

The Elastic Body Image: The Effect of Television Advertising and Programming on Body Image Distortions in Young Women

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The emphasis the media place on the thin ideal body image may be responsible for body size overestimations that women make, and indirectly cause increases in anorexia nervosa and bulimia. In this experimental study, two variables—ideal-body programming and ideal-body commercials—had an effect on female subjects' self-perceived body images and moods. Ideal-body image commercials lowered body size overestimations and subjects' depression levels. This study supports the notion of an elastic body image in which actual body size is in conflict with a mediated ideal body image and an unstable self-perceived body image. Results of this study suggest that watching even 30 minutes' worth of television programming and advertising can alter a woman's perception of the shape of her body.

This experimental study explores an unusual aspect of the role of the mass media in the social construction of reality: how television advertising and programming affect a young woman's perception of her own body. This study attempts to show that a young woman's perception of her body is a psychological construct, a body image (Gallagher, 1986). This body image is part of a woman's self-schema, her mental construction of her self (Markus, 1977; Markus & Sentis, 1982; Markus, Hamill, & Sentis, 1987). More importantly, this study explores how her body image is elastic and can fluctuate in response to media content that focuses on the presentation of the ideal body shape. *We intend to show that watching even 30 minutes' worth of tele-*

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What is the average young woman's perception of her body? When the average young woman looks in the mirror, she sees a fat person. In a society where the ideal body is becoming thinner, women in general have been found to overestimate the size of their bodies (Birtchneil, Dolan, & Lacey 1987; Casper, Halmi, Goldberg, Eckert, & Davis, 1979; Garner, Garfinkel, Stancer, & Moldofsky, 1976; Halmi, Goldberg, & Cunningham, 1977). Women with eating disorders, anorexia nervosa, and bulimia, have been found to make even greater overestimations (Cash & Green, 1986; Slade & Russell, 1973; Touyz, Beumont, Collins, & Cowie, 1985; Wilmuth, Leitenberg, Rosen, Fondacaro, & Gross, 1985).

Do media portrayals of the body contribute to this body size distortion? Content analysis studies reveal that the media portray a steadily thinning ideal body image for women (Garner, Garfinkel, Schwartz & Thompson, 1980; Silverstein, Perdue, Peterson & Kelly, 1986). This image is represented by models whose curvaceousness fluctuates but whose weights are consistently below average. A thinner ideal body is also being promoted by weight and height standards used primarily by insurance companies (Ritenbaugh, 1982).

From these media and cultural messages emerge positive stereotypes of beauty, success, and health (Downs & Harrison, 1985; Garner & Garfinkel, 1980; Kaufman, 1980) and an image of being in control (Joseph, 1982). These have become synonymous with the socially ideal body. At the same time, negative stereotypes of poor health and a lack of control have become associated with obesity (Ritenbaugh, 1982). Together, these positive and negative stereotypes play a role in the social formation of the ideal body. This ideal body is internalized by young women and becomes a goal in a program to transform their body shape to match their internalized ideal body (Banner, 1986; Spitzack, 1990).

Our research question asks: Does the mediated ideal body presented in television programming and commercials play a role in women's body size overestimation? This experimental study attempts to demonstrate a causal relationship between television portrayals of the ideal body and the distortion of self-perceived body size in a young female audience.

Thin Is In

The mass media's portrayal of the thin, ideal female body is well documented. Advertisers explicitly target the body image of women in the marketing of food and exercise products (e.g., Lautman, 1991). The effects of this practice are just beginning to be explored (e.g., Kaltenbach, 1991).

In four content analyses Silverstein et al. (1986) examined the body representations and the preoccupation with thinness in various media: (a) televi-

sion shows and their characters; (b) magazine advertisements and articles dealing with body shape and size, dieting, food and drink, or cooking; (c) photographs of women in two women's magazines; and (d) photographs of female movie stars. In the 33 television shows studied, 69.1% of the female characters were rated as thin while only 17.5% of the male characters were so rated. Only 5% of the female characters were rated as heavy, compared to 25.5% of the males.

In their study of four women's and four men's magazines, the total number of ads for diet foods was 63 for women's and only 1 for men's. For the total number of articles on nonfood, figure-enhancing products, the total in the women's magazines was 96 while the men's total was 10.

The final two content analyses examined photographs from *Ladies' Home Journal* and *Vogue* between 1901 and 1981, and photographs of movie stars between 1932 and 1978. In both studies bust-to-waist ratios were calculated. In both the magazine and movie star photographs, the bust-to-waist ratios decreased through the years, most significantly since the 1930s. Silverstein et al. conclude that:

... present day women who look at the major mass media are exposed to a standard of bodily attractiveness that is slimmer than that presented for men and that is less curvaceous than that presented for women since the 1930s. This standard may not be promoted only in the media and it may not even originate in the media, but given the popularity of television, movies and magazines. . . the media are likely to be among the most influential promoters of such thin standards. (p. 531)

In another content analysis, Garner et al. (1980) studied the ideal feminine image as presented by *Playboy Magazine* and the Miss America Pageant from 1959 to 1978. The mean weights of women in these groups were significantly less than the mean weights of the general public (comparison made with the 1959 Society of Actuaries tables, controlling for age and height). In addition, during the 20-year period mean weights for centerfolds and contestants declined, while mean weights for the general population actually increased by several pounds. Furthermore, since 1970, pageant winners weighed significantly less than the other pageant contestants.

Kaufman (1980) found yet another interesting twist to the ideal body image as represented in television commercials and programming. Analyzing 600 minutes of videotape, Kaufman's study rated 48% of the 537 characters viewed as thin or average. Fifteen percent of the men were found to be overweight, as compared to 8% of the women. Teenagers were never depicted as obese, and only 7% were found to be overweight. Of the 537 persons rated, 509 (95%) were presented in situations involving food. Characters were shown with food, eating food, or talking about food. Kaufman points out that the characters "rarely ate a balanced meal, gave full attention to what they ate, or ate explicitly to satisfy hunger" (p. 44).

According to Kaufman, "Television presents viewers with two sets of conflicting messages. One suggests that we eat in ways almost guaranteed to make us fat; the other suggests that we strive to remain slim" (p. 45). Not only are viewers presented with an unrealistically thin body image, they are often presented with one that remains thin despite frequent snacking and unbalanced meals.

