

Dietary Behaviors, Physical Activity, and Body Weight

The following report is based on a portion of self-reported data from the 2002 Hamilton County Youth Risk Behavior Survey (YRBS), conducted among 2,752 Hamilton County students in grades 9 through 12. A total of 19 schools, including 16 public and 3 private schools, participated in the survey. The questionnaire was designed by the Centers for Disease Control with eight questions generated by the Chattanooga Hamilton County Regional Health Council. The questionnaire included 96 questions addressing behaviors concerning personal safety, violence, depression and suicidal thoughts, tobacco use, alcohol and drug use, sexual behaviors, diet, and exercise. Within the analysis, all discussions of differences between respondent groups are based on differences which are statistically significant.

The survey was administered in the classroom and relies on anonymous, self-reported responses.

Executive Summary

Diet

- ▼ Only 15% of respondents ate the recommended five or more daily servings of fruits and vegetables.
- ▼ Thirty-eight percent of students drank one or more glasses of milk daily. Twenty-two percent of students drank no milk in the previous week. Female students (25%) and black students (17%) were more likely to report drinking no milk than were male students (15%) and white students (17%).

Physical Activity

- ▼ Twenty percent of survey respondents had three sessions each of aerobic, vigorous and strengthening exercises in the previous week. Eight percent of respondents engaged in no physical activity of any type in the past week.
- ▼ One-third of all students watched three or more hours of television on a typical school day, and 14% used a computer outside of schoolwork for three or more hours per day.
- ▼ Thirty-nine percent of students were enrolled in physical education (P.E.) classes, with 21% enrolled in daily P.E.
- ▼ Overall, males were more physically active than females. Fifty-one percent of females and 60% of males played one or more team sports. Male students engaged in more aerobic and vigorous activity than females, even when controlling for team sport participation. However, males and females were equally likely to perform strengthening exercises three or more times per week.
- ▼ Generally, white students were more physically active than black students. White students reported higher participation in aerobic, vigorous, and strengthening exercises. Fifty-seven percent of white and 54% of black students participate in one or more team sports, a difference that is not statistically significant. When controlling for team sport participation, white athletes were more likely than black athletes to engage in aerobic exercise and strength training three or more times per week. In addition, black students were 2.4 times more likely than white students to report watching three or more hours of television on a school day (63% vs. 26%).

Weight

- ▼ Sixty percent of respondents were at a healthy weight for their height. Thirteen percent were underweight; 15% were at risk for becoming overweight, and 12% were overweight.
- ▼ Male students were twice as likely to be overweight than females (16% vs. 8%). More black students (18%) than white students (10%) were overweight. Conversely, the prevalence of underweight students was higher among females (16%) than males (11%) and among whites (15%) than blacks (7%).
- ▼ The prevalence of students who were overweight or at risk for being overweight did not change from 9th to 12th grade. However, from 9th to 12th grade there was a decrease in normal weight students and an increase in students who were underweight. This suggests that students starting high school above their optimal weight keep that extra weight throughout high school while many normal weight students lose weight or “grow into” their weight.

Body Image

- ▼ Forty-five percent of respondents were trying to lose weight. More females (59%) than males (29%) were trying to lose weight. The methods employed by students trying to lose weight were exercise (86%), eating less (71%), fasting (22%), pills and powders (excluding meal replacement products such as *Slim Fast*) (19%), and purging (10%).
- ▼ Generally, students' descriptions of their weight were accurate. That is, healthy weight people were satisfied with their weight, heavier people wanted to lose weight, etc. However, there were two exceptions. One group, primarily female, expressed a desire to weigh less than may be healthy for them. Another group, primarily male, expressed a desire to weigh more than may be healthy for them. Both may be reflective society's ideal of thin women and heavily muscled men.
- ▼ The data suggest that body image, rather than actual body mass index, is associated with students' mental outlook. Students who were dissatisfied with their body weight were more likely than those who were satisfied with body weight to report episodes of depression and thoughts of suicide. In addition, students who considered themselves very underweight or very overweight reported greater use of several illegal substances than those less dissatisfied with their weight. However, there were no associations with depression, suicidal thoughts, or substance use and actual weight.

