Nutrition and Physical Activity

Behaviors and Perceptions

among

Georgia High School Students –

Youth Risk Behavior Survey, 2013



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TABLE OF CONTENTS

Α.	Key Findings6
в.	Background: Obesity, Nutrition, Physical Activity9
C.	Methods12
D.	Obesity
E.	 Physical Activity
F.	Dietary and Physical Activity Behaviors25
G.	Perceptions about Healthy Eating and Physical Activity31
н.	Potential Actionable Steps
I.	Georgia Program Highlight – Georgia SHAPE Initiative52
J.	Limitations
К.	References
L.	Appendices Tables

A. KEY FINDINGS

1. Almost 1 in 3 Georgia high school students were overweight or obese in 2013.

Among all Georgia high school students in 2013, 17% were overweight and 13% were obese. Male students were more likely to be obese compared to female students, and non-Hispanic (NH) black students were more likely to be overweight <u>and</u> obese than NH white students.

2. Only a quarter of Georgia high school students met the recommendation of participating in physical activity (PA) ≥ 60 min/day in 2013.

Students in lower grades and male students were more likely to participate in PA \ge 60 min/day than 12th grade students and female students, respectively.

3. About one-third of Georgia high school students attended physical education (PE) 5 days of the week in 2013.

Ninth⁻grade students and male students were more likely to attend PE class 5 days per week than 11th and 12th grade students and females, respectively. The Georgia Department of Education requires that high school students take a minimum of one semester of physical education during high school. Many Georgia schools recommend that students take this course in their 9th grade year, thereby increasing the likelihood that 9th grade students would be more likely to take physical education.

4. Obese students were more likely to fast and take diet pills to lose weight compared to students who were <u>not</u> overweight or obese.

Obese students were 2 times <u>more likely</u> to fast and 3 times more likely to take diet pills compared to students who were <u>not</u> overweight or obese.

5. The daily fruit and vegetable intake among Georgia high school students is low.

Approximately 19% of high school students drank 100% fruit juice and ate fruit at least 3 times a day, 11% ate vegetables at least 3 times a day, and 8% ate fruit or drank 100% juice at least 2 times a day and ate vegetables at least 3 times a day. There were no differences in fruit and vegetable intake by weight status.

6. A high percentage of Georgia high school students eat out at fast food restaurants during the week.

Almost one in three Georgia high school students ate out at fast food restaurants at least three times during the week. There were no differences in fast food intake by weight status.

7. A high percentage of Georgia high school students skip breakfast every week.

Greater than one-third of Georgia high school students skipped breakfast at least 5 days of the week and 15% of students skip breakfast <u>every day.</u> There were no differences in skipping breakfast by weight status.

8. Obese students were less likely to participate in a school sports team than students who were <u>not</u> overweight or obese.

Obese students were <u>30% less likely</u> to participate in a school sports team than students who were <u>not</u> overweight or obese.

9. The desire to be healthy, the taste of healthy foods, and the desire to look good were most commonly cited reasons for why Georgia high school students are most likely to eat healthy foods.

Friends, family, and physicians appeared to be less important factors that influence Georgia high school students to eat healthy foods.

10. The majority of Georgia high school students were most likely to eat healthy foods at home.

Georgia high school students were most likely to eat healthy foods at home followed by at their school, at restaurants, and at some other place.

11. The desire to look good, the desire to be healthy, and enjoying exercise were the mostcommonly cited reasons why Georgia high school students exercised.

While the majority of students, regardless of weight status, stated that they exercise because they want to look good, a higher percentage of obese students said that they want to be healthy as a reason to exercise than normal weight students. A higher percentage of normal weight students identified that they enjoyed exercise compared to obese students. Friends, family, and physicians appeared to be less important factors that influence Georgia high school students to exercise.

12. The majority of Georgia high school students were most likely to exercise at home.

The next most likely locations to exercise for students were at their school, at a fitness center, and some other place. However, for students who met the recommendations for physical activity ($PA \ge 60 \text{ min/day}$) and strengthening exercises (strengthening exercises $\ge 3 \text{ days/week}$), they were most likely to exercise at their school, followed by their home, at a fitness center, and some other place.

13. Georgia high school students who met the recommendations of PA (≥ 60 min/day) and strengthening exercises (≥ 3 days/week) were most likely to exercise with friends.

A higher percentage of normal weight students stated that they exercised by themselves than overweight or obese students, while more overweight and obese students state that they exercised with family members than normal weight students.

B. BACKGROUND

Overweight and Obesity

Nationally, adolescent obesity has more than quadrupled in the past 30 years (1, 2). The percentage of adolescents aged 12-19 years who were obese increased from 5% to nearly 21% from 1980 to 2012 in the U.S. The etiology of overweight and obesity among youth is likely multifactorial and could be explained by the social-ecological framework which describes the complex interplay of individual, behavioral, community, and societal or policy-related factors. Factors ranging from individual factors such as taste preferences for healthy foods such as fruits and vegetables to community level factors such as access to foods high in fats and added sugars to societal factors such society support for physical activity and recreational opportunities are potential predictors of adolescent health behaviors that can contribute to their overweight and obesity (3-5).

Overweight is defined as having excess body weight for a particular height from fat, muscle, bone, water, or a combination of these factors (6). Obesity is defined as having excess body fat (7). The Body Mass Index (BMI) provides a reliable indicator of body fat for most people and is used to screen for weight categories that may lead to health problems. The BMI is calculated from a person's weight and height. Adolescents who are overweight are between the 85th and 95th percentiles for BMI, based on their sex and age. Adolescents who are obese have a BMI that is are greater than or equal to the 95th percentile, by age and sex.

Obese adolescents are at higher risk for obesity in adulthood, social and psychological problems, sleep apnea, high blood pressure, pre-diabetes and diabetes, and bone and joint problems (8-10). Engaging adolescents in healthy eating and regular physical activity can lower their risk for overweight and obesity and related chronic diseases (9, 11).

Benefits of Healthy Eating

Healthy eating throughout childhood and adolescence has many benefits. Healthy eating is important for proper growth and development and can prevent health problems such as obesity, cavities, low bone strength, low total body iron, heart disease, stroke, and diabetes (12).

Recommendations for Healthy Eating for Adolescents

The 2010 Dietary Guidelines for Americans provides dietary recommendations for children and adults (12). The guidelines generally recommend a diet rich in fruits and vegetables, whole grains, and fat-free and low-fat dairy products and limiting intake of solid fats, cholesterol, sodium, added sugars, and refined grains for persons ≥ 2 years of age (12). The recommended

servings of 100% fruit juice and fruit for adolescents aged 14-18 years are between <u>1.5 to 2.5</u> <u>cups of fruit daily</u> (including 100% fruit juice). The recommended servings of vegetables for this age group are between <u>2.5 to 4 cups of vegetables daily</u>.

Fast food restaurants are a significant source of energy-dense, high caloric foods and contribute to weight gain in adolescents (13). Adolescents who report eating fast foods and sugar-sweetened beverages tend to consume more total energy and fat and consume less fruits and non-starchy vegetables (12-14). Hence, limiting sugar-sweetened beverages and eating out at fast food restaurants could decrease overweight and obesity among adolescents.

Additionally, eating a healthy breakfast is associated with improved cognitive function (especially memory), reduced absenteeism, and improved mood (15-17). Adolescents who eat a healthy breakfast on a daily basis will more likely experience these benefits (15-17).

Benefits of Physical Activity

Regular physical activity builds healthy bones and muscles, reduces risk of being obese, improves academic performance and grades, reduces depression and anxiety, improves concentration in the classroom, and reduces risk of chronic diseases like diabetes (18,19).

Recommendations for Physical Activity for Adolescents

Adolescents should have 60 minutes or more of physical activity daily (20). These activities should include:

Aerobic	Muscle-strengthening	Bone-strengthening
Most of the 60 or more minutes a day should include activities of either moderate- or vigorous intensity. Aerobic physical activity should be of vigorous intensity at least 3 days a week	Part of the 60 or more minutes of daily physical activity should include muscle-strengthening. Muscle-strengthening activities should be included on at least 3 days of the week.	Part of the 60 or more minutes of daily physical activity should include bone-strengthening. Bone- strengthening activities should be included on at least 3 days of the week.

Types of Physical Activity (20)

Moderate physical activities	Vigorous physical activities	Muscle-strengthening activities	Bone-strengthening activities
Rollerblading	Running	Push-ups	Hopping
Brisk walking	Biking	Pull-ups	Skipping
Biking (stationary	Jumping rope	Weight-lifting	Jumping
bike)	Karate	exercises	Running
Dancing	Vigorous dancing like	Working with	Sports like gymnastics,
Yard work (mowing	zumba	resistance bands	basketball, and tennis
lawn, raking leaves)	Sports like soccer,	Wall Climbing	
Baseball & softball	tennis and football	Sit-ups	
Washing and waxing		Games like tug-of-war	
car			

Focusing on Schools to Improve Nutrition and Physical activity in Students

Schools can play a critical role in influencing the dietary and physical activity behaviors of students. The majority of adolescents enrolled in high school spend a large percentage of their time outside the home in school setting – typically 6-7 hours a day for approximately 180 days per year. The school's food environment influences youth eating behaviors and provides them with opportunities to consume an array of foods and beverages throughout the school day (21). Schools are also in a unique position to help adolescents attain their daily recommended 60 minutes of physical activity. Including physical activity during the school day reduces students' sedentary behavior, increases overall physical activity participation, and enhances student academic performance (22-24).

