

The Development of Ideal Body Image Perceptions in the United States

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The perception of “ideal” body image is developed over time and may change during the course of one’s lifetime. Some current influences on the development of ideal body image are explored. Resources are provided to assist the formation of realistic body images, thus increasing self-esteem and hopefully decreasing the rise of eating disorders due to body image dissatisfaction. *Nutr Today*. 2010;45(3):98–110

Body image refers to a subjective concept of one’s physical appearance based on self-observation and the reaction of others. “Ideal” body image is the phrase used to refer to the body size determined by one’s cultural group to epitomize beauty and/or success in achievement of the optimum physical state as defined by that group. The “ideal” body image can vary between cultural groups, within ethnic groups, and within any other group to which one belongs. Where do Americans derive their perception of ideal body image? What are some of the factors that influence the perception of ideal body image as one develops along the life span? How can health professionals, parents, teachers, and friends affect the development of healthy, positive body images among American youth? This article examines a variety of the influences affecting the development of the American ideal body image perceptions at different stages of the life cycle. The identified influences might have similar effects on the population in other countries that purchase American products, watch American television and movies, listen to American music, read American periodicals, and visit our country. The globalization of today’s marketplace hastens the popularity of selected role models and the pursuit of the ideal body image in vogue at the time. Understanding the factors influencing the development of a healthy body image is of interest to many disciplines, educators, and target groups throughout the world.

Body Image Satisfaction and Dissatisfaction

The concept of ideal body image directly impacts a person’s body image satisfaction or dissatisfaction. For the purposes of this article, body image satisfaction refers to one’s personal body image being similar to one’s concept of his/her ideal body image. In addition, one’s ideal body image represents the physical ideal that one seeks to emulate, be that a high-fashion model, celebrity, movie star, elite athlete, fitness professional, or other such role model. Body image dissatisfaction refers to the degree one’s personal body image differs from one’s perceived ideal body image or one’s subjective feelings of dissatisfaction with one’s physical appearance. Body dissatisfaction is a precursor for negative self-perception or self-worth and can lead to the development of eating disorders.^{1–3}

Ultrathin, ideal body image models and actresses have increasingly been featured in the media from the early 1900s with the thin, short-haired flapper to Twiggy in the 1960s to the majority of today’s fashion models, centerfolds and celebrities being 15% or less of their expected body weight in regard to their age and height, a major characteristic for anorexia nervosa. There was a short departure from the very thin media-portrayed ideal body image during the Marilyn Monroe era of the 1950s, but the usual trend in the media has been to portray thin, toned, fit females while at the same time observing continued weight gain in all segments of the American population. The detrimental effect of this discrepancy, exacerbated by greater media exposure, has been increased body dissatisfaction, leading to an increase in dieting, use of weight-loss products, and eating disorder tendencies among adolescents, women, and men.² The dieting industry is a multibillion-dollar business in the United States. The unrealistic, unattainable, and unhealthy ideal body image projected by the media has pervaded television, movies, the print media, and the Internet. The effect on girls and women of having a

subconscious ideal beauty standard has been studied by many researchers. Bryd-Bredbenner et al⁴ report changes over the past 80 years in the anthropometric measurements of idealized females and young women. The anthropometric measurements for the idealized female body images in the media (ie, *Playboy Magazine* Playmates of the Year, “Miss America” pageant winners, and fashion models) all declined significantly over time, whereas the body mass index (BMI) has steadily risen for young American women in general.⁴

In a recent survey on body image conducted by the Girl Scouts of America, most girls (59%) reported that they were dissatisfied with their body shape; 66% wanted to lose weight; 65% correctly identified themselves as being either normal weight or overweight; and 33% had a distorted image about their weight. Girls younger than 18 years were more affected by media stimuli using thin models than college-age and older women. Promotion of false images (airbrushing, digital enhancement) that few women can obtain propels many young women into eating disorders and promotes an irrational fear of being fat.^{5,6} Bennett et al⁷ report a global study in 2004 by the Dove “Real Beauty” campaign, where 42% of first- to third-grade girls state they want to be thinner and 81% of 10-year-olds are afraid of getting fat. Only 2% of women and girls in this study would describe themselves as beautiful.⁷

The differences in ethnic subgroup perceptions of ideal body image have recently been studied by several researchers in the United States. White, Hispanic, and black American women have different cultural values that affect their ideal body image perception. Schooler⁸ reported girls’ body satisfaction, acculturation, and use of mainstream, black-oriented and Spanish-language television in a recent study of 81 girls 11 to 17 years of age. Of the group being studied, 52 girls were followed up for 2 years. Frequent viewing of mainstream TV was associated with decreases in body image satisfaction. On the other hand, frequent viewing of black-oriented TV was associated with greater body satisfaction. Grabe and Hyde⁹ conducted a meta-analysis of ethnicity and body dissatisfaction among women in the United States on studies published since 1990, with the exception of 2 articles. More than 50% of the studies were published after 2000. Their analysis of 98 studies suggests that what once was known as the “golden girl problem” no longer exists. Women from all ethnic groups studied (white, Asian American, Hispanic, and black American) had similar body dissatisfaction levels; however, black American women were more satisfied with their body size than white women.

Bessenoff and Snow¹⁰ examined the relationship between self-discrepancies and body shame. Their study demonstrated that when women’s personal body ideals

and perceptions of the cultural standard were so difficult to attain, the women who internalized the cultural standards for weight and appearance were most likely to fail to achieve them, leading to negative emotional consequences, body shame, and to disordered eating behaviors. Lynch et al¹¹ studied the difference in body size perception between African American and white women to understand the disparity in obesity prevalence between the 2 groups. They found that whites had greater body dissatisfaction and thus more attempts to lose weight than the African American women over the 13-year study period. The researchers also found that body size perception predicted weight change over time in the young adults followed in the CARDIA (Coronary Artery Risk Development in Young Adults) study. One possible explanation presented was that white women placed more cultural emphasis on thinness and thus increased their anxiety, had less self-efficacy, and had less ability to rationally cope with their body weight that resulted in body image dissatisfaction, consequently leading to greater weight gain. Many successful ethnic minority celebrities appear more comfortable with their personal body image that often does not meet the “ideal golden girl” body image. These women can serve as excellent role models for size acceptance and by achieving a healthy weight. Currently, Michelle Obama, the First Lady of the United States, serves as an excellent healthy, physically fit black American female role model.

