in no way waiving my right to withdraw from the study.

If I have any questions about the study, or if I would like to receive a report of the results when they come available, I may contact Céline Blanchard, Ph.D. or Lisa Mask at the coordinates below.

If I have any ethical concerns regarding my participation in this study, I may contact the Protocol Officer for Ethics in Research.

There are two copies of the consent form, one of which is mine to keep.

Participant’s signature: \_\_\_\_\_ Date: \_\_\_\_\_

Lisa Mask &  
Céline Blanchard, Ph.D.  
School of Psychology  
University of Ottawa

## LA PUBLICITÉ ET YOUTUBE

### Formulaire de consentement pour les participants recrutés à l'extérieur du SIPR

Je suis invitée à participer à une étude en laboratoire intitulée « La publicité et Youtube », qui est présentement en cours à l'École de psychologie à l'Université d'Ottawa sous la supervision de Céline Blanchard, Ph.D. et Lisa Mask. Cette étude a comme but de mieux comprendre comment les annonceurs (c'est-à-dire la publicité) réussissent à capter l'attention de la communauté la plus populaire sur l'internet, c'est-à-dire Youtube.

Ma participation dans cette étude requiert ma présence à une seule séance en laboratoire pour une durée d'environ 45 minutes. Durant cette séance, on me demandera d'accomplir une série de tâches : (1) visionner un vidéo d'une durée de 5 minutes compris d'annonces publicitaires qui ont été téléchargées de Youtube (2) compléter un questionnaire en anglais qui porte sur le contenu du vidéo, mes pensées et mes sentiments ainsi que des questions générales sur mes habitudes et ma personnalité (3) compléter une tâche de discrimination de mots à l'ordinateur.

Les risques et inconvénients associés à la participation à cette étude sont minimes. Cependant, il est possible que le vidéo ou des items dans le questionnaire suscite de l'inconfort psychologique et/ou émotionnel. Toutefois, l'expérimentatrice m'a informé que le vidéo est composé d'images courantes que l'on rencontre fréquemment sur l'internet ainsi qu'à la télévision. Il est donc fort probable que je les ai déjà vu à un moment donné. Cependant, je comprends que ma participation à cette étude est entièrement volontaire. Je suis libre de me retirer en tout temps et ce, sans être pénalisé. Si je décide de me retirer de l'étude une fois l'avoir débutée, les données que j'aurai fournies seront immédiatement détruites. De plus, je suis libre de me retirer de certaines tâches en laboratoire pour lesquelles je ne suis pas à l'aise. Dans l'éventualité que je ressente de l'inconfort lors de cette étude, je peux communiquer avec le Centre des services psychologiques à l'Université d'Ottawa.

Les chercheurs m'ont assuré que mon anonymat sera respecté par deux moyens. Premièrement, ce formulaire de consentement sera mis dans une boîte à part des questionnaires qu'on me demandera de compléter durant l'étude. Deuxièmement, les questionnaires ainsi que mes réponses à la tâche de discrimination de mots seront identifiés par le code numérique que j'utilise pour m'inscrire aux études du SIPR. Je ne suis pas obligé de fournir mon nom ni d'autres informations personnelles. On m'a également assuré que les données que j'aurai fournies resteront confidentielles. Les questionnaires et données recueillies seront conservés dans une armoire verrouillée dans le laboratoire de recherche de Céline Blanchard. Seuls les chercheurs responsables de l'étude auront accès aux questionnaires ainsi qu'au fichier de données électronique. On m'a informé que les résultats de cette étude seront utilisés uniquement à des fins de recherche et seront publiés dans des périodiques scientifiques sous forme de moyennes de groupe, plutôt qu'individuelle.

Je, \_\_\_\_\_, accepte de participer à l'étude intitulée « La publicité et Youtube », dirigée par Céline Blanchard, Ph.D. et Lisa Mask de l'École de psychologie de l'Université d'Ottawa. Par contre, je suis consciente que je peux me retirer de l'étude en tout temps.

