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Behavioral and Psychological Factors Predicting Body Satisfaction Among Adolescents

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Abstract

The purpose of this study was to examine factors that contribute to body satisfaction among adolescent boys and girls. Both behavioral factors (e.g., physical activity) and psychological factors (i.e., discrepancies between perceived and ideal body image) were investigated. Eighth-grade students (102 boys, 114 girls) completed surveys assessing their level of physical activity, nutritional habits, perceived and ideal body image, and body satisfaction. Girls were less likely than boys to exercise, but more likely than males to feel heavier than their ideal and to feel dissatisfied with their bodies. Large perceived/ideal body image discrepancies predicted lower body satisfaction for both boys and girls, while low levels of exercise predicted lower body satisfaction among girls only. Surprisingly, higher consumption of fatty foods predicted higher body satisfaction for both males and females. These findings suggest that a greater emphasis needs to be placed on finding venues in which adolescent girls can exercise without feeling insecure about their body.

### Behavioral and Psychological Factors Predicting Body Satisfaction Among Adolescents

Currently in the United States, about 65% of the population 20 years or older is considered overweight, and almost half of this 65% is classified as obese. Unfortunately, American children seem to be following this trend. In 1984, the incidence of obesity in adolescents was 11%. By 1998, the incidence of obesity in adolescents rose to an alarming 25%, and now the adolescent obesity rate stands at 30% (Fulkerson, French, Story, Hannan, Neumark-Sztainer, & Himes, 2004; Perry, Rosenblatt, & Wang, 2004). Along with the health risks involved in obesity, there are also psychosocial consequences, such as poor body satisfaction (Perry, Rosenblatt, & Wang 2004).

Dissatisfaction with one's body is more prevalent among females than males—although, importantly, it manifests itself in both genders. For example, in a study of 4,746 adolescents, low body satisfaction was expressed by 46% of the girls and 26% of the boys, with even higher dissatisfaction among overweight girls (59%) and overweight boys (48%) (Neumark-Sztainer, Goeden, & Story, 2004). This demonstrates that concerns about body satisfaction should not be limited to one gender.

The purpose of the present study is to examine factors that contribute to poor body satisfaction among adolescent boys and girls. Body composition, behavioral factors (i.e., body mass index, exercise, and nutrition), and psychological factors (i.e., discrepancies between perceived and ideal body image) will be investigated.

#### Body Composition

Body Mass Index, or BMI, is one of the best and easiest assessment tools to evaluate if a person is in a healthy weight range. BMI is a score that is calculated by using a person's weight and height. A BMI score under 18.5 is considered to be underweight, a score between 18.5 and

24.9 is considered to be normal or healthy, a score between 25.0 and 29.9 is considered to be overweight, and a score over 30.0 is considered to be obese (www.cdc.gov). Hausenblas and Fallon (2001) found that BMI was a strong predictor of body satisfaction. They found that those who had a higher BMI were not as satisfied with their bodies as those with a lower BMI. In the current study, BMI will be used similarly to evaluate the relationship between body composition and overall body satisfaction.

### Behavioral Factors

Naturally, whenever there are weight and body satisfaction concerns with an individual, physical activity is a topic that needs to be addressed. Unfortunately, only half of Americans aged 12-21 engages in regular vigorous physical activity, and one-fourth of this population does not participate in any physical activity at all (Kirkcaldy, Shepard, & Sifen, 2002). This situation is particularly disturbing given research that has shown that frequent participation in physical activity is associated with increased physical, psychological and social well-being among adolescents (Biddle & Wang, 2002). For example, one study found that adolescent girls who exercised frequently were more satisfied with their body (Nowak, 1998). Another study found that participation in physical activity can have an immediate positive effect on self-image during adolescence, especially if the activity is a team sport (Kirkcaldy, Shepard, & Sifen, 2002).

Although one would hope that low body satisfaction would be a motivating factor among youth to increase their physical activity, some studies have suggested that body satisfaction concerns prevent physical activity, particularly among adolescent girls (Neumark-Sztainer, Goeden, & Story, 2004). This trend is especially disconcerting given that low levels of physical activity are likely to put individuals at an increased risk for obesity, which may further decrease body satisfaction (Neumark-Sztainer et al., 2004).

Nutrition is another factor that has been linked to body satisfaction. Prior research has shown that individuals who are dissatisfied with their bodies often diet to attempt to lose weight (Moore, 1993). Unfortunately, the food-associated beliefs and behaviors of those who diet are not always healthy (Nowak, 1998). Importantly, there is a gender difference in how individuals change their food intake to try to lose weight. Specifically, girls tend to manipulate food use to lose weight more often than boys. Moreover, girls tend to make more unhealthy food choices when dieting. When boys change their food intake to lose weight, they are inclined to lessen their intake of high-fat and high-sugar foods, while increasing their intake of low-fat foods. Girls, however, not only reduce high-fat foods, but they also skip meals and reduce main food groups that are needed such as carbohydrates, meat, and dairy products (Nowak, 1998). Given these findings, it is important to understand the relationship between nutrition and body satisfaction, especially among early adolescents (Nowak, 1998).

### Psychological Factors

In addition to behavioral factors, psychological factors also play a role in determining how satisfied individuals are with their bodies. Prior research has shown that the discrepancy between perceived body image (i.e., what an individual believes he or she looks like) and ideal body image (i.e., what an individual ideally would like to look like) is a factor that influences overall body satisfaction, with higher discrepancies leading to lower body satisfaction. Importantly, the size and reasons for the discrepancies seem to vary by gender. Collins (1991) found that adolescent girls, more so than adolescent boys, had a high discrepancy between their perceived body image and their ideal body image. In this study by Collins (1991), the participants were given silhouettes of adolescent figures. They were asked to circle their perceived body, their ideal body, their ideal body for their gender, their ideal body for when they

are adults, and ideal body for an adult. A handful of adolescent boys desired a thinner body, but the majority of adolescent boys desired a more muscular physique. The majority of the girls in this study wanted a body that was thinner than their current body.

More research needs to be done on what adolescents believe parents, same-sex peers, and opposite-sex peers think is the ideal body. If there is a significant discrepancy between an adolescent's perceived and ideal body image, this may lead to low body satisfaction. Similarly, if an adolescent has a different body than what they think their parents, same-sex peers or opposite-sex peers believe is ideal, this may also lead to low body satisfaction.