C. METHODS

Youth Risk Behavior Survey

The YRBS is a nationwide paper-and-pencil survey, conducted by the Georgia Department of Public Health in collaboration with the Centers for Disease Control and Prevention (CDC) and monitors priority health risk behaviors that contribute to the leading causes of death, disability, and social problems among youth in the United States (25). The Georgia high school YRBS survey is administered to students between grades 9 through 12 in a representative sample of schools across the state of Georgia. The surveys are conducted biennially in every odd-numbered year, with data for Georgia beginning in 2003. The results presented in this report are from the 2013 Georgia YRBS survey.

Reliability and Validity of YRBS

The national YRBS questionnaire has been shown to be reliable after having undergone two test-retest reliability studies (25). No study has been conducted to assess the validity of all self-reported behaviors that are included on the YRBSS questionnaire. However, in 2003, CDC reviewed the existing literature to assess cognitive and situational factors that might affect the validity of self-reporting behaviors of adolescents (25). Following this review, CDC determined that these factors do not threaten the validity of self-reports of each type of behavior equally. Further, not all self-reported behaviors can be measured objectively (25).

D. OBESITY

Throughout the report, phrases such as 'more likely', 'less likely', and 'no differences' when describing the results signify whether the result was statistically significant at a p value of < 0.05.

1. What is the status of overweight and obesity among Georgia's high school students?

- Among all Georgia high school students in 2013, 17% were overweight and 13% were obese.
- There were <u>no differences</u> in the percentage of Georgia high school students who were overweight or obese by grade.
- The percentage of high school students who were overweight did <u>not</u> differ by sex.
- Male high school students (14%) were more likely to be obese than female high school students (11%).
- There were <u>no differences</u> in overweight and obesity between non-Hispanic (NH) black students and Hispanic students or NH white students and Hispanic students.
- NH black students (20%) were more likely to be **overweight** than NH white students (15%).
- NH black students (15%) were more likely to be **obese** than NH white students (11%).

Georgia ranks number 17 out of 43 states for obesity among high school students in the U.S.

Figure 1



2. How has obesity among Georgia high school students changed over time?





- While obesity among 9th, 11th, and 12th graders remained stable over the years, 10th graders were <u>more likely</u> to be obese in 2013 compared to 2003.
- In all the years, there were <u>no differences</u> in obesity by grade.





- From 2003 to 2013, male students were more likely to be obese than female students.
- Female students were more likely to be obese in 2013 compared to 2003.
- The average annual percentage increase for males was 0.003%; the average annual percentage increase for females was 0.12%.





- NH black students have a greater prevalence of obesity than NH white students (p value <0.05).
- In 2011 and 2013, obesity among NH black students was higher than NH white students (p value < 0.05).

E. PHYSICAL ACTIVITY

1. What is the status of physical activity among Georgia high school students?

Met the recommendations in 2013:

- Physical Activity (PA) \geq 60 min/day: **25%** of high school students
- Muscle-strengthening Exercises \geq 3 days/week: **50%** of high school students
- Physical Education (PE) Attendance 5 days/week: **34%** of high school students
- 9^{th} (29%), 10^{th} (27%) and 11^{th} (25%) grade students were <u>more likely</u> to have PA \ge 60 min/day than 12^{th} (17%) grade students.
- 9th (57%) and 10th (52%) grade students were more likely to do strengthening exercises ≥ 3 days/week than 12th (43%) grade students.
- 9th (52%) and 10th (32%) grade students were more likely to attend PE class 5 days/week than 12th grade (20%) students.
- Male students were more likely to have PA ≥ 60 min/day (35% for males vs. 15% for females), do strengthening exercises ≥ 3 days/week (60% vs. 40%), and attend PE class 5 days/week (39% vs. 29%) than female students.
- There were <u>no differences</u> in PA ≥ 60 min/day, strengthening exercises ≥ 3 days/week or attending PE class 5 days/week by race/ethnicity.

Figure 5



Physical activity and physical education attendance

2. How has physical activity among high school students changed over the last decade in Georgia?

Figure 6



• From 2005 to 2013, male students were <u>more likely</u> to be physically active \geq 60 min/day than female students.

Figure 7



- In 2013, 9th, 10th, and 11th grade males were <u>more likely</u> to be physically active \geq 60 min/day than 12th grade males.
- From 2007 to 2013, physical activity for \geq 60 min/day remained stable for all grades.





- In 2013, 9th grade females were <u>more likely</u> to be physically active \geq 60 min/day than 12th grade females.
- Physical activity \geq 60 min/day remained stable over the years for 9th, 10th, and 11th grade females.

14. How has PE attendance among Georgia high school students changed over the last decade?





• From 2003 and 2013, 9th grade students were more likely to attend PE class daily than 11th and 12th grade students.





• Male students were more likely than females to attend PE class daily across all years.





- The percentage of NH white students and NH black students who attended PE class daily did not significantly change over the years.
- The percentage of Hispanic students who attended PE class daily fluctuated across the years (24%-38%).

F. NEGATIVE DIETARY AND PHYSICAL ACTIVITY BEHAVIORS

1. How were Georgia high school students trying to lose weight in unhealthy ways? (Table 3, Figure 12)

The behaviors that were assessed were fasting, taking diet pills, and vomiting/taking laxatives.

Fasting

Fourteen percent (14%) of students who were normal weight fasted in order to lose weight compared to 19% of overweight students and 21% of obese students. In the adjusted analyses¹, obese students were 2 times <u>more likely</u> to fast compared to to students who were of normal weight.

Taking diet pills

Six percent (6%) of students who were normal weight took diet pills in order to lose weight compared to 10% of overweight students and 14% of obese students. In the adjusted analyses, obese students were 3 times <u>more likely</u> to take diet pills compared to students who were normal weight.

Vomiting/Taking laxatives

There was <u>no difference</u> in using vomiting/laxatives as an approach to lose weight by weight status. Six percent (6%) of students who were normal weight vomited/took laxatives in order to lose weight compared to 8% of overweight students and 8% of obese students.

¹ Adjusted analyses: Throughout this report, the multivariable logistic regression analyses were adjusted for grade, sex, and race/ethnicity.

Figure 12



2. How often did Georgia high school students consume fruits and vegetables? (Table 4, Figure 13)

**Measured in number of times per day orweek.

100% Fruit Juice and Fruit Intake

There was <u>no difference</u> in either 100% fruit juice or fruit consumption by weight status. Nine percent (9%) of students who were normal weight, 10% of overweight students, and 7% of obese students drank 100% fruit juice at least 3 times a day. Similarly, 10% of students who were normal weight, 10% of overweight students, and 11% of obese students ate fruit at least 3 times a day.

There was <u>no difference</u> in consuming 100% fruit juice and/or fruit intake at least 3 times a day by weight status. Nineteen percent (19%) of students who were normal weight, 20% of overweight students, and 19% of obese students drank either 100% fruit juice or ate fruit at least 3 times a day.

Figure 13



Vegetable Intake

There was <u>no difference</u> in vegetable intake by weight status. Eleven percent (11%) of students who were normal weight, 10% of overweight students, and 13% of obese students ate vegetables at least 3 times a day.

Fruit and Vegetable Intake

There was <u>no difference</u> in both fruit and vegetable intake by weight status. Eight percent (8%) of students who were normal weight, 8% of overweight students, and 8% of obese students ate fruit or drank 100% juice at least 2 times a day and ate vegetables at least 3 times a day.

3. How often did Georgia high school students consume sugar-sweetened beverages, eat out at fast food restaurants, or skip breakfast? (Table 4)

Sugar-sweetened Beverage Intake

There was <u>no difference</u> in sugar-sweetened beverage intake by weight status. Twenty percent (20%) of students who were normal weight, 17% of overweight students, and 20% of obese students consumed sugar-sweetened beverages at least once a day.

Fast Food Restaurant Use

While there <u>was a difference</u> in fast food restaurant use by weight status in the unadjusted analyses, there was <u>no difference</u> in fast food restaurant use by weight status in the adjusted analyses (i.e., after controlling for grade, sex, and race/ethnicity). Thirty-six percent (36%) of students who were normal weight, 32% of overweight students, and 26% of obese students ate out at fast food restaurants at least **three times** per week. Forty-three percent (43%) of students who were normal weight, 40% of overweight students, and 54% of obese students ate out at fast food restaurants **one to two** times per week.

Skipping Breakfast

There was <u>no difference</u> in skipping breakfast by weight status. Between 33% to 39% of students skipped breakfast most days of the week (greater than or equal to 5 days of the week), with 15% of students who were normal weight, 15% of overweight students, and 16% of obese students skipping breakfast **every day.**

4. What were the physical activity behaviors of Georgia high school students? (Table 5, Figure 14-16)

Physical Activity \geq 60 minutes a Day

There was <u>no difference</u> in physical activity level by weight status (Figure 14). Only twentyfive percent (25%) of students who were normal weight, 27% of overweight students, and 22% of obese students participated in the recommended level of physical activity of \geq 60 minutes a day.

