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Georgia Youth Fitness Assessment 2006

Georgia Health Policy Center

GEORGIA YOUTH FITNESS ASSESSMENT 2006

The Philanthropic Collaborative for a Healthy Georgia

Revised December 2008

GEORGIA YOUTH FITNESS ASSESSMENT 2006

Report prepared by Mary Ann Phillips, MPH, Kenneth Powell, MD, MPH, Alice Roberts, BSPH, James Ross, MS on behalf of the Philanthropic Collaborative for a Healthy Georgia and the Georgia Youth Fitness Assessment Advisory Committee of the Philanthropic Collaborative for a Healthy Georgia.

Copies of the report may be downloaded at *www.gsu.edu/ghpc.*

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Philanthropic Collaborative for a Healthy Georgia

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GYFA Advisory Committee Members

John Bare, Atlanta Falcons Youth Foundation; Jimmy Calloway/Carol Johnson, Georgia Coalition for Physical Activity and Nutrition; Thomas K. Glenn, The Wilbur and Hilda Glenn Family Foundation; Mary Judson, R. Howard Dobbs, Jr. Foundation, Inc.; Laura Kann, Centers for Disease Control and Prevention; Dafna Kanny, Georgia Division of Public Health, Georgia Department of Human Resources; Martha Katz, Healthcare Georgia Foundation; Debra Kibbe, ILSI Research Foundation; Harold W. Kohl, Centers for Disease Control and Prevention; Nancy Paris, Georgia Health Foundation; Kenneth Powell, Division of Public Health, Georgia Department of Human Resources (retired); Evonne Yancey, Kaiser Foundation Health Plan of Georgia, Inc.

Georgia Health Policy Center

The Georgia Health Policy Center in the Andrew Young School of Policy Studies at Georgia State University serves as the administrative home and coordinates research for the Philanthropic Collaborative for a Healthy Georgia.
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Participating Schools

A special thanks to the administrators, faculty, staff, parents, and students of the 93 participating Georgia schools, without whom this study would not have been possible.

Endorsing Organizations

The GYFA was endorsed through letters of support from the American Academy of Pediatrics, Georgia Chapter; Georgia Association for Health, Physical Education, Recreation, and Dance; Georgia Coalition for Physical Activity and Nutrition; Georgia Department of Education; Georgia Department of Human Resources' Division of Public Health; and Georgia Parent Teachers Association.

SUMMARY OF FINDINGS

The Georgia Youth Fitness Assessment (GYFA) was conducted in fall 2006 among a representative sample of Georgia's 5th and 7th grade students. Among the 93 participating schools, 5,248 students participated in either the fitness testing or the physical activity survey. The results in this report are based on the 5,045 students who participated in the fitness testing and the 4,876 students who took the physical activity survey.

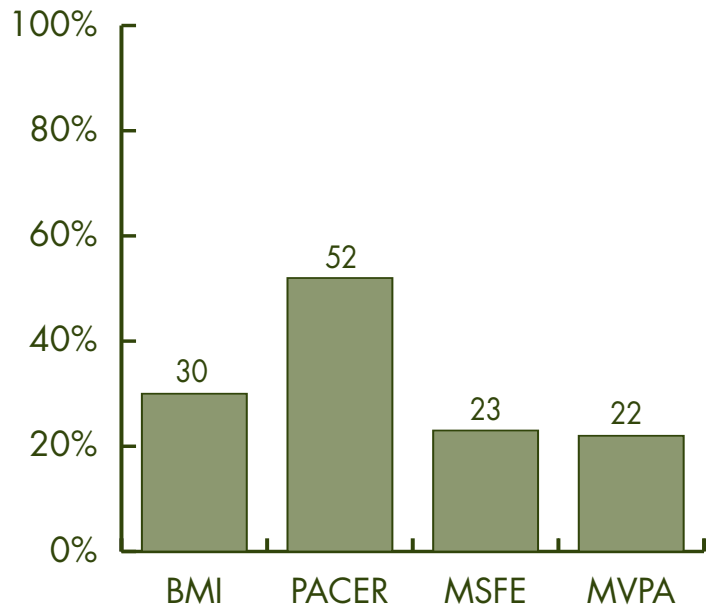
Previous surveys have provided warning that too many of Georgia's children and youth are too heavy. The GYFA confirms this problem and indicates that more than half (52%) of Georgia's 5th and 7th grade students have unhealthy levels of cardiorespiratory fitness. In addition, nearly one of every four children (23%) performed poorly on tests of muscular strength, endurance, and flexibility; and more than one in five (22%) failed to meet national recommendations for regular physical activity.

Of Georgia's 5th and 7th grade students:

- 30% failed to attain the healthy fitness zone (HFZ) for body mass index (BMI). The healthy fitness zone represents a range of scores that are consistent with good health; BMI is a measure of weight in relation to height that correlates with the proportion of body fat.
- More than half (52%) failed to attain the HFZ in the cardiorespiratory fitness test (PACER).
- Nearly one in four (23%) failed to attain the HFZ for at least two out of four tests of muscular strength, flexibility, and endurance (MSFE).
- More than one in five (22%) reported getting less moderate to vigorous physical activity (MVPA) than recommended for children and youth.

There are some differences between subgroups that are large enough to meet the criteria for statistical significance. For example, boys (35%) are more likely than girls (24%) to be obese, or more 7th grade rural students (70%) than urban students (51%) failed the PACER. No subgroup, however, consistently and significantly performed better or worse than other subgroups. All subgroups performed at a disappointing level on all tests, indicating that many of Georgia's children and youth are at risk for serious health conditions in the future.