Lisa Mask &  
Céline Blanchard, Ph.D.  
École de psychologie  
Université d'Ottawa

Si je désire obtenir plus de renseignements sur cette étude ou si j'aimerais recevoir un rapport des résultats de l'étude lorsqu'ils seront disponibles, je peux communiquer avec les chercheurs aux coordonnées indiqués ci-bas. Par contre pour toute question déontologique, je peux communiquer avec la responsable de déontologie en recherche de l'Université d'Ottawa.

Il y a deux copies du formulaire de consentement, dont une que je conserve.

Signature de la participant(e): \_\_\_\_\_ Date: \_\_\_\_\_

### ADVERTISING AND YOUTUBE: DEBRIEFING FORM

Deception was used in this study. You were told that the purpose of this experiment was to better understand how advertisers are reaching the world's largest on-line community; that is Youtube. However, the real purpose of this study was to examine the impact of advertising on how we think and feel toward our bodies. More specifically, we expect that different representations of women in the media will have different effects on how participants feel toward their own bodies. In order to test this hypothesis, we created three conditions in this experiment that vary in advertising content: a condition where women's bodies are objectified and a 'thin-ideal' is highlighted, a condition that displays the instrumentality and healthy aspects of women's bodies, and a condition that is neutral in content. You were randomly assigned to one of these three conditions. The questionnaire you completed *after* watching the video was to examine positive and negative feelings that you may have toward your own body as a result of watching the video while the questionnaire you completed *before* watching the video was to measure personality characteristics that may explain individual differences in people's reactions to these different types of media images. The word classification task you completed was a test of cognitive attention. The taste test was actually a test of eating restraint. These deceptions were necessary so that you would not be aware of the real purpose of our study. If you had been aware of the study's real purpose it may have prevented you from giving us unbiased responses. Given that deception was used in this study, please indicate whether or not we may use your data for this study.

- Yes, I would like my data to be used for this study  
 No, I would like my data to not be used for this study

This study is important for two reasons. First, there is very little research conducted on individual differences that may explain why some people are more vulnerable while others are more resistant to media images that highlight the importance of thinness as a standard of attractiveness for women. Second, no research to date has examined whether a different representation of women's bodies in the media (i.e., where the focus is on what women can do and accomplish with their bodies rather than how they look) could have a potentially positive effect on women's feelings toward their own bodies.

If you felt any discomfort during the experiment or wish to further discuss any health preoccupations you may have, you may contact one of the following resources:

- Center for Psychological Services
- The Hopewell Eating Disorder Support Centre
- The Regional Centre for the Treatment of Eating Disorders

Finally, we would kindly like to inform you that it is extremely important that you do not reveal the purpose of this study, what you did while you were here or any other detail about the research to anyone. Doing so could bias the results of the study and lead to erroneous findings.

In closing, we would like to thank you for participating in this study. Please sign your name below to indicate that you have read this explanation and agree not to discuss this experiment with anyone.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Experimental script

### Part 1. Introduction

Hi, welcome to the social psychology lab. My name is \_\_\_\_\_ and I will guide you during this experiment. First, I want to thank you for accepting to take part in this experiment. Your participation in this study is greatly appreciated. Before we begin, I will ask you to read this consent form and sign at the bottom if you accept to continue the experiment. If you have any questions about the tasks at any time during the experiment don't hesitate to ask and I will be glad to answer them. Otherwise, I'll be able to answer more specific questions at the end of the experiment.

### Part 2. Task 1. Watching a video & completing the questionnaire

Well as you know, you've signed-up for an experiment entitled "Advertising and Youtube". The purpose of this experiment is to better understand how advertisers are reaching potential consumers on the internet's most popular online community: Youtube.