Strengthening Exercises \geq 3 times per Week

There was <u>no difference</u> in participating in the recommended amount of strengthening exercises by weight status (Figure 14). Fifty-one percent (51%) of students who were normal weight, 49% of overweight students, and 49% of obese students participated in the recommended amount of strengthening exercises of \geq 3 times per week.

Stretching Exercises

There was <u>no difference</u> in participating in stretching exercises by weight status (Figure 14). Seventy-one percent (71%) of students who were normal weight, 67% of overweight students, and 64% of obese students participated in stretching exercises at least once per week.









Figure 16



Participation in School Sports Teams

Approximately 58% of Georgia high school students who were normal weight, 53% of overweight students, and 49% of obese students participated in at least one school sports team. Obese students were <u>30% less likely</u> to participate in a school sports team than students who were of normal weight

5. How often did Georgia high school students attend physical education class during the school week? (Table 5)

There was <u>no difference</u> in the frequency of physical education class attendance by weight status. Thirty-three percent (33%) of students who were normal weight, 35% of overweight students, and 39% of obese students met the recommendations to attend physical education class on all 5 days of the school week.

G. PERCEPTIONS ABOUT HEALTHY EATING AND PHYSICAL ACTIVITY

1. What were Georgia high school students' perceptions about eating healthy?

Which of these statements best describes healthy eating to you?

Georgia high school students were asked, "Which of these statements best describes healthy eating to you?" Selected answer choices included: "Eating fruits and vegetables", "Avoiding junk food", "Limiting sugary foods and drinks" and "Not eating very much." **Students were only able to choose one answer choice.**

Approximately 44% chose "eating fruits and vegetables", 26% chose "avoiding junk food", 24% chose "limiting sugary foods and drinks" and 6% chose "not eating very much."

By weight status (Table 6, Figure 17)

There <u>were differences</u> in how Georgia high school students best described healthy eating by weight status. The plurality of normal weight (45%), overweight (42%) and obese (36%) students believe that "eating fruits and vegetables" best describes healthy eating to them. The second most selected statement representing healthy eating to overweight (26%) and obese (32%) students was "limiting sugary foods and drinks" while normal weight students (26%) selected "avoiding junk food". Overall, 5-8% of students believe "not eating very much" best describes healthy eating to them.

Figure 17: Descriptions of Healthy Eating among Normal Weight, Overweight, and Obese High School Students, Georgia , 2013



By daily fruit and vegetable consumption (Table 7, Figure 18)

There <u>were no differences</u> in how Georgia high school students best described healthy eating by whether they met the recommendations for weekly fruit or vegetable consumption. The plurality of students who consume fruits \geq 3 times/day (50%) or vegetables \geq 3 times/day (52%) believe that "eating fruits and vegetables" best describes healthy eating to them. Students who consume fruits \geq 3 times/day or vegetables \geq 3 times/day next identified "avoiding junk food" and "limiting sugary foods and drinks" as best describing healthy eating to them. Five to seven percent (5-7%) of students who consume fruits \geq 3 times/day or vegetables \geq 3 times/day believe that "not eating very much" best describes healthy eating to them.

Figure 18: Descriptions of Healthy Eating by Students' Daily Fruit and Vegetable Consumption Status, Georgia, 2013





Why are you most likely to eat healthy foods?

Georgia high school students were also asked, "Why are you most likely to eat healthy foods?" Selected answer choices included: "I do not eat healthy foods", "My friends are watching", "I like how healthy foods taste", "My family eats healthy foods", "My doctor told me to", "I want to look good", "I want to be healthy" and "Some other reason". **Students were only able to choose one answer choice.**

Approximately 10% chose "I do not eat healthy foods", 3% chose "my friends are watching", 16% chose "I like how healthy foods taste", 10% chose "my family eats healthy foods", 2% chose "my doctor told me to", 13% chose "I want to look good", 39% chose "I want to be healthy" and 7% chose "Some other reason".

By weight status (Table 6)

There were <u>no difference</u>s in the stated reasons why Georgia high school students would eat healthy foods by students' weight status. The plurality of normal weight (39%), overweight (39%), and obese (39%) students chose "I want to be healthy" as a reason for why they are most likely to eat healthy foods. Normal weight (16%), overweight (15%) and obese (17%) students chose "I like how healthy foods taste" as the next most common reason they eat healthy foods, followed by "I want to look good." Friends ("My friends are watching"), family ("My family eats healthy foods"), and physician influence ("My doctor told me to") were chosen less often. About 10% of students said that they do not eat healthy foods.

By daily fruit and vegetable consumption (Table 7)

There <u>were differences</u> in the reasons why Georgia high school students would eat healthy foods by their daily fruit and vegetable consumption status.

A higher percentage of students who consume fruits \geq 3 times/day chose "I want to be healthy" (50% vs. 23% of students who did <u>not</u> eat any fruits in the past week), "I like how healthy foods taste" (17% vs. 10%), and "My family eats healthy foods" (10% vs. 6%) as reasons for why they eat healthy foods. A higher percentage of students who did <u>not</u> eat any fruits in the past week (33%) reported that they do <u>not</u> eat healthy foods compared to students who consume fruits \geq 3 times/day (3%).

A higher percentage of students who consume vegetables \geq 3 times/day chose "I want to be healthy" (55% vs. 37% of students who ate vegetables < 3 times/day) compared to students who ate vegetables < 3 times/day. A higher percentage of students who ate vegetables < 3

times/day state that "I want to look good" (13% vs. 2% of students who ate vegetables \ge 3 times/day) and that they do <u>not</u> eat healthy foods (10% vs. 5%) in comparison to students who consume vegetables \ge 3 times/day.

Where are you most likely to eat healthy foods?

Georgia high school students were also asked, "Where are you most likely to eat healthy foods?" Selected answer choices included: "I do not eat healthy foods", "At home", "At school", "At a restaurant", and "Some other place". **Students were only able to choose one answer choice.**

Approximately 8% chose "I do not eat healthy foods", 74% chose "at home", 11% chose "at school", 5% chose "at a restaurant", and 2% chose "some other place".

By weight status (Table 6, Figure 19)

There were <u>no differences</u> in where Georgia high school students were most likely to eat healthy foods by students' weight status. The majority of normal weight (74%), overweight (77%) and obese (71%) students stated that they are most likely to eat healthy foods at home, followed by at school, in restaurants, and at some other place. Between 7-9% of students responded that they do not eat healthy foods.

By daily fruit and vegetable consumption (Table 7, Figure 20)

There <u>were differences</u> in where Georgia high school students would most likely eat healthy foods by students' daily fruit and vegetable consumption status.

A greater percentage of students who consume fruits \geq 3 times/day (85%) chose that they were most likely to eat healthy foods at home compared to students who did not eat any fruits in the last week (59%). A higher percentage of students who did <u>not</u> eat any fruits in the past week chose that they do <u>not</u> eat healthy foods (21% vs. 2% of students who consume fruits \geq 3 times/day) or that they are most likely to eat healthy foods at a restaurant (8% vs. 1%).

A higher percentage of students who consumed vegetables \geq 3 times/day (83%) chose that they were most likely to eat healthy foods at home than students who ate vegetables < 3 times/day in the past week (73%). Further, a higher percentage of students who ate vegetables < 3 times/day in the past week chose that they do <u>not</u> eat healthy foods (8% vs. 2% of students who consume fruits \geq 3 times/day) compared to students who consume vegetables \geq 3 times/day. Figure 19: Most Likely Locations of Eating Healthy Foods among Georgia Normal Weight, Overweight, and Obese Students, 2013


Figure 20: Most Likely Locations of Eating Healthy Foods by Daily Fruit and Vegetable Consumption of ≥ 3 times/day









2. What are Georgia high school students' perceptions about physical activity?

Why are you most likely to exercise?

Georgia high school students were also asked, "Why are you most likely to exercise?" Selected answer choices included: "I do not exercise", "My friends exercise", "I enjoy exercise", "My family exercises", "My doctor told me to", "I want to look good", "I want to be healthy" and "Some other reason".

Approximately 8% chose "I do not exercise", 4% chose "my friends exercise", 18% chose "I enjoy exercise", 3% chose "my family exercises", 1% chose "my doctor told me to", 34% chose "I want to look good", 19% chose "I want to be healthy" and 12% chose "some other reason".

By weight status (Table 6)

There <u>were differences</u> in reasons to exercise by weight status among Georgia high school students. The plurality of normal weight (36%), overweight (30%), and obese (29%) students chose that they exercise because they want to look good. A higher percentage of obese students (27%) identified that they want to be healthy as a reason to exercise than normal weight students (18%). A higher percentage of normal weight students (20%) and overweight students (16%) identified that they enjoyed exercise compared to obese students (9%). Similar to reasons to eat healthy, friends ("My friends exercise"), family ("My family exercises"), and physician influence ("My doctor told me to") were chosen less often. Lastly, 7% of normal weight students, 8% of overweight students, and 13% of obese students chose that they do not exercise.

By physical activity status (Table 8)

There <u>were differences</u> in the reasons why Georgia high school students would exercise by their physical activity status. A higher percentage of students who participate in $PA \ge 60$ min/day chose "I enjoy exercise" (26% vs. 9% of students who did <u>not</u> participate in $PA \ge 60$ min/day) and "I want to be healthy" (24% vs. 14%) as reasons for why they are most likely to exercise. A higher percentage of students who did <u>not</u> participate in $PA \ge 60$ min/day (34%) chose that they do <u>not</u> exercise in comparison to students who participate in $PA \ge 60$ min/day (2%).