Body Mass Index Changes Over Time

As stated previously, Americans are heavier now than ever before. More than 66% of adults in the United States are overweight, and more than 32% are obese.^{12,13} Anthropometry is one way to assess nutritional status in children and adults. Body mass index is commonly used as a method to evaluate healthy body weight and to simply express the relationship of weight-to-height. Body mass index is the weight in kilograms divided by the height in meters squared (kg/m^2); or weight in pounds times 705 divided by the height in inches squared ($\text{lb} \times 705/\text{in}^2$). The lowest health risk category occurs with BMI between 20 and 25. People with a BMI within this range have lower rates of chronic disease. The ideal BMI for US women is between 21.3 and 22.1, and for US men, between 21.9 and 22.4.^{14,15} The international classification for overweight is a BMI of greater than or equal to 25.0, and for obese, a BMI greater than or equal to 30. Underweight is classified as a BMI of less than 18.5.¹⁶ Weight, height, BMI, and girth measurements all have their place in evaluating health status and level of nutritional risk.

There are times when BMI might not reflect an accurate picture of nutritional status. A small percentage

of the US population has a BMI of less than 18.5. The World Health Organization reports the most recent data reflect that 2.38% of the US population was underweight according to their BMI classification. Among that group, 3.26% were women, and 1.48% were men.¹⁷ A low BMI indicates the person should be further evaluated for being underweight and possibly having concern for under nutrition. Genetics plays a role in the determination of health, and sometimes, a low BMI is not unhealthy for an individual. On the other side of the equation, athletes are a subgroup of the population whose body weight appropriateness is not best measured by BMI. Muscle weighs more than fat so the muscular athlete has a higher BMI than a nonathlete of the same weight and height. For most muscular athletes, their BMI places many of them in the overweight or obese category. These individuals are not overweight or obese, but have a high level of active muscle. Body composition is one measure used to assist health providers in determining an individual's health status, and clinical judgment should be used to interpret the value of BMI for each individual. Body mass index values should be placed into proper perspective when working with different population subgroups and ethnicities.

The BMI of "Miss America" has steadily decreased over the past 80 years. In the 1920s, the BMI of the Miss America pageant winners was around 22, now considered within the normal BMI range (BMI, 18.5–24.99).^{14,15} The downward trend reached a low of 16.9 in the 2000s. Many contestant winners fell below the World Health Organization's cutoff for underweight (BMI ≤ 18.5).^{18,19} The ideal body image that the contestants and winners of the Miss America pageant project by their actual body size is one of extreme thinness. The Public Broadcasting

Service Web site, promoting the film, "Miss America," at http://pbs.org/wgbh/amex/missamerica/sfeature/sf_list.html,¹⁵ provides the average vital statistics for the 75 women who won the "Miss America" title up to 2002. The composite winner is 20 years 3 months old, with an average weight of 121 lb; height of 5 ft 6.5 in. The last body measurements for bust, waist, and hips of the winners were reported in 1986 on this Web site. The height and weight measurements were provided until 2002. Figure presents the decline in BMI of Miss America pageant winners from 1922 to 1999.¹⁹

The 2008 Miss America, Kirsten Haglund, had a BMI of 16.29 (moderate thinness) when she assumed her reign. As a recovering anorexic, she chose eating disorders as her social platform and has become a well-received spokesperson for the National Eating Disorders Association. Her platform has been "Healthy Living, Healthy Body Image and Lifestyle" as the ideal goal for a productive, successful life.^{5,18–20} She has served as an effective role model for young women on how to successfully manage an eating disorder.

The Role of Dolls and the Development of Perceived "Ideal" Body Image

The ideal body image perception of Americans starts to develop at an early age, perhaps when children begin playing with dolls. When one looks at a favorite American doll used in play by our children, what body image is projected? The Barbie Doll debuted in 1959 at the New York International American Toy Fair. It was the one of first American dolls modeled after the teenage fashion model.²¹ The Barbie Doll and its many variations,

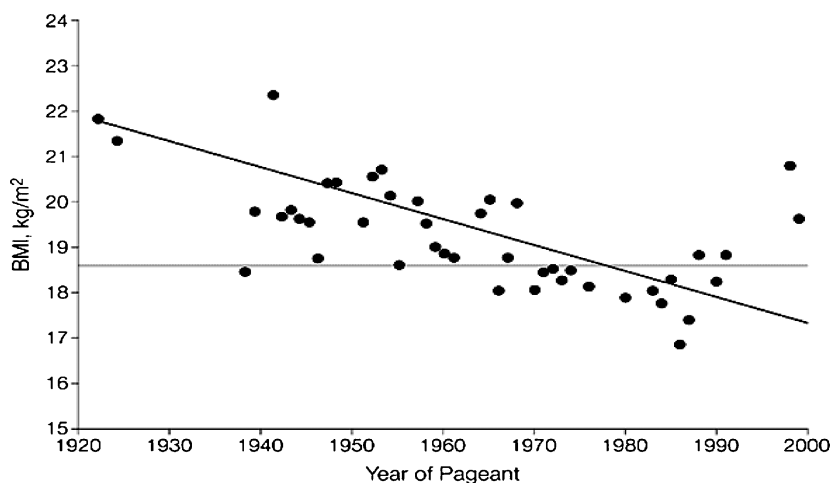


Figure. Trend in body mass index (BMI) of "Miss America" pageant winners 1922 to 1999.¹⁹ The horizontal line represents the World Health Organization's BMI cutoff point for under nutrition (18.5). Adapted from JAMA.¹⁹

created by Mattel toy maker, have been extremely successful over the past 50 years. Similar dolls are now made by other manufacturers. However, the body proportions of the Barbie Doll, including the elongated neck, the large breasts, and the small waist, are not representative of the average American woman's physique. Table 1 compares the average American woman's physical measurements, based on the National Health and Nutrition Examination Surveys conducted by the Centers for Disease Control and Prevention's (CDC's) National Center for Health Statistics from 2003 to 2006 and compiled in the National Health Statistics Report,^{22,23} with the estimated physical measurements of the Barbie Doll²⁴ and the average body measurements (bust, waist, and hips) for the winners of the "Miss America pageant" from 1921 until 1986.¹⁸

The perceived ideal body image conveyed subconsciously to young girls playing with dolls is an area in need of further research. Questions such as the following need more study. Would a young girl choose the slim, tall doll over a more robust doll? At what age and what determinants affect her choice of a doll? In addition, if the slim, tall doll is chosen more often, the reason or reasons why young girls select the slimmer doll need investigation. The ideal body image perception developed by young girls from playing with ultrathin dolls with an unnatural body proportion and an unhealthy BMI may influence their self-esteem, as well as the formation of their own ideal body image as they mature. The ideal body image conveyed through the ultrathin dolls is not one that is achievable by most maturing young ladies. The discrepancy between perceived and realistic ideal body image may lead to body dissatisfaction, depression, and eventually eating disorders.²⁵

Male dolls produced along the Barbie Doll line are similarly proportioned to appear tall and slim. Young boys might perceive this physical profile as being their

ideal body image. On the other hand, the Batman doll or other more muscular action-figure dolls convey a different body image. The more muscular male dolls, when compared with the average American male, also present a skewed body image picture. Table 2 compares the Batman doll and the GI Joe doll measurements with the average American male based on the National Health and Nutrition Examination Surveys conducted by the CDC's National Center for Health Statistics from 2003 to 2006 and compiled in the National Health Statistics Report in October 2008.^{22,23} The CDC's Body and Mind program activity presented in "If These Dolls Were Real People"²⁵ was used to project a real person's body measurements for the muscular Batman and GI Joe dolls to compare their dimensions with measurements of the average American male. The muscular body image of the male dolls is the ideal body image that young males playing with the dolls would most likely normalize and probably desire to emulate. Similar to females, young males' perception of ideal body image formed from playing with muscular action figures might be unachievable when they reach maturity, also contributing to possible body dissatisfaction, dysmorphia, and depression. The Body and Mind program activity investigates how media and entertainment can influence perceptions of ideal body image and how these perceptions affect mental and physical health. Students involved in this activity can compare measurements of popular dolls with the average measurements of adults in the United States and discuss how unrealistic proportions might affect their own perception of "normal" or ideal, as well as their own mental and physical health status. This educational activity can assist our young people in evaluating the various body images and body sizes that they are exposed to in a realistic manner.