Percentage of Students Not Attaining Healthy Fitness Zone (HFZ) for Fitness Tests and Not Meeting Current Recommendations for Moderate to Vigorous Physical Activity



INTRODUCTION

The prevalence of childhood obesity* has increased dramatically in the last 25 years.[1-4] According to national surveys, the prevalence of childhood obesity increased from 4-5% in the 1960s to 16-17% in 1999-2004.[2, 5-6] In Georgia, surveys of 3rd, 4th, and 8th grade students using measured height and weight have reported prevalence rates of 18%-24%. [7-8] A statewide survey of middle school students in 2003 using self-reported height and weight found that 14% were obese.[9]

The seriousness of this trend is illustrated by recent increases among children and youth of conditions formerly thought of as adult diseases, such as Type 2 diabetes [10-12] and hypertension.[13] The alarming rise in the prevalence of obesity in children, youth, and adults arises from an imbalance between energy intake and energy expenditure: too many calories ingested as food and too few calories expended in physical activity. The causes of this imbalance are many and complex, including the development of "obesogenic" environments[14] that favor decreased energy expenditure and increased energy intake.[15] Some of the factors influencing the energy imbalance include a reduction in the number of schools requiring daily physical education,[16] parallel decline in student participation in school physical education,[17] the perception that neighborhoods are unsafe for outside play,[18] and lack of facilities or supervision for after-school physical activity.[19] The loss of opportunities for physical activity contributes to increased sedentary behavior, including watching television and computer screen time.[20-21] Furthermore, children and youth who spend more time indoors in sedentary behavior are more likely to ingest energy-dense foods[22], resulting in energy imbalance favoring increases in weight and adiposity. Recognizing the decline in physical activity and increases in childhood overweight, it is important to intervene through programs reaching a majority of the targeted children.[23-24]

Georgia Youth Fitness Assessment: A Unique Statewide Survey

Acknowledging the need for action and leadership, in the spring of 2003, the Philanthropic Collaborative for a Healthy Georgia launched an initiative to examine physical fitness and physical activity among Georgia's children and youth. Its purpose was to provide reliable, comprehensive and objective information to Georgia's key decision makers, school officials, parents, and the general public. Such information would help guide the design and implementation of policies and programs needed to address inactivity and obesity among Georgia's children and youth. This baseline assessment, known as the Georgia Youth Fitness Assessment (GYFA), can be used as a benchmark against which to measure the effectiveness of future efforts to slow down or reverse the current trends toward decreasing fitness, decreasing physical activity, and increasing obesity among youth. The Collaborative hopes that a successful GYFA will have lasting impact in the state, that schools participating in the GYFA will continue the fitness testing program after the study is completed, and that the value of an ongoing statewide fitness testing program will be recognized.

Surveys of health-related fitness of children have been uncommon. Indeed, until the inclusion of fitness testing in the National Health and Nutrition Examination Survey in 2005, fitness testing of children and youth at a national level had not been done since the National Children and Youth Fitness Studies of the early 1980s[25]. In recent years, a few states have begun or are planning statewide fitness testing programs. California[26] began mandatory student fitness testing in 1999. Missouri[27] followed suit shortly afterward with voluntary student fitness testing in 2000 and mandatory testing in 2001. South Carolina is pilot testing an initiative to begin fitness testing in all schools. However, fitness testing at a state level is still in its infancy, and the GYFA provides an important contribution. While overlapping with other states' fitness testing programs in some ways, the GYFA is unique because it is the first state to conduct a carefully standardized statewide probability study of youth fitness and physical activity. The GYFA also gathered contextual data in order to describe the school physical education and nutrition services programs at participating schools. The dependable results of the GYFA can be used with confidence for planning purposes and provide an accurate baseline for future similar surveys.

Assessment Tools Used in the GYFA

The GYFA used four instruments to assess student fitness, student physical activity, school physical education, and school nutrition services programs: FitnessGram, 3DPAR, the School Physical Education Questionnaire, and the School Food

*This report uses the terms "obesity" and "obese" to refer to children who exceed the upper limit of the Healthy Fitness Zone for BMI. This measure is similar to the sex-specific 95th percentile of the BMI charts developed by the Centers for Disease Control and Prevention in 2000.

INTRODUCTION

Service Questionnaire from the U.S. Centers for Disease Control and Prevention's (CDC) School Health Policies and Programs Study (SHPPS) 2006.

FitnessGram is a computerized tool enabling schools to assess and monitor fitness levels of the student body. Six fitness tests from the FitnessGram battery were selected to assess three areas of physical fitness: body composition, aerobic capacity, and muscular strength, flexibility, and endurance (MSFE). FitnessGram offers a variety of tests to use for each of the three areas. For example, to assess body composition FitnessGram offers measuring Body Mass Index (BMI) or using skinfold measurements. FitnessGram uses criterion-referenced standards, rather than normative standards or percentiles, to evaluate fitness performance. These standards, established by The Cooper Institute of Dallas, Texas, represent levels of fitness that offer protection against the diseases that result from sedentary living. Standards were established based on consensus in the scientific community and have been set separately for boys and girls based on age. The use of health-related criteria helps to minimize competition among children and to emphasize personal fitness for health rather than goals based on performance differences. The range of scores that meet the standards is known as the **Healthy Fitness Zone** (HFZ). A student whose score on a particular test does not reach at least the lower limit of the standard for age and sex (or, in the case of BMI, falls between the lower and upper limits) is said to have "failed to attain HFZ" for that measure.

The physical activity assessment tool known as the **3 Day Physical Activity Recall** (3DPAR) is a paper and pencil survey that collects self-reported activity information for the three most recent days. Students select from a list of activities to describe what they were doing during 30-minute blocks of time throughout the day. For non-sedentary activities, students also indicate an intensity level at which each activity was performed. By examining activity and intensity levels, it can be determined whether or not student activity levels are consistent with national recommendations for moderate to vigorous physical activity (MVPA). According to the US Department of Health and Human Services, US Department of Agriculture, the American Heart Association, the National Association of Sport and Physical Education, the Medical College of Georgia,[28-32] and others, school-aged children and youth should participate, daily, in 60 minutes or more of MVPA. A student is considered to be consistent with this recommendation if he or she reported receiving at least two 30-minute blocks of moderate to vigorous physical activity on all three days collected by 3DPAR.