By participation in strengthening exercises (Table 8)

There <u>were differences</u> in the reasons why Georgia high school students would exercise by their status of participation in strengthening exercises. A higher percentage of students who

participated in strengthening exercises \geq 3 days/week chose "I want to look good" (37% vs. 28% of students who did <u>not</u> participate in strengthening exercises \geq 3 days/week), "I enjoy exercise" (23% vs. 10%), and "I want to be healthy" (22% vs. 16%) as reasons for why they are most likely to exercise.

Where are you most likely to exercise?

Georgia high school students were also asked, "Where are you most likely to exercise?" Selected answer choices included: "I do not exercise", "At home", "At school", "At a fitness center", and "Some other place".

Approximately 7% chose "I do not exercise", 39% chose "at home", 28% chose "at school", 17% chose "at a fitness center", and 9% chose "some other place".

By weight status (Table 6, Figure 21)

The plurality of normal weight (40%), overweight (39%), and obese (34%) students chose that they are most likely to exercise at home, followed by at their school, at a fitness center, and at some other place. Six to nine percent of students chose that they do not exercise. There were <u>no differences</u> in where Georgia high school students were most likely to exercise by their weight status.

By physical activity status (Table 8, Figure 22)

There <u>were differences</u> in where Georgia high school students were most likely to exercise by their physical activity status. The plurality of students who participated in PA \ge 60 min/day chose that they were most likely to exercise at school (42%), followed by at their home (33%), at a fitness center (16%), and at some other place (9%). The plurality of students who did <u>not</u> participate in PA in the last week chose that they were most likely to exercise at home (38%), followed by their school (18%), at a fitness center (10%), and at some other place (7%). Twenty-eight percent (28%) of students who did <u>not</u> participate in exercise in the last week chose that they do not exercise at all.

By participation in strengthening exercises (Table 8, Figure 22)

There <u>were differences</u> in where Georgia high school students were most likely to exercise by their status of participation in strengthening exercises. The plurality of students who participated in strengthening exercises \geq 3 days/week chose that they were most likely to exercise at school (37%), followed by at their home (35%), at a fitness center (20%), and at some other place (9%). The plurality of students who did <u>not</u> participate in strengthening exercises \geq 3 days/week in the last week chose that they were most likely to exercise at home (42%) followed by their school (16%), at a fitness center (14%), and some other place (7%). Twenty-two percent (22%) of students who did <u>not</u> participate in strengthening exercises in the last week chose that they do not exercise at all.







Figure 22: Likely Locations of Exercise among Georgia High School Students by Physical Activity Level and Participation in Strengthening Exercises, 2013







Who are you most likely to exercise with?

Georgia high school students were also asked, "Who are you most likely to exercise with?" Selected answer choices included: "I do not exercise", "My friends", "At school", "Myself", "Someone in my family" and "Someone else".

Approximately 6% chose "I do not exercise", 40% chose "my friends", 37% chose "at school", 12% chose "myself", 12% chose "someone in my family" and 5% chose "someone else".

By weight status (Table 6, Figure 23)

There <u>were differences</u> in who high school students were most likely to exercise with by their weight status. The plurality of normal weight (39%), overweight (40%), and obese (43%) students chose that they are most likely to exercise with friends. A higher percentage of normal weight students exercise by themselves (39%) than overweight (33%) or obese (30%) students, while more overweight (18%) and obese (14%) students exercise with family members than normal weight students (10%). Between 5-9% of students chose that they do not exercise at all.



Figure 23: Likely Exercise Companions Among Georgia Normal Weight, Overweight, and



By physical activity status (Table 8, Figure 24)

There <u>were differences</u> in who Georgia high school students were most likely to exercise by the students' physical activity status. The majority of students who participated in PA \ge 60 min/day chose that they were most likely to exercise with their friends (50%), followed by themselves (31%), with someone in their family (12%), and someone else (7%). The plurality of students who did <u>not</u> participate in PA in the last week chose that they were most likely to exercise by themselves (34%), followed by with their friends (24%), with someone in their family (13%), and with someone else (4%). Twenty-five percent (25%) of students who did <u>not</u> participate in the last week chose that they do not exercise at all.

By participation in strengthening exercises (Table 8, Figure 24)

There <u>were differences</u> in who Georgia high school students were most likely to exercise by their status of participation in strengthening exercises. The plurality of students who

participate in strengthening exercises \geq 3 days/week chose that they were most likely to exercise with their friends (46%), followed by themselves (37%), with someone in their family (11%), and someone else (5%). The plurality of students who did <u>not</u> participate in strengthening exercises \geq 3 days/week in the last week chose that they were most likely to exercise by themselves (35%) followed by with their friends (29%), with someone in their family (12%), and with someone else (5%). Nineteen percent (19%) of students who did <u>not</u> participate in strengthening exercises chose that they do not exercise at all. Figure 24: Likely Exercise Companions among Georgia High School Students by Physical Activity Level and Participation in Strengthening Exercises









H. POTENTIAL ACTION STEPS

The dietary and physical activity behaviors of adolescents are influenced by many sectors of society including families, communities, healthcare providers, faith-based institutions, government agencies, the media, and the food and beverage industries and entertainment industry. Schools play a critical role in improving dietary and physical activity behaviors of adolescents. To improve obesity, fruit and vegetable consumption and physical activities levels among Georgia high school students, the following potential action steps could be undertaken:

- Work with school nutrition directors, other administrative staff, parents, and community members to implement school-based nutrition policies/interventions. (26, 27) Examples include:
 - Ensure that school meals meet federally-defined nutrition standards based on the Dietary Guidelines for Americans (9). The USDA's A Menu Planner for Healthy School Meals provides information on how to plan, prepare, serve, and market healthy school meals (28).
 - Encourage student participation in school meal programs, such as the School Breakfast Program.
 - For meals served *outside* of the school meal programs, implement school nutrition standards that are consistent with the Institute of Medicine's *Nutrition Standards for Foods in Schools to* increase access to healthy foods/beverages (e.g., snacks, vending) (29, 30).
 - Implement school community gardens/greenhouses, school salad bars, and farm-toschool programs which can promote fruit and vegetable consumption.
 - Adopt marketing techniques to promote healthy dietary choices (e.g., placing nutritious products such as fresh produce in prominent places in cafeteria lines, point-of-purchase promotions) (31).
 - Modify food prices in schools to improve sale and consumption of healthy foods/beverages such as fresh produce and reduce sale and consumption of less healthy foods/beverages.
 - Implement health education that improves knowledge and skills on healthy eating.
 - Develop school wellness policies to address healthy eating (could include policies/practices mentioned above).
- 2. Work with school physical education directors, other administrative staff, parents and community members implement school-based physical activity policies/interventions. (26, 27)

- Implement physical activity standards to increase time spent in structured or unstructured play, sports or recreation in the school setting (e.g., physical education, physical activity breaks, after-school and lunchtime intramural and physical activity clubs, interscholastic sports).
- Increase access to school facilities and equipment (e.g., playgrounds, fields, courts) to support physical activity (e.g., access during out-of-school hours).
- Offer students opportunities to participate in intramural physical activity programs and/or interscholastic sports during after-school hours.
- Develop and place point-of-decision prompts for physical activity such as signage for information/navigation/motivation in schools or communities to encourage active choices.
- Implement health education that improves knowledge of and skills for physical activity.
- Increase access to safe, convenient, and fun opportunities to bicycle or walk to and from school (e.g., traffic safety, sidewalks or bike lanes, walking school bus) through Safe Routes to School programs (32).
- Improve traffic (e.g., reduced speed limits, increased street crossing aids) and neighborhood safety (e.g., reduced crime rates, reduced physical/social disorder, increased perceptions of safety) around schools.
- Decrease access to sedentary activities (e.g., reduced television/computer/video game time, television turn-off devices, increased active video games) in schools.
- Develop school wellness policies to address physical activity and/or BMI assessment (could include policies/practices mentioned above).
- 3. Work with schools and physical education program directors to provide quality physical education to students of all grade levels for all 5 days of the school week. Students should engage in moderate to vigorous physical activity for at least 50% of the time they spend in PE class.
- 4. Engage with parents and other community members to promote healthy eating (e.g., reduce eating out at fast food restaurants and eating more fresh fruits and vegetables, encourage eating breakfast every day) and physical activity (e.g., encouraging exercising with friends and family members) among students at home and at school (27).
- 5. Work with school health, mental health, and social services staff to discourage obese students from using fasting and diet pills as a way to try and lose weight and encourage safer and more healthful behaviors such as healthy eating and physical activity (27).

I. Georgia Program Highlight – Georgia Shape Initiative

Georgia Shape Initiative

Georgia Shape is the Governor's statewide, multi-agency and multi-dimensional initiative that brings together governmental, philanthropic, academic and business communities to address childhood (0-18) obesity in Georgia with efforts focused in a variety of settings in including schools and communities. Over the next ten years Georgia Shape will work towards increasing the number of students in the Healthy Fitness Zone for Body Mass Index by ten percent. Other objectives set forth by the Governor and Georgia Shape include reaching disparate populations and increasing the aerobic capacity measure of Georgia's youth.