Dolls are also made in the body image of star athletes, politicians, movie actresses, and pop singers. The impact

Table 1. Comparison of Body Measurements for the Average American Woman, Barbie Doll, and the Average "Miss America"

Measurements	Average American Woman	Barbie Doll	Average "Miss America"
Height	5 ft 3.8 in (162.2cm) ^a	6 ft (182.88 cm) ^b	5 ft 6.5 in (168.9 cm) ^c
Weight	164.7 lb (74.7 kg) ^a	101 lb (45.91 kg) ^b	121 lb (55 kg) ^c
Bust	39.5 in (100.33cm) ^b	39 in (99.06 cm) ^b	34.66 in (88.04 cm) ^c
Waist	33 in (83.82 cm) ^b	18 in (45.72 cm) ^b	23.83 in (60.53 cm) ^c
Hips	42 in (106.68 cm) ^b	33 in (83.82 cm) ^b	35.12 in (89.21 cm) ^c
BMI	28.4	13.74	19.29

^aData from the National Center for Health Statistics.²²

^b<http://www.dietbites.com/size-average-woman.html>.²⁴

^chttp://www.pbs.org/wgbh/amex/missamerica/sfeature/sf_list.html.¹⁸

Table 2. Comparison of Body Measurements for the Average American Man, Batman Doll, and GI Joe Doll

Measurements	Average American Man	Batman Doll	If Batman Doll Were a Real Person ^c	GI Joe Doll	If GI Joe Doll Were a Real Person ^c
Ratio		5.34		17.35	
Height	5 ft 9.4 in (176.3 cm) ^a	13 in (33 cm)	5 ft 9.4 in (176.3cm)	4 in (10.16 cm)	5 ft 9.4 in (176.3cm)
Weight	194.7 lb (88.3 kg.) ^a				
Chest	43.3 in (109.73 cm) ^b	9.25 in (23.5 cm)	57.2 in (145.29 cm)	4 in (10.16 cm)	69.4 in (176.3 cm)
Bicep	13.43 in (34.1 cm) ^a	3.75 in (9.53cm)	26.8 in (68.07 cm)	1 in (2.54 cm)	17.35 in (44.07 cm)
Waist	39.69 in (100.8 cm) ^a	7.25 in (18.42 cm)	30.3 in (76.96 cm)	2 in (5.08 cm)	34.7 in (88.13 cm)
BMI	28.4				
Foot		2.5 in (6.35 cm)	20.02 in (50.85 cm)	1 in (2.54 cm)	17.35 in (44.97 cm)

^aData from the National Center for Health Statistics.²³

^b<http://www.dietbites.com/size-average-man.html>.²⁴

^cData from the Center for Disease Control and Prevention's Body and Mind.²⁵

of these dolls and action-figure play toys on the healthy development of ideal body image among our youth needs further study.

Modeling Industry and Idealized Body Type

Another strong influence on developing ideal body image perceptions comes from the modeling industry. Ultrathinness has been the ideal body image projected by the modeling industry for many years. The “lean” body type is the predominant body image sought in the hiring of models to market clothing, jewelry, cosmetics, and other products because of the seemingly ideal thin body image conveyed in the print media and supported by popular demand. In 2006, Madrid’s Fashion Week banned models considered dangerously thin from catwalk shows. The ban in Spain came weeks after 22-year-old Uruguay model, Luisel Ramos, with a BMI of 14.5, died of a heart attack in August 2006 moments after stepping off a catwalk. Her death came shortly before Brazilian model Ana Carolina Reston died at the age of 21 years in November 2006 with a BMI of 13.4. Reston was 5 ft 8 in tall and weighed only 88 lb at the time of her death. Models auditioning for Madrid Fashion Week are now examined by doctors, and those with a BMI that is too low are not permitted on the runway. Guidelines now state that fashion models in Madrid, Spain, as well as in Milan, Italy, need to have a BMI of 18 or higher to work as a model. In March 2008, Italy also introduced a US \$1.5 million campaign against eating disorders. Italy also has banned newspaper and television stations showing women who are under size 4 to 6 in an effort to provide the public with realistic images of women. The Health Minister of Germany has issued guidelines for fashion model sizes to be at least a size 2 and the models to be older than 16 years to walk on runways.^{5,26–32}

In January 2007, the Council of Fashion Designers of America released a list of recommendations as part of a new health initiative to prevent anorexia, bulimia, and smoking. The guidelines, which are not binding for the industry, include keeping models under 16 off the runway, educating those in the industry about eating disorders, and prohibiting smoking and alcohol use by models during fashion shows. Americans concerned with inappropriate ideal body image being projected by the modeling industry need to voice their concern for the model sizes and the unattainable image of perfection that is being marketed to our youth and women of all ages.^{26,29,30} However, the fashion industry’s reinforcement of the underweight body size with size labeling intensified in the marketplace several years ago

with “zero-sized” fashions, taking skinny fashions to a new low.³³ The self-perception and mind set of being a “zero” size appeal to the young person who might be trying to distinguish themselves as being a zero or nonexistent person, an individual who wants to be the smallest fashion size possible, or an individual with a body image perception disorder that might combine with an eating disorder. American women are constantly bombarded by images of the “ideal American woman,” with only a small percentage of the women physically able to possibly attain this projected ideal.