Examining 4,294 network television commercials, Downs and Harrison (1985) made several findings involving the frequency of "attractiveness-based messages." On the average, 1 out of every 3.8 commercials involved some form of an attractiveness-based message. Based on this frequency and average viewing habits, Downs and Harrison estimate that children and adult viewers are exposed to some 5,260 attractiveness messages per year (an average of 14 messages per day). Of these, 1,850 messages deal directly with beauty. While it was found that food and drink commercials had the greatest share of body and weight messages, Downs and Harrison point out that "attractiveness stereotypes have permeated virtually the entire television advertising market, making television commercials powerful sources of attractiveness stereotypes" (p. 17).

There may be some cumulative effect of all these messages. It is reasonable to imagine that each of these body image messages is just one strike on a chisel sculpting the ideal body inside a young woman's mind.

Television and other media are not the only source of representations of the ideal body. Institutions have canonized the ideal body. According to Ritenbaugh (1982), insurance companies' ideal weight standards for women show a steady downward trend. Comparing revisions of these weight tables, Ritenbaugh found that ideal weights for women have steadily declined while weight standards for men have fluctuated.

The ideal body is also associated with the good life. Revealing findings on weight averages have been detailed in a report by Fulwood, Abraham, and Johnson (1981) from a National Health and Nutrition Examination Survey. In their study, associations were made between height and weight, and socioeconomic and geographic variables. On the average, the heaviest females (ages 18-74) were those with an income less than \$4,000 and less than 9 years of education. When the years of education increased to 13 or more, females averaged 10 fewer pounds. The heaviest males (ages 18-74) had an income of \$10,000 or more and 12 or more years of education. As income and education levels increased, both males and females were found to be taller. In summary, males in higher social classes with more education are taller and heavier. Women with the same background are taller and lighter. According to Ritenbaugh, changes in weight standards have reflected what is happening in the higher social classes rather than an average across all social classes (p. 357).

We have discussed the media messages that advertise the positive attributes of an ideal body image that is thinner than the average woman. We also have seen how the sociocultural message advocates the health aspects

of weight control, and at the same time develops height and weight standards that steadily decline, a decline that automatically increases the number of people who could be classified as overweight. Given the swirl of social influences, it is not surprising that the message "strive to be thin" is also circulated through interpersonal communication channels via parents, lovers, and the "gaze" of others (Spitzack, 1990).

But more importantly we have yet to consider what may be happening to the audience that lives with these messages of the ideal body image. What are the possible psychological and behavioral effects of these messages?

Struggling to Attain the Ideal Body

The personal effects of the thinning of the ideal body image may be illustrated by the high levels of dieting among women (Garner & Garfinkel, 1980). According to a Nielsen survey in 1978, 45% of all U.S. households had somebody dieting that year. Of all the women aged 24 to 54, 56% were dieting. Of this group, 76% said that they did so for cosmetic rather than health reasons (Schwartz, Thompson, & Johnson, 1982).

Studies show that dieting for aesthetic reasons also occurs early in adolescence. In a study of approximately 1,000 students (one entire grade level of a public high school), Huenemann, Shapiro, Hampton, and Mitchell (1966) conducted a longitudinal analysis of the student "body" as it graduated from the 9th to the 12th grades. Both boys and girls were found to be dissatisfied with their bodies. Fifty percent of the girls described themselves as being fat, while objectively only 25% could be classified as obese or somewhat obese. The number of girls describing themselves as fat increased as the girls became older. In contrast, the same percentage of boys described themselves as too thin.

Another study conducted a year later by Dwyer, Feldman, and Mayer (1967) had similar results. Four hundred and forty-six female senior high school students were interviewed, and tricep skinfold measurements were taken to determine their body fat levels. Thirty-seven percent of the girls reported that they were on a diet on the day of their interview, while 61.4% reported they had dieted some time in their lives. Only 15% of the girls were found to be obese. When asked what was their most important reason for dieting, 43% were concerned with beauty and good looks. Dwyer and colleagues concluded, "Many girls who do not need to reduce for health reasons wish to reduce for purposes of appearance and are trying to do so" (p. 1055). It is important to note that the studies by Huenemann et al. and Dwyer et al. are more than 20 years old, long before the widespread introduction and use of diet soft drinks and diet foods like Lean Cuisine.

The research indicates that both media messages and the target audience of younger females place a high value on physical attractiveness. Studying 342 college students (124 males and 218 females), Lerner, Orlos, and Knapp (1976) found that "the females' self-concepts appeared more strongly related to their attitudes about their bodies' physical attractiveness than its effective-

ness" (p. 324). For females there were more body parts involved in the attractiveness/self-concept relationship than for the males' attractiveness/self-concept or females' effectiveness/self-concept relationships. Once again we can see the emphasis that young females place on physical attributes, and we see these physical attributes playing an important role in the females' self-evaluations.

If media content both reflects and contributes to the apparent pursuit of the ideal body by a large segment of the female population, it suggests that for some this pursuit may become obsessive. Eating disorders, anorexia nervosa and bulimia, often result from a "relentless pursuit of thinness" (Bruch, 1978, p. ix). According to Garfinkel and Garner (1982), weight loss becomes a sign of mastery, control, and virtue:

Pressures on women to be thin and to achieve, and also conflicting role expectations which force women to be paradoxically competitive, yet passive, may partially explain why anorexia nervosa has increased so dramatically. Patients with anorexia nervosa respond to these pressures by equating weight control with self-control and this in turn is equated with beauty and "success." (p. 10)

Bruch (1974) says that "the feeling of all pervasive ineffectiveness is one of the root problems in the development of anorexia nervosa" (p. 1421). With anorexia, weight loss is an attempt to gain self-control and identity. Success or failure at weight control becomes a symbol of the ability to control life in general (Collett, 1984).

Medical records from more than a century ago show that successful weight loss brought a great deal of self-esteem and satisfaction to patients (Casper, 1983). Weight loss, in an attempt to achieve the ideal body image, is more than inches and pounds to the woman with an eating disorder—it becomes a way of life. Starvation, binge eating, and purging become intensely emotional experiences. As the illness progresses and weight continues to decrease, "anorexics become convinced that they are special and different, that being so thin makes them worthwhile, significant, extraordinary, eccentric, or outstanding; each one has a private word to describe the states of superiority she strives for" (Bruch, 1978, p. 79). Levenkron (1982) explains that for the anorexic, all the fears and concerns of life are reduced and equated with her body weight. Success with the external pressures and internal fears of everyday life is measured in inches and pounds. A hard-working perfectionist and overachiever, the anorexic or bulimic works relentlessly toward a thinner body that promises beauty, success, and happiness. The harder she works to lose weight, the farther she gets from the promise. The obsession with the pursuit of a thinner and thinner ideal body sometimes leads to death.