More specifically, we are interested in knowing:

- (1) How appealing and effective are the advertisements on Youtube?
- (2) How do these ads affect people's thoughts and feelings about the product?
- (3) What are the personal characteristics of the users of Youtube which represent potential consumers? What are their general traits? According to Market Research, 35% of Youtube users are between 18 and 34 years of age; but beyond their age, we know very little about them.

For this experiment, you will be asked to perform two different tasks.

First, you will be asked to watch a random set of advertisements that were downloaded from Youtube. Detailed instructions about this task are provided on this written sheet of paper. Please read it before you watch the video.

Second, you'll be asked to complete a questionnaire pertaining to the contents of the video and some questions about yourself and your reactions to the ads.

When you are finished please come and get me, I will be sitting right outside the testing room.

Do you have any questions?

When you are ready, please read these detailed instructions about advertisements on Youtube. These instructions will give you precise instructions about what to do and which survey to complete at which time during the experiment. When you are ready, double click on the "play" button. I will be just outside of the testing room if you have any questions. I will come back in approximately 15 minutes.

**Part 2. Task 2. Taste test**

Given that the present study is on advertising, we invite you to sample the following new line of Hershey chocolate bars: “Hershey’s 100 Calories Chocolate Wafer Bars”. These bars were given to us by the local Hershey’s sales representative who happens to be a friend of the researcher. This person would appreciate your feedback concerning the taste and contents of this brand new Hershey product. These questions are listed in this Taste Test Survey. There are also some additional questions to complete on the reverse side of this survey. Please help yourself to as many as you like in order to form an accurate evaluation of the product. When you are done, please let me know. I will be sitting just outside the testing room.

**Part 3. Evaluation of suspicions**

The laboratory experiment is now over.

*(The research assistant will take note of the participant’s answers to the following questions).*

Before leaving, I would like you to tell me:

- 7) What was the purpose of the study?
- 8) Are you suspicious that the study may have another purpose? Yes or No?
- 9) *IF participant answers yes to question 3, the research assistant asks the following question:* What other purpose do you think the study may have?

**Part 4. Debriefing**

Thank you for your participation. I will also ask you to read and sign the debriefing form.

Do you have any questions? I would also ask that you do not reveal the purpose of this experiment or what you did in this experiment to anyone (e.g., friends or schoolmates) Doing so could bias the results of the study.

Thank you for your participation!



## **Online Advertising on Youtube**

Advertising is a paid form of communication about a product, a service or an event. Advertising was originally established in print media such as newspapers and magazines and eventually moved to television and radio. However, thanks to dramatic technological advances, online video advertising is at the centre stage. According to e-Marketer ([www.emarketer.com](http://www.emarketer.com)), online advertising sales hit \$22 billion in 2007 and are expected to reach \$44 billion by 2011. So how are advertising and marketing companies reaching potential consumers on line? One potential broadcast is Youtube!

Youtube was created in 2004 and was originally intended as a way for people to share videos. Now, Youtube is quoted as “the largest television station on the planet” (Forbes Magazine, 2008). Statistics estimate that there are approximately 71 million unique users each month and hundreds of millions of videos viewed each day!! Even the U.S. presidential candidate Barack Obama took advantage of the unique opportunity that Youtube offers to reach potential voters during their election campaign.

While Youtube represents the largest on-line community, we know very little about its users. What are their personality characteristics? Are they similar or different from the community of people who don't use Youtube? How do they process information and how attentive are they to advertising? This study is designed to answer these questions and could potentially inform advertising and marketing companies on how to effectively and efficiently reach potential consumers via the internet.

During this experiment, you will be asked to perform four different tasks

- 1) Complete a brief personality survey and usage of Youtube
- 2) Watch a 5minute video of advertisements that were downloaded from Youtube and spliced together in a continuous video. This is done to avoid potential internet connections that may arise when visiting the Youtube website
- 3) Complete a short survey of your attitudes towards some of the advertisements and general feelings you may

## **DETAILED INSTRUCTIONS FOR PARTICIPANTS**

### Part 1: General Attitudes & Usage of Youtube

Please complete the survey in the envelope marked “1”. When you are finished, please insert the completed surveys back in the envelope.