The **School Health Policies and Programs Study** (SHPPS), the largest, most comprehensive assessment of school health policies and programs, is conducted at the state, district, school, and classroom levels nationwide. The study, sponsored by CDC, provides data to help improve school health policies and programs. SHPPS has been conducted three times: in 1994, 2000, and 2006. The study assesses the characteristics of eight components of school health programs at the elementary, middle/junior, and senior high school levels (health education, physical education, health services, mental health and social services, school policy and environment, nutrition services, faculty and staff health promotion, and family and community involvement). The Physical Education and Food Service survey instruments from SHPPS were used in the GYFA. For the purposes of the GYFA, the contact person at each participating school determined who was the most knowledgeable person to respond to a questionnaire about each content area. Each respondent was then asked to complete a paper questionnaire. These data can be used to describe the nutritional and physical activity programs in place at participating schools; however, the school sample is too small to draw conclusions about all schools in Georgia.

More information about the instruments and specific tests used in the GYFA (FitnessGram, 3DPAR, and the SHPPS questionnaires) is in the appendices of this report.

This report is divided into four parts:

- The first part summarizes the FitnessGram findings for each test separately, as well as a "composite" measure representing performance in at least two of the four muscular strength, flexibility, and endurance tests (MSFE).
- The second part of this report summarizes the 3DPAR findings for moderate-to-vigorous physical activity.
- The third part describes the physical education programs of participating schools.
- The fourth part describes the nutrition services programs of participating schools.

PHYSICAL FITNESS: BODY MASS INDEX (BMI)

Ratio of weight to height-squared that is accepted as an indicator of adiposity

30% of Georgia's students failed to attain the Healthy Fitness Zone (HFZ) for BMI.

29% of 5th grade students and 30% of 7th grade students failed to attain the HFZ for BMI.

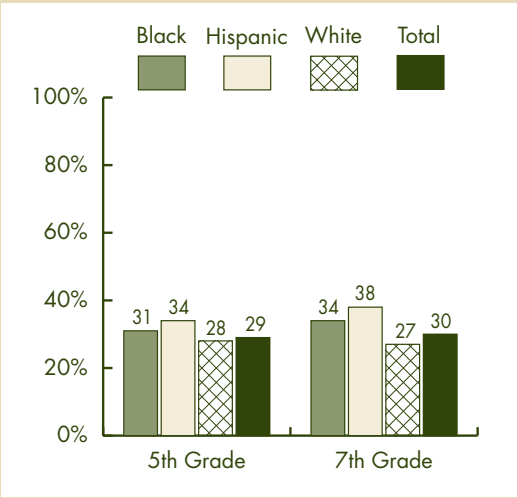
Among 5th grade students, significantly* more males (35%) failed to attain the HFZ for BMI than females (22%).

Similarly, among 7th graders, significantly more males (35%) failed to attain the HFZ for BMI than females (25%).

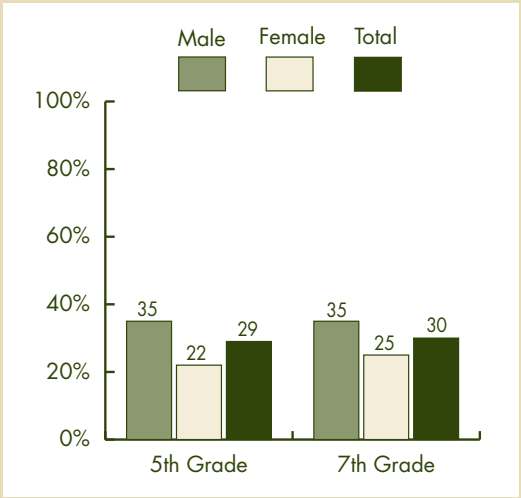
Among 7th grade students, significantly more black or Hispanic students (34% and 38%, respectively) failed to attain the HFZ for BMI than white students (27%).

*Throughout the document the terms "significant" or "significantly" indicate that the differences between groups meet statistical criteria ($p < 0.05$) making it unlikely that the differences are simply due to chance.

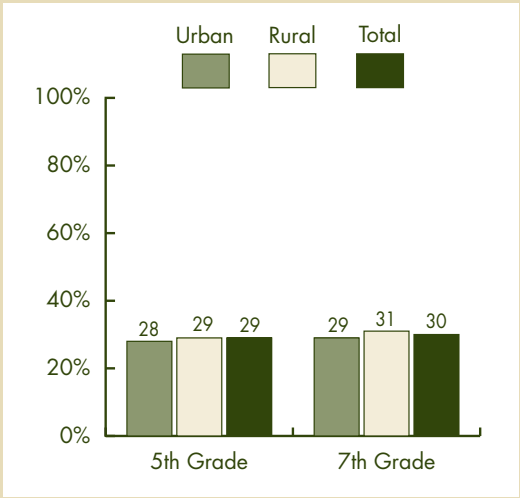
Percentage of Students Not Attaining HFZ for BMI, by Race/Ethnicity and Grade



Percentage of Students Not Attaining HFZ for BMI, by Gender and Grade



Percentage of Students Not Attaining HFZ for BMI, by Urbanicity and Grade



PHYSICAL FITNESS: PROGRESSIVE AEROBIC CARDIOVASCULAR ENDURANCE RUN (PACER) *Provides an estimate of cardiovascular fitness level*

52% of students failed to attain the HFZ for the PACER.

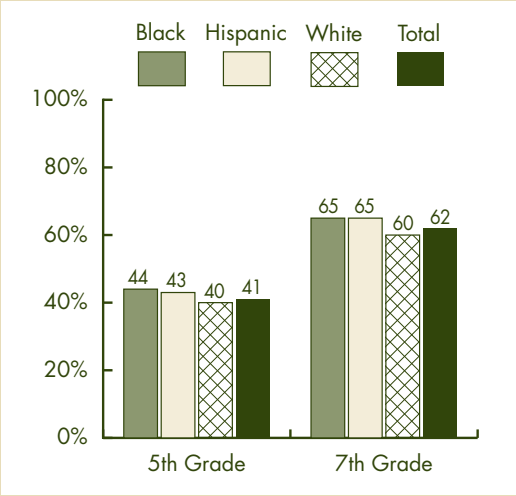
Significantly more 7th grade students (62%) than 5th grade students (41%) failed to attain the HFZ for PACER.