Because anorexics are often thin by all objective standards, their continued pursuit of a thinner ideal body suggests a distorted image of their pre-

sent body. For an anorexic, body size distortion is immediately evident (Wilmuth et al., 1985). Despite her emaciated figure she will comment on how heavy she is and insist on a need to still lose more weight:

Fears that others will become skinnier than she is become a paranoid focus for the anorexic. She continually compares her body with the bodies of other girls and women and sees herself, delusionally, as heavier. (Levenkron, 1982, p. 5)

This type of external/internal conflict has become known as body image or *body size disturbance*. The cause of this condition, just like the definitive cause of eating disorders themselves, is still unknown. It is believed that sociocultural pressures and influences, early interpersonal family relations, and the socialization of women are some of the possible catalysts for eating disorders (Boskind-White & White, 1983; Schwartz, Thompson, & Johnson, 1982).

Different methodologies and varied ways of classifying subjects are just two examples of fundamental differences existing in many of these studies, which have created a lack of consistent and corroborative data. Slade and Russell (1973) have shown that anorexics greatly overestimate their body size (by 25% to 55%) and that overestimation decreased as weight was gained. Garfinkel, Moldofsky, and Garner (1979) disagree and have found that anorexic body size overestimates are quite stable from one year to the next, while estimates in non-eating-disordered controls were more varied. Cash and Green (1986) have shown that underweight subjects significantly overestimated their body size when compared to normal-weight subjects. As one might suspect, these underweight subjects did not think of themselves as thinner than average.

Touyz et al. (1985) found that bulimics overestimated their body size by 11.31%, anorexics by 5.51%. Not only did bulimics have a greater degree of overestimation, they also had a greater desire to be thinner—18.11% as compared to 4.97%. Wilmuth et al. (1985) have conflicting results. In their study, bulimics differed significantly from normal controls, collectively overestimating their body areas (face, chest, waist, hips, and abdomen) by 17.36% while normal controls overestimated by only 7.68%. However, Wilmuth et al. conclude when other studies are taken into account, "body size distortion might be less extreme in bulimia nervosa than in anorexia nervosa" (p. 75).

Despite the methodological differences between studies, a significant trend emerges. Not only do anorexics and bulimics overestimate, but normal non-eating-disordered women also tend to overestimate their body size (Birchnell et al., 1987; Casper et al., 1979; Garner et al., 1976; Halmi et al., 1977; Thompson, 1986). Thompson (1986) found that more than 95% of the non-eating-disordered women he studied ($n = 100+$) overestimated their body size on the average by 25%. Two out of five women overestimated at

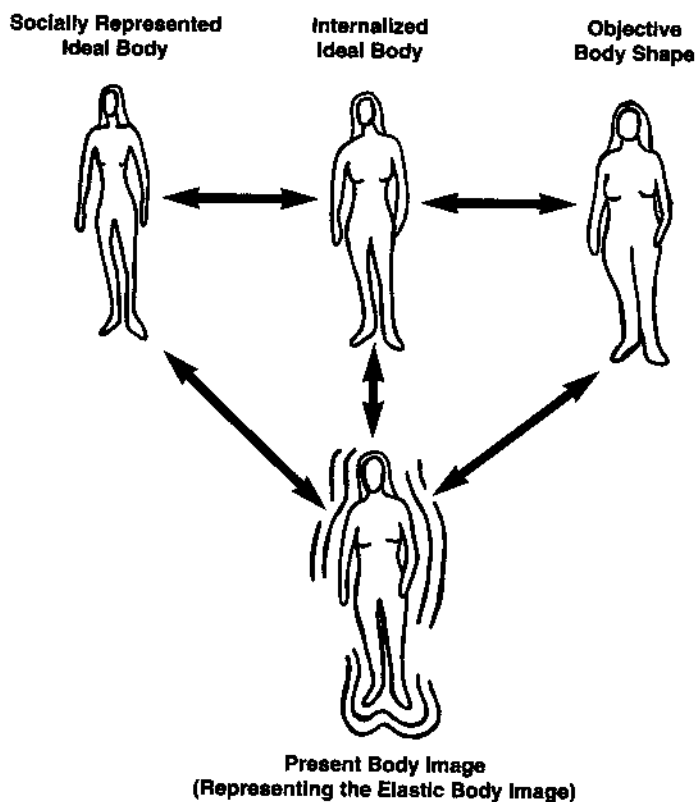


Figure 1. Reference points tugging at the elastic body image.

least one of their four body parts (cheeks, waist, hips, thighs) by at least 50%.

Media and the Elastic Body Image

Recent communication theories have examined the moment-to-moment cognitive processing of television and how individuals construct models of television content (Biocca, 1991; Wicks, 1991). Of special interest to this study is the psychological research that explores how individuals construct mental models of themselves, sometimes called self-schemas (Markus, 1977; Markus et al., 1982). A self-schema is a person's construction of those traits that make the person distinctive and constitute the sense of "me." Individuals build this sense of self from observation of their own behaviors, the reaction of others to the self, and more general social cues that suggest which attributes of the self are most important.

Advertising and programming provide some of the social cues in the construction of the self. These social cues are very important not because they determine exactly what the person perceives herself to be, but because social cues influence which attribute groups will be most important in that individual's self-schema.

Let's focus on one aspect of a young woman's self-schema, her body image. A body image is a mental construction (Bell, 1991), not an objective evaluation. The work on body image distortions reviewed above suggests that body images can deviate substantially from the person's objective physical characteristics. Furthermore, this research also suggests that the body image is unstable and responsive to social cues. We will call this the *elastic body image*.

What are the components of this body image and how might television portrayals influence it? Figure 1 presents a model of what we hypothesize to be reference points in a young woman's body image. In the construction of her present body image, the young woman will draw upon the following reference models: (a) socially represented ideal body, (b) her internalized ideal body, (c) her present body image, and (d) her objective body shape.

We hypothesize that a young woman's body image is moderately unstable and elastic. It may vary with mood, the context of evaluation, and the presence of social cues. The present body image is elastic because its reference points frequently change. With fashion, for example, the internalized ideal body may change from Twiggy to Madonna. With changes in behavior (i.e., binge eating, dieting, exercise, etc.) the objective body shape may also change. The personal ideal body image may fluctuate with mood swings and the influence of peers.

Let's consider one of the components in the body image triangle, the objective body shape. Objective body shape represents a reality limitation on one's perceived body image; however, it is never seen "objectively" but always perceived through the veil of one's body image. To give an extreme example, individuals with amputated limbs commonly report dreams in which they still possess the limb. They make physical movements that show that they sometimes forget that the limb is not there, and more dramatically, they often report pain in a limb that no longer exists (i.e., phantom limb pain). When it comes to a self-schema about the intangibles of the attractiveness of one's objective body shape, the possibility for distortion is only increased.