### Part 2: Watching the Video

Please watch the advertisements in the video as though you are watching them on Youtube. Pay close attention to the details in each advertisement. You will be asked to recall these ads and rate their overall appeal and effectiveness at different points during the experiment. You may choose to watch the video in the original small screen format or in “full screen”. The choice is yours. When you are ready, please double click on the “Video” icon on the desktop. When you are done, please complete the survey in the envelope marked “2”.

### Part 3: Attitudes & Feelings & My Current Feelings

Please complete the survey in the envelope marked “2”. This survey is designed to measure your immediate attitudes toward the advertisements and other areas of your life. This is followed by an assessment of your current feelings. When you are done, please insert the completed surveys back in the envelope and come and get me. I will be sitting just outside of the testing room.

**ID CODE:** \_\_\_\_\_ (this is the id code you used to sign-up for the experiment)

### GENERAL ATTITUDES

*Indicate to what extent each of the following reasons corresponds to why you do things in general.*

Does not correspond to my reasons at all			Moderately Corresponds to my reasons			Corresponds exactly to my reasons
1	2	3	4	5	6	7

#### **In general, I do things....**

... in order to help myself become the person I aim to be	1	2	3	4	5	6	7
... because I like making interesting discoveries	1	2	3	4	5	6	7
... because I want to be viewed more positively by certain people	1	2	3	4	5	6	7
... because I choose them as means to attain my objectives	1	2	3	4	5	6	7
... for the pleasure of acquiring new knowledge	1	2	3	4	5	6	7
... because otherwise I would feel guilty for not doing them	1	2	3	4	5	6	7
... because by doing them I am living in line with my deepest principles	1	2	3	4	5	6	7
... although it does not make a difference whether I do them or not	1	2	3	4	5	6	7
... for the pleasant sensations I feel while I am doing them	1	2	3	4	5	6	7
... in order to show others what I am capable of	1	2	3	4	5	6	7
... because I chose them in order to attain what I desire	1	2	3	4	5	6	7
... because I would beat myself up for not doing them	1	2	3	4	5	6	7
... even though I do not have a good reason for doing them	1	2	3	4	5	6	7
... in order to attain prestige	1	2	3	4	5	6	7
... even though I believe they are not worth the trouble	1	2	3	4	5	6	7
... because I would feel bad if I do not do them	1	2	3	4	5	6	7
... because by doing them I am fully expressing my deepest values	1	2	3	4	5	6	7
... because they reflect what I value the most in life	1	2	3	4	5	6	7

## YOU AND YOUTUBE

Do visit the Youtube website? Yes \_\_\_\_\_ No \_\_\_\_\_

*To what extent do you agree with each of the following items?*

Do not agree at all			Moderately agree			Strongly agree
1	2	3	4	5	6	7

Connecting to YouTube is one of my main daily activities.							
Whenever I'm unable to go on YouTube, I really miss it.							
Going on YouTube is very important in my life.							
I could easily do without going on YouTube or watching YouTube videos for several days.							
I would feel lost without YouTube.							
The YouTube website is responsive.							
YouTube is easy to use and navigate.							
The features on YouTube are adequate for my use.							
Videos available on YouTube are sufficient for my needs.							
The YouTube website is responsive.							

Please check off the categories of videos that you like to watch on Youtube:

<b>Music/TV shows/Film</b> _____	<b>Women's Sports</b> _____
<b>Men sports</b> _____	<b>User-created videos</b> _____
<b>People and Blogs</b> _____	<b>News/ Politics/Activism</b> _____
<b>Spiritual/ Religious</b> _____	<b>Comedy/Funny videos</b> _____
<b>Education/Informative</b> _____	<b>Cute babies/Animals</b> _____

How many hours do you spend on Youtube per day? \_\_\_\_\_ per week: \_\_\_\_\_

Do you have a Youtube account? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you upload videos on your Youtube account? Yes \_\_\_\_\_ No \_\_\_\_\_

What type of videos do you upload?