### Overview of the Present Study

The purpose of the present study was to examine sex differences in body composition, exercise, nutrition, body image, and body satisfaction among adolescents and to determine what role these factors play in influencing body satisfaction. Body composition was assessed by asking students to report their height and weight. It was expected that adolescents with a lower BMI would have a higher body satisfaction; conversely, those with a higher BMI would have a lower body satisfaction. Exercise and nutrition were assessed by self-report. It was expected that boys would exercise more, have better nutrition, and have a higher body satisfaction than girls. It was also expected that, regardless of gender, adolescents who exercise regularly, and have a healthy diet would have higher body satisfaction than adolescents who do not exercise, and do not consume a healthy diet. Body image was assessed in a number of ways. First, adolescents were asked to indicate their perceived and ideal body image. Second, adolescents were asked to indicate what they believe parents, same-sex peers, and opposite-sex peers would see as an ideal body. Discrepancy scores were calculated to indicate the degree to which adolescents' perceived body image differs from their ideal body image and the degree to which adolescents' perceived

body image differs from what the adolescent believes each of these other groups' holds for them. It was expected that adolescents with lower discrepancies between perceived and ideal body image would have higher body satisfaction. Finally, body satisfaction was assessed by self-report.

## Method

### *Participants*

Participants were 8<sup>th</sup> grade students (N=216, 53% girls; 47% boys) at Madison Junior High School in Madison, Indiana. Participants included all students whose parents signed and returned a passive parent consent form and who, themselves, signed an informed consent form (see Appendices A and B). The participation rate among students at the school was 98%.

### *Materials*

#### Body Composition

Students were asked to provide their height and weight. From this data, a BMI score for each participant was calculated by using the BMI equation. According to this score, participants who weigh more and are shorter have a higher ratio; similarly, participants who weigh less and are taller have a smaller ratio. The normal, healthy BMI range is from 18.5-24.9. A BMI below these numbers is considered to be underweight, while a BMI higher than these numbers indicates that a person is overweight.

#### Exercise and Nutrition

The M-SPAN (Middle-School Physical Activity and Nutrition) (See Appendix C) questionnaire was used to assess students' levels of exercise and nutritional habits. A sample item used to assess levels of exercise was "During an average school week, how many days do you do physical activity?". A sample item used to assess nutritional habits was "Yesterday, did

you eat or drink pizza?”. An “exercise” score was calculated by computing the number of minutes per day each student spent in physical activity. A “nutrition” score was calculated by tallying the number of fatty foods consumed the previous day. Higher nutrition scores indicate poorer nutrition.

### Body Image

To assess discrepancies between perceived body image and ideal body image, the participants received the Body Discrepancy Questionnaire. The questionnaire used a seven point Likert scale. At each point on the scale, there was either a body of a male or female, depending upon the gender of the participant, and these bodies ranged from very skinny (one on the Likert scale) to obese (seven on the Likert scale). The participants assessed their perceived body image (how they see themselves), their ideal body image (how they want to look), and how they think their parents, same-sex peers, and opposite-sex peers want them to look (See Appendices D and E).

Discrepancy scores were calculated by subtracting a) students’ perceived body image score from their ideal body image score (Perceived/Ideal), b) students’ ideal body image score from their perceptions of their parents’ ideal for them (Perceived/Parent), c) students’ ideal body image score from their perceptions of their same-sex peers’ ideal for them (Perceived/Same-Sex Peers), and d) students’ ideal body image score from their perceptions of their opposite-sex peers’ ideal for them (Perceived/Opposite-Sex Peers). A higher discrepancy score indicates that the student views themselves as heavier than what they (or others) would like.

### Body Satisfaction

To assess the degree to which students are satisfied with their bodies, the Body Satisfaction Scale for Adolescents and Adults was used (Mendelson, Mendelson, & White, 2001)



(see Appendix F). The scale consists of 21-items tapping participants' evaluation of their weight (e.g., "I am preoccupied with trying to change my body weight"), the degree to which they attribute positive outcomes from their weight (e.g., "My looks help me to get dates"), and their appearance (e.g., "I like what I see when I look in the mirror"). After reverse-scoring the appropriate items, participants' responses were averaged across items so that higher numbers indicated more positive body satisfaction. The scale yielded adequate reliability ( $\alpha = .93$ ).

### *Procedure*

Passive parent consents were sent home for the parents to sign only if they did not want their child to participate. Once parental consent was granted and the student signed an informed consent form, the M-SPAN questionnaire, the Body Discrepancy Questionnaire, and the Body Satisfaction Scale were administered. Upon completion, the student received a debriefing sheet (See Appendix G).

### *Results*

Means, standard deviations, and ranges for each of the measures used in this study are presented in Table 1. The participants' BMI scores were, as a group, within a normal, healthy range. Boys had a mean BMI of 22.33, while girls had a mean BMI of 21.56.

In our first set of analyses, we were interested in sex differences in participants' physical activity, nutrition, body image discrepancy scores, and body satisfaction. There was a significant difference between boys and girls in the number of minutes spent active per day,  $t(133) = 4.18$ ,  $p < .001$ , with boys ( $M = 64.18$ ) more active than girls ( $M = 39.84$ ). There was also a marginally significant difference between boys ( $M = 6.86$ ) and girls ( $M = 6.08$ ) in the amount of fatty foods they ate,  $t(214) = 5.73$ ,  $p = .086$ , with boys consuming more fatty foods than girls. Both boys and girls viewed themselves as heavier than they would like to be. Specifically, boys' perceived

body image ( $M = 4.15$ ) was higher than their ideal body image ( $M = 3.78$ ), which yielded an average body discrepancy score of 0.37. Girls' perceived body image ( $M = 4.21$ ) was also higher than their ideal body image ( $M = 3.45$ ), which yielded an average body discrepancy score of 0.76. The perceived-ideal discrepancy was significantly higher for girls than for boys,  $t(210) = -3.088, p < .002$ . Similar results were found for ideal/same-sex peers and ideal/opposite-sex peers discrepancies. In both cases, girls viewed themselves as not meeting the ideals of others more so than did boys,  $p < .05$  (See Table 2 for details). Finally, boys and girls differed in their levels of body satisfaction, with girls ( $M = 3.03$ ) scoring significantly lower than boys ( $M = 3.45$ ) on the Body Satisfaction measure,  $t(211) = 3.88, p < .001$ .