Individuals internalize a social model of the ideal body image. This internalized model we call the socially represented ideal body. The socially represented ideal body is absorbed from cultural representations of ideals of physical beauty. In our culture the ideal may be represented most forcefully in the mass media. But it is also influenced by each individual's interactions with immediate peers, family, and social reference groups. The review above clearly demonstrated that as far as attractiveness-based advertising and programming is concerned, this socially represented ideal body is

increasingly thin, much thinner than the average objective body shape of the population.

We hypothesize that the individual constructs an internalized ideal body image that represents a compromise between her objective body shape and the socially represented ideal body. The individual negotiates a "possible self" from the socially represented ideal body and the limitations imposed by the chance makeup of one's genetically determined body. This personal body image represents a goal for the individual. Advertising most often represents some ideal future self to the viewer in the process of selling a product that will aid the individual in attaining this ideal future self (Lautman, 1991). It can influence behavior such as dieting, exercise, and the purchase of cosmetic products (Lautman, 1991).

Body image distortions may occur because of the psychological pressure that results from the contrast between the internalized ideal body and the objective body shape. As one's internalized ideal gets further away from one's objective body shape, the individual may experience a kind of self-loathing that exaggerates the perceived "deformity" of one's objective body shape (Laessle, Kittl, Fichter, & Pirke, 1988). This is supported by the observation that anorexics and bulimics, individuals who pathologically pursue an extreme internalized ideal, experience the greatest body image distortion. But body image distortion appears in normal populations as well, especially young females.

We hypothesize that the mass media, specifically through "ideal body" advertising and programming, play an indirect role in the promotion of body image distortions. This role starts with the mass media's influence on young women's development of the internalized ideal body. Content analysis shows a trend toward a thinner and thinner social ideal, especially for women.

Changes in the internalized ideal body may lead to changes in the individual's present body image. This effect has been observed in very young women. In adolescence, when young women are developing a sense of the mature self, they may be highly sensitive to social cues. It has been observed that in adolescence young people are particularly narcissistic, that is, they are in a literal sense preoccupied with their own physical attributes. Freedman (1984) writes:

Narcissism has been called the hallmark of adolescence. As new levels of cognitive reasoning are attained, adolescents paradoxically misinterpret social and body signals, leading to heightened egocentrism and narcissism. (p. 31)

It is important to note, however, that this narcissism is not limited to young females. A multimillion dollar industry that is devoted to adult beauty enhancement is proof of the perpetuation of the narcissism that begins with puberty.

Under the influence of changing body ideals, women may experience significant body image distortions. Here female dissatisfaction is constantly recast as desire, as desire for something more, as the perfect reworking of what has already gone before—dissatisfaction displaced into desire for the ideal (Coward, 1985, p. 13). In a few sad cases, the pathological pursuit of the ideal body leads to illness or death.

While attractiveness-based advertising and programming is certainly not the only or primary cause of these body image distortions and their related diseases (Comerci, 1988; Garfinkel & Garner, 1982), we theorize that attractiveness-based media messages are a contributing factor to these distortions. Our experiment attempted to show how media messages can generate fluctuations in young women's body images.

Media Messages and Body Image Distortion

Sociological research suggests that advertising and programming that emphasize the pursuit of the ideal body may have an effect on young women's perception of their own bodies. This distortion in self-perception reported in the medical literature could be the cumulative effect of individual messages that form and reinforce the ideal of a thin body, an ideal that has gotten thinner and thinner in the recent past. We have seen that some young women may have internalized this ideal body and are pursuing a physical standard that is unrealistically thin for most of them, and significantly below weight standards.

Our theory has suggested that this situation sets up a dramatic conflict inside the mind of a young woman. As the gap between her internalized ideal body and her objective body shape increases, internal conflict increases. This can lead to fluctuations in her present body image, a body image that is tugged toward this internalized ideal and pulled down by her objective body shape. Individual media messages that emphasize the ideal body may aggravate this fluctuation in the perceptions of her own body.

The basic hypotheses are:

H1: Samples of young college women will consistently display the existence of body image distortions, especially a tendency to overestimate body size.

H2: Exposure to body image commercials (BIC) will lead to a greater gap and tension between a viewer's internalized ideal body and her objective body shape. This tension will be manifested as a measurable increase in body size overestimations as compared to subjects exposed to non-body-image (neutral) commercials (NIC).

H3: Exposure to body image programming (BIP) will lead to a greater gap and tension between a viewer's internalized ideal body and her objective body shape. This tension will be manifested as a measurable increase in

body size overestimations as compared to subjects exposed to non-body-image (neutral) programming (NIP).

H4: Exposure to body image advertising and programming will lead to conflict between the internalized ideal body and the objective body shape. The internal conflict will be accompanied by self-loathing or rejection, measurable as a temporary increase in depression, hostility, and anxiety. "Negative body attitudes" have been found to be the strong predictors of depression in anorexics and bulimics (Laessle et al., 1988).

An explication of the classification of programs and commercials as *body-image-oriented* and *neutral-image-oriented* is valuable at this point. For this study, the body image commercial (BIC) or program (BIP) is defined as one that focuses or centers around the ideal, thin female body; one that uses the thin, female body as a primary form of the visual message; and one that particularly concentrates on the explicit representation of the ideal image of thinness.

In a body image program, a significant part of the program is built around the display, viewing, and explicit concentration on the representations of the ideal body. The program highlights the woman's physical self and the story line concentrates on physical appearance. Classic examples, and ones used in the stimulus materials, are the modeling segments of the "Star Search" program and music videos celebrating scantily clad, female models (e.g., Robert Palmer's "Simply Irresistible").

A neutral image program may contain attractive actors but the display, viewing, and concentration on their bodies is not the primary focus of the message. A person's physical attractiveness is not a key vehicle in the visual composition of the image or in advancement of the plot. An example of a program used in our stimulus material is "The Cosby Show."

In body image advertising, attractive female bodies are used in a decorative fashion whether they do or do not relate to an intrinsic property of the product being sold. The best example of a body image commercial (BIC) would be one where there is a slender model who—through fast cuts, pans, and tilts—remains largely faceless and thus without a specific identity—in effect, an ideal. When a face is shown, the identity is often vague enough to accomplish the same effect. An example of a commercial used in the stimulus tape is a Coors beer commercial featuring close-ups of females in bathing suits.