Georgia Shape grew from the mandate passed in 2009 requiring all students in grades 1st-12th enrolled in physical education to participate in a fitness assessment (Georgia chose the Fitnessgram fitness test, which was recently named the national standardized fitness assessment). Georgia Shape, the Georgia Department of Education, Children's Healthcare of Atlanta, and HealthMPowers worked together to effectively train physical educators across the state on how to successfully implement Fitnessgram in their school setting. Other components of the program include fitness test report generation and dissemination of results confidentially to individual students and families as well as aggregate data to schools and the community to provide overview of overall growth and highlight areas for improvement, technical assistance to schools and school districts from partners, and more. Together, these components encourage important conversations about physical health and fitness and endorse a long-term view of health that promotes lifelong habits of physical activity among youth in Georgia (33).

J. LIMITATIONS

There are several limitations when interpreting the results of this report. First, estimates of self-reported behaviors such as fruit and vegetable consumption were based on self-report, and respondents might not have accurately reported their consumption; therefore, estimates might be either underestimated or overestimated. Second, although it was possible to estimate the frequency of self-reported behaviors such as fruit intake, vegetable intake and sugar-sweetened beverage intake, it was not possible to determine the actual amount of these items consumed (e.g., the servings of fruits and vegetables consumed per day). Therefore, we are unable to determine if students are actually meeting the DGA recommendations. Third, socioeconomic variables such as household income and parent education level were not captured in this survey; therefore, an assessment of the relationship between these socioeconomic variables and overweight/obesity, dietary behaviors and physical activity could not be done for high school students in Georgia (previous studies elsewhere have established the important link between socioeconomic status and obesity and dietary and physical activity patterns). Fourth, there are several other potential influential reasons to choose to eat healthy or exercise that were not assessed in this survey, such as the availability of healthy foods at home or nearby recreational facilities. However, these other factors may have been captured in the response 'Some other reason'. Lastly, given that this is a cross-sectional study, causality or the directionality of any associations could not be determined.

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Characteristic	Physical A	Activity for ≥ 60	min/day ^ª	Strer	Strengthening Exercises ^b			Physical Education Attendance During School Week ^c		
	None	1-6 days/week	Daily	None	1-2 days/week	≥ 3 days/week	None	1-4 days/week	Daily	
	% (CI)	% (CI)	% (CI)	% (CI)	% (CI)					
Total sample	18.7 (16.4, 21.0)	56.6 (54.6, 58.6)	24.7 (22.6, 26.8)	31.4 (27.9, 34.8)	18.5 (16.7, 20.2)	50.1 (46.4, 53.9)	50.3 (42.9, 57.7)	16.1 (10.0, 22.1)	33.6 (26.7, 40.5)	
Grade		N = 1903			N = 1453		N = 1882			
9 th	15.6 (9.7, 21.6)	55.6 (52.0, 59.3)	28.8 (24.2, 33.3)	24.0 (17.3, 30.8)	19.0 (14.9, 23.1)	57.0 (50.2, 63.7)	33.5 (20.3, 46.7)	14.3 (6.2, 22.3)	52.2 (37.7, 66.7)	
10 th	15.5 (11.1, 19.9)	57.7 (53.8, 61.7)	26.8 (22.7, 30.9)	30.4 (26.6, 34.2)	17.4 (14.4, 20.3)	52.2 (47.7, 56.7)	52.2 (41.4, 63.1)	15.8 (7.6, 24.0)	32.0 (22.5, 41.5)	
11 th	19.4 (16.3, 22.4)	55.7 (51.8, 59.5)	25.0 (20.8, 29.1)	34.8 (25.4, 44.2)	20.5 (16.3, 24.7)	44.7 (37.6, 51.8)	60.5 (53.0, 68.0)	16.1 (9.1, 23.1)	23.4 (16.7, 30.1)	
12 th	25.4 (18.8, 32.0)	57.8 (51.4, 64.1)	16.8 (13.1, 20.5)	39.7 (32.9, 46.5)	17.4 (15.5, 19.3)	42.9 (35.6, 50.2)	61.7 (54.2, 69.2)	18.5 (11.8, 25.1)	19.9 (13.0, 26.7)	
Sex		N = 1917		N = 1465			N = 1896			
Male	15.7 (12.5, 18.8)	49.9 (45.8, 53.9)	34.5 (30.6, 38.3)	23.1 (18.9, 27.3)	16.0 (13.0, 19.0)	60.9 (55.4, 66.5)	40.9 (34.0, 47.7)	20.4 (13.2, 27.7)	38.7 (31.6, 45.8)	
Female	21.5 (17.9, 25.2)	63.4 (59.6, 67.2)	15.1 (12.7, 17.4)	39.4 (35.4, 43.5)	20.9 (17.3, 24.6)	39.6 (35.7, 43.6)	60.0 (51.4, 68.5)	11.3 (6.1, 16.4)	28.8 (20.6, 37.0)	
Race/ethnicity		N = 1878			N = 1442			N = 1858		
White, non-	14.0	59.3	26.7	30.4	16.9	52.7	53.5	9.7	36.8	
Hispanic	(11.1, 16.9)	(55.9, 62.7)	(22.5, 30.9)	(25.8, 35.0)	(13.7, 20.0)	(47.4, 58.0)	(44.6, 62.5)	(5.9, 13.5)	(27.9, 45.6)	
Black, non-	23.3	54.1	22.6	32.8	21.5	45.7	47.9	22.7	29.3	
Hispanic	(19.6, 27.0)	(49.3, 58.9)	(19.0, 26.2)	(26.9, 38.7)	(19.3, 23.6)	(39.4, 52.0)	(38.6, 57.3)	(11.6, 33.8)	(22.5, 36.2)	
Hispanic	18.5 (12.8, 24.2)	58.3 (51.5, 65.1)	23.2 (17.9, 28.6)	32.0 (24.4, 39.6)	16.5 (10.1, 22.9)	51.5 (42.1, 60.8)	46.1 (34.6, 58.6)	16.9 (8.8, 25.0)	37.0 (24.1, 50.0)	
Other, Multiracial	17.1 (9.1, 25.1)	54.2 (44.4, 63.9)	28.7 (21.2, 36.3)	31.5 (24.6, 38.4)	19.1 (13.8, 24.5)	49.4 (41.6, 57.2)	48.7 (39.0, 58.4)	18.3 (9.0, 27.7)	32.9 (25.6, 40.3)	

Table 1: Demographics of Georgia High School Students by Physical Activity Status – Youth Risk Behavior Survey, 2013

^a During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?

^b On how many of the past 7 days did you do exercises to strengthen or tone your muscles, such as push-ups, sit-ups, or weight lifting?

^c In an average week when you are in school, on how many days do you go to physical education (PE) classes?

 Table 2: Demographic characteristics of Georgia High School Students by Weight Status – Youth Risk Behavior Survey, 2013

Characteristic	All	Weight Status				
	% (CI)	Normal % (CI)	Overweight % (CI)	Obese % (Cl)		
Total sample		70.2	17.1	12.8		
Grade (N = 1880)						
9 th	29.9	73.5	16.2	10.3		
10 th	26.4	68.6	15.9	15.4		
11 th	22.1	67.4	20.5	12.1		
12 th	21.5	70.2	16.5	13.3		
Sex (N = 1898)						
Male	50.5	68.5	17.4	14.1		
Female	49.5	72.0	16.9	11.1		
Race/ethnicity (N = 1857)						
White, non-Hispanic	46.1	74.5	14.6	10.9		
Black, non-Hispanic	37.6	65.4	20.1	14.5		
Hispanic	9.8	62.6	20.7	16.7		
Other, Multiracial	6.4	77.0	12.1	10.8		

Table 3: Behaviors to Try and Lose Weight among High School Students in Georgia by Weight Status – Youth Risk Behavior Survey,2013

		Bivariate Analysis		Multivariable Logistic Regression Analysis ^b			
	_	Weight Status			Upese		
	Normal	Overweight	Obese	P value [®]	Odds ratio	95% Cl	
Dietary behaviors							
	% (CI)	% (CI)	% (CI)				
Behaviors to try and							
lose weight							
(n = 1727)							
Fasting ^c	13.5 (11.3, 15.8)	19.3 (14.1, 24.6)	21.3 (14.8, 27.7)	0.0013	1.83	(1.3, 2.6)	
Took diet pills ^d	5.6 (3.8, 7.4)	10.1 (5.4, 14.8)	13.7 (10.8, 16.6)	<0.0001	2.66	(1.8, 4.0)	
Vomiting/Laxatives ^e	6.4 (4.5, 8.3)	7.7 (4.4, 11.1)	8.3 (1.5, 15.1)	0.70	1.29	(0.5, 3.2)	

^a Chi-square tests used to test for statistical significance using a p-value of < 0.05 as cut-off point for significance.

^b Multi-variable logistic regression model included grade, sex, and race-ethnicity in one model. Reference category included students who were not obese.

^c During the past 30 days, did you go without eating for 24 hours or more (also called fasting) to lose weight or to keep from gaining weight?

^d During the past 30 days, did you take any diet pills, powders, or liquids without a doctor's advice to lose weight or to keep from gaining weight?

^e During the past 30 days, did you vomit or take laxatives to lose weight or to keep from gaining weight?