Significantly more 5th grade males (66%) than females (14%) failed to attain the HFZ for PACER.

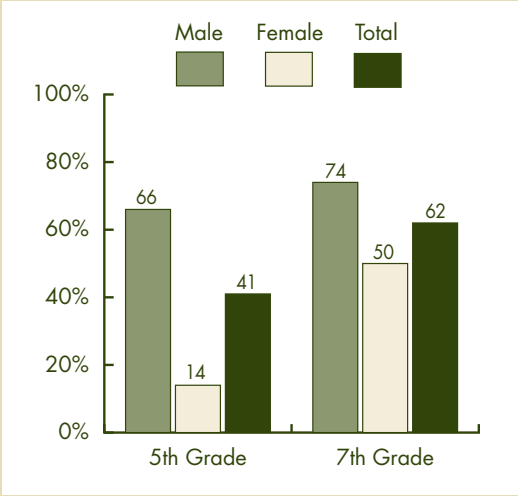
Significantly more 7th grade males (74%) than females (50%) failed to attain the HFZ for PACER.

Among 7th graders, significantly more rural students (70%) failed to attain the HFZ in the PACER than urban students (51%).

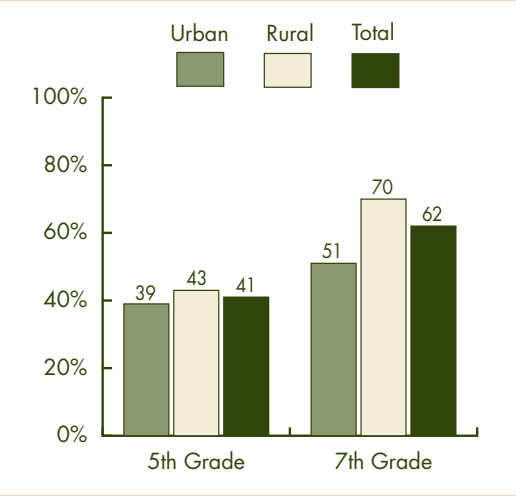
Percentage of Students Not Attaining HFZ for PACER, by Race/Ethnicity and Grade



Percentage of Students Not Attaining HFZ for PACER, by Gender and Grade



Percentage of Students Not Attaining HFZ for PACER, by Urbanicity and Grade



PHYSICAL FITNESS: MUSCULAR STRENGTH, FLEXIBILITY, AND ENDURANCE (MSFE)

Describes students who fail to attain the HFZ in at least two of the four muscular strength, flexibility, and muscular endurance tests (modified pull-up, curl-up, trunk lift, and back-saver sit and reach)

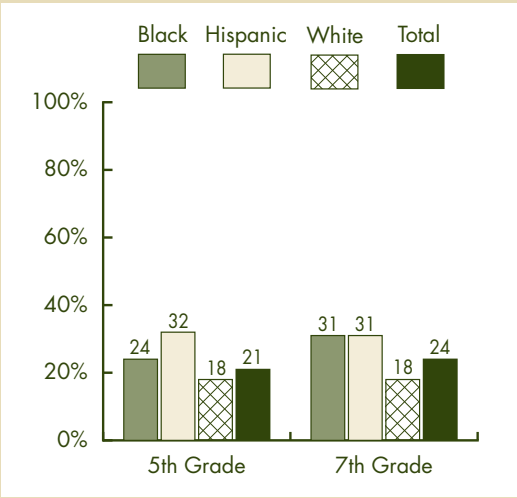
23% of students failed to attain the HFZ in at least two of the four muscular strength, flexibility, and endurance tests (MSFE).

21% of 5th graders and 24% of 7th graders failed to attain the HFZ in at least two of the four muscular strength, flexibility, and endurance tests (MSFE).

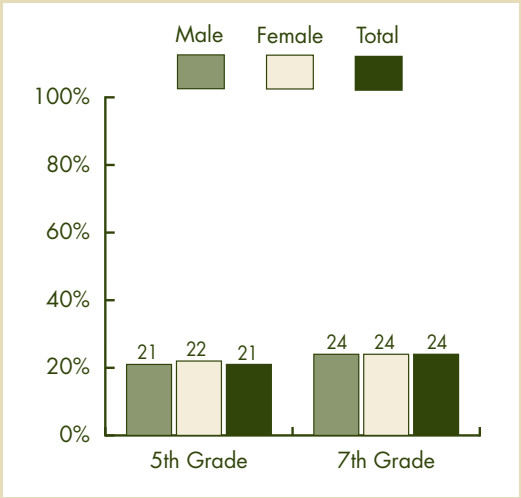
Among 5th graders, significantly more Hispanic (32%) than white students (18%) failed to attain the HFZ in at least two MSFE tests.

In the 7th grade, significantly more black (31%) and Hispanic (31%) students than white students (18%) failed to attain the HFZ in at least two MSFE tests.

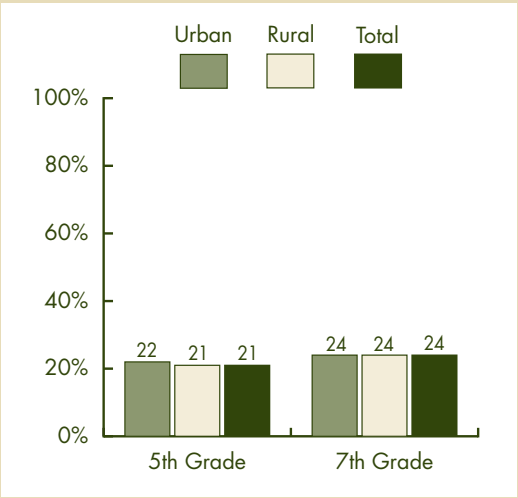
Percentage of Students Not Attaining HFZ for at least 2 MSFE Tests, by Race/Ethnicity and Grade