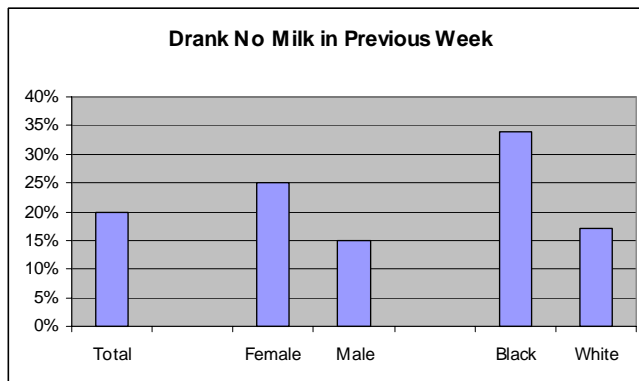
I. Diet

A. Fruit and Vegetable Consumption

Students were asked a series of questions to determine whether they eat the recommended five or more daily servings of fruits and vegetables. Only 15% of students met this standard. There were no differences in fruit and vegetable consumption among various demographic groups.

B. Milk Consumption

Thirty-eight percent of students drink one or more glasses of milk per day, and 42% drink one to six glasses per week. Twenty percent of respondents reported drinking no milk within the past week. Non-consumption of milk was higher among black students (34%) than white students (17%) and among females (25%) than males (15%).



II. Physical Activity

A. General

Overall, 60% of students reported they had engaged in aerobic activities on three of the past seven days, while 19% of students had no aerobic activities in the past week. Aerobic activity is defined as "physical activity for at least 20 minutes that makes you sweat and breathe hard, such as basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities."

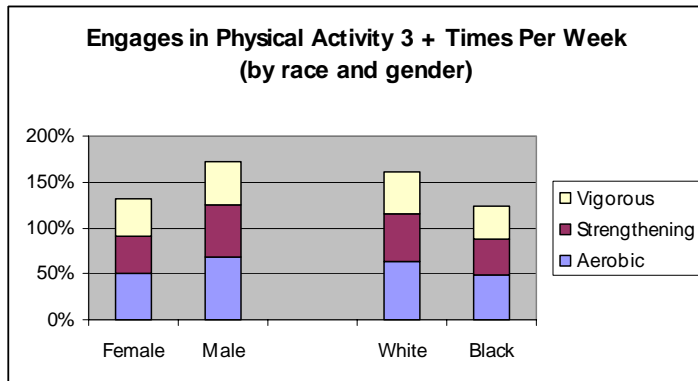
Forty-three percent of students surveyed engaged in vigorous physical activity three or more times in the previous week, while 31% did not engage in any vigorous physical activity. Vigorous physical activity was defined as "physical activity for at least 30 minutes that did not make you sweat or breathe hard, such as walking, slow bicycling, skating, pushing a lawn mower, or mopping floors."

Half of all students engaged in strengthening exercises three or more times in the previous week, while 27% did no strengthening exercises. Strengthening exercises were defined as “exercises to strengthen or tone your muscles, such as pushups, sit-ups or weight lifting.”

	Aerobic	Vigorous	Strengthening
None	19%	31%	27%
1-2 times/week	21%	26%	24%
3+ times/week	60%	43%	49%

Twenty percent of students may be considered fitness oriented, defined as participating in all three types of activities three or more times in the past seven days. Eight percent of students were sedentary, and did not engage in any of the activities in the past week.