Role Models in Print Media, Visual Media, and the Internet

The American female is also bombarded with media advertisements from the food, fashion, and cosmetic industry. Food ads occur nearly 80 times more often in women’s magazines than in men’s magazines. Diet food ads appear 63 times more frequently in women’s magazines, and women’s magazines include 12 times more articles and ads focusing on weight, dieting, and body size than do magazines targeted to the male audience. The media consistently portrays the extremely thin woman as the ideal body type. Changes in anthropometric measurements, including BMI, of the “idealized” female body has declined significantly over time, which is opposite the increasing body size of American women.⁴

The role of mass media related to body dissatisfaction begins with young girls reading fashion magazines at the elementary school-age group. Pictures in magazines and articles on weight control along with dieting techniques directly impact the body shape beliefs of young girls. Field et al³⁴ reported that 69% of girls reading magazines stated that pictures influenced their idea of the perfect body shape, and 47% reported wanting to lose weight because of the magazine pictures. The frequency of reading fashion magazines was positively associated with the prevalence of dieting to lose weight, going on a diet because of the magazine article, increasing exercise to lose weight or improve body shape, and deciding to exercise because of the magazine article. Utter et al³⁵ evaluating data from Project EAT-I (Eating Among Teens), a school-based survey of nutrition and weight concerns among adolescents, sampled 4746 middle and high school students from 1998 to 1999. The survey was designed to investigate the factors influencing eating habits of adolescents, to determine if youth were meeting national dietary recommendations, and to explore dieting and physical activity patterns among youth. Results from this survey reported strong associations for weight-control behaviors

and binge eating with increased frequency of reading magazine articles about dieting and weight loss. Male readers were more likely to be nonwhite, in the lower socioeconomic status groups, and overweight. van den Berg et al³⁶ studied if this association continued to exist over time by evaluating data from Project EAT-II, the 5-year longitudinal study from 1999 to 2005 resurveying 2516 of the participants from Project EAT-I. They found that female adolescents continued to show increased unhealthy weight-control behaviors (such as fasting, skipping meals, and smoking more cigarettes) that were twice as high for magazine readers when compared with nonreaders. Extreme weight-control behaviors (such as laxative use or vomiting) occurred 3 times greater in magazine readers than nonreaders. Male adolescents had no significant associations.

Frequent exposure to magazine articles about dieting was also associated with increased levels of psychosocial distress among the adolescents. Cohen³⁷ reviews the effect of media exposure on body dissatisfaction, disordered eating, and the drive for thinness. She discusses the social comparison theory and the cultivation theory to explain the relationship between media and thin internalization, thus increasing body dissatisfaction. Upward comparisons with media depicted models and celebrities increased feelings of depression and anger and decreased feelings of self-worth in the reader as explained by the social comparison theory. The cultivation theory reports that individuals spending greater time watching media-created programming (television, videos, etc) identify more with the media-depicted world than with the real world. Media exposure thus influences attitudes and behaviors concerning body image, the drive for thinness, and disordered eating. Neumark-Sztainer³⁸ and Haines and Neumark-Sztainer³⁹ have highlighted the need to develop programs addressing the prevention of obesity and eating disorders in children and adolescents simultaneously because many of the risk factors are shared between these weight-related disorders.

Body image dissatisfaction has become more prevalent among the preadolescent population. Skemp-Arlt et al⁴⁰ report that 50.6% of the 261 third- through fifth-graders surveyed were dissatisfied with their current body shape, with 41.8% wanting to be thinner and 8.8% wanting to be larger. A greater percentage of the girls (45.1%) wanted to be thinner, and 12.3% of the boys desired to have a larger body size. Elementary school-aged girls state that being obese is worse than being handicapped; 60% or more of American girls report that they have gone on a weight-loss diet; 50% of adult American women report they are dissatisfied with their physical appearance.⁴ The Girl Scout Research Institute⁴¹ reports that 3 of 4 girls (73%) compare how they look to girls

in the media sometimes, with 3 of 10 girls (29%) comparing their looks all of the time. Ahern et al⁴² and Tucci and Peters⁴³ report that young women making associations between underweight models and positive attributes report elevated eating disorder symptoms.

Body dissatisfaction is enhanced when the media promotes unrealistic body images through their marketing efforts. The chasm between media-defined ideal body image and realistic body size continues to widen. Individuals should be conscious of their exposure time and reaction to the media's influence toward their development of their ideal body image. Occasionally, in a publication's Letters to the Editor section, one sees objection to the body size of the models used in that publication. The perception of ideal body size by the average reader is affected when they compare their own body size with that of the featured models. The American print media has a responsibility to select models that reflect healthy body weight to serve as role models for the American public. Other countries have published their own standards for body size in their modeling size guidelines since the deaths of internationally recognized elite models at the peak of their career. Continued support for this movement is encouraged and hopefully will spread to more countries that are also dealing with body image concerns.

America the Beautiful, a recent film documentary by filmmaker Darryl Roberts, advocates that girls and women reject the media-driven worship of the impossible-to-achieve "perfect" body. The movie sheds light on the cause and effect of body images and beauty obsession and the tragic outcome of increased incidence of eating disorders among young and older women in the United States. Misperceptions of the perfect body size and thus the ideal body image, the role of airbrushing, digital image enhancement, breast augmentation, plastic surgery, liposuction, and so on, in the fashion industry are revealed in this documentary. Suggestions are made that "American women stop fixing the body that was never broken."^{3,44,45} The DVD of this documentary will provide an excellent resource for presentation of the topic followed by a discussion of body image concerns among young women. Raising the public awareness of the media's influence on the perception of ideal body image is critical in addressing changes needed in the marketplace.

Internet exposure is another factor influencing the development of a healthy ideal body image. The Internet has enabled all users of the Internet access to a seemingly unlimited supply of information. Unfortunately, not all of the Internet sources are reliable or authentic. Some of the information is sound, accurate, and verifiable, and other information is biased and inaccurate. Monitored and unmonitored chat rooms exist for any concern from eating disorders to the most recent weight-loss fad. Drugs

may also be ordered through the Internet. Parents and educators should discuss and monitor Internet use by young children and teens.

Photo Labeling: Model Images Versus Product Only

Several studies have been conducted regarding college students' degree of body satisfaction with exposure to a product advertisement with or without a model of the same sex as the viewer of the advertisement. Internalization of the ideal body shape, as presented in the media, is accepted as a causal factor in the development of eating disorders. Male models in the print media are usually muscular, and female models are usually thin to extremely thin. When shown 2 advertisements for products, one with an ideal-body-size model and the product, and the other with the product alone, the level of body satisfaction by the viewers decreased when viewing the ad containing an ideal-body-size model and the product. When the product was viewed alone, the body satisfaction of the viewers did not change. This held true for male and female photo-labeled model images.^{1,2,46-48}

Video Games

Video games are one of the fastest growing media in the United States, with sales more than US \$10 billion a year. Adolescents spend almost 7 hours each day exposed to some form of media. Given this investment of time, the gender roles and body images displayed by the characters in the video games should be observed by parents, teachers, or other adults supervising this activity of our youth. Miller and Summers⁴⁹ review the influence video games have on players in terms of behavior, self-perception, self-esteem, and body image. Male characters usually appear extremely muscular, powerful, and often violent. Female characters appear more attractive and slender and are often minimally clothed.⁴⁹