In our final set of analyses, we were interested in the relationships between each of our independent variables (e.g., exercise) and participants' body satisfaction. We were also interested in whether the size of these relationships differed for boys and girls. To examine these issues, we ran a series of correlation analyses. Correlations for boys and girls were compared by using the Fisher  $r$ -to- $z$  transformation where a significant  $z$ -score indicates a difference in the size of the correlation. In this case, a negative  $z$ -score indicates a stronger correlation for girls than for boys. The results of these analyses are presented in Table 3. These analyses indicated that, for both boys and girls, body satisfaction was negatively associated with Body-Mass Index (i.e., being overweight) and a high discrepancy between perceived and ideal body image, perceived and parent ideal, perceived and same-sex ideal, and perceived and opposite-sex ideal. For girls only, body satisfaction was positively correlated with exercise. Surprisingly, for boys and girls, nutrition was positively correlated with body satisfaction. That is to say, boys and girls who ate large quantities of fatty foods had higher body satisfaction than those who consumed small quantities.

## Discussion

This study investigated the relationship between behavioral and psychological factors and overall body satisfaction among adolescents. As predicted, girl participants had significantly lower body satisfaction scores than boys. In taking a closer look at body satisfaction scores, we also noted that low body satisfaction was reported by 26% of boy participants and exactly 50% of girl participants, which is almost identical to findings by Neumark-Sztainer, Goeden, & Story (2004). Therefore, not only were girl body satisfaction scores significantly lower on average, but almost twice as many girls as boys reported low body satisfaction. In looking at the results of our study and those of other studies, it is apparent that low body satisfaction is a current problem among adolescents. It was the goal of this study to examine this problem and its predictors.

The only significant trend we found concerning BMI was for body satisfaction. Participants in this study indicated a general trend that as BMI increased, body satisfaction decreased, which is supported by the findings of Hausenblaus and Fallon (2001) and Kostanski and Gullone (1998). It seems to be a general finding that adolescents who are more overweight are less likely to be satisfied with their bodies.

While previous research by Biddle and Wang (2002) suggested that physical activity is associated with increased psychological well-being for all adolescents, our study found only a significant positive correlation between physical activity and body satisfaction among adolescent girls. However, a study by Nowak (1998) supports our findings that adolescent girls who exercise more frequently are more satisfied with their bodies.

As for nutrition, we found a marginally significant difference between boys and girls, with males eating more foods high in fat per day, which is actually the opposite of what we predicted. This may be because males tend to eat more food in general, and as a result their

intake of fatty foods is higher as well. In looking at the relationship between nutrition (more specifically, diet) and body satisfaction, we found that almost twice as many girls dieted in order to lose weight. In regard to fatty foods and body satisfaction, we found significant positive correlations between the two for both boys and girls. A reason for this may be that those adolescents who are relatively satisfied with their bodies feel like they can eat anything that they want. Consequently, these results may show a positive correlation between body satisfaction and high intake of fatty foods because only adolescents who are satisfied with their bodies may be eating fatty foods. Another reason could be that those adolescents who are dissatisfied with their bodies try to abstain from eating fatty foods. It is also possible that adolescents are trying to diet to lose weight, but they do not know a healthy way to lose weight. Instead of eating healthy foods, the adolescents may be eating less food, but more high fat food as a method to lose weight. To them, this method may seem like they are eating less, which may equate to fewer calories in their mind; however, the diet is more calorie dense because it is high in fat and not a conducive method for weight loss.

Although both boys and girls reported lower ideal than perceived body image, girls had a significantly larger discrepancy between the two. Collins (1990) found similar findings except that the discrepancies were much smaller. This move to a bigger discrepancy may suggest that adolescents may be becoming more and more dissatisfied with their bodies over time.

It is also important to note that while both boys and girls selected an ideal body image that was lower than their perceived body image, it is likely that they had different ideals in mind in regard to muscle mass versus thinness. Hausenblas and Fallon (2001) have suggested that Western societies emphasize thin and fit physiques for girls and lean and muscular physiques for boys. In fact, there were many male participants that drew in muscles on their ideal figure. This

also occurred in Collins' (1990) study which shows our society's preoccupation with males obtaining not only thin but muscular physiques, both then and now.

### *Limitations*

One major problem that we encountered was using the M-SPAN to assess nutrition. The questions only asked about the previous day's intake of certain foods that were high in fat, and failed to ask the portion size of these foods. By not reporting portion sizes, it is unclear whether an adolescent had a normal portion of a fatty food or had two or three times the normal portion size. This is problematic because a student that ate a handful of candy could be placed in the same category as a student that ate an entire bag of candy. Another problem with only asking for the previous day's food intake is that we only got a glimpse of their eating habits from one day which may not be indicative of their normal eating habits. This also presents a problem, as students with a typically low-fat, healthy diet might have had very busy schedules the day before the questionnaires were administered, and were forced to eat fast food for dinner instead of eating at home. Since the questionnaire only asked for fatty food intake for one day out of the week, the previous day, it gives us a skewed sense of their typical diet.

Another limitation encountered is the use of the Body Mass Index. Although this scale is widely used and considered to be one of the best ways to assess body composition, it is not necessarily the best method for all people. For example, a person who is short but has a lot of muscle may be considered overweight according to their BMI. This is because muscle weighs more than fat, thus making it seem that this individual is overweight when the individual's height and weight is put into the BMI calculation.

### *Future Research*

It appears that both boys and girls are dissatisfied with their bodies and want to look differently than they currently do. Further research in the area of body satisfaction among boys and girls, particularly adolescents and younger, is needed. This might include assessing body satisfaction in elementary school students. If the age at which body dissatisfaction begins can be pinpointed, then perhaps programs can be designed and implemented that will decrease or stop body dissatisfaction. With the growing problem of body dissatisfaction among boys and girls throughout the country, ideally, health and nutrition classes would be a curriculum requirement in order to teach students healthy lifestyle habits and body esteem. If nothing else, it would teach them how to diet and exercise in a healthy manner if they remained dissatisfied with their bodies.

### *Conclusion*

Overall, body satisfaction seems to be a prevalent issue among both sexes, but particularly among girls. Parents, school administrators, counselors, and other people who work closely with adolescents should realize that teaching healthy eating habits and placing an emphasis on healthy amounts of exercise can help curb the discrepancies between perceived body image and ideal body image, which will, in turn, lead to greater body satisfaction. The teaching of these habits can also reduce their BMI, which is also likely to lead to greater body satisfaction. This will especially help girls increase their body satisfaction since exercise was a main predictor for female body satisfaction in that more physical activity led to higher body satisfaction and low amounts of physical activity led to lower body satisfaction. To increase the likelihood of females participating in physical activity, more programs that are exclusive to women should be made available. Such programs exist for adult females, but there are none catered specifically to the adolescent age group. Separate physical education classes for girls

and boys in middle school may also be another way to teach adolescent girls healthy exercises. Having separate classes for boys and girls may help girls feel less self-conscious about their bodies, thus leading to an increase in physical activity.