		Bivariate Analysis Weight Status		Multivariable Logistic Regression Analysis Obese		
Dietary behaviors	Normal	Overweight	Obese	P value	Odds ratio	95% CI
Dictary Schaviors	% (CI)	% (CI)	% (CI)			
100% Fruit juice intake ^c (n = 1792)	N = 1255	N = 313	N = 224	0.48		
None	23.1 (20.4, 25.9)	22.0 (16.5, 27.6)	27.6 (18.9, 36.3)		Reference	
1-6 times/week	54.1 (50.7, 57.5)	51.3 (44.0, 58.6)	53.9 (46.8, 61.0)		0.85	(0.5, 1.3)
1-2 times/day	14.3 (12.2, 16.4)	17.2 (12.5, 21.8)	11.6 (7.6, 15.7)		0.69	(0.4, 1.2)
≥ 3 times/day	8.5 (5.9, 11.1)	9.5 (6.0, 13.1)	6.9 (2.8, 10.9)		0.64	(0.3, 1.4)
Fruit intake ^d (n = 1792)	N = 1255	N = 313	N = 224	0.34		
None	14.3 (12.3, 16.4)	9.8 (6.2, 13.4)	11.3 (6.6, 16.0)		Refer	ence
1-6 times/week	55.8 (52.6 <i>,</i> 59.0)	61.7 (54.3, 69.1)	60.2 (54.1, 66.4)		1.4	(1.0, 2.1)
1-2 times/day	19.7 (17.6, 21.8)	18.8 (13.7, 23.9)	17.8 (12.5, 23.1)		1.2	(0.7, 1.9)
≥ 3 times/day	10.1 (8.4, 11.8)	9.7 (7.3, 12.1)	10.7 (4.6, 16.7)		1.3	(0.7, 2.7)

 Table 4: Dietary behaviors among High School Students in Georgia by Weight Status – Youth Risk Behavior Survey, 2013

100% Juice and fruit	N = 1289	N = 322	N = 230	0.83			
< 3 times/day	81.5 (78.2, 84.7)	80.0 (75.0, 85.1)	81.0 (74.4, 87.6)		Refere	Reference	
≥ 3 times/day	18.5 (15.3, 21.8)	20.0 (14.9, 25.0)	19.0 (12.4, 25.6)		1.0	(0.7, 1.5)	
Vegetable intake ^e (n = 1806)	N = 1266	N = 313	N = 227	0.44			
< 3 times/day	88.9 (87.3 <i>,</i> 90.5)	89.9 (86.0, 93.9)	87.0 (83.6, 90.4)		Reference		
≥ 3 times/day	11.1 (9.5, 12.7)	10.1 (6.1, 14.0)	13.0 (9.6, 16.4)		1.2	(0.9, 1.6)	
Fruit and vegetable intake (n = 1823)	1275	319	229	0.95			
Eat fruit or drink 100% juice ≥ 2 times/day and eat vegetables ≥ 3 times/day	7.9 (6.2, 9.5)	7.44 (3.6, 11.1)	8.0 (4.3, 11.7)		1.0	(0.6, 1.8)	
Sugar-sweetened beverage intake ^f (n = 1471)	N = 1031	N = 249	N = 191	0.17			
None	27.3 (23.3, 31.2)	25.0 (18.8, 31.2)	31.0 (23.8, 38.3)		Refer	ence	
1-6 times/week	52.5 (49.0, 56.0)	58.5 (53.6, 63.3)	48.9 (43.9, 53.8)		0.83	(0.7, 1.1)	
≥1 time/day	20.2 (16.7, 23.7)	16.5 (10.9, 22.1)	20.1 (12.8, 27.4)		0.87	(0.6, 1.3)	

Fast food intake ^g (n = 1490)	N = 1041	N = 257	N = 193	0.005		
None	21.5 (18.6, 24.3)	28.3 (19.9, 36.7)	21.0 (15.1, 26.8)		Reference	
1-2 days/week	43.0 (39.7, 46.3)	40.1 (34.4, 45.8)	53.5 (47.4, 59.5)		1.3	(1.0, 1.8)
≥ 3 days/week	35.5 (30.7, 40.3)	31.5 (26.1, 37.0)	25.6 (16.7, 34.5)		0.74	(0.5, 1.2)
Skipping breakfast ^h (n = 1806)	N = 1268	N = 312	N = 226	0.39		
Every day	15.4 (13.2, 17.5)	15.2 (11.0, 19.3)	16.2 (10.9, 21.4)		Refer	ence
5-6 days/week	18.0 (15.1, 20.9)	21.9 (15.9, 27.8)	22.9 (16.5, 29.3)		1.24	(0.7, 2.1)
≤4 days/week	66.6 (62.8, 70.5)	63.0 (56.8, 69.2)	61.0 (55.0, 66.9)		0.89	(0.6, 1.4)

^a Chi-square tests used to test for statistical significance using a p-value of < 0.05 as cut-off point for significance.

^b Multi-variable logistic regression model included grade, sex, and race-ethnicity in one model. Reference category included students who were not obese.

^c During the past 7 days, how many times did you drink 100% fruit juices such as orange juice, apple juice, or grape juice?

^d During the past 7 days, how many times did you eat fruit?

^e During the past 7 days, how many times did you eat [green salad + carrots + potatoes + other vegetables]?

^f During the past 7 days, how many times did you drink a can, bottle, or glass of a sugar-sweetened beverage such as lemonade, sweetened tea or coffee drinks, flavored milk, Snapple, or Sunny Delight?

^g During the past 7 days, on how many days did you eat at least one meal or snack from a fast food restaurant such as McDonald's, Taco Bell, or KFC?

^hDuring the past 7 days, on how many days did you eat breakfast?

			Multivariable Logistic Regression Analysis ^b			
		Weight Status			Obese	
Physical Activity behaviors	Normal	Overweight	Obese	P value ^a	Odds ratio	95% CI
(n =	% ± SE	% ± SE	% ± SE			
Physical activity for ≥ 60 min/day ^c (n = 1794)	N = 1260	N = 309	N = 225	0.75		
None	18.0 (15.3, 20.7)	16.0 (11.3, 20.7)	19.4 (12.0, 26.7)		Re	ference
1-6 days/week	56.8 (54.2, 59.3)	56.6 (50.0, 63.2)	58.4 (53.1, 63.7)		1.0	(0.7, 1.5)
Daily	25.2 (23.4, 27.1)	27.4 (19.2, 35.6)	22.3 (16.6, 27.9)		0.8	(0.4, 1.3)
Strengthening exercises ^d (n = 1390)	N = 979	N = 229	N = 182	0.17		
None	30.3 (27.6, 33.1)	32.2 (25.6, 38.9)	37.2 (28.4, 46.0)		Re	ference
1-2 days/week	18.5 (16.5, 20.5)	19.0 (15.2, 22.7)	14.2 (8.6, 19.8)		0.60	(0.4, 0.9)
≥ 3 days/week	51.1 (48.0, 54.2)	48.8 (41.9, 55.6)	48.6 (39.5, 57.5)		0.69	(0.5, 0.9)
Stretching exercises ^e (n = 1408)	N = 986	N = 241	N = 181	0.19		
None	28.7 (26.7, 30.7)	32.9 (25.7, 40.0)	35.8 (24.8, 46.9)		Re	ference

 Table 5: Physical Activity behaviors among High School Students in Georgia by Weight Status – Youth Risk Behavior Survey, 2013

Stretch for ≥ 1 day/wk	71.3 (69.3, 73.3)	67.1 (60.0, 74.3)	64.2 (53.1, 75.2)		0.73	(0.5, 1.1)
Physical Education Attendance During School Week ^f (n = 1776)	N = 1250	N = 306	N = 220	0.45		
None	51.6 (44.4, 58.7)	47.3 (34.7, 59.9)	49.5 (41.3, 57.8)		Re	ference
1-4 days/week	15.6 (9.2, 21.9)	18.1 (6.7, 29.6)	12.0 (5.5, 18.4)		0.73	(0.4, 1.2)
Daily	32.9 (25.4, 40.3)	34.6 (23.7, 45.5)	38.5 (21.5, 44.5)		1.22	(0.9, 1.6)
Participate in Sports teams ^g (n = 1812)	1281	310	221	0.008		
None	42.1 (38.6, 45.5)	47.3 (42.45, 52.2)	50.4 (43.2, 57.6)		Reference	
On ≥ 1 sports team	57.9 (54.5, 61.4)	52.7 (47.8, 57.6)	49.6 (42.4, 56.8)		0.69	(0.5, 0.9)

^a Chi-square tests used to test for statistical significance using a p-value of < 0.05 as cut-off point for significance.

^b Multi-variable logistic regression model included grade, sex, and race-ethnicity in one model. Reference category included students who were not obese.

^c During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?

^d On how many of the past 7 days did you do exercises to strengthen or tone your muscles, such as push-ups, sit-ups, or weight lifting?

^e On how many of the past 7 days did you do stretching exercises, such as toe touching, knee bending, or leg stretching?

^fIn an average week when you are in school, on how many days do you go to physical education (PE) classes?

^g During the past 12 months, on how many sports teams did you play?