Percentage of Students Not Attaining HFZ for at least 2 MSFE Tests, by Gender and Grade



Percentage of Students Not Attaining HFZ for at least 2 MSFE Tests, by Urbanicity and Grade



PHYSICAL FITNESS: MODIFIED PULL-UP (MPU)

Measure of upper arm and shoulder girdle strength and endurance

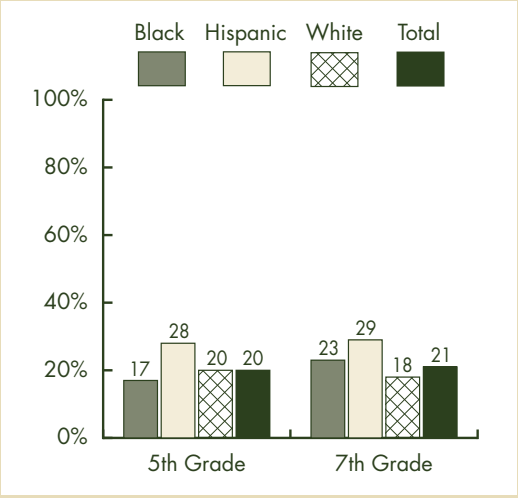
Overall, 21% of students failed to attain the HFZ for the modified pull-up.

20% of 5th graders and 21% of 7th grade students failed to attain the HFZ for the modified pull-up.

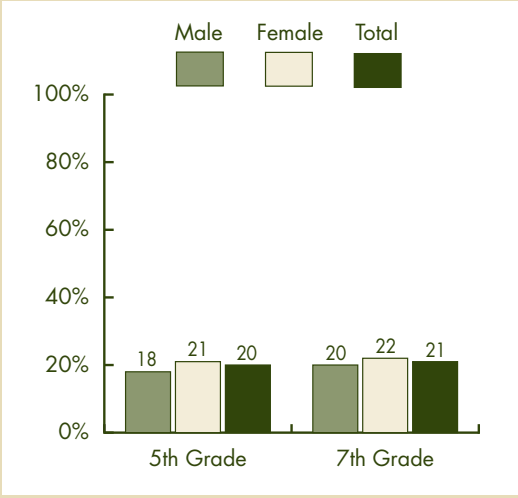
More Hispanic students (28%) than black (21%) or white (19%) students failed to attain the HFZ for the modified pull-up.

In the 5th grade, more rural (22%) than urban (17%) students failed to attain the HFZ for the modified pull-up.

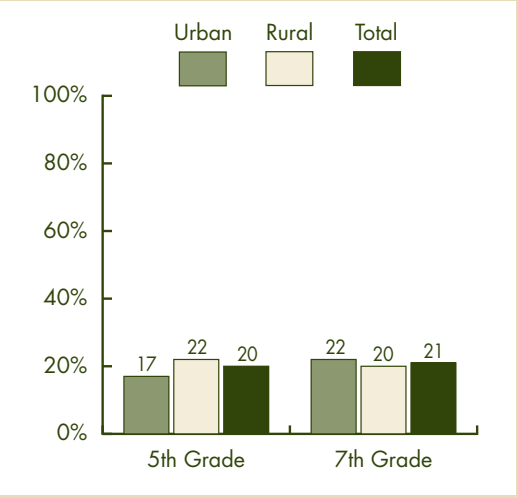
Percentage of Students Not Attaining HFZ for MPU, by Race/Ethnicity and Grade



Percentage of Students Not Attaining HFZ for MPU, by Gender and Grade



Percentage of Students Not Attaining HFZ for MPU, by Urbanicity and Grade



PHYSICAL FITNESS: CURL-UP

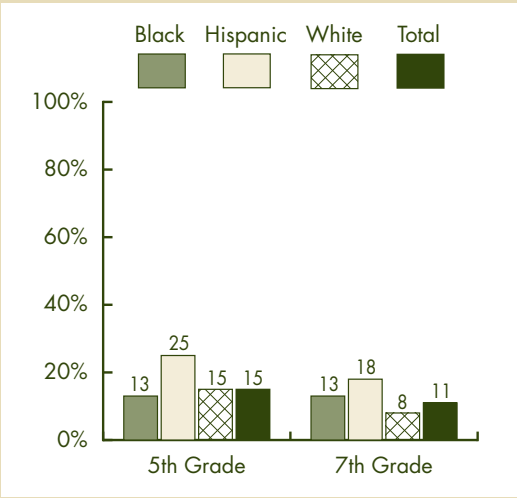
Measure of abdominal strength and endurance

Overall, 13% of students failed to attain the HFZ for the curl-up.

15% of 5th grade students and 11% of 7th grade students failed to attain the HFZ for the curl-up.

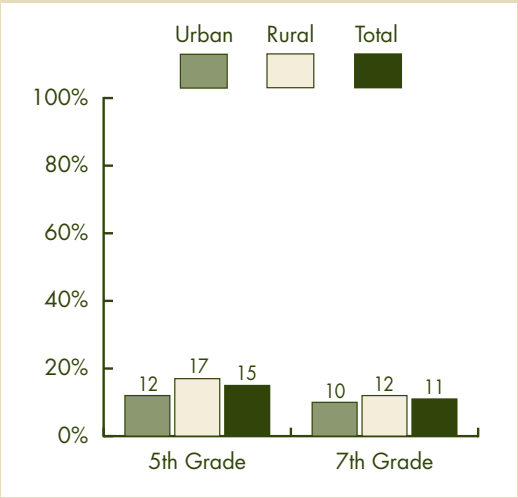
More Hispanic students (22%) than black (13%) or white (12%) students failed to attain the HFZ for the curl-up.