Although not discussed previously in our paper, the media and popular culture are also very important influences on adolescent body satisfaction. It will not only take the aforementioned emphasis on healthy eating habits and healthy amounts of physical activity to help increase body satisfaction among adolescents in our country, but also a cultural shift. If adolescents and children in the United States continue to be bombarded with advertisements, television, and movies that depict unhealthy and, for most people, unobtainable body images, it will be difficult to make significant decreases in body dissatisfaction and poor nutritional and physical activity decisions. It will take a combination of all of these factors to improve the current problems with body satisfaction among American adolescents.

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Table 1

*Means, Standard Deviations and Ranges for Study Measures*

	Mean	Standard Deviation	Range
BMI	21.95	5.00	14.14 - 41.11
Exercise	51.21	41.05	10.00 - 360.00
Nutrition	0.54	0.67	0 - 22.00
Perceived/Ideal Discrepancy	0.60	0.95	-3.00 - 5.00
Perceived/Parent Discrepancy	0.19	0.91	-2.00 – 4.00
Perceived/Same-Sex Peer Discrepancy	0.43	0.98	-2.00 – 4.00
Perceived/Opposite-Sex Peer Discrepancy	0.65	1.08	-2.00 – 5.00

Table 2

*Sex differences in body image discrepancy scores*

	Males Mean (SD)	Females Mean (SD)	t
Perceived/Ideal Discrepancy	.39 ( $\pm$ .98)	.79 ( $\pm$ .88)	-3.09*
Perceived/Parent Discrepancy	.15 ( $\pm$ 1.07)	.22 ( $\pm$ .74)	-.550
Perceived/Same-Sex Discrepancy	.24 ( $\pm$ .92)	.57 ( $\pm$ 1.01)	-2.39*
Perceived/Opposite-Sex Discrepancy	.38 ( $\pm$ .97)	.87 ( $\pm$ 1.12)	-3.24*

*Note.* \*  $p < .05$ .

Table 3

*Bivariate Correlations*

	Gender		
	Male	Female	Z-Score
BMI	-.40**	-.36**	-0.34
Exercise	.11	.26**	-1.13
Sedentary	-.20*	-.31**	-3.78*
Nutrition	.27**	.27**	0.00
Perceived/Ideal Discrepancy	-.43**	-.59**	1.57
Perceived/Parent Discrepancy	-.28**	-.24*	-0.31
Perceived/Same-Sex Peer Discrepancy	-.39**	-.40**	0.09
Perceived/Opposite-Sex Peer Discrepancy	-.37**	-.44**	0.61

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

Appendix A

Dear Parents or Guardians,

I am writing to let you know of a research project that will be conducted at Madison Junior High School. Two students at Hanover College, Amber Adkins and Kaelin Stivers, are conducting the research. They are both senior psychology majors at Hanover College. The goal of the project is to learn more about how physical activity, nutrition, and body image influence body satisfaction among adolescents.

If your child agrees to participate in the study, he or she will be asked to complete three questionnaires. These questionnaires will be completed in January. The questionnaires will ask about weekly physical activity, the types of foods typically eaten, body image, and body satisfaction. The study will take about 45 minutes to complete. Participation in this study is strictly voluntary. Your child does not have to answer any question that he or she does not want to answer. Moreover, your child may stop participating in the study at any time. To ensure confidentiality, your child will be assigned an identification number so that your child's name will not be connected to his or her responses.

Parental participation is also requested. If you agree to participate, you will be asked to complete two questionnaires. The questionnaires ask for general demographic information and your child's level of physical activity and general diet. Completion of the questionnaires will take approximately 20 minutes. Participation is, again, completely voluntary and the confidentiality of your responses will be insured by assigning identification numbers. If you would like to participate, please complete the attached consent form and questionnaires and seal them in the envelopes provided. If you would prefer not to participate, there is no need to complete these forms. You may discard them.

If you prefer that your child not participate in this study, please fill out the form on the back of this page and return it to your child's science teacher. If you have any questions about this study, please contact Amber Adkins at 812-866-7972 or Kaelin Stivers at 812-866-7983. You may also contact Dr. Ellen Altermatt, the advisor for this project, at 812-866-7317.

Sincerely,

Mr. Mike Robinson  
Principal, Madison Junior High School

I have read and reviewed the description of the study that will be conducted at Madison Junior High School and have decided to NOT allow my son or daughter,  
\_\_\_\_\_, to participate.

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Appendix B

Informed Consent Form

The researchers conducting this study are Amber Adkins and Kaelin Stivers, senior psychology majors at Hanover College. The topic of this study is body satisfaction. If you agree to participate in this study, you will be asked a series of questions about your nutrition, physical activity, body image, and body satisfaction. All results will be kept completely confidential. Identification numbers (rather than names) will be used to protect anonymity. Participation in this study is completely voluntary; therefore, participation may be discontinued at any time without penalty.

The questionnaire should take no longer than 45 minutes to fill out. It is possible that you might feel self-conscious as a result of completing the questionnaire, but it is not likely. The information provided on the questionnaire is confidential – your name will not be connected to your responses. If you have any questions or concerns, please feel free to ask the questions now or at any time during your participation.

If there are any questions after the study is completed, feel free to contact one of the researchers at [adkins@hanover.edu](mailto:adkins@hanover.edu), or [stivers@hanover.edu](mailto:stivers@hanover.edu). Their professor, Dr. Ellen Altermatt, may also be contacted at [altermattel@hanover.edu](mailto:altermattel@hanover.edu).

I acknowledge that I am participating in this study of my own free will and realize that I can stop participation at any time. If I wish, I will be given a copy of this consent form.

---

Signature

Date

## Appendix C

**Middle-School Physical Activity and Nutrition**  
**(M-SPAN)**  
**STUDENT SURVEY<sup>99</sup>**

ID Code: \_\_\_\_\_

DATE: \_\_\_\_\_

School Code: \_\_\_\_\_

GRADE: \_\_\_\_\_

**Demographics**

Q1. When is your birthday? \_\_\_\_\_ month \_\_\_\_\_ day \_\_\_\_\_ year

Q2. What is your gender? 0. Male 1. Female

Q3. What is your height? \_\_\_\_\_ feet \_\_\_\_\_ inches

Q4. What is your weight? \_\_\_\_\_ pounds

Q5.B. During a school week, how many days a week do you usually...  
 (Circle the best response for each item.)