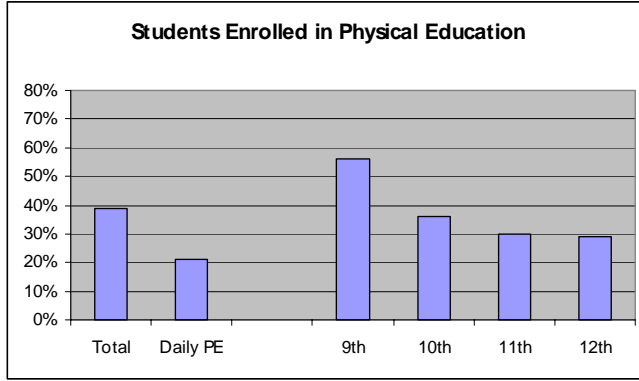
Fitness Oriented (did all three types activities 3+ times /week) 20%
Sedentary (did not engage in any physical activity) 8%



Overall, males were more active than females, and white students were more active than black students.

B. Participation in Physical Education

Thirty-nine percent of students were currently enrolled in a physical education (P.E) class, with 21% of all students enrolled in daily P.E. Participation in PE declines from 56% of 9th grade students to 29% of 12th grade students. (Hamilton County Schools requires one credit in P.E., which most students take in 9th grade.) Sixty-three percent of students taking PE indicated they spent thirty minutes or more of class time exercising or playing sports.

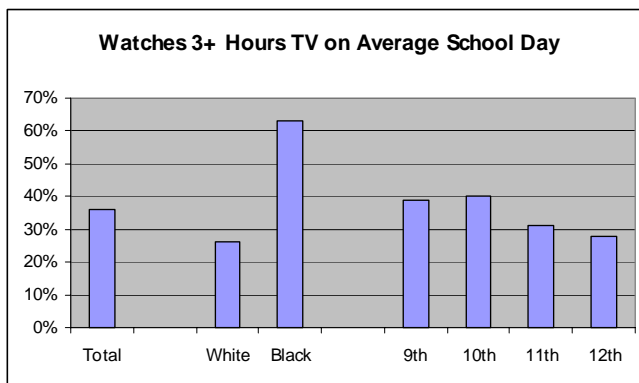


C. Participation in Team Sports

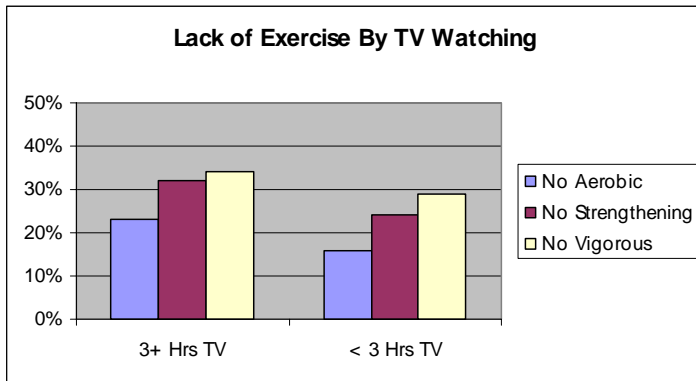
Fifty-four percent of students participated in one or more team sports in the past year. About half of the females and 60% of the males participated in team sports. Fifty-six percent of white students and 51% of black students played on one or more teams. Team sport participation drops from an average of 55% in 9th through 11th grade to 49% in the 12th grade.

D. Television Watching

One third of all students reported watching three or more hours of television on a typical school day. Significantly more black students (63%) than white students (26%) reported watching this much television. The amount of TV a student watches declines after the 10th grade. Eleven percent of students reported they did not watch any TV on school days.



Television viewing appears to occur at the expense of physical activity. Students who watch three or more hours of TV per school day are more likely to report no aerobic, strengthening, or vigorous exercises within the past week than students watching fewer hours of TV.



E. Computer Use

Fourteen percent of all students reported using a computer for purposes other than school work for three or more hours on a typical school day. This level of computer use is higher among males (17%) than females (13%). Black students reported *no* computer use more often than white students (31% vs. 19%). Twenty-two percent of all students reported no computer use on a school day.