Television and Athletes

An example of the influence of television on the world's perception of ideal body image and exposure time to the media was the 2008 Summer Olympic Games, broadcast for 3600 hours over 14 days. Over 215 million Americans, more than 70% of the population, watched some part of the games. The impact of the media and the accompanying advertising that funds the broadcast is phenomenal. Because of the type of clothing worn in the events of the Summer Olympics, body size of the participants is readily apparent. The repeated exposure via television to men and women at the peak of their

fitness and athletic abilities from swimming and gymnastics (the 2 most highly covered venues), to beach volleyball, wrestling, and more, has an impact on the ideal body image perception of the more than 52 million unique viewers.⁵⁰ Sound nutritional practices, intense workout programs, self-discipline, and good genetics work together to maximize the athletes' body potential. As stated earlier, the BMI of most athletes is higher than that of the average person's because of their increased muscle mass. Michael Phelps, the 8-time gold-medal winner in Men's Swimming events at the 2008 Summer Olympics, is a role model for our youth. Just before the 2008 Summer Olympics, he was 23 years of age; his height, 6 ft 4 in, and his weight, 195 lb. Thus, his BMI was 23.74. He was in the very active exercise category with a recommended caloric need intake of 4065 kcal/d. From his reported typical daily food intake, Michael Phelps consumed approximately 10 375 kilocalories, composed of 409 g protein (15.77%), 1518 g carbohydrate (58.5%), 308 g fat (26.7%), 2515 mg cholesterol, 75.5 g fiber, and 719 g sugars (27.3%). Just prior to the Olympics, it was reported that he exercised more than 30 hours per week. The Olympic-level athletes fine tune their bodies to attain peak performance levels. The Olympians' dedication to their sport is evidenced by making the Olympic team and competing for world records while maintaining their body at the perceived ideal body image for their sport.

For some athletes, as well as for the general population, body image can take an unhealthy turn. Ideal body image misperceptions can lead to the inappropriate use of restricted dietary intake, supplement and ergogenic aid use, or overexercising. *Anorexia athletica* is a term used to describe the continuum of subclinical eating behaviors of athletes who fail to meet the criteria for an eating disorder but exhibit at least 1 unhealthy method of weight control. Disordered eating behaviors (semistarvation, purging, excessive exercising, laxative use, excessive fiber supplementation consumption) are used to achieve an ideal body weight deemed necessary for success in certain sports. Participants in the aesthetic sports (such as gymnastics, diving, figure skating) and weight-dependent sports (such as wrestling, judo, karate) have the highest scores on the Eating Disorder Inventory.⁵¹ Approximately 50% of women with eating disorders have been found to compulsively overexercise as well. The term *exercise addict* describes someone who exercises excessively, often doing "whatever it takes" to make additional time in the day to exercise more. Many men perceive that the ideal body size has about 28 lb more muscle than their own. Muscle dysmorphia is a complex disorder that has many behaviors associated with acquiring and maintaining muscle mass. This desire for more muscle mass has coincided with an increase in the number of men experiencing eating disorders, using ergogenic aids, and

suffering from body obsession. Ergogenic aids are products that purportedly boost one's exercise capacity, physical performance, and responsiveness to training.⁵¹

Stronger, Leaner... Sicker, Meaner

The US Drug Enforcement Administration reports dangerously high levels of anabolic-androgenic steroid use among young Americans. Anabolic-androgenic steroids increase the risk of heart disease, liver cancer, depression, stunted growth, eating disorders, and infertility and increased episodes of hostility and aggression among its users. If mixed with alcohol use, steroids can damage the liver. Internet marketing of products has produced global availability with limited controls on purchases. Athletes should serve as positive role models for our youth by avoiding illicit drug use to enhance their athletic abilities.

The direction our youth athletic training programs should continue to progress using specified training regimens to build skills and muscles, coupled with sound nutrition and health advice.^{52,53} The Adolescents Training and Learning to Avoid Steroids program geared to high school football players and the Athletes Targeting Healthy Exercise and Nutrition Alternatives designed for adolescent girls on sports teams were developed by the Oregon Health and Science University and serve as model prevention programs addressing risky behaviors in youth.⁵¹

Steroid Use Among Adolescents

Genetics plays a large role on the potential body size we each may attain and has a large impact on the ideal that is even achievable. For some adolescents, seeking the ideal athletic body shape and the ability to build muscle mass naturally through exercise and proper nutrition is elusive. The use of anabolic-androgenic steroids by youth to achieve the ideal body image has been well documented.⁵³⁻⁵⁵ Muscle dysmorphia, a history of physical or sexual abuse, or a history of high-risk behavior has been associated with an increased risk of initiating or continuing steroid abuse.⁵³ Analysis of the 1997 Youth Risk Behavior Survey, conducted by the US CDC, sampled more than 16 000 US public and private high school students. Those students reporting problem behaviors such as binge drinking, cocaine use, fighting, and sexual risk taking were associated with higher odds of lifetime steroid use, thus expanding the target group for education regarding steroid abuse from the male athlete only.⁵² Pisetsky et al⁵⁶ examined the use of steroids, among other substances, and the association between disordered eating among the 13 917 US high school participants of the 2005 Youth Risk Behavior

Surveillance System. Among other findings, the researchers also found that participants with reported disordered eating or individuals with body image concerns were more likely to use steroids to alter their body shape and size. Thus, the association between

problem behaviors and steroid use appears to be constant between the 1997 and 2005 surveys, indicating target groups to focus educational programming addressing positive body images and healthy ways to achieve them.

Table 3. Additional Web Links to Educational Information and Intervention Programs Dealing With Fitness, Nutrition, and Positive Body Image⁶⁴⁻⁷⁵