	<i>Days per week</i>					
	0	1	2	3	4	5
z. Eat <b>breakfast</b> ?	0	1	2	3	4	5
a. <b>Bring</b> your lunch to school?	0	1	2	3	4	5
b. Get your lunch from the <b>cafeteria line</b> ?	0	1	2	3	4	5
c. Buy <b>fast-food</b> at school (e.g., prepared by Taco Bell or Pizza Hut)?	0	1	2	3	4	5
d. Buy <b>a la carte</b> snacks in the cafeteria?	0	1	2	3	4	5
e. Buy food from <b>vending machines</b> at school?	0	1	2	3	4	5
f. Buy food from the <b>school store</b> ?	0	1	2	3	4	5
g. <b>Trade</b> your lunch with a friend?	0	1	2	3	4	5
h. <b>Skip</b> lunch completely?	0	1	2	3	4	5
i. Get lunch or school snacks <b>elsewhere</b> ?	0	1	2	3	4	5

Where: \_\_\_\_\_

Q7. Outside of school, in a typical week how many times do you eat (or get take-out) at a *fast-food restaurant*?

\_\_\_\_\_ times/week

Q8. Do you *diet* to lose weight or to keep from gaining weight? 0. No 1. YesQ9. Do you *exercise* to lose weight or to keep from gaining weight? 0. No 1. Yes



The checklist below asks about food that you ate *yesterday*, from the time you got up until you went to bed. For each food or group of foods listed, circle "Yes" if you ate at least one of the foods yesterday or circle "No" if you did not eat at least one of the foods yesterday. For example, if you ate a hot dog yesterday, you should answer "Yes" for item #6. Another example is, if you did *not* eat any pizza or lasagna yesterday, answer "No" to item #11. Answer every question. You may have eaten some foods yesterday that are not on the checklist. That's okay. We don't want to know about those foods right now.

Some questions ask about foods that may have been added to other foods. For example, you may have added butter to a roll or salad dressing to a salad. Remember to answer "Yes" if you or somebody else added any of these types of foods to other foods that you ate, or if you ate these foods by themselves.

If you ate a food that is a combination of the foods on the checklist, such as a ham and cheese sandwich, be sure to answer "Yes" for all the foods that made up that food. For the ham and cheese sandwich, you would circle "Yes" for items #7 (ham) and #13 (cheese).

Q10. *Yesterday, did you eat or drink any of these foods:*

(0)

(1)

1.	Beef, such as steaks, roasts, fajitas or stir-fried beef, ribs, stew beef (not hamburger)	No	Yes
2.	Hamburgers, cheeseburgers, meatloaf, chili, tacos, other ground beef dishes	No	Yes
3.	Fried chicken, chicken nuggets, chicken patty, steak sticks, fried fish, fish nuggets, fried shrimp, fried oysters, chicken fried steak, egg rolls, dim-sum	No	Yes
4.	Turkey or chicken with skin eaten (not fried)	No	Yes
5.	Chicken salad, tuna salad, shrimp salad	No	Yes
6.	Hot dogs, frankfurters, corn dogs	No	Yes
7.	Cold cuts, bologna, ham, turkey luncheon meat, deli roast beef, other deli meat	No	Yes
8.	Bacon, sausage, chorizo, pickled pork	No	Yes
9.	Pork, including pork chops, spare ribs, roast pork	No	Yes
10.	Spaghetti or other pasta with meat and tomato sauce	No	Yes
11.	Pizza, lasagna	No	Yes
12.	Cheese dishes, such as macaroni and cheese, cheese nachos, cheese enchilada, quesadillas	No	Yes
13.	Cheese or cheese spread, including American, Swiss, Cheddar	No	Yes
14.	Eggs, including scrambled, fried, omelets, hard boiled eggs, egg salad	No	Yes
15.	Whole milk (white or chocolate)	No	Yes
16.	2% fat milk (white or chocolate)	No	Yes
17.	Beans, such as red, white, baked, or refried beans	No	Yes
18.	French fries, hash browns, tater tots, potato rounds	No	Yes
19.	Spanish rice, fried rice, other mixed rice dishes	No	Yes
20.	Potato chips, corn chips, tortilla chips, popcorn, crackers, cheese puffs, other snack chips	No	Yes
21.	Peanut butter, peanuts	No	Yes
22.	Cookies and bars, muffins, sweet rolls, cakes, snack cakes, granola bars	No	Yes
23.	Doughnuts, brownies, pies, pastries, croissants	No	Yes
24.	Ice cream, ice cream bars (not frozen yogurt, popsicles, or fruit ice)	No	Yes
25.	Chocolate candy	No	Yes

Q11. *Yesterday, did you or anyone else add these foods to other foods you ate, or did you eat these foods by themselves:*

26.	Margarine	No	Yes
27.	Butter	No	Yes
28.	Mayonnaise	No	Yes
29.	Salad dressing such as Ranch, Italian, Thousand Island, French	No	Yes
30.	Gravy, cheese sauce	No	Yes
31.	Whipped cream, sour cream	No	Yes

**Physical Activity**

Q12. Have you been on any sports teams during the past year at school or outside of school.  
(Circle either yes or no for each team in both columns.)

Sports Teams at School			No	Yes	Sports Teams Outside of School			No	Yes
a.	baseball or softball		0	1	a.	Baseball or softball		0	1
b.	basketball		0	1	b.	Basketball		0	1
c.	cheerleading		0	1	c.	Cheerleading		0	1
d.	football		0	1	d.	Football		0	1
e.	golf		0	1	e.	Golf		0	1
f.	ice, field, roller hockey		0	1	f.	Ice, field, roller hockey		0	1
g.	soccer		0	1	g.	Soccer		0	1
h.	swimming		0	1	h.	Swimming		0	1
i.	tennis		0	1	i.	Tennis		0	1
j.	track and field		0	1	j.	Track and field		0	1
k.	volleyball		0	1	k.	Volleyball		0	1
l.	gymnastics		0	1	l.	Gymnastics		0	1
o.	wrestling		0	1	o.	Wrestling		0	1
m.	other (specify): _____		0	1	m.	Other (specify): _____		0	1
n.	other (specify): _____		0	1	n.	Other (specify): _____		0	1

Q13. Have you taken any classes, lessons, or special programs during the past year (outside of school only)?  
(Circle either yes or no for each.)