A neutral image commercial (NIC) may contain female models and actresses. Visually, the neutral characters are a closer representation of the actual or average, rather than the ideal, body image. The focus of the neutral image commercial does not begin and end with the female body. Simply, the message does not suggest or focus on the ideals of beauty or success by using an ideal body image. An example of a neutral commercial used in this experiment is an American Dairy Association ad featuring images of families.

Studying the Elastic Body Image

Seventy-six female university students participated in the study. The women were aged 18 to 24 and were members of affluent sororities in a large southern university. The subjects of the study were within the class and age range most commonly associated with body image disturbances. Upon completion of the experiment, small donations were made to a charitable organization of the subject's choice.

Fifty hours of television commercials and programming were taped off the air over a 2-week period. The material included daytime and prime-time programming. From a pool of 770 commercials, 120 were selected by the experimenter, 60 as body image commercials (BIC) and 60 as neutral image (NIC) commercials. Three independent coders, two females and one male, rated commercials in each group. First the coders were exposed to all the commercials. Then the commercials were viewed one at a time and rated on a scale of 1 to 5. For body image commercials, the scale was 1 = *least body-image-oriented*, and 5 = *most body-image-oriented*. For the neutral commercials, the scale was 1 = *least neutral-image-oriented*, and 5 = *most neutral-image-oriented*. Scores were summed, and the highest scoring commercials were selected. This included the top 25% for each category.

Three program categories were selected: prime-time drama/comedy, "Star Search" talent competitions, and music videos. For each category the segments displaying the highest body image orientation and the highest neutral-image orientation were selected. Segments were matched for length.

Four videotapes, each roughly 26 minutes long, were edited from combinations of the body image (BI) and neutral image (NI) commercials (C) and programming (P): (a) BIC-BIP = 26:52, (b) BIC-NIP = 26:28, (c) NIC-BIP = 26:35, and (d) NIC-NIP = 26:05. Each program segment was preceded and followed by a commercial break containing three to four commercials. The final tape for each cell resembled an actual television broadcast. There were 15 body image commercials and 16 neutral image commercials. Eleven of these commercials were matched for product category. For example, a body image commercial for a soft drink was matched to a neutral image commercial for the same or similar product. Each group of subjects viewed stimulus tapes on a 21-inch (diagonal-measure) color television monitor.

To measure mood changes, a standardized measure was used before and after the stimulus tape. The Multiple Affect Adjective Check List (Buros, 1972) requires that subjects check off all the adjectives that describe how they feel at that moment. After taking the Multiple Affect Adjective Check List (MAACL) pretest, subjects completed a questionnaire about demographics, television viewing habits, and dieting behavior.

As part of the cover for the experiment, a continuous programming rating was collected from subjects using a computerized continuous-response measurement system (Biocca, David, & West, 1992). Each subject used a hand-held dial to rate whether she liked or disliked what she saw on the

screen. This also assured that subjects would pay close attention to the programming and commercials.

A body image detection device (BIDD) similar to one tested by Cash and Green (1986) and Thompson (1986) was used to measure the presence of body image distortions. The device allows a subject to visually estimate her body shape. The BIDD device uses three projected bands of light to represent the size of the chest, waist, and hips of the subject. The bands of the light constitute a relatively neutral representation of the subject's body width. The device allows a subject to control the widths of the bands of light from an overhead projector until the projected image represents her perception of her body shape. Adjustable cardboard cutouts allow the bands of light to converge and diverge. Subjects received printed instructions on the use of the device.

Previous research using such a measure has shown that subjects can accurately estimate the dimensions of control objects such as a box or block of wood (Birtchnell et al., 1987; Casper et al., 1979; Slade & Russell, 1973). This indicates that no perceptual distortions are operative. But distortions occur when the estimated form is the self or representations of the human body (Cash & Green, 1986; Thompson, 1986).

An adjustable caliper was used to collect a linear measure of subjects' objective body shape. Standard height and weight measures were also collected.

Subjects were randomly assigned to the four experimental conditions and one control condition. Subjects viewed a tape consisting of a combination of body image and neutral image programming or commercials (BIC-BIP $n = 16$, BIC-NIP $n = 16$, NIC-BIP $n = 13$, NIC-NIP $n = 17$, control $n = 14$). Subjects in the four experimental groups first completed a mood pretest (the MAACL). After completing the mood test, the demographic and media-use questionnaire was administered. Subjects were then told that they would be rating videotapes using a hand-held dial. They received printed and verbal instructions on the use of the computerized audience response system. Subjects viewed the videotape and rated it as they viewed.

After viewing the videotape, subjects were again given the mood test. Upon completing it, they were given an opportunity to list commercials that they remembered from the tape.

Subjects were then sent to one of two rooms set up with a body image detection device (BIDD). Each room containing the device was dimly lit. Subjects stood 2 meters from the wall on which the light bands were projected. All three body measurements were projected simultaneously. An associate of the experimenter blind to the experimental condition operated the equipment under the subject's direction. For reliability, the complete measurement was taken twice, once with the bands converging, the other with the bands diverging. The experimenter took measurements of the three light band widths. Calipers were used to take actual measurements of the

subject's three body areas. Finally, height and weight measurements were taken with a ruler and scale.

Subjects in the control group did not view videotapes and simply completed the MAACL and questionnaire after they arrived at the test site. They then proceeded to the rooms containing the BIDD. Here they followed the same procedure as the experimental groups.

The experiment's test of the hypotheses utilized a 2×2 factorial design with two between subjects factors. The two independent variables were program type (body image or neutral image) and commercial type (body image or neutral image). The effects of the body image message variables on body image perception were analyzed using ANOVA. The dependent variables included three body perception indices constructed from the body size estimations of chest, waist, and hips. The effects of the body image variables on the dependent measures of mood were analyzed using ANCOVA. The dependent variables were measures of anxiety, depression, and hostility derived from the MAACL. Pretests of each measure were used as the covariates.

Body Size Estimates

Data recorded from the BIDD were converted into a body perception index (BPI = perceived size/actual size \times 100). The perceived size was the average of the subject's two estimates of body size. Table 1 shows the percentages of body perception index (BPI) numbers falling within four ranges: <100, 100-110, 111-125, >125. The data support Hypothesis 1, that is, that body image overestimations would be the most common body image distortions.