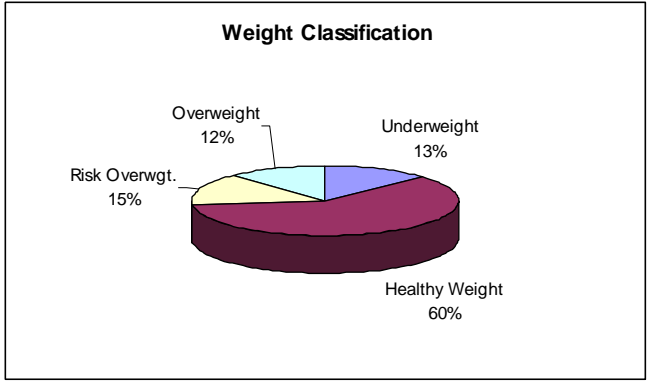
III. Body Weight

A. Weight Classification – Body Mass Index (BMI)

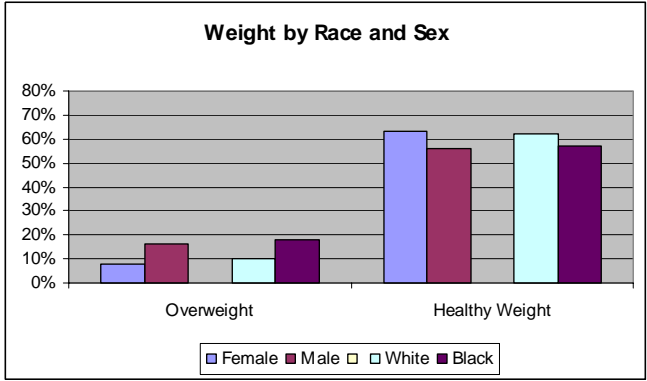
Body Mass Index (BMI) is a tool used to help determine whether someone is overweight. BMI is computed using a formula based on an individual’s height and weight. The Centers for Disease Control (CDC) classifies adolescents at risk for overweight if their BMI falls between the 85th and 94th percentile for their age and gender, and overweight if their BMI is at the 95th percentile or higher. While the CDC does not have a definition for underweight, based on conversations with local dietitians, the Community Research Council set the threshold for underweight at the 25th percentile or below.

BMI is one of several tools used to evaluate body weight. The advantage of BMI is convenience, especially for evaluating large populations in a survey setting. It is an imperfect measure, as it does not distinguish between fat and muscle. Since muscle weighs more than fat, a fit person’s BMI may suggest that a person is overweight when much of that weight actually comes from muscle mass rather than fat. In such instances, BMI could incorrectly imply the person is overweight.

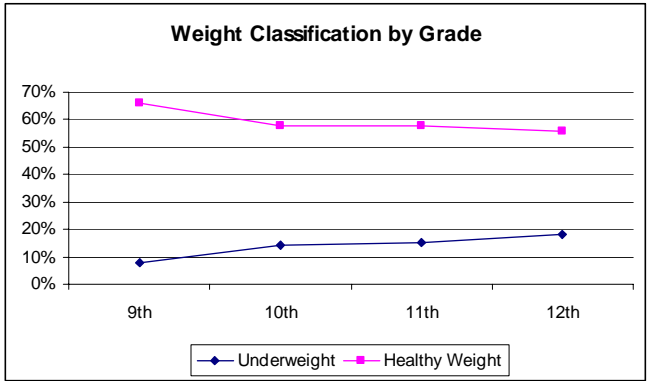
Overall, 60% of students are at a healthy weight, while 13% are underweight, 15% are at risk for overweight, and 12% are overweight.



The prevalence of overweight is higher among males than females and among black students than white students. Conversely, more females than males and more whites than blacks are at a healthy weight.