- <http://www.nichd.nih.gov/msy/> "Media Smart Youth: Eat, Think and Be Active" is an interactive after-school education program for young people aged 11 to 13 years sponsored by the National Institute of Child Health and Human Development, the National Institutes of Health (NIH).⁶⁴
- http://kidshealth.org/teen/your_mind/body_image/body_image.html The Nemours Foundation is an information resource for teens focused on the development of positive body image and self-esteem.⁶⁵
- http://www.brown.edu/Student_Services/Health_Services/Health_Education/nutrition/home.htm An example of one of the many college and universities with student health programs addressing healthy body image, nutrition, and wellness concerns.⁶⁶
- <http://www.bodyimageprogram.org/program/reflectionsbia/> "Reflections: Body Image Program,"⁶⁷ a peer-led eating disorder prevention program targeting sorority members at major universities, engaging social support systems to provide sustainable eating disorders prevention programs. The peer-led interventions have reduced thin-ideal internalization, body dissatisfaction, dietary restraint and bulimic pathology among the participants. Reflections also held a "Fat Talk-Free Week"⁶⁸ aimed at eliminating "fat talk" from one's everyday life and for those they love. At least 5 national sororities have approved the Reflections program for implementation at their chapters.⁶⁷⁻⁷¹
- www.bodypositive.com This Web site seeks to boost well-being, self-esteem, and positive body image at any healthy weight. Offers resources, activism issues, forums, and strategies to help people find acceptance for their body weight concerns.⁷²
- <http://win.niddk.nih.gov/> The Weight-control Information Network (WIN) is an information service of the National Institute of Diabetes and Digestive and Kidney Diseases, NIH. WIN was established in 1994 to provide the general public, health professionals, the media, and Congress with up-to-date, science-based information on obesity, weight control, physical activity, positive body image, and related nutritional issues.⁷³ Example Web sites within this service are:
- http://win.niddk.nih.gov/publications/take_charge.htm *Take Charge of Your Health. A Guide for Teenagers* focuses on healthy eating, physical activity and how to make successful changes in a teen's daily life.⁷⁴
- <http://www.win.niddk.nih.gov/sisters/index.htm> *Sisters Together: Move More, Eat Better* is a national initiative to encourage black women to maintain a healthy weight by becoming more physically active and eating healthier foods.⁷⁵
- The WIN Web site provides current links to a variety of federal and state educational information and intervention programs dealing with fitness, nutrition, and positive body image. Links to other Web sites are found at <http://win.niddk.nih.gov/resources/index.htm#size>.⁷⁶ Several of these are provided below:
- www.mypyramid.gov US Department of Agriculture's (USDA's) food guidance system. This Web site contains general guidance on food and healthy eating, with tips and suggestions for making smart dietary choices. The site also features interactive tools that can customize food and calorie recommendations according to your age, sex, and physical activity level.
- www.fitness.gov The President's Council on Physical Fitness and Sports provides regular updates on the council's activities as well as resources on how to get involved in its programs.
- www.girlshealth.gov The Office on Women's Health provides girls with reliable health information on physical activity, nutrition, and stress reduction.
- www.fns.usda.gov/tn USDA's Team Nutrition Web site focuses on the role nutritious school meals, nutrition education, and a health-promoting school environment play in helping students learn to enjoy healthy eating and physical activity.
- www.cdc.gov/powerfulbones The CDC's *Powerful Bones, Powerful Girls* is a national health campaign that provides tips on healthy eating and physical activity sponsored by the Office of Women's Health.
- www.canfit.org The California Adolescent Nutrition and Fitness Program provides resources on adolescent nutrition and body image, fitness, and more. It is oriented toward adolescents in low-income communities and communities of color.
- <http://hin.nhlbi.nih.gov/portion/keep.htm> A Web site from the National Heart, Lung, and Blood Institute that discusses food portion sizes and portion distortion.

Project EAT-II also surveyed adolescents on their use of steroids. Approximately 1.5% of the adolescents surveyed used steroids, with use decreasing as they aged. The use of steroids differed by ethnicity but not by socioeconomic status.^{35,57–59} Tager et al⁶⁰ demonstrated that male adolescents, increasingly dissatisfied with their bodies, engaged in eating disorders, used anabolic-androgenic steroids and untested dietary supplements to control their weight and to gain muscle. Interestingly, the fastest-growing illegal-steroid user group that has been identified is the female adolescent, although their prevalence rates tend to be much lower than those of male adolescents. Female adolescent usage is most likely motivated by seeking the ideal body image of models and actresses with well-defined muscles.^{52,55,61} Monitoring the Future, an ongoing study of the behaviors, attitudes, and values of American secondary school and college students, as well as young adults, has reported a decreased use of anabolic steroids since the peak usage levels reached between 1999 and 2002. Reports indicate the current prevalence rate of usage has dropped by greater than 50%. This is probably attributed to the Anabolic Control Act of 2004, which gave the Drug Enforcement Agency greater regulation of the sale and possession of steroids.⁵⁵

Programs Addressing Body Image Concerns

There are many programs available that can help raise the awareness of young people to the discrepancy in perceived versus actual ideal body image. The Body Awareness program, sponsored by the National Institutes of Health, is intended to raise awareness of the media's effect on early teenagers' body perception.^{62,63} Since 2001, more than 1000 high school and college students have participated in this program whose aim is to help girls not develop eating disorders by engaging in "body activism." Stice et al⁶² have demonstrated that the risk of developing eating disorders has been reduced by 61% among participants completing the program. The program participants continue to exhibit positive body image attitudes up to 3 years after entering the program. Table 3 provides Web links and a brief description of other successful programs with useful information on nutrition, physical activity, and healthy lifestyles.^{64–75}

Health Professionals, Health Educators, Parents, and Other Role Models

As health professionals, health educators, parents, and other role models, we must focus on educating youth and adults on healthy body images and healthy ways to

achieve them. We need to be aware of the strong influence that the media has on the development of a healthy body image and pay attention to the unrealistic body image portrayed by certain dolls and action figures, the print media, television programs and advertisements, and video games. We need to monitor the exposure time of the population to these images and be aware of the body images portrayed in the materials we supply in the form of magazines or educational media in our waiting rooms, in schools, and at home. We also need to check the signals we send to others when talking about weight, body size concerns, and special diets. We need to teach women and men to view their own bodies as sources of strength and self-confidence and not as decorative objects or to sacrifice healthy ways of life to achieve an elusive ideal thinness. We need to listen more and talk less to our youth to discover who they are and which role models they desire to emulate. We need to discuss appropriate body image and size issues among our social support systems, as well as the dangers of unhealthy dieting practices often promoted by the media. The chasm between the media-defined ideal body size perception and reality is continuing to diverge. Health professionals, educators, and parents should make it a priority to work with the fashion industry, the media, the entertainment industry, and legislators to take responsibility for the body image messages and nutrition misinformation that are being sent to our youth and adults. More research is needed in this area and especially on the development of appropriate body image among ethnically diverse groups.

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REFERENCES

1. Grabe S, Ward LM, Hyde JS. The role of the media in body image concerns among women: a meta-analysis of experimental and correlational studies. *Psychol Bull.* 2008;134:460–476.
2. Dittmar H, Halliwell E, Stirling E. Understanding the impact of thin media models on women's body-focused affect: the roles of thin-ideal internalization and weight related self-discrepancy activation in experimental exposure effects. *J Soc Clin Psychol.* 2009;28:43–72.
3. Littleton HL, Ollendick T. Negative body image and disordered eating behavior in children and adolescents: what places youth at risk and how can these problems be prevented? *Clin Child Fam Psychol Rev.* 2003;6:51–66.