Hypothesis 2 suggested that exposure to body image commercials would result in greater body size overestimation than would exposure to neutral image commercials, while Hypothesis 3 suggested that exposure to body image programming would result in greater body size overestimation than would exposure to neutral image programming. While body image commercials (BIC) did have a distorting effect, it was in a direction opposite to the hypothesis. Instead of making greater overestimations in body size, subjects in body image cells overestimated to a lesser degree than those in the neutral image and control settings. In addition, commercial messages resulted in a greater degree of deviation in body size overestimations than did the programming.

Figure 2 shows the relationship of the body perception index (BPI) means for chest, waist, and hips according to commercial type. There is a marked decrease in body overestimation following exposure to body image commercials. It is important to note that *all* the conditions produced overestimation of body size (BPI > 100).

Table 1: Body Perception Index by Condition

Condition	n	BPI Range	Chest % n	Waist % n	Hips % n
BIC-BIP	16	< 100	18.8	37.5	31.3
		100-110	18.7	25.0	6.2
		111-125	25.0	31.3	43.7
		>125	37.5	6.2	18.8
BIC-NIP	16	< 100	6.2	12.5	25.0
		100-110	18.8	25.0	6.2
		111-125	12.5	25.0	37.5
		>125	62.5	37.5	31.3
NIC-BIP	13	< 100	0.0	0.0	0.0
		100-110	17.5	23.1	7.7
		111-125	28.7	15.4	30.8
		>125	53.8	61.5	61.5
NIC-NIP	17	< 100	11.8	23.5	17.6
		100-110	5.8	11.8	23.5
		111-125	23.6	29.4	17.7
		>125	58.8	35.3	41.2
Control	14	< 100	0.0	7.1	0.0
		100-110	7.1	14.3	21.4
		111-125	21.5	28.6	28.6
		>125	71.4	50.0	50.0

The body image commercials (BIC) did not significantly affect subjects' perception of chest dimensions, $F(1, 58) = 2.07, p < .16$ (BIC $M = 124.45$, NIC $M = 132.77$, Control $M = 131.82$). But they did significantly affect subjects' perception of their waists, $F(1, 58) = 9.39, p < .003$, (BIC $M = 109.72$, NIC $M = 123.51$, Control $M = 121.95$), and hips, $F(1, 58) = 7.42, p < .009$, (BIC $M = 113.47$, NIC $M = 126.74$, Control $M = 126.07$).

Figure 3 shows the relationship of BPI means for chest, waist, and hips according to program type. Here the degree of variance in overestimations is less pronounced than with commercial type.

Body image programming did not significantly affect short-term body image perceptions of the subjects' chests, $F(1, 58) = 0.43, p < .52$, (BIP $M = 126.52$, NIP $M = 130.2$, Control $M = 131.82$), waist, $F(1, 58) = 0.02, p < .89$, (BIP $M = 116.06$, NIP $M = 116.68$, Control $M = 121.95$), or hips, $F(1, 58) = 0.11, p < .74$, (BIP $M = 119.02$, NIP $M = 120.66$, Control $M = 126.07$).

There was a significant interaction of body image programming and body image commercials when subjects estimated their waist dimensions (see

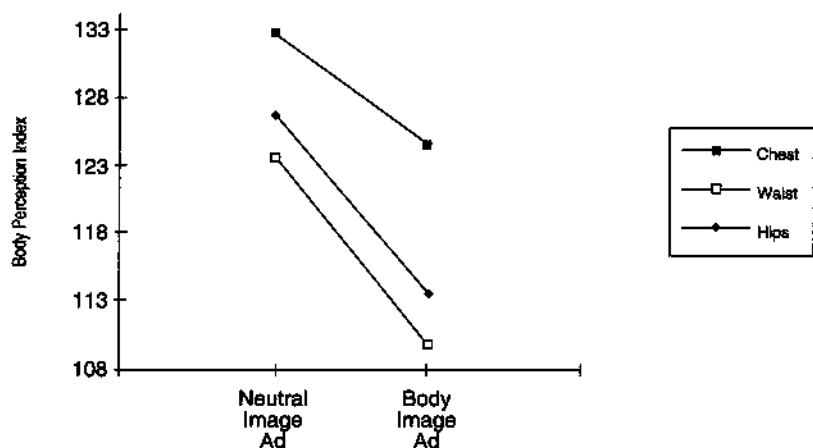


Figure 2. Effect of commercial type on subjects' body image perception of their chests, waists, and hips.

Figure 4). The exposure to this combination (BIC-BIP) led subjects to significantly lower the estimates of their waist levels, $F(1, 58) = 11.59, p < .001$.

Affecting Mood?

The standardized mood measure was scored by the standard method of assigning a point to mood-congruent adjectives that were checked off and a point to mood-incongruent adjectives that were not checked off. A mood-congruent adjective is an adjective that describes the mood (for example, anxiety:*afraid*). A mood-incongruent word is one that expresses an emotion opposite to a particular mood (for example, anxiety:*secure*). Scores were calculated for pretest and posttest depression, hostility, and anxiety levels.

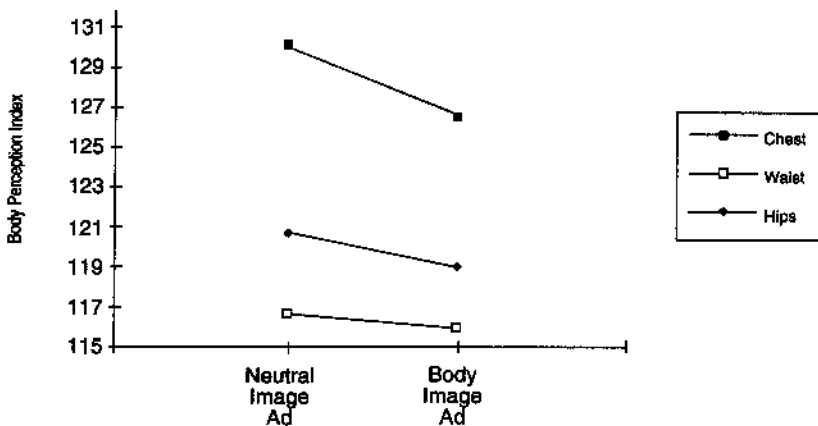


Figure 3. Effect of program type on subjects' body image perception of their chests, waists, and hips.