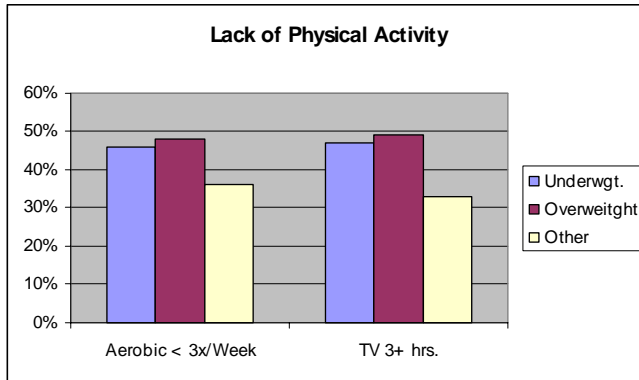


As students move from 9th through 12th grade, the proportion of students at a healthy weight increases (from 66% to 56%), while the percentage of students who are underweight increases (from 8% to 18%). (The rates of overweight and at risk for overweight students do not change.)



B. Body Weight and Inactivity

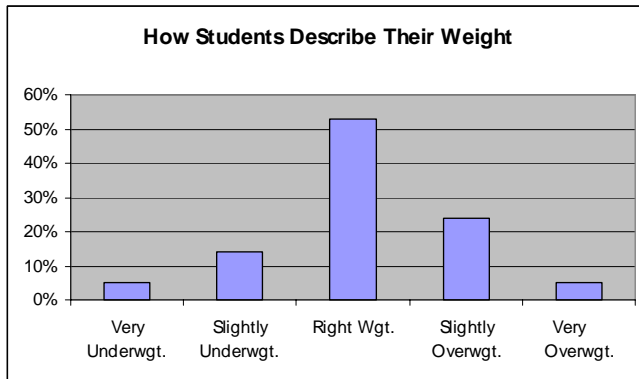
Both underweight and overweight students engage in less aerobic activity than other students. In addition, both underweight and overweight students spent more time watching television than other students.



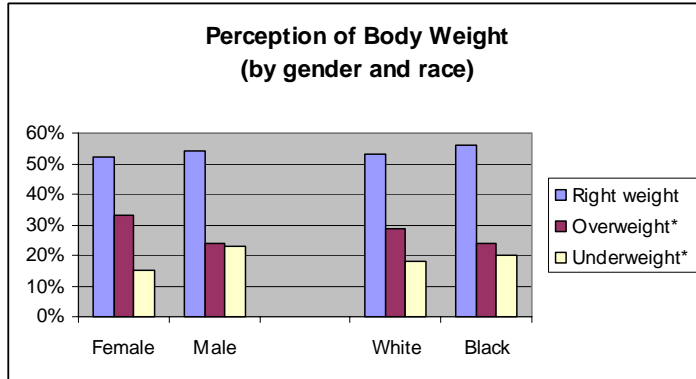
IV. Body Image

A. Satisfaction With Weight

About half of all students were satisfied with their body weight, describing themselves as about the right weight. A total of 29% considered themselves slightly overweight (24%) or very overweight (5%). About one in five described themselves as either slightly underweight (14%) or very underweight (5%).



Overall, males reported greater satisfaction with body weight than females, while black students were more satisfied with body weight than white students. Generally, dissatisfied females described themselves as overweight while dissatisfied males described themselves as underweight. In addition, dissatisfied white students described themselves as overweight while dissatisfied black students described themselves as underweight.



*combines very and slightly

B. Perceived Weight vs. Actual Weight

Generally, students' description of their weight corresponded with their actual weight classification as suggested by BMI. However, the data suggest that two types of students, one primarily female and the other primarily male, may have an unhealthy body image.

The group that is primarily female consists of underweight students who consider themselves about the right weight and healthy weight students who consider themselves overweight. This suggests a pre-occupation with being thin.

Suggests pre-occupation with being thin (primarily female)

- ▼ 17% of students at a healthy weight considered themselves overweight.
- ▼ 41% of underweight students considered themselves about the right weight.