Percentage of Students Not Attaining HFZ for Curl-Up, by Race/Ethnicity and Grade



Percentage of Students Not Attaining HFZ for Curl-Up, by Gender and Grade

Percentage of Students Not Attaining HFZ for Curl-Up, by Urbanicity and Grade



PHYSICAL FITNESS: TRUNK LIFT

Measure of strength and flexibility of the back

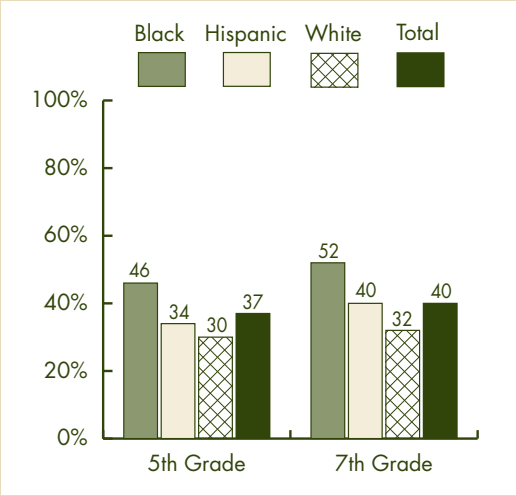
38% of students failed to attain the HFZ for the trunk lift.

37% of 5th grade students and 40% of 7th grade students failed to attain the HFZ for the trunk lift.

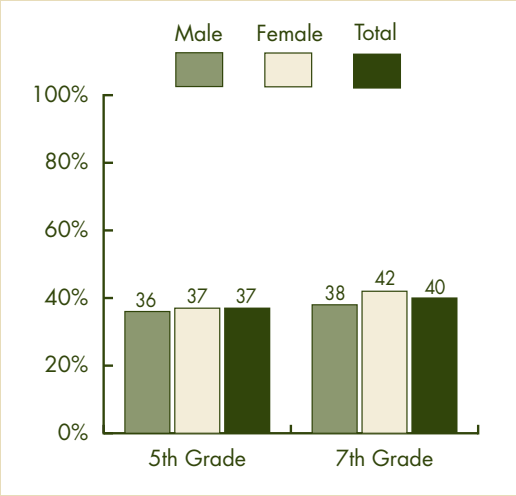
Among 5th graders, significantly more black students (46%) than white students (30%) failed to attain the HFZ in trunk lift.

Among 7th graders, significantly more black students (52%) than white or Hispanic students (32% and 40%, respectively) failed to attain the HFZ in the trunk lift.

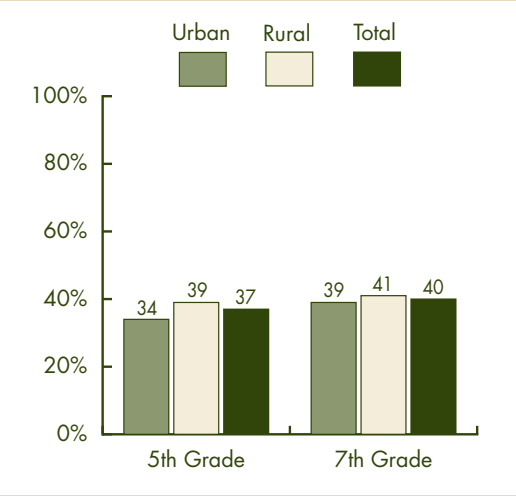
Percentage of Students Not Attaining HFZ for Trunk Lift, by Race/Ethnicity and Grade



Percentage of Students Not Attaining HFZ for Trunk Lift, by Gender and Grade



Percentage of Students Not Attaining HFZ for Trunk Lift, by Urbanicity and Grade



PHYSICAL FITNESS: BACK-SAVER SIT AND REACH

Measure of hamstring flexibility

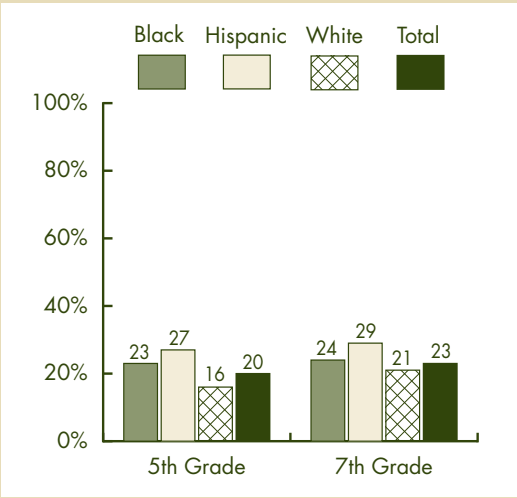
21% of students failed to attain the HFZ in the back-saver sit and reach.

20% of 5th grade students and 23% of 7th grade students failed to attain HFZ for the back-saver sit and reach.

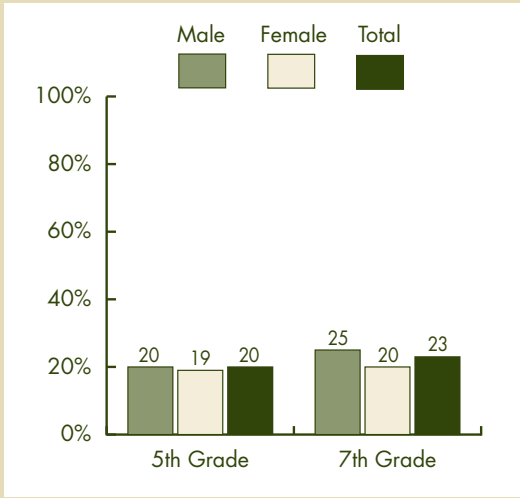
In the 5th grade, significantly more black and Hispanic students (23% and 27%, respectively) failed to attain the HFZ for the back-saver sit and reach than white students (16%).

In the 7th grade, significantly more Hispanic students (29%) failed to attain the HFZ for the back-saver sit and reach than white students (21%).