	No	Yes
a. dance (ballet, jazz, modern)	0	1
b. aerobics	0	1
c. figure skating	0	1
d. gymnastics	0	1
e. martial arts	0	1
f. skiing	0	1
g. swimming	0	1
h. tennis	0	1
i. other (specify): _____	0	1

Q16. ... before school on the school grounds? \_\_\_\_\_ days per week \_\_\_\_\_ minutes per day

Q17. ... during lunch period? \_\_\_\_\_ days per week \_\_\_\_\_ minutes per day

Q18. ... after school on the school grounds? \_\_\_\_\_ days per week \_\_\_\_\_ minutes per day

*This next part of the survey is about your activities over the past 7 days. Think about your physical activities during the past week, including those done before and after school, at school, at home and away from home, and on weekends. For sports, please report both practices and game play.*

*There are no right or wrong answers. No one does all these activities. Please be as accurate and honest as possible. For each activity listed, answer three questions:*

- 1. Did you do this activity in the past 7 days? Circle yes or no.*
- 2. If yes, on how many days did you do the activity in the past 7 days?*
- 3. On average, how many minutes did you do this activity on the days that you did it?*

Q19. Outside of required school physical education classes, did you do this activity during the last 7 days?

ACTIVITY	No	Yes	How many days in last 7 days?	On average, how many minutes did you do this activity each day?
<b><i>Sports &amp; Dance</i></b>				
1. Baseball/softball	0	1	_____ days	_____ minutes
2. Basketball	0	1	_____ days	_____ minutes
3. Cheerleading, marching band, drill team	0	1	_____ days	_____ minutes
4. Dance (ballet, jazz, modern, tap)	0	1	_____ days	_____ minutes
5. Dancing (social, recreational)	0	1	_____ days	_____ minutes
6. Football	0	1	_____ days	_____ minutes
7. Golf	0	1	_____ days	_____ minutes
8. Gymnastics, tumbling, trampoline	0	1	_____ days	_____ minutes
9. Hockey (field, ice, or roller)	0	1	_____ days	_____ minutes
10. Martial arts: karate, judo, boxing	0	1	_____ days	_____ minutes
11. Racquet sports: badminton, tennis, racketball	0	1	_____ days	_____ minutes
12. Skating: ice, roller, in-line; skate boarding	0	1	_____ days	_____ minutes
13. Skiing: downhill, cross-country, water	0	1	_____ days	_____ minutes
14. Soccer	0	1	_____ days	_____ minutes
15. Volleyball	0	1	_____ days	_____ minutes
16. Wrestling—competitive	0	1	_____ days	_____ minutes
17. Other (specify):	0	1	_____ days	_____ minutes
<b><i>Exercise</i></b>				
18. Aerobics/aerobic dancing/bench aerobics	0	1	_____ days	_____ minutes
19. Calisthenics: push-ups, sit-ups, jumping jacks	0	1	_____ days	_____ minutes
20. Running, jogging, jumping rope	0	1	_____ days	_____ minutes
21. Swimming laps	0	1	_____ days	_____ minutes
22. Walking for exercise	0	1	_____ days	_____ minutes
23. Weight lifting/weight training	0	1	_____ days	_____ minutes
24. Exercise machine: cycle, treadmill, rower, climber	0	1	_____ days	_____ minutes
25. Other (specify):	0	1	_____ days	_____ minutes
<b><i>General Physical Activities</i></b>				
26. Bicycling	0	1	_____ days	_____ minutes
27. Hiking	0	1	_____ days	_____ minutes
28. Walking for transportation	0	1	_____ days	_____ minutes
29. Water play: in pool, lake, or ocean	0	1	_____ days	_____ minutes
30. Outdoor chores: mowing, raking, gardening	0	1	_____ days	_____ minutes
31. Indoor chores: mopping, vacuuming, sweeping	0	1	_____ days	_____ minutes
32. Other (specify):	0	1	_____ days	_____ minutes

ACTIVITY	No	Yes	How many days in last 7 days?	On average, how many minutes did you do this activity each day?
<i>Education &amp; Entertainment</i>				
33. Computer /Internet	0	1	_____ days	_____ minutes
34. Video games	0	1	_____ days	_____ minutes
35. Homework, studying	0	1	_____ days	_____ minutes
36. Reading (not for school)	0	1	_____ days	_____ minutes
37. Sitting and talking with friends (not on phone); listening to music	0	1	_____ days	_____ minutes
38. Talking on the phone	0	1	_____ days	_____ minutes
39. Television or video watching	0	1	_____ days	_____ minutes
40. Other (specify):	0	1	_____ days	_____ minutes
41. Other (specify):	0	1	_____ days	_____ minutes

**Miscellaneous Items**Q20. On a normal day, how many lowfat food choices are available...

	<i>Number Low-fat Food Choices</i>						
a. in your school <u>cafeteria line</u> ?	0	1	2	3	4	5+	Don't Know
b. at the <u>school store</u> ?	0	1	2	3	4	5+	Don't Know
c. on the <u>food cart</u> at lunch time?	0	1	2	3	4	5+	Don't Know

Q21. Is there fresh fruit available at lunch time on most days?

0. No    1. Yes

Q24. How many days per week do your PE teachers encourage you to do physical activity outside of PE class?

0    1    2    3    4    5

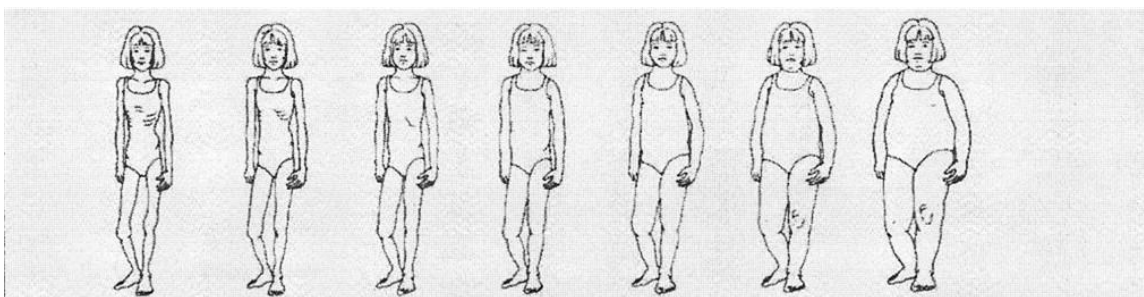
Q25. How many days per week does your school have supervised physical activity programs available...

a. before school?	0	1	2	3	4	5
b. during lunch at school?	0	1	2	3	4	5
c. after school?	0	1	2	3	4	5