4. Bryd-Bredbenner C, Murray J, Schlüssel YR. Temporal changes in anthropometric measurements of idealized females and young women in general. *J Women Health*. 2005;41:13–29.
5. Anorexia kills 88-pound Brazilian model. <http://www.cbc.ca/world/storoy/2006/11/16/model-anorexia.html>. Accessed December 9, 2008.
6. Body image. http://www.girlscouts.org/research/facts_findings/body_image.asp. Accessed March 12, 2008.
7. Bennett J, Childress S, Schrobsdorff S. Weighty matters. We know that the trend toward super-thin models is pushing some of them to go on potentially deadly diets. What's it doing to the rest of us? Newsweek Web Exclusive. February 8, 2007. <http://www.newsweek.com/id/113689/output/print>. Accessed December 9, 2008.
8. Schooler D. Real women have curves: a longitudinal investigation of TV and the body image development of Latina adolescents. *J Adolesc Res*. 2008;23:132–153.
9. Grabe S, Hyde JS. Ethnicity and body dissatisfaction among women in the United States. A meta-analysis. *Psychol Bull*. 2006;132:622–640.
10. Bessenoff G, Snow D. Absorbing society's influence: body image self-discrepancy and internalized shame. *Sex Roles*. 2006;54:727–731.
11. Lynch E, Liu K, Wei GS, Spring B, Kiefe C, Greenland P. The relation between body size perception and change in body mass over 13 years. The Coronary Artery Risk Development in Young Adults (CARDIA) study. *Am J Epidemiol*. 2009;169:857–866.
12. US Department of Health and Human Services, Center for Disease Control and Prevention. National Center for Health Statistics. *Health, United States, 2007 With Chartbook on Trends in the Health of Americans*. Hyattsville, MD: Department of Health and Human Services; 2007. Published November 2007. Department of Health and Human Services publication 2007–1232. <http://www.cdc.gov/nchs/daata/hs/hs07.pdf#074>. Accessed September 2, 2008.
13. National Center for Health Statistics. Center for Disease Control and Prevention. Fast Stats A to Z. Overweight. Last reviewed August 20, 2008. <http://www.cdc.gov/nchs/fastats/overwt.htm>. Accessed September 2, 2008.
14. Bray GA. Pathophysiology of obesity. *Am J Clin Nutr*. 1992;55:488S–494S.
15. National Institutes of Health. *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults*. Bethesda, MD: Department of Human Services, National Institutes of Health, National Heart, Lung and Blood Institute; 1998.
16. World Health Organization. *Physical Status: The Use, and Interpretation of Anthropometry. Report of a WHO Expert Committee*. Geneva: World Health Organization; 1995. WHO Technical Report Series 854.
17. World Health Organization Global Database on Body Mass Index. BMI classification. http://www.who.int/bmi/index.jsp?introPage=intro_3.html. Accessed December 14, 2008.
18. Miss America. The film and more. http://www.pbs.org/wgbh/amex/missamerica/sfeature/sf_list.html. Accessed August 20, 2008.
19. Rubenstein S, Cabellero B. Is Miss America an undernourished role model? *JAMA*. 2000;382:1569.
20. Miss America 2008 Kirsten Haglund. <http://missamerica.org/our-miss-americas/miss-america-history.aspt>. Accessed August 16, 2008.
21. Was the Barbie Doll based on a true person? <http://www.en.wikipedia.org/wiki/Barbie>. Accessed August 22, 2008.
22. McDowell MA, Fryar CD, Ogden CL, Flegal KM. National Health Statistics report 10, October 22, 2008. Anthropometric reference data for children and adults: U.S. population 2003–2006, tables 3, 4, 9, 10, 14, and 19. <http://www.cdc.gov/nchs/data/nhsr/nhsr010.pdf>. Accessed November 20, 2008.
23. McDowell MA, Fryar CD, Ogden CL and Flegal KM. National Health Statistics report 10, October 22, 2008. Anthropometric reference data for children and adults: U.S. population 2003–2006, tables 5, 6, 11, 12, 15, 20, and 23. <http://www.cdc.gov/nchs/data/nhsr/nhsr010.pdf>. Accessed November 20, 2008.
24. The New Average Size of American Men and Women. Sizing up the clothing industry body measurement. <http://www.dietbites.com/size-average-woman/man.html>. Accessed November 20, 2008.
25. Center for Disease Control and Prevention. Body and Mind (BAM) Teacher's Corner. http://www.bam.gov/teachers/body_image.html. Accessed September 2, 2008.
26. Fashion designers issue new guidelines. January 12, 2007. <http://www.ksl.com/index.php?nid=481&sid=799013>. Accessed December 9, 2008.
27. Condron S. Tomato diet model dies of anorexia. Telegraph.Co.UK. November 17, 2006. <http://www.telegraph.co.uk/news/uknews/1534394/Tomato-diet-model-dies-of-anorexia.html>. Accessed August 1, 2008.
28. Too skinny in Berlin? Fashionista. July 21, 2008. http://fashionista.com/2008/07/too_skinny_in_berlin.php. Accessed December 16, 2008.
29. Weight standards recommended for NYC fashion models. January 31, 2007. <http://www.cbc.ca/news/stor/2007/01/31/model-guidelines.html>. Accessed December 9, 2008.
30. New York fashion set defends lack of ban on skinny models. February 5, 2007. http://www.huffingtonpost.com/darryl-roberts/iamerica-the-beautiful-h_b_148293.html?view=print. Accessed December 13, 2008; or <http://news.sawf.org/Fashion/33105.aspx>. Accessed December 9, 2008.
31. Furor over anorexic models hits U.S. Fashion Week. Eating disorders expert urge designers to shun rail-thin young women. <http://www.dentalplans.com/articles/Furor%20Over%20Anoriexic%20Models/>. Accessed December 14, 2008.
32. Mundell EJ. Healthy Day Reporter. Luisel Ramos from Wikipedia. http://en.wikipedia.org/wiki/Luisel_Ramos. Accessed December 14, 2008.
33. Are women's clothing sizes getting smaller? Posted January 24, 2007. <http://www.wesh.com/pring/10832341/detail.html>. Accessed December 14, 2008.
34. Field AE, Cheung L, Wolf AM, Herzog DB, Gormaker SL, Colditz GA. Exposure to the mass media and weight concerns among girls. *Pediatrics*. 1999;103:e36. <http://www.pediatrics.org/cgi/content/full/103/3/e36>. DOI: 10.1542/peds.103.3.e36, 1–5.