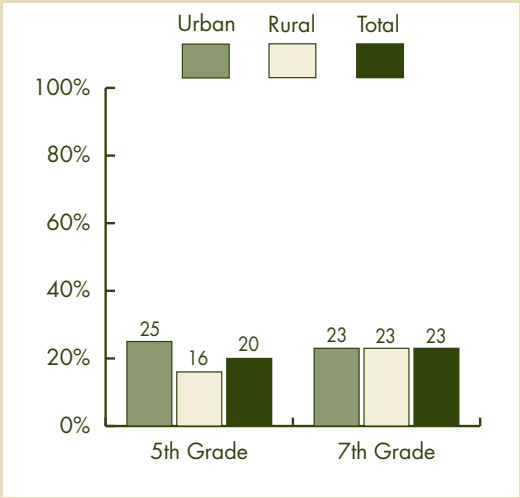
Percentage of Students Not Attaining HFZ for Back-Saver Sit and Reach, by Race/Ethnicity and Grade



Percentage of Students Not Attaining HFZ for Back-Saver Sit and Reach, by Gender and Grade



Percentage of Students Not Attaining HFZ for Back-Saver Sit and Reach, by Urbanicity and Grade



PHYSICAL ACTIVITY: MODERATE TO VIGOROUS PHYSICAL ACTIVITY (MVPA)

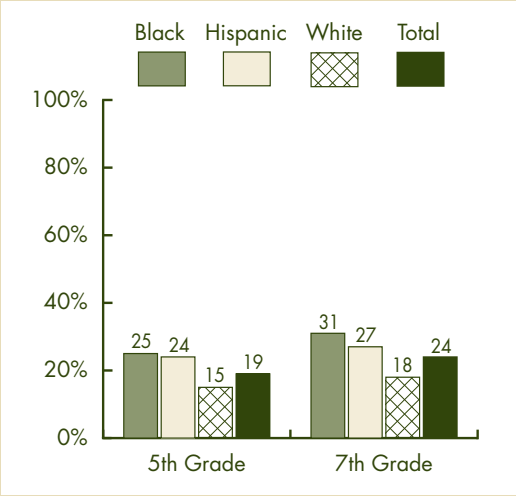
To meet recommendations for MVPA, a student must report at least two 30-minute blocks of moderate to vigorous physical activity on each of three consecutive days.

22% of students did not meet national recommendations for daily MVPA.

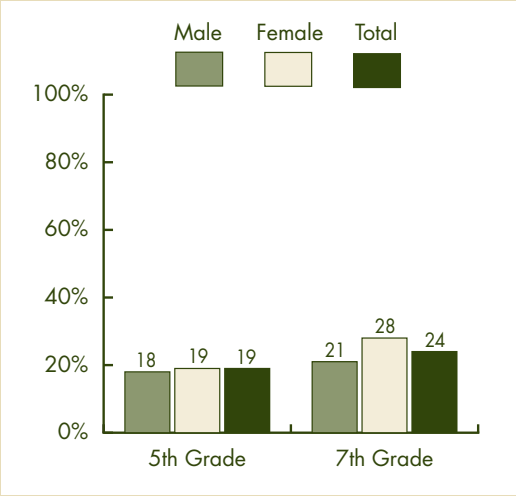
19% of 5th grade students and 24% of 7th grade students did not meet national recommendations for daily MVPA.

Significantly more black (29%) and Hispanic (25%) students than white students (17%) did not meet recommendations for MVPA.

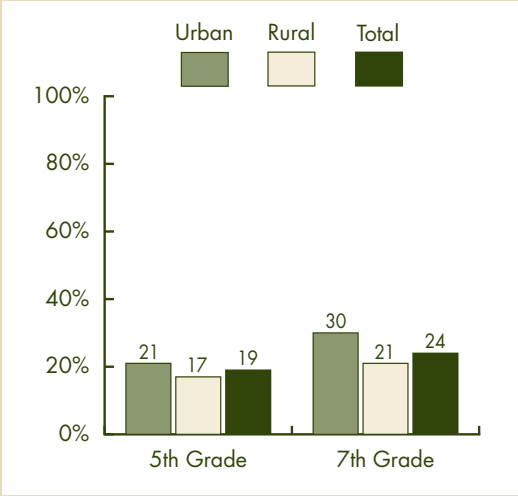
Percentage of Students Not Meeting Recommendations for MVPA, by Race/Ethnicity and Grade



Percentage of Students Not Meeting Recommendations for MVPA, by Gender and Grade



Percentage of Students Not Meeting Recommendations for MVPA, by Urbanicity and Grade



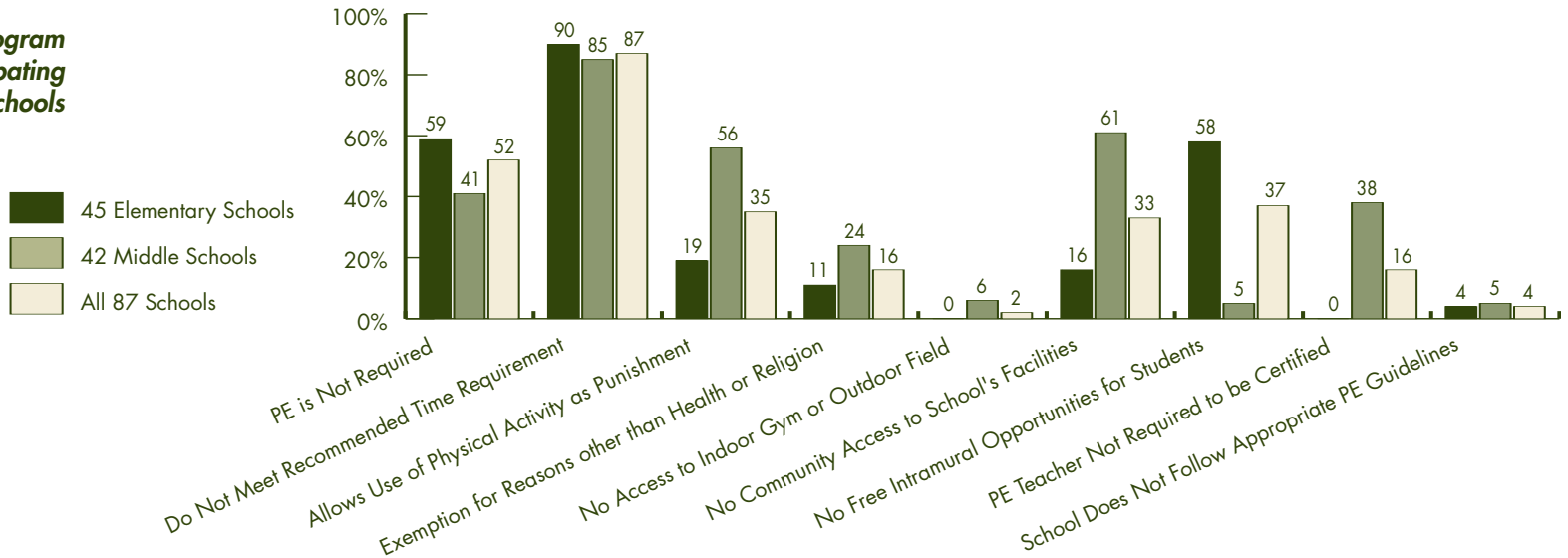
SCHOOL PHYSICAL EDUCATION POLICIES AND PRACTICES