Do people comment on your videos? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you frequently encounter advertisements on Youtube? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you pay attention to advertisements on Youtube? Yes \_\_\_\_\_ No \_\_\_\_\_

Have you visited a company's website because of an advertisement you saw on Youtube? Yes\_\_ No\_\_

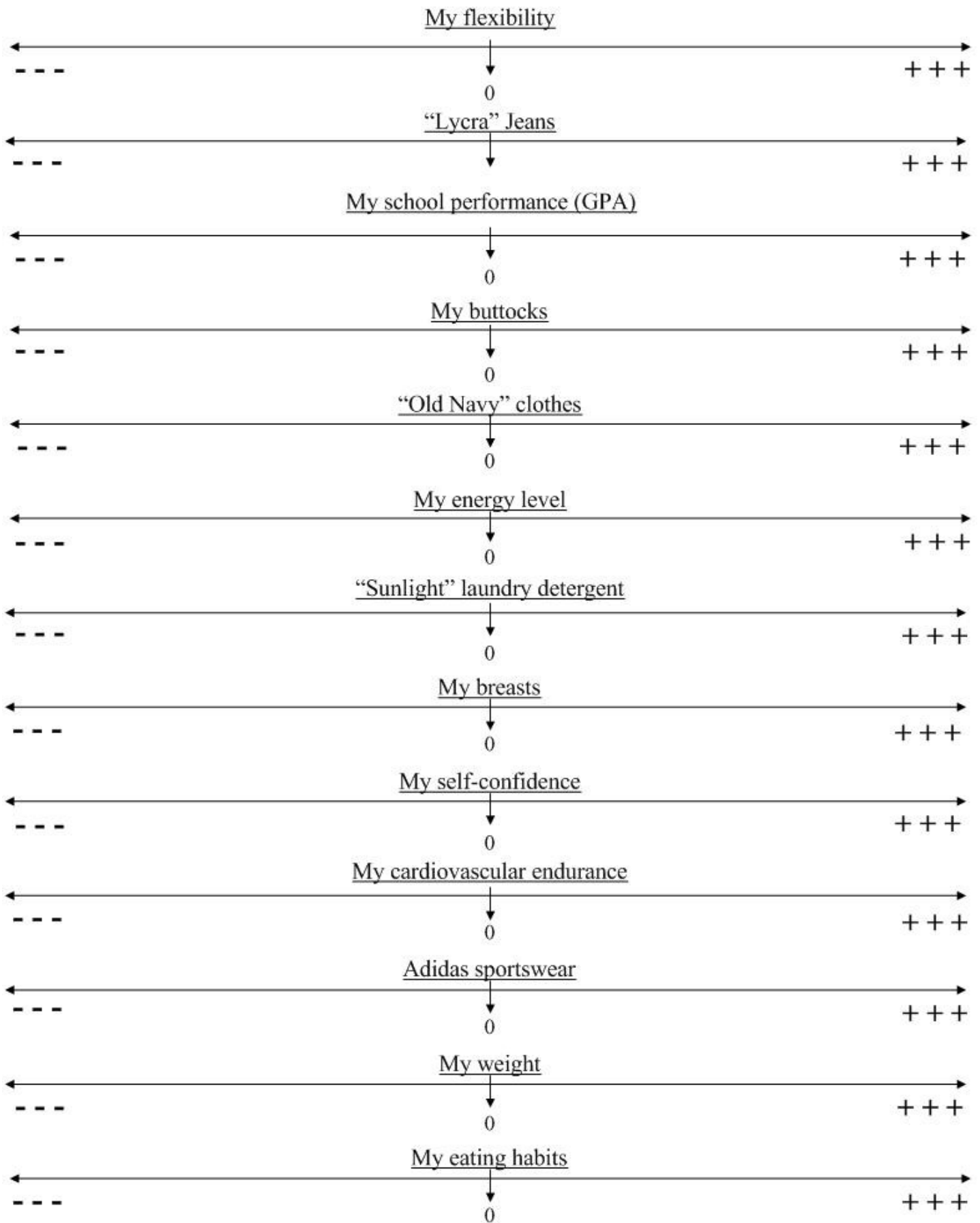
## Attitudes & Feelings

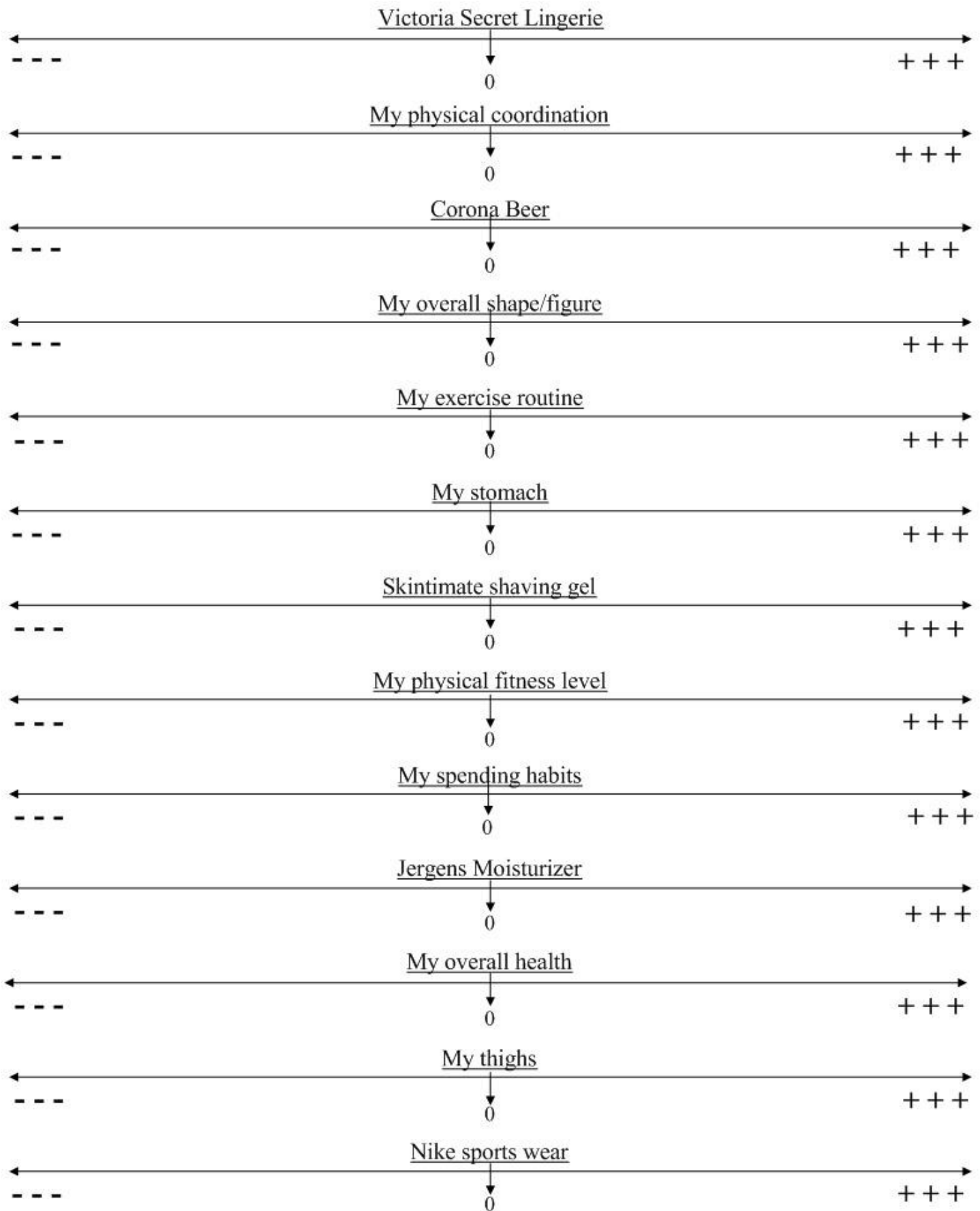
Please indicate how you feel toward each item mentioned below by marking a tick (/) on the horizontal line. The left end of each line is marked by “extreme negative feelings” while the right end of each line is marked by “extreme positive feelings”. The middle point is marked by “no feelings either way”. Note that some items refer to the ads you just viewed, while others refer to general aspects of yourself.