Table 6: Perceptions about Healthy Eating among High School Students in Georgia by Weight Status – Youth Risk Behavior Survey,2013

	Overall		Weight	Status	
Perceptions about		Normal	Overweight	Obese	P value ^a
Healthy Eating and	% (CI)	% (CI)	% (CI)	% (CI)	
Physical Activity	78 (CI)	78 (CI)	78 (CI)	70 (CI)	
Healthy Eating (n = 1457)					
Which of these					
statements best describes		N = 1023	N = 244	N = 190	0.04
healthy eating to you?					
Eating fruits and	43.4	45.2	41.8	35.7	
vegetables	(40.9 <i>,</i> 45.8)	(43.0, 47.3)	(34.2 <i>,</i> 49.4)	(28.7, 42.6)	
Avoiding 'junk food'	26.1	26.4	24.5	26.9	
	(23.2, 29.1)	(23.5, 29.2)	(17.5 <i>,</i> 31.5)	(21.3, 32.4)	
Limiting sugary foods and	24.4	22.6	25.9	32.1	
drinks	(21.5, 27.3)	(19.7, 25.5)	(20.4, 31.5)	(25.2, 39.0)	
Not eating very much	6.1	5.8	7.8	5.4	
Not eating very mach	(4.8 <i>,</i> 7.4)	(4.6, 7.0)	(3.6, 12.0)	(1.5, 9.3)	
Why are you most likely		N - 1022	N = 244	N - 100	1.0
to eat		N - 1023	IN - 244	N - 190	1.0
I do not est healthy foods	9.8	9.7	10.0	9.7	
Tuo not cat healthy loous	(8.0, 11.6)	(8.0, 11.5)	(5.8, 14.2)	(4.0, 15.4)	
My friends are watching	2.5	2.5	2.2	3.2	
	(1.6, 3.5)	(1.4, 3.6)	(0.1, 4.3)	(1.0, 5.4)	
I like how healthy foods	16.2	16.3	15.0	17.1	
taste	(13.8, 18.5)	(13.8, 18.7)	(10.2, 19.8)	(12.0, 22.2)	
foods	10.3 (7 7 12 8)	10.3	11.9 (C 7 17 1)	/. 9	
10005	<u>(/./, 12.8)</u> 2 /	(/.U, 13.0) 2 3	(0./, 1/.1)	<u>(3.9, 11.9)</u> 2 8	
My doctor told me to	(1.3, 3.5)	(1.1, 3.6)	(0.9, 4.0)	(0.9, 4.6)	

I want to look good	12.9	12.9	13.0	13.3	
	(11.7, 14.2)	(11.7, 14.0)	(9.5, 16.6)	(9.2, 17.4)	
I want to be healthy	39.2	39.3	39.0	39.2	
	(36.5, 42.0)	(36.2, 42.4)	(33.4, 44.7)	(32.2, 46.2)	
Some other reason	6.7	6.7	6.4	6.9	
	(5.1, 8.2)	(5.0, 8.4)	(2.7, 10.0)	(2.9, 10.9)	
Where are you most likely to eat healthy foods?		N = 1023	N = 244	N = 190	0.18
	7.8	7.0	6.6	80	
I do not eat healthy foods	(6 2 0 4)	/.J (5 7 10 1)			
	7/ 2	7/ 3	76.6	70.6	
At home	(72 0 76 5)	(71 6 77 1)	(71 7 81 6)	(62 6 78 6)	
	11 /	10.7	11 8	1/1 7	
At school	(0.8.13.0)	(8 8 12 6)	(8 2 15 3)	(0 6 10 8)	
	4 5	<u>(8.8, 12.0)</u> <u>4</u> 5	3 9	5 4	
At a restaurant	(2752)	(2752)	(2 2 5 7)	(2 2 8 4)	
	20	26	1 0	0.4	
Some other place	(1625)	(1932)	(0 0 2 2)	(0,0,1,4)	
Develoal Activity (n -	(1.0, 2.0)	(1.3, 3.2)	(0.0, 2.2)	(0.0) 1.1)	
1337)					
Why are you most likely		N = 939	N = 224	N = 174	0.0002
to exercise?					
I do not exercise	8.1	7.2	8.4	12.7	
	(6.8, 9.5)	(5.9, 8.6)	(5.9, 10.9)	(8.1, 17.4)	
My friends exercise	3.9	3.3	6.5	3.9	
	(2.6, 5.1)	(1.7, 4.9)	(4.4, 8.6)	(1.0, 6.8)	
l eniov exercise	18.0	20.0	15.9	9.3	
	(16.3, 19.6)	(17.6, 22.5)	(10.5, 21.3)	(2.8, 15. 7)	
My family exercises	2.8	2.7	3.6	2.6	
	(1.7, 3.9)	(1.4, 3.9)	(1.0, 6.1)	(0.8, 4.4)	
My doctor told me to	1.0	0.9	1.9	0.8	
	(0.4, 1.7)	(0.1, 1.6)	(0.0, 3.7)	(0.0, 2.0)	

I want to look good	34.4	36.4	29.8	29.0	
	(31.9, 36.9)	(33.5, 39.4)	(23.4, 36.2)	(21.7, 35.4)	
I want to be healthy	19.4	17.8	20.4	27.4	
	(17.0, 21.8)	(14.8, 20.7)	(13.9, 26.8)	(22.2, 35.9)	
Some other reason	12.4	11.8	13.6	14.5	
	(10.8, 14.0)	(10.3, 13.2)	(9.7, 17.5)	(9.1, 19.8)	
Where are you most likely		N - 020	N - 224	N – 174	0.16
to exercise?		N - 959	N - 224	N = 174	0.10
I do not exercise	6.6	6.4	5.6	8.9	
	(5.3, 7.9)	(5.0, 7.9)	(3.3, 8.0)	(5.3, 12.4)	
At home	38.8	39.5	39.3	34.4	
At nome	(35.3, 42.3)	(36.3, 42.7)	(31.9, 46.7)	(26.9, 41.9)	
At school	28.4	27.4	29.9	32.4	
At school	(24.0 <i>,</i> 32.9)	(22.3 <i>,</i> 32.5)	(22.0, 37.8)	(22.2 <i>,</i> 42.6)	
At a fitness center	16.9	16.3	18.8	17.8	
	(13.5 <i>,</i> 20.4)	(12.9, 19.7)	(14.2 <i>,</i> 23.5)	(10.9 <i>,</i> 24.7)	
Course other also	9.2	10.4	6.3	6.5	
some other place	(6.7, 11.7)	(7.4, 13.3)	(3.2, 9.4)	(1.9, 11.1)	
Who are you most likely		N - 020	N - 224	N - 17/	0.002
to exercise with?		N - 959	N - 224	N - 174	0.002
I do not oversise	5.8	5.5	4.6	9.0	
T do not exercise	(4.4, 7.1)	(4.1, 6.8)	(2.1, 7.2)	(1.9, 16.1)	
My friends	40.0	39.3	40.4	42.9	
	(36.9, 43.0)	(36.4, 42.3)	(31.8, 48.9)	(35.1, 50.8)	
Myself	36.7	38.7	33.3	30.3	
	(34.4, 39.0)	(36.0, 41.4)	(27.8, 38.8)	(25.0, 35.5)	
Somoono in my family	12.2	10.3	18.4	14.1	
	(9.8, 14.5)	(8.4, 12.3)	(12.8, 24.0)	(7.4, 20.7)	
Someone else	5.4	6.2	3.4	3.7	
	(4.1, 6.7)	(4.5, 7.8)	(1.1, 5.6)	(1.2, 6.2)	

^a Chi-square tests used to test for statistical significance using a p-value of < 0.05 as cut-off point for significance.

Table 7: Perceptions about Healthy Eating among High School Students in Georgia by Fruit and Vegetable Consumption Status –Youth Risk Behavior Survey, 2013

		Weekly Fruit (n = 2		Weekly Vegetable Consumption (n = 1458)		
Perceptions about Healthy Eating	None	1-6 times/week	1-2 times/day	≥ 3 times/day	< 3 times/day	≥ 3 times/day
	% (CI)	% (CI)	% (CI)	% (CI)	% (CI)	% (CI)
Which of these statements best describes healthy eating to you?	N = 187	N = 846	N = 283	N = 139	N = 1306	N = 152
Eating fruits and vegetables	37.9	42.6	45.8	50.0	42.2	52.3
	(32.2, 43.6)	(38.4, 46.9)	(40.7 <i>,</i> 50.8)	(43.8, 56.2)	(39.6, 44.9)	(44.7, 59.8)
Avoiding 'junk food'	25.7	26.3	25.0	27.0	26.3	25.1
	(20.3, 31.0)	(23.3, 29.2)	(20.2, 29.7)	(19.8, 34.3)	(23.6, 29.0)	(17.0, 33.2)
Limiting sugary foods and drinks	26.9	25.2	25.6	16.5	25.5	17.2
	(19.2, 34.5)	(20.6, 29.8)	(21.4, 29.9)	(12.7, 20.3)	(21.9, 29.0)	(12.8, 21.7)
Not eating very much	9.6	5.9	3.6	6.5	6.0	5.4
	(5.9, 13.3)	(4.3, 7.5)	(1.3, 5.9)	(0, 13.2)	(4.9, 7.0)	(0.0, 10.8)
Why are you most likely to eat healthy foods?	N = 187	N = 846	N = 283	N = 139	N = 1306	N = 152
I do not eat healthy foods	32.9	7.5	3.3	2.9	10.3	5.0
	(22.6, 43.1)	(5.1 <i>,</i> 9.9)	(0.8, 5.8)	(0.0, 6.1)	(8.3, 12.2)	(3.0, 7.0)
My friends are watching	4.7	1.9	1.9	3.1	2.2	3.2
	(2.0, 7.4)	(0.9, 2.9)	(0.3, 3.4)	(0.5 <i>,</i> 5.7)	(1.4, 2.9)	(0.7, 5.7)
I like how healthy foods taste	9.8	16.3	18.5	16.6	16.1	15.6
	(5.3, 14.2)	(13.1, 19.5)	(14.5, 22.5)	(9.9, 23.2)	(13.6, 18.6)	(9.2, 22.1)
My family eats healthy foods	6.3	11.1	12.8	9.9	11.0	6.3
	(2.8, 9.8)	(8.3, 13.9)	(7.7, 18.0)	(3.4, 16.4)	(8.4, 13.6)	(2.2, 10.4)