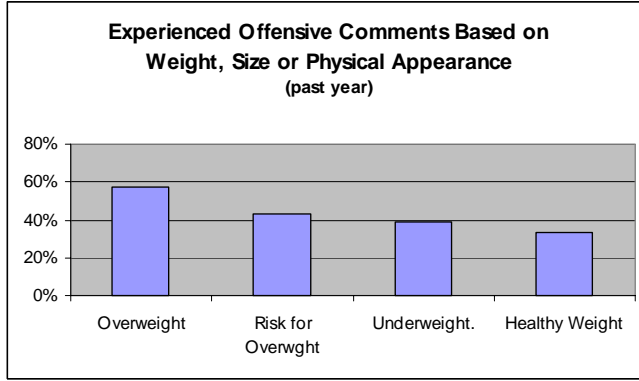
The group that is primarily male consists of students who are either overweight and consider themselves about the right weight, or who are at a healthy weight and consider themselves underweight. These students may be athletes who are trying to add weight by building muscle (see discussion of the disadvantage of using BMI, above).

Suggests students who may want to weight more than recommended (primarily male)

- ▼ 18% of overweight students considered themselves about the right weight.
- ▼ 15% of students at a healthy weight considered themselves underweight.

C. Body Weight and Teasing

Thirty-eight percent of all respondents reported that, within the past year, other people had made offensive comments to them or about them, based on weight, size, and physical appearance while in school or on their way to or from school. Reported offensive comments were highest among respondents who were overweight (57%), followed by respondents at risk for overweight, (43%), underweight (39%), and normal healthy weight (33%).



D. Perceived Weight and Mental Health

The data suggest that students' body image, rather than their actual body mass index, is associated with their mental outlook. Students who expressed dissatisfaction with body weight, describing themselves as either very underweight or very overweight, reported depression and suicide ideation more often than those satisfied with their weight. However, these associations did not exist when looking at respondents' actual weight .

Students' Description of Body Weight¹

Past Year	Very Underweight	Slightly Underweight	About Right Weight	Slightly Overweight	Very Overweight
Depression	36%	25%	24%	32%	36%
Considered Suicide	24%	15%	13%	19%	26%
Plan Suicide	31%	15%	13%	18%	24%
Attempt Suicide	23%	8%	7%	12%	23%

Students Actual Body Weight Classification (based on BMI)²

Past Year	Underweight	Healthy Weight	At Risk for Overweight	Overweight
Depression	28%	26%	30%	25%
Considered Suicide	19%	14%	17%	17%
Plan Suicide	16%	14%	15%	17%
Attempt Suicide	11%	9%	10%	9%

E. Perceived Weight and Substance Use

¹ Differences are statistically significant

² Differences are not statistically significant

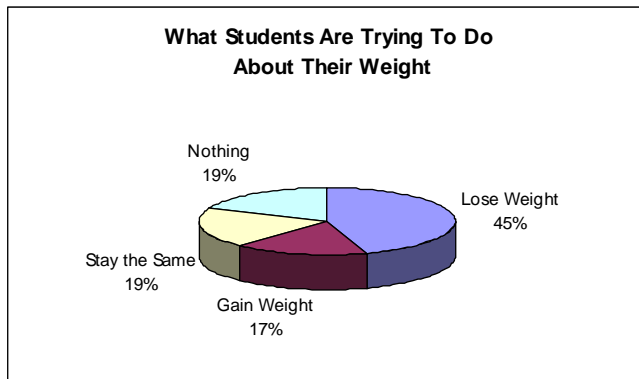
Body image may have a role in drug use as well. Not only do students who consider themselves very underweight or very overweight report more depression and suicidal thoughts than those more satisfied with their weight, they also report greater use of some illegal drugs, including cocaine, ecstasy, and inhalants as detailed below. Use of methamphetamines was higher among students rating themselves as very underweight (23%) than students rating themselves otherwise (10%).