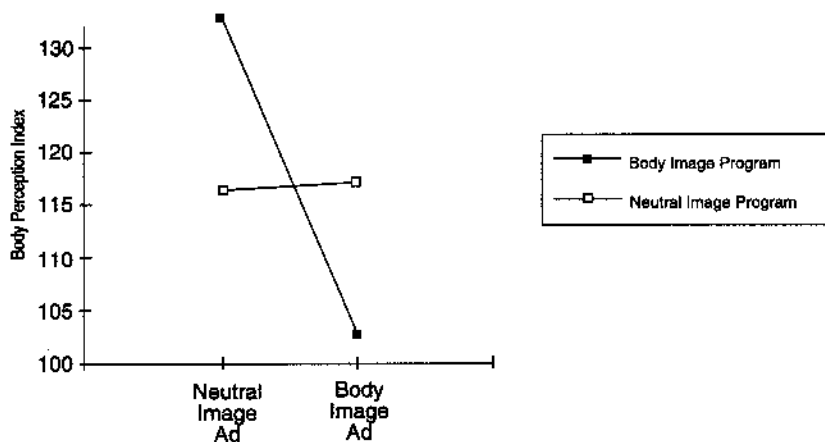


Figure 4. Interaction of program and commercial type on the subjects' body image perception of their waists.

The presence of body image commercials led to lower levels of depression, $F(1, 57) = 7.67, p < .008$. The posttest least square adjusted means for body image commercials and neutral image commercials were 15.22 and 16.83, respectively. There were no significant differences in depression between the two types of programming, BIP or NIP, $F(1, 57) = 0.12, p < .73$. The posttest least square adjusted means for BIP and NIP were 15.89 and 16.18, respectively. Figure 5 shows the relationship between depression levels and commercial and programming types.

There were no significant differences caused by commercial type or programming type on subject hostility levels (commercial type: $F(1, 57) = 0.42, p < .52$; program type: $F(1, 57) = 0.34, p < .56$). The posttest least square adjusted means for BIC and NIC were 9.68 and 9.58, respectively. The posttest least square adjusted means for BIP and NIP were 9.91 and 9.35, respectively.

Subject anxiety levels were not significantly affected by commercial type or programming type (commercial type: $F(1, 57) = 1.37, p < .25$; programming type: $F(1, 57) = 0.72, p < .40$). The posttest least square adjusted means for BIC and NIC were 7.45 and 7.89, respectively. The posttest least square mean for BIP and NIP were 7.47 and 7.87, respectively.

Advertising and Body Image Distortion

The results are both surprising and interesting. As expected, this sample of young females tended to overestimate their body size. This is consistent with previous studies (Birtchnell et al., 1987.; Casper et al., 1979; Garner et al., 1976; Halmi et al., 1977; Thompson, 1986) and has been shown not to

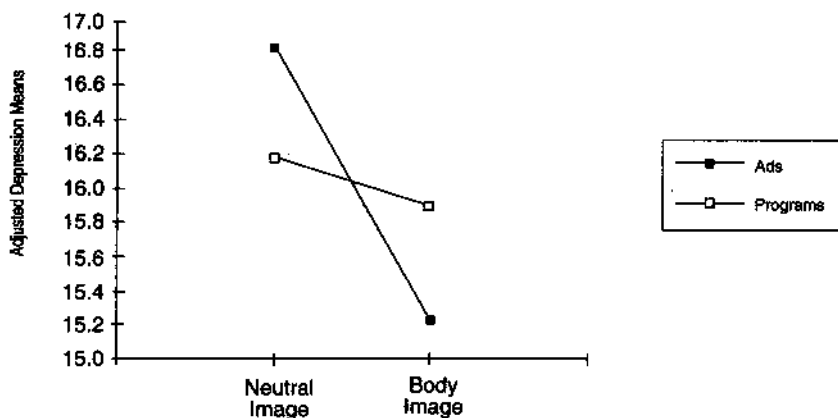


Figure 5. Effect of commercial and program type on the subjects' depression levels (adjusted for preexperiment reports of depression).

be an artifact of the measure (Birchneil et al., 1987; Casper et al., 1979; Slade & Russell, 1973).

This study also shows that a young woman's image of her own body is clearly elastic. *Body shape perception can be changed by watching less than 30 minutes of television.* If the mental construct of a woman's body image is responsive to cues, television appears to be a significant carrier of those cues. It has been suggested that a young woman's body image emerges from various social cues and from self-observation over time.

But what is remarkable, and potentially disturbing, is the fact that we see evidence of fluctuations in women's body images after brief exposures to advertising and programming, key agents in the social dissemination of the ideal body. This suggests that television messages that are fixated on the representation of the ideal female body immediately led the female subjects to thoughts about their own bodies. This in turn led to the measurable fluctuations and disturbances in their body image. In their mind's eye, their body shape had changed.

The measures of the young women's changed body image suggests an ironic and interesting twist: Body image advertising made the young women *feel thinner* than they "normally"¹ do (as compared to control subjects). This is a provocative result and different from what we originally hypothesized.

Because personal body images have been shown to be elastic, we hypothesized that the young women would tend to reject their present bodies. We originally thought that in the high-contrast lens of media presenta-

¹ We should remember that "normal" in this case refers to an unhealthy situation where almost all young women tend to overestimate the size of their body. Differences are in the amount of overestimation.

tions of the ideal body, the young women would see their own bodies as larger than they really are. Body image measurements would detect this change. If the young women tended to reject their objective bodies when faced with a persistent representation of the ideal, this rejection would be accompanied by increases in anxiety, depression, and hostility. On the contrary, we found that advertising's presentations of the ideal body image led to a light euphoria, a lessening of depression levels.

What could have produced this surprising and intriguing result? One possible explanation is that body image advertising has a *therapeutic value*, that advertising helps to bring young women's body images closer to their objective body shapes. Such an interpretation lacks face validity. Advertising does not seek to reconcile individuals with their present body image (e.g., Lautman, 1991); on the contrary, it seeks to foster new desires, needs, and worries, ones that can be answered by the purchase of a product (Ewen, 1976; Leiss, Kline, & Jhally, 1986). The classic recipe for dissatisfaction, the "problem-solution ad" is a textbook formula (Burton, 1983) for creating social worry, need, and desire in the audience.

Then what could have made the young women see themselves as thinner after exposure to ads emphasizing a thin body? The mood measures provide us with a clue regarding the psychological dynamic tugging at these young women's body images. The measure of mood detected no evidence of self-loathing (anxiety, depression, and hostility) that might have accompanied rejection of one's present body shape. So subjects did not exhibit an increased unease about themselves following exposure to media representations of the ideal body. On the contrary, there is evidence of a slight euphoria caused by ideal body commercials that appeared to have lowered depression levels.