If I have somewhat positive feelings toward the Canadian government, I would indicate this with a / here

	<u>The Canadian government</u>	
←	↓	→
Extreme negative	No feelings either way “0”	Extreme positive
---	Mac Computers	+++
	↓	
	0	
←	My reflexes	→
---	↓	+++
	0	
←	“Advil”	→
---	↓	+++
	0	
←	My hips	→
---	↓	+++
	0	
←	My future career	→
---	↓	+++
	0	
←	My muscular endurance	→
---	↓	+++
	0	
←	“Charmin” bathroom tissue	→
---	↓	+++
	0	
←	My waist	→
---	↓	+++
	0	
←	My relationship with my partner	→
---	↓	+++
	0	

---





## MY CURRENT FEELINGS

Please read each of the following items and circle the number that best reflects **how you feel RIGHT NOW**

Not at all						Moderately						Extremely
1	2	3	4	5	6	7	8	9	10	11	12	7

Interested	1	2	3	4	5	6	7	Enthusiastic	1	2	3	4	5	6	7	Upset	1	2	3	4	5	6	7
Angry	1	2	3	4	5	6	7	Depressed	1	2	3	4	5	6	7	Anxious	1	2	3	4	5	6	7
Excited	1	2	3	4	5	6	7	Inspired	1	2	3	4	5	6	7	Happy	1	2	3	4	5	6	7
Hungry	1	2	3	4	5	6	7	Distressed	1	2	3	4	5	6	7	Guilty	1	2	3	4	5	6	7

At this time, I am satisfied with myself on the whole.	1	2	3	4	5	6	7
Right now, I'm angry at myself because I haven't made the effort to look my best.	1	2	3	4	5	6	7
At this moment, I feel good about my body.	1	2	3	4	5	6	7
I feel energized right now.	1	2	3	4	5	6	7
Right now, I feel like something must be wrong with me because I can't control my weight.	1	2	3	4	5	6	7
Right now, I feel drained.	1	2	3	4	5	6	7
At this moment, I like my body, despite its imperfections.	1	2	3	4	5	6	7
At this moment, I respect my body.	1	2	3	4	5	6	7
Currently, I feel that I have a number of positive qualities.	1	2	3	4	5	6	7
At this time, I would be ashamed if people knew what I really weigh.	1	2	3	4	5	6	7
I don't feel very energetic right now.	1	2	3	4	5	6	7
Right now, I feel disgusted with myself because I'm not the size I think I should be.	1	2	3	4	5	6	7
Currently, I feel so alive I just want to burst.	1	2	3	4	5	6	7
At this moment, I think I'm a good person even if I can't control my weight.	1	2	3	4	5	6	7
Right now, I feel that I don't have much to be proud of.	1	2	3	4	5	6	7
At this moment, I accept my body for what it is, despite its flaws.	1	2	3	4	5	6	7
Currently, I am satisfied with my body.	1	2	3	4	5	6	7
At this time, I have a positive attitude toward myself.	1	2	3	4	5	6	7
Right now, I feel like I must be a bad person because I don't look as good as I could.	1	2	3	4	5	6	7
Right now, I feel depleted.	1	2	3	4	5	6	7
At this moment, I feel like a failure when it comes to my appearance.	1	2	3	4	5	6	7
At this moment, I feel alive and vital.	1	2	3	4	5	6	7
Right now, I feel like an attractive person.	1	2	3	4	5	6	7
Right now, my feelings toward my body are positive.	1	2	3	4	5	6	7
At this time, I have energy and spirit.	1	2	3	4	5	6	7
Right now, I feel like an ugly person.	1	2	3	4	5	6	7
At this time, I have a positive attitude toward my body.	1	2	3	4	5	6	7
At this moment, I feel alert and awake.	1	2	3	4	5	6	7