35. Utter J, Neumark-Sztainer D, Wall M, Story M. Reading magazine articles about dieting and associated weight control behaviors among adolescents. *J Adolesc Health*. 2003;32:78–82.
36. van den Berg P, Neumark-Sztainer D, Hannan PJ, Haines J. Is dietary advice from magazines helpful or harmful? Five-year associations with weight-control behaviors and psychological outcomes in adolescents. *Pediatrics*. 2007; 119:e30–e37.
37. Cohen SB. Media exposure and the subsequent effects on body dissatisfaction, disordered eating, and drive for thinness: a review of the current research. *Mind Matters Wesleyan J Psychol*. 2006;1:57–71.
38. Neumark-Sztainer D. Can we simultaneously work toward the prevention of obesity and eating disorders in children and adolescents? *Int J Eat Disord*. 2005;38:220–227.
39. Haines J, Neumark-Sztainer D. Prevention of obesity and eating disorders: a consideration of shared risk factors. *Health Educ Res Theory Pract*. 2006;21:770–782.
40. Skemp-Arlt KM, Rees KS, Mikat RP, Seebach EF. Body image dissatisfaction among third, fourth, and fifth grade children. *Calif J Health Promot*. 2006;4:58–67.
41. Body Image. Girl Scout Research Institute. Girl Survey Panel. April 2008. http://www.girlscouts.org/research/what_girls_say/body_image.asp. Accessed on March 12, 2008.
42. Ahern AL, Bennett KM, Hetherington MM. Internalization of the ultra-thin ideal: positive implicit associations with underweight fashion models are associated with drive for thinness in young women. *Eat Disord*. 2008;16:294–307.
43. Tucci S, Peters J. Media influences on body satisfaction in female students. *Psicothema*. 2008;20:521–524.
44. *America the Beautiful*. www.americathebeautiful.com. Accessed August 16, 2008.
45. Sanderson K. ANAD honors *America the Beautiful* creator and Miss America 2008 Kirsten Haglund, award-winning film shatters fashion industry image myths. July 10, 2008. http://www.anad.org/510801/520101/html?*session*id*key*=%session*id*val*. Accessed August 16, 2008.
46. Baird AL, Grieve FG. Exposure of male models in advertisements leads to a decrease in men's body satisfaction. *North Am J Psychol*. 2006;8:115–121.
47. Bessenoff GR, Del Priore RE. Women, weight, and age: social comparison to magazine images across the lifespan. *Sex Roles*. 2007;56:215–222.
48. Blond A. Impacts of exposure to images of ideal bodies on male body dissatisfaction: a review. *Body Image*. 2008;5: 244–250.
49. Miller MK, Summers A. Gender differences in video game characters' roles, appearances, and attire as portrayed in video game magazines. *Sex Roles*. 2007;57:733–742.
50. Totally Tubular: NBC's pioneering online Olympic coverage didn't dim the power of TV. *Time Magazine*. December 22, 2008;109(25):62.
51. McArdle WD, Katch FI, Katch VL. *Sports and Exercise Nutrition*. 3rd ed. Philadelphia, PA: Wolters Kluwer/Lippincott, Williams & Wilkins; 2009.
52. National Institute on Drug Abuse (NIDA) announces multimedia public education initiative aimed at reversing rise in use of anabolic steroids by teens. April 14, 2000. <http://www.drugabuse.gov/MedAdv/00NR4-14.html>. Accessed December 15, 2008.
53. National Institute on Drug Abuse (NIDA). *Research Report. Anabolic Steroid Abuse*. Printed July 2001, revised August 2006. <http://www.nida.nih.gov/ResearchReports/Steroids/AnabolicSteroids.html>. Accessed April 27, 2008. NIH publication 06-3721.
54. Miller KE, Hoffman JH, Barnes, GM, Sabo D, Melnick MJ, Farrell MP. Adolescent anabolic steroid use, gender, physical activity, and other problem behaviors. *Subst Use Misuse*. 2005;40:1637–1657.
55. Johnston LD, O'Malley PM, Bachman JG, Schulenberg JE. Various stimulant drugs show continuing gradual declines among teens in 2008, most illicit drugs hold steady. University of Michigan News Service: Ann Arbor, MI. <http://www.monitoringthefuture.org>. Accessed April 27, 2009.
56. Pisetsky EM, Chao YM, Dierker LC, May AM, Striegel-Moore RH. Disordered eating and substance use in high-school students: results from the Youth Risk Behavior Surveillance System. *Int J Eat Disord*. 2008; 41:464–470.
57. Neumark-Sztainer D, Paxton SJ, Hannan PJ, Haines J, Story M. Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *J Adolesc Health*. 2006;39:244–251.
58. Project EAT I, II, III. <http://www.epi.umn.edu/research/nutrition.asp>. Accessed August 12, 2008.
59. van den Berg P, Neumark-Sztainer D, Cafri G, Wall M. Steroid use among adolescents: longitudinal findings from Project EAT. *Pediatrics*. 2007;119:476–486.
60. Tager D, Good GE, Morrison JB. Our bodies, ourselves revisited: male body image and psychological well-being. *Int J Mens Health*. 2006;5:228–237.
61. Westbrook B. Roid Rage. Forget major league, think little league. http://www.healthleader.uthouston.edu/archives/Drug_Abuse_Addiction/2008/roidrage-0312.htm. Accessed August 12, 2008.
62. Stice E, Marti CN, Spoor S, Presnell K, Shaw H. Dissonance and healthy weight from a randomized efficacy trial. *J Consult Clin Psychol*. 2008;76:329–340.
63. Gupta S. Taking on the thin-ideal. *Time*. 2008;71:50.
64. Media Smart Youth by the National Institute of Child Health and Disease the National Institutes of Health. <http://www.nichd.nih.gov/msy/>. Accessed December 15, 2008.
65. Body image and self esteem. The Nemours Foundation Teens Health. http://kidshealth.org/teen/your_mind/body_image/body_image.html. Accessed March 14, 2008.
66. Brown University Student Health Services. Body Image. http://www.brown.edu/Student_Services/Health_Services/Health_Education/nutrition/bodyimage.htm. Accessed August 16, 2008.
67. Reflections: Body Image Program. <http://www.bodyimageprogram.org/programreflectionbia/>. Accessed December 12, 2008.
68. Tri Delta launches fat talk free week. *Trident Delta Delta*. 2008;118:22–23.
69. Becker CB, Smith LM, Ciao AC. Peer-facilitated eating disorder prevention: a randomized effectiveness trial of

- cognitive dissonance and media advocacy. *J Couns Psychol*. 2006;53:550–555.
70. Becker CV, Bull S, Smith LM, Ciao AC. Effects of being a peer-leader in an eating disorder prevention program: can we further reduce eating disorder risk factors? *Eat Disord*. 2008;16:444–459.
 71. Becker CB, Bull S, Schaumber K, Cauble A, Franco A. Effectiveness of peer-led eating disorders prevention: a replication trial. *J Consult Clin Psychol*. 2008;76:347–354.
 72. Body Positive. Boosting body image at any weight. <http://www.bodypositive.com>. Accessed December 12, 2008.
 73. Weight-control Information Network (WIN). The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH). <http://www.win.niddk.nih.gov/>. Accessed December 15, 2008.
 74. Weight-control Information Network (WIN). The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH). Take charge. http://www.win.niddk.nih.gov/publications/take_charge.htm. Accessed December 15, 2008.
 75. Weight-control Information Network (WIN). The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH). Sisters together: move more, eat better. <http://www.win.niddk.nih.gov/sisters/index.htm>. Accessed December 15, 2008.
 76. Weight-control Information Network (WIN). The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH). Resources. <http://www.win.niddk.nih.gov/resources/index.htm#size>. Accessed December 12, 2008.