My destar told me to	5.5	2.1	1.2	3.0	2.6	0.9
	(1.6, 9.4)	(0.8, 3.4)	(0.0, 3.0)	(0.6 <i>,</i> 5.4)	(1.4, 3.8)	(0.0, 2.3)
I want to look good	9.6	13.7	13.9	10.3	13.4	2.1
	(6.8, 12.5)	(12.0, 15.5)	(10.0, 17.9)	(6.1, 14.6)	(11.9 <i>,</i> 15.0)	(5.1, 14.0)
I want to be healthy	23.2	39.7	43.3	49.8	37.3	55.0
	(14.4, 32.0)	(37.1, 42.4)	(39.1 <i>,</i> 47.5)	(40.2 <i>,</i> 59.4)	(34.4 <i>,</i> 40.1)	(46.7 <i>,</i> 63.4)
Some other reason	8.1	7.6	5.0	4.3	7.1	4.4
	(4.1, 12.1)	(5.9 <i>,</i> 9.3)	(2.9, 7.2)	(0.0 <i>,</i> 8.7)	(5.6 <i>,</i> 8.7)	(1.6, 7.2)
Where are you most likely to eat healthy foods?	N = 187	N = 846	N = 283	N = 139	N = 1306	N = 152
I do not eat healthy foods	21.4	7.0	3.4	2.0	8.3	2.4
	(14.1, 28.6)	(5.1 <i>,</i> 8.9)	(0.7, 6.1)	(0.0 <i>,</i> 4.0)	(6.3 <i>,</i> 10.3)	(0.7 <i>,</i> 4.1)
At home	59.2	75.7	76.1	84.7	73.4	83.0
	(52.4, 66.0)	(72.4, 78.9)	(72.1, 80.1)	(79.1 <i>,</i> 90.3)	(70.7 <i>,</i> 76.2)	(78.9 <i>,</i> 87.0)
At school	8.8	10.8	14.9	10.1	11.8	7.1
	(4.2, 13.4)	(8.2, 13.4)	(11.7, 18.1)	(4.8, 15.4)	(10.0, 13.6)	(4.3, 10.0)
At a restaurant	8.0	4.5	4.1	0.7	4.6	3.8
	(3.2, 12.7)	(3.5, 5.4)	(1.7, 6.5)	(0.0, 2.2)	(3.8 <i>,</i> 5.4)	(1.4, 6.2)
Some other place	2.6	2.0	1.5	2.5	1.9	3.7
	(0.4, 4.9)	(1.0, 3.0)	(0.4, 2.6)	(0.3 <i>,</i> 4.7)	(1.2, 2.6)	(1.0 <i>,</i> 6.5)

Table 8: Perceptions about Physical Activity among High School Students in Georgia by Physical Activity Status – Youth RiskBehavior Survey, 2013

	Physical Activity for ≥ 60 min/day			Strengthening Exercise			
Perceptions about Physical Activity	None	1-6 days/week	Daily	None	1-2 days/week	≥ 3 days/week	
	% (CI)	% (CI)	% (CI)	% (CI)	% (CI)	% (CI)	
Why are you most likely to exercise?	N = 212	N = 755	N = 370	N = 412	N = 256	N = 674	
l do not exercise	33.7	4.2	1.5	26.8			
	(29.1 <i>,</i> 38.2)	(2.6 <i>,</i> 5.8)	(0.4, 2.6)	(22.7 <i>,</i> 30.9)			
My friends exercise	4.2	4.4	1.8	4.3	7.0	2.5	
	(1.2, 7.3)	(3.2 <i>,</i> 5.7)	(0.0 <i>,</i> 3.5)	(2.6, 6.0)	(4.8, 9.3)	(1.0, 4.0)	
l enjoy exercise	8.6	17.2	26.3	10.1	17.5	23.3	
	(6.7 <i>,</i> 10.5)	(14.1, 20.4)	(22.4, 30.2)	(7.2, 13.0)	(13.0, 21.9)	(19.9, 26.7)	
My family exercises	2.8	2.8	2.8	1.5	4.9	2.6	
	(0.6 <i>,</i> 5.0)	(1.6, 4.1)	(1.1, 4.4)	(0.2, 2.9)	(2.8, 7.1)	(0.9, 4.3)	
My doctor told me to	1.1	1.4	0.6	1.7	2.0	0.4	
	(0.0, 3.2)	(0.4, 2.3)	(0.0, 1.4)	(0.4, 3.1)	(1.2, 2.9)	(0.0, 0.9)	
I want to look good	28.3	38.0	28.5	27.5	35.0	37.2	
	(20.8 <i>,</i> 35.9)	(35.3 <i>,</i> 40.6)	(23.2 <i>,</i> 33.8)	(21.7, 33.4)	(28.2, 41.9)	(33.3, 41.2)	
I want to be healthy	13.9	19.3	23.5	15.8	19.4	22.0	
	(7.3 <i>,</i> 20.5)	(15.8, 22.7)	(20.6, 26.4)	(10.7, 20.9)	(16.0, 22.8)	(18.9, 25.0)	
Some other reason	7.3	12.7	15.1	12.3	14.1	12.0	
	(4.0 <i>,</i> 10.7)	(10.7, 14.7)	(10.1, 20.0)	(10.7, 13.9)	(10.6, 17.6)	(9.2, 14.7)	
Where are you most likely to	N - 212	N - 755	N - 370	N - /12	N - 256	N - 674	
exercise?	$N = 2 \pm 2$	N - 755	N - 370	IN - 412	N - 230	N - 074	

l do not exercise	27.6	3.2	0.9	21.5		
	(22.8, 32.5)	(1.9, 4.6)	(0.3, 1.4)	(18.0, 25.1)		
At home	37.6	42.5	32.6	41.5	45.2	34.9
	(30.4 <i>,</i> 44.8)	(37.7 <i>,</i> 47.3)	(28.2 <i>,</i> 36.9)	(36.7 <i>,</i> 46.3)	(39.4, 51.2)	(29.9 <i>,</i> 39.9)
At school	17.6	24.9	41.8	15.8	25.0	36.8
	(12.7, 22.6)	(19.8, 30.0)	(36.5 <i>,</i> 47.1)	(12.9 <i>,</i> 18.6)	(18.4, 31.6)	(30.0 <i>,</i> 43.5)
At a fitness center	10.4	19.1	16.2	13.9	15.5	19.7
	(4.6, 16.3)	(14.8 <i>,</i> 23.5)	(11.8, 20.6)	(10.8, 17.0)	(11.9, 19.0)	(14.6 <i>,</i> 24.9)
Some other place	6.7	10.3	8.5	7.3	14.3	8.6
	(3.7, 9.7)	(7.5, 13.0)	(5.4, 11.6)	(4.0, 10.7)	(9.1 <i>,</i> 19.5)	(5.9, 11.2)
Who are you most likely to	N = 212	N = 755	N = 370	N = 412	N = 256	N = 674
exercise with?						
l do not exercise	25.4	2.8	1.0	19.2		
	(18.1, 32.6)	(1.8, 3.8)	(0.3, 1.7)	(15.2, 23.2)		
My friends	24.2	39.1	49.7	28.7	40.6	46.2
	(18.8, 29.7)	(36.5 <i>,</i> 41.8)	(44.1 <i>,</i> 55.3)	(24.4, 33.0)	(35.4 <i>,</i> 45.8)	(42.7 <i>,</i> 49.7)
Myself	33.5	40.0	30.7	35.2	36.1	37.2
	(27.1, 39.9)	(37.2 <i>,</i> 42.8)	(26.2 <i>,</i> 35.2)	(28.8 <i>,</i> 41.6)	(31.4, 40.8)	(34.8 <i>,</i> 39.6)
Someone in my family	12.9	12.7	11.6	11.7	15.8	11.4
	(8.0, 17.8)	(10.2, 15.1)	(8.1, 15.1)	(8.2, 15.3)	(11.2, 20.4)	(8.6, 14.3)
Someone else	4.0	5.4	7.0	5.1	7.5	5.2
	(1.1, 6.8)	(3.4, 7.5)	(4.6 <i>,</i> 9.5)	(2.6, 7.6)	(4.1, 11.0)	(4.2 <i>,</i> 6.1)