## TASTE TEST: “Hershey’s” Chocolate

I normally eat this snack bar:            Yes            No

*Using the items below, please rate the food item you have just sampled. .*

Do not agree at all			Moderately agree			Strongly agree
1	2	3	4	5	6	7

- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 1) I like the taste of this bar.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2) This bar is very light tasting.                                      | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3) This bar is a great low-calorie snack.                               | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4) The fat content of a food item is an important factor for me.        | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5) The calorie content of a food item is an important factor for me.    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6) I enjoy eating diet foods.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7) I read the product label of every food product before I purchase it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8) I would definitely eat this bar on a regular basis as a snack.       | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

## TASTE TEST: “York” Peppermint

I normally eat this snack bar:            Yes            No

- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 1) I like the taste of this bar.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2) This bar is very light tasting.                                      | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3) This bar is a great low-calorie snack.                               | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4) The fat content of a food item is an important factor for me.        | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5) The calorie content of a food item is an important factor for me.    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6) I enjoy eating diet foods.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7) I read the product label of every food product before I purchase it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8) I would definitely eat this bar on a regular basis as a snack.       | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

## TASTE TEST: “Reese” Peanut Butter

I normally eat this snack bar:            Yes            No

- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 1) I like the taste of this bar.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2) This bar is very light tasting.                                      | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3) This bar is a great low-calorie snack.                               | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4) The fat content of a food item is an important factor for me.        | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5) The calorie content of a food item is an important factor for me.    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6) I enjoy eating diet foods.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7) I read the product label of every food product before I purchase it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8) I would definitely eat this bar on a regular basis as a snack.       | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

### CURRENT EATING BEHAVIORS

Please read each of the following items and circle the number that best reflects why you stopped eating the food item.

Does not correspond to my reasons at all			Moderately Corresponds to my reasons			Corresponds exactly to my reasons
1	2	3	4	5	6	7

#### I stopped eating the bar(s) ...

...because I wasn't hungry.									
...because I felt guilty.									
...because this snack food ("Thinsations") is not part of a healthy way of eating for me.									
...because I have to lose weight.									
...because I feel better when I don't eat this type of snack food.									
...because I feel that I must be thin.									
...because it's important to me to choose healthier, natural snacks instead.									
...because I don't want to be ashamed of myself.									
...because my goal is to gain long-term health benefits by avoiding this type of snack food.									

To what extent were you concerned about the quality of the food item you just ate?

Not at all concerned			Moderately concerned			Very much concerned
1	2	3	4	5	6	7

To what extent were you concerned about the quantity of food item you just ate?

Not at all concerned			Moderately concerned			Very much concerned
1	2	3	4	5	6	7

To what extent did you find it difficult to stop eating?

Not difficult at all			Moderately difficult			Very difficult
1	2	3	4	5	6	7

**DEMOGRAPHICS**

Age: \_\_\_\_\_ Mother tongue (circle): French English Other: \_\_\_\_\_

Please indicate your racial/cultural group:

Caucasian		Aboriginal		Black Caribbean	
East Asian		Middle-Eastern		Latin	
Black African		South-East Asian		Other (please indicate)	

Please indicate at what time you ate your last meal or snack today: \_\_\_\_\_

Height (feet and inches): \_\_\_\_\_ Weight (pounds): \_\_\_\_\_