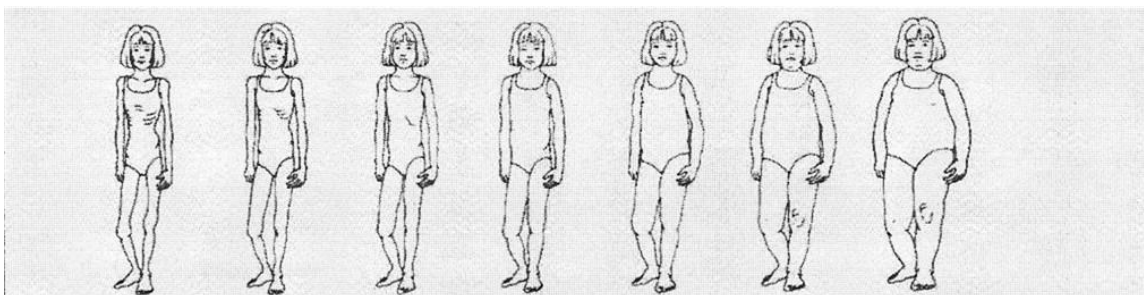
Thank you for completing this survey.
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Appendix D

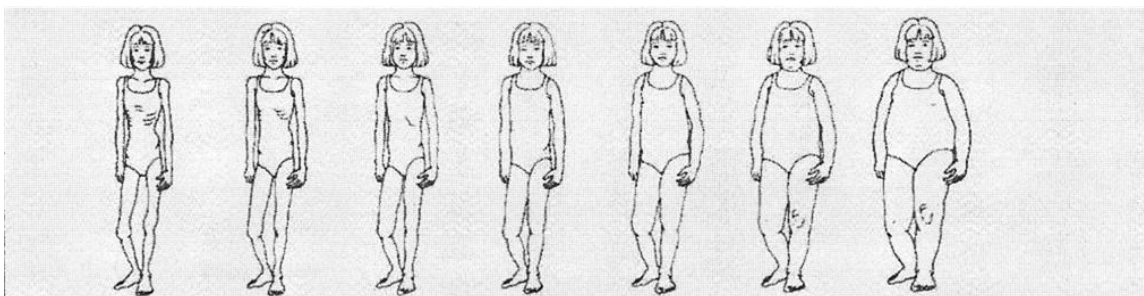
1. Which picture looks the **most like you look?** (Circle one)



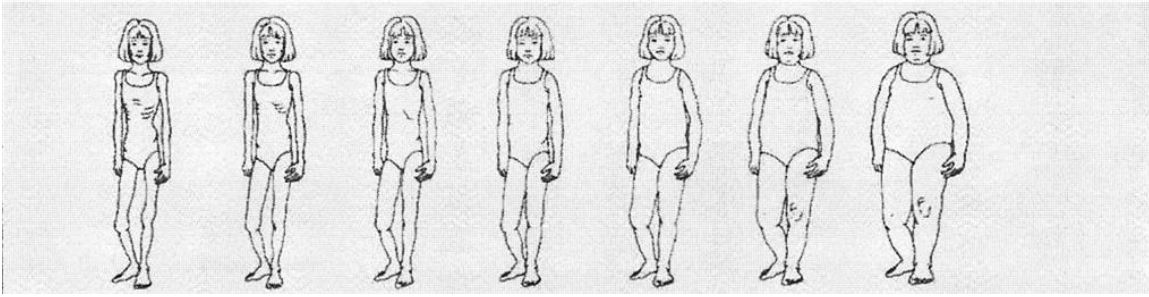
2. Which picture shows the way **you want to look?** (Circle one)



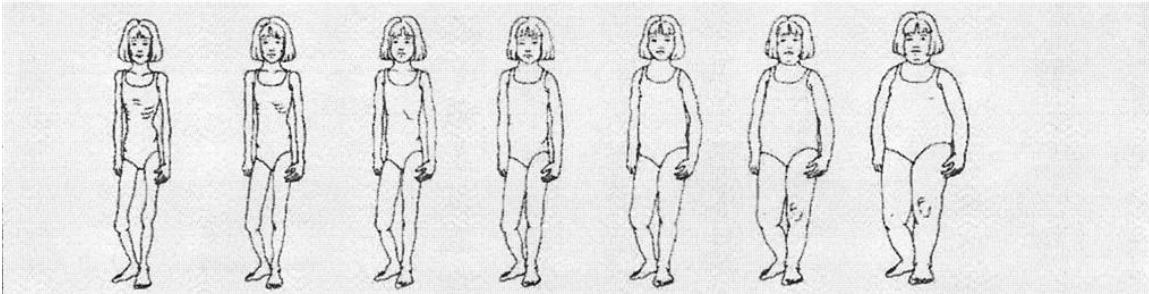
3. Which picture shows the way **your parents** want you look? (Circle one)