Herein lies the clue. The young women may have imagined themselves in the ideal body presented by the advertising. They may have bought the ideal female body sold by the advertising. Our model (Figure 1) suggests that a woman's body image is an elastic construct, a compromise between her internalized ideal body and her objective body shape. The young women may have seen the ideal as more attainable and within reach. The commercials invited them to fantasize themselves in their future ideal body. The significant drop in depression levels suggests that subjects exposed to the body-image commercials felt better about themselves immediately after exposure to the 15 ideal-body ads. The commercials' cumulative message of "You can be thin" may have developed greater feelings of self-control in the young women. "You can be thin" may have been translated as "I am getting thin" and, maybe, even "I will be thin." In the body image measurement task, these subjects may have consciously or unconsciously projected a self-perceived body image that was closer to the ideal marketed in the commercials, an ideal they had internalized.

If this interpretation of the data is correct, then the results from the body image programming fit as well. The body image programming was not tied

to an agenda of personal change as were the commercials. The programs did not "sell" a future, thinner self as did the dieting, exercise, and cosmetic ads. There may have been less of a drive to adopt and internalize the representations of the ideal body shape.

The form with which commercials and programs addressed their audience was significantly different on another key psychological point. The ideal-body commercials and programs differed in the point of view they suggested for the viewer. Point of view has been identified as a powerful cue influencing the viewer's psychological construction of advertising messages (Biocca, 1991). The point of view in the commercials was the "first person, identity" point of view. The commercials "speak" directly to the viewer as an individual. Psychologically, the viewer is part of the commercial; it addresses her and invites her to take action. On the other hand, the ideal-body programming tended to present a "third person, voyeur" point of view. The viewer is psychologically positioned as a voyeur of someone else's reality. She is not directly addressed by the characters. They do not stare out from the TV screen and say, "Buy this and transform yourself." On the contrary, through the eye of the camera the viewer floats inside a world in which the ideal body struts, but in which she herself is a disembodied voyeur.

While the effect of programming was much weaker than that of the commercials, the two did interact to make the young women produce significantly lower estimates of their waists.

Technologies of the Self

These results and previous findings on body image disturbance suggest that the building of a distorted body image may occur in two stages. In the first stage, the young women generate, absorb, or reinforce a mental representation of the ideal female body. It should be acknowledged that the advertising industry consciously targets the body image of its female audience. A president of a major marketing research and consulting firm argued the following in a *Journal of Advertising Research* article on how to use "body shape as an end benefit":

User imagery is created by advertising through prototypical bonding or, more specifically, by associating certain traits, such as a particular body shape, with a user. Both product users and nonusers internalize these body shape images (ideal or actual) and then use them to help define their self image of who and what they are and are not. Thus, many spokespersons, presenters, and product representatives are selected on the basis of their physical appearance, imagery, and, most importantly, their perceived ability to bond the consumer to the advertised product by communicating

body shape benefits in a convincing and motivating manner. (Lautman, 1991, p. 12)

This process of internalizing and adopting a social ideal probably incorporates the construction of a mental model (Biocca, 1991; Johnson-Laird, 1983) that may involve visualizing oneself in the socially represented ideal body. During this stage, which may accompany the viewing of media messages, the young women "bond" with the models (Lautman, 1991) and fantasize themselves as thin, beautiful versions of themselves. It is at this stage that the ideal puts its hook in the young women's self-image (self-schema) by influencing the model of the ideal self they wish to become.

Because we measured their moods *immediately after exposure*, the slight euphoria we detected may have come from a Walter Mitty-like identification with the ideal body. At this stage, the elastic body image may migrate toward the internalized ideal. This would explain the finding that subjects exposed to ideal-body advertising saw their bodies as thinner when projecting an image of that body on a screen during our body image measurement task.

The self-loathing that comes from the rejection of a young woman's objective body shape, the rejection that contributes to the widely measured overestimations of body shape, may occur at a later stage. After the upbeat feeling fostered by advertising's selling of the ideal body has worn off, many young women are faced by the cold reality of the mirror, a reality that conflicts with the social ideal, a social ideal internalized through many social sources, of which advertising is only one (Spitzack, 1990). At this second stage, the contrast between one's real and ideal body may lead to the depressive and unhappy views of their present body, discontented views found among many dieting women (Spitzack, 1990) but especially those with eating disorders (Laessle et al., 1988). Here is an example of the kinds of frustrated, depressive feelings that may accompany the second stage when the dieting, exercise, and beauty aid products are now part of a relentless pursuit of the ideal:

I spent a lot of time asking myself if I was exercising enough or eating too much, and then I started thinking, oh my God, now I'm really trapped. I've made a commitment to these things and there's no way out. I was locked into these rituals as if my life depended on them. If you just throw up your hands and decide to stop, then you're going to feel bad about yourself.
(quoted in Spitzack, 1990, p. 78)

The findings speak to mass communication theory's continuing debate about how media content reflects and constructs social reality (McQuail, 1987). Even more urgently, the finding adds some detail to rich discussions that have grown out of Michel Foucault's work on "technologies of the self"

and how our sense of the self is socially constructed (Foucault, 1979, 1980, 1986).

This first stage of the advertising effect can be described as a form of cultivation (Gerbner, Gross, Morgan, & Signorielli, 1980; Signorielli & Morgan, 1990). Cultivation theory would predict that the young women in this study would adopt a "mainstream" view of social reality. In this case the "mainstream" view is the socially circulated ideal body. Cultivation theory would also predict that these young women would probably overestimate the percentage of the female population whose body "measures" up to the ideal. While the effect detected here can be seen as part of the family of cultivation effects, cultivation theory does not yet have a rigorous cognitive theory to explain the cognitive dynamic involved in the construction of a body image or a young woman's self-schema. Some researchers in the cultivation area have called for richer psychological theories of the cultivation phenomenon (Hawkins & Pingree, 1990; Shapiro, 1988).

The surprising and intriguing twist to the results suggests that the processes are psychologically complex. More needs to be known about how the media content influences the elastic body image and how this image fluctuates over time. Different outcomes may immediately follow exposure when the ideal-body construct received from the message is highly accessible (Sanbonmatsu & Fazio, 1991), especially among those prone to use media cues to think about their own body (i.e., body image schematics; see Markus et al., 1987). These immediate outcomes may differ from self-concepts that emerge later, when the message information interacts with nonmediated sources of information and the viewer's direct observation of physical and social reality.

Finally, the finding also suggests that we should go further inside the mind of the viewer (Biocca, 1991) to explore television's effects not just on changing moods (e.g., Kubey & Csikszentmihalyi, 1990) or shifting attitudes (e.g., Petty & Cacioppo, 1986) but also on short-term changes in self-perceptions. We may find that, like these young women's body images, a viewer's self-schema is more elastic than we have believed, and that television is indeed a "technology of the self."

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