Substance Use	Very Under /Over Weight (10% of students)	About Right Wgt./ Slightly Under/Over Weight (90% of students)
Ecstasy (ever)	20%	9%
Cocaine (ever)	15%	6%
Inhalants (past month)	10%	4%

VI Weight Loss/Maintenance

A. What Students Are Doing About Weight

Forty-five percent of students reported they were trying to lose weight. Equal numbers of students were either trying to gain weight, maintain their weight, or doing nothing about their weight. Female students (59%) were more likely than male students (29%) to report they were trying to lose weight, while more males (27%) than females (8%) were trying to gain weight. More white students (47%) than black students (39%) were trying to lose weight, while attempts at weight gain were higher among black students (24%) than white students (15%).

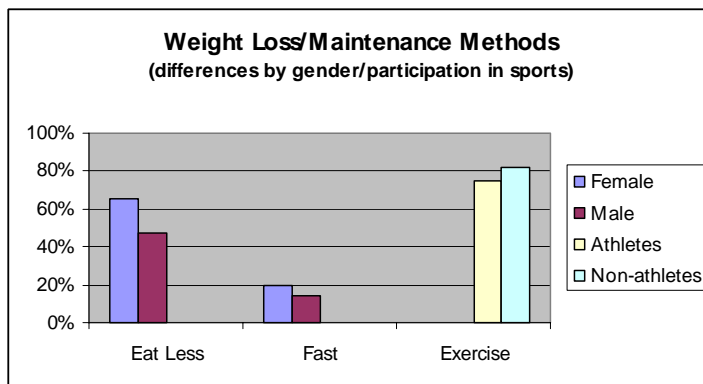


B. Reported Weight Maintenance / Loss Methods

Respondents were asked whether they participated in a variety of activities to maintain or lose weight. Overall, exercise and diet modifications, including eating less food, fewer calories, or foods lower in fat, were the most often cited methods by respondents who were trying to lose weight or maintain their current weight. About one in five students trying to lose weight reported fasting (22%) or using weight loss pills and powders (19%), while 10% reported vomiting or taking laxatives (purging).

	Method Trying to Lose	Trying to Maintain
Exercise	86%	62%
Eat Less	71%	28%
Fasting	22%	8%
Pills/Powders ³	19%	5%
Purging	10%	3%

Among students trying to either maintain or lose weight, females were more likely than males to either fast or eat less. Also among students trying to maintain or lose weight, those participating in one or more team sports were more likely to exercise to achieve that objective than were students not playing team sports.



³ Does not include meal replacement products such as Slim Fast.

C. Actual Activities of Students Trying to Lose Weight

When looking at actual physical activity performed three or more times per week, students trying to lose weight are more likely to do strength training (43%) and vigorous activity (43%) than aerobic exercise (34%). Fourteen percent of students trying to lose weight eat five or more servings of fruits and vegetables. Students trying to maintain their weight are significantly more likely to engage in thrice-weekly strength training and aerobic exercise than those trying to lose weight.

	Trying to Lose	Trying to Maintain
3 Times/Week		
Strengthening*	43%	57%
Vigorous	43%	40%
Aerobic*	34%	66%
Diet		
5+ fruits and vegetables	14%	16%
<i>* differences are statistically significant</i>		

D. Weight Loss/Maintenance Methods and Other Risk Behaviors

Use of fasting, diet pills and liquids, and purging were all associated with engagement in other risky behaviors. Students reporting cigarette, alcohol, or marijuana use within in the past month were significantly more likely to also report fasting, using diet pills and liquids, or purging than students who had not used these substances. These dieting methods were also more prevalent among students who had been depressed for two or more weeks in the past year. (These percentages are of all students, regardless of what they are trying to do about their weight.)

	Fasting	Diet Pills/Liquids	Purging
Smoker	24%	21%	11%
Non-Smoker	9%	8%	4%
Drinker	19%	17%	8%
Non-drinker	10%	7%	4%
Use Marijuana	22%	19%	11%
Don't Use Marijuana	10%	8%	4%
Depressed Past Yr.	25%	19%	11%
Not Depressed	9%	9%	4%