4. Which picture shows the way **your female peers** want you look? (Circle one)

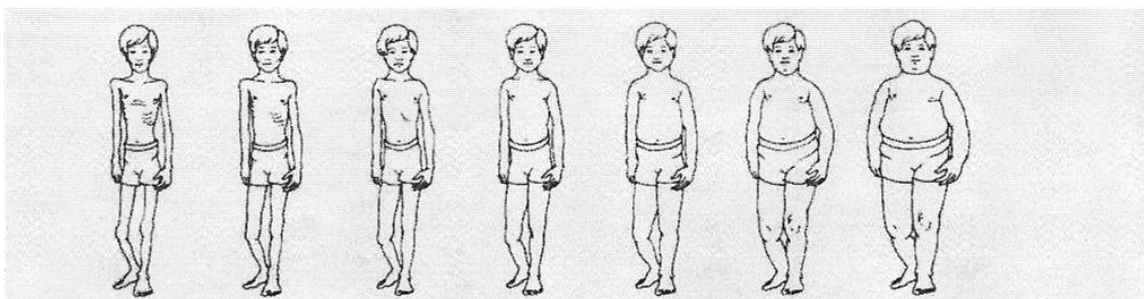


5. Which picture shows the way **your male peers** want you look? (Circle one)

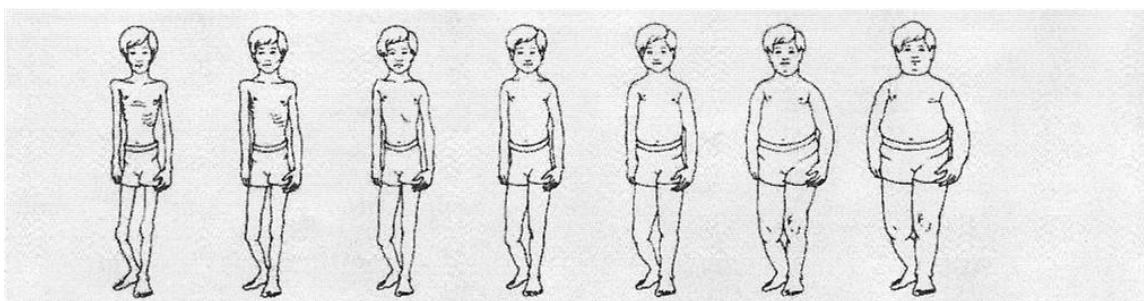


Appendix E

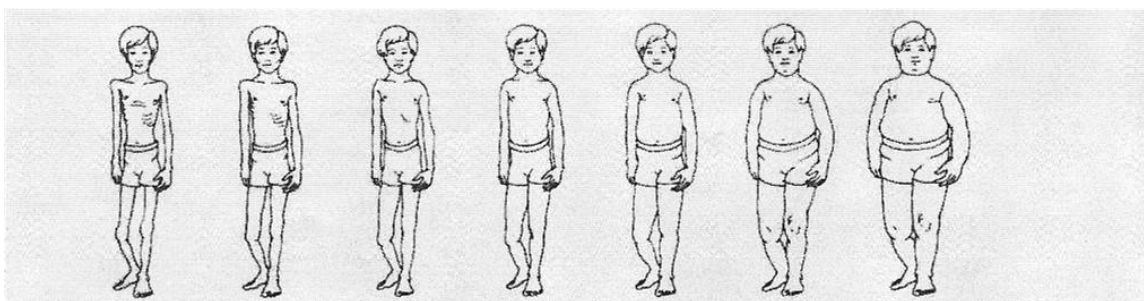
6. Which picture looks the most like **you look?** (Circle one)



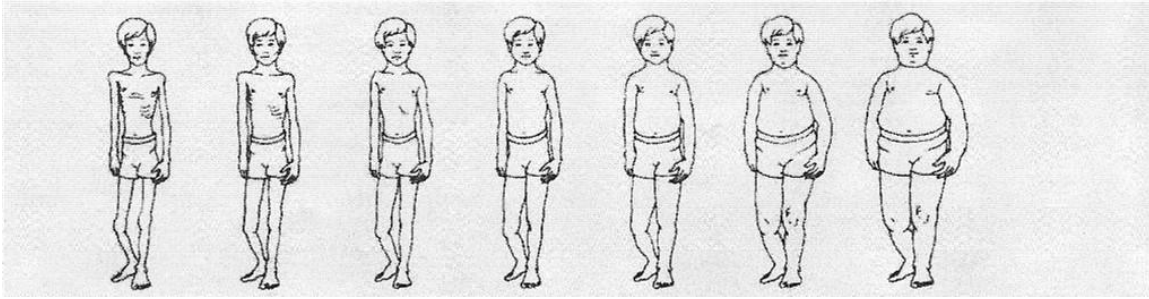
7. Which picture shows the way **you want to look?** (Circle one)



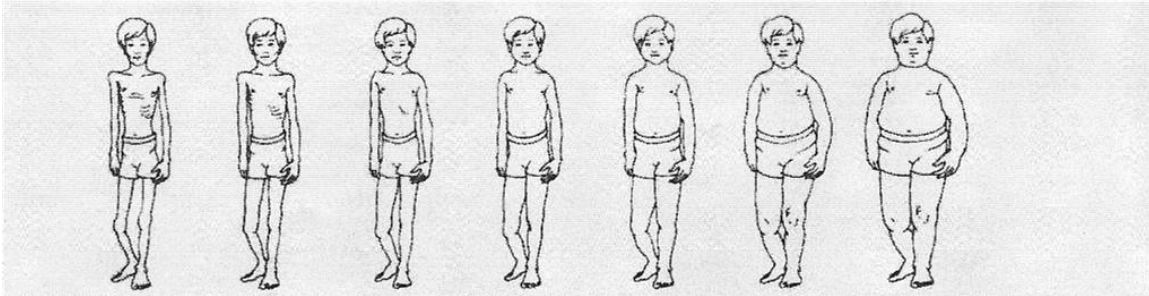
8. Which picture shows the way **your parents** want you look? (Circle one)



9. Which picture shows the way **your male peers** want you look? (Circle one)



10. Which picture shows the way **your female peers** want you look? (Circle one)





Appendix F

Body Esteem Scale for Adolescents and Adults

Directions: For questions 1-21 indicated how often you agree with the following statements. Circle the appropriate number beside each statement.

Never = 1    Seldom = 2    Sometimes = 3    Often = 4    Always = 5

1. I like what I looks like in pictures. 1 2 3 4 5
2. Other people consider me good looking. 1 2 3 4 5
3. I am proud of my body. 1 2 3 4 5
4. I am preoccupied with trying to change my body weight. 1 2 3 4 5
5. I think my appearance would help me get a job. 1 2 3 4 5
6. I like what I see when I look in the mirror. 1 2 3 4 5
7. There are lots of things I'd change about my looks if I could. 1 2 3 4 5
8. I am satisfied with my weight. 1 2 3 4 5
9. I wish I looked better. 1 2 3 4 5
10. I wish I looked like someone else. 1 2 3 4 5
11. People my own age like my looks. 1 2 3 4 5
12. My looks upset me. 1 2 3 4 5
13. I'm as nice looking as most people. 1 2 3 4 5
14. I'm satisfied with how I look. 1 2 3 4 5
15. I feel I weight the right amount for my height. 1 2 3 4 5
16. I feel ashamed of how I look. 1 2 3 4 5
17. My weight makes me unhappy. 1 2 3 4 5
18. My looks help me to get dates. 1 2 3 4 5
19. I worry about the way I look. 1 2 3 4 5

20. I think I have a good body. 1 2 3 4 5

21. I look as nice as I'd like to. 1 2 3 4 5

Appendix G

Debriefing Form

This study will investigate the relationships among physical activity, nutrition, body image, and body satisfaction. One of our hypotheses is that adolescents who regularly participate in physical activity and have a healthy diet will be more satisfied with their bodies than adolescents who do not exercise and do not consume a healthy diet. This research is important because the media puts tremendous pressure on adolescents to look a certain way, but does not promote healthy ways of achieving body image goals.

If you have any questions or concerns about the study, please contact one of the following researchers: Amber Adkins at [adkins@hanover.edu](mailto:adkins@hanover.edu) or Kaelin Stivers at [stivers@hanover.edu](mailto:stivers@hanover.edu). You can also contact our instructor, Dr. Ellen Altermatt at [altermattel@hanover.edu](mailto:altermattel@hanover.edu).