Data collected specifically for the GYFA using the School Physical Education questionnaire from CDC's School Health Policies and Programs Study (SHPPS) 2006.

Data collected about the School Physical Education Program can be used to describe schools that participated in the GYFA. They should not be used to generalize to all schools in the state of Georgia. A total of 87 schools, 45 elementary schools and 42 middle schools, completed the self-administered questionnaire on the School Physical Education Program.

- Half (52%) of schools that participated in GYFA did not require physical education in the 5th or 7th grade.
- Most schools (87%) did not meet the recommended time requirements for physical education class (150 minutes/wk for 5th graders and 225 minutes/wk for 7th graders).[33]
- More than half (56%) of the middle schools participating in the GYFA stated they allow physical activity, such as laps or push-ups, to be used as punishment at their school for bad behavior in physical education. Fewer than 20% of the elementary schools stated they use physical activity as a means of punishment for bad behavior in physical education.
- 16% of participating schools allowed students to be exempted from PE for high physical competency test scores, participation in school sports or activities other than sports, participation in community sports or community service activities, enrollment in other courses, and participation in vocational training.
- 2% of schools in the GYFA reported having no access to either an indoor gymnasium or an outdoor field.
- More than three times as many participating middle schools (61%) as participating elementary schools (16%) did not allow children or adults in the community to use any of their school's physical activity and athletic facilities.
- More than five times as many elementary schools (58%) as middle schools (5%) reported that students are required to pay an activity fee to participate in any intramural activities or physical activity clubs.
- All elementary schools participating in the GYFA stated that a newly-hired physical education teacher is required to be certified, licensed, or endorsed by the state in physical education. However, 38% of participating middle schools did not have this requirement.
- Around 4% of participating schools state they do not follow national, state, or district physical education standards or guidelines for teaching Physical Education.

Physical Education Program Characteristics of Participating GYFA Schools

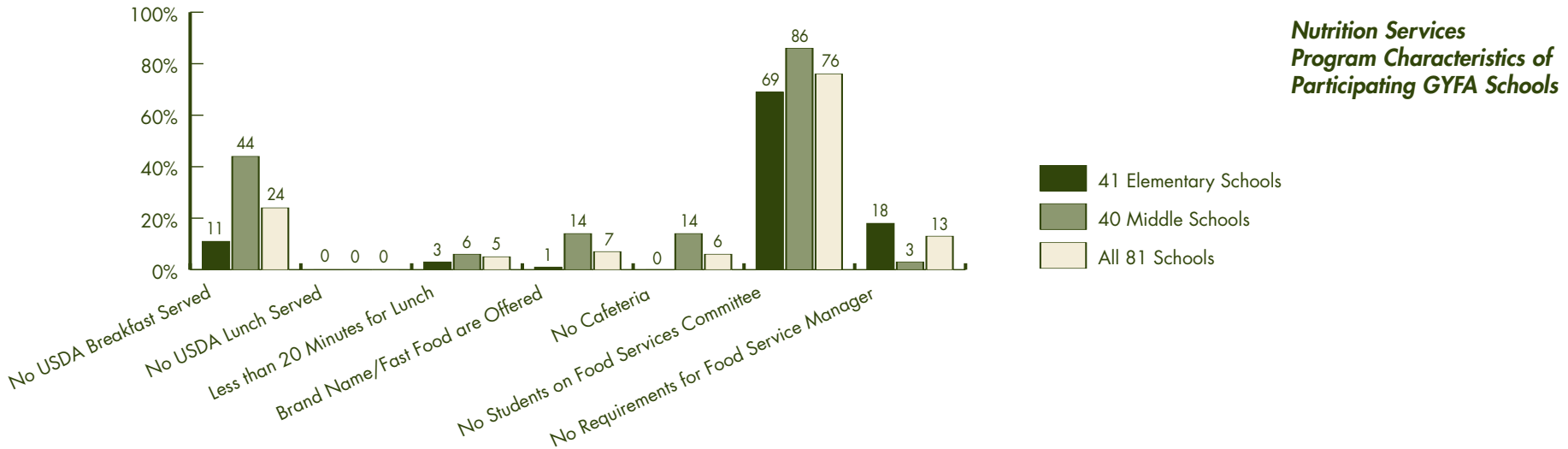


SCHOOL NUTRITION SERVICES POLICIES AND PRACTICES

Data collected specifically for the GYFA using the School Food Service questionnaire from CDC's School Health Policies and Programs Study (SHPPS) 2006.

Data collected about the School Nutrition Services Program can be used to describe schools that participated in the GYFA. They should not be used to generalize to all schools in the state of Georgia. A total of 81 schools, 41 elementary schools and 40 middle schools, completed the self-administered questionnaire on the School Nutrition Services Program.

- Overall, 24% of schools participating in the GYFA reported that no USDA breakfast is served at their school. 11% of elementary schools and 44% of middle schools reported that they did not participate in the USDA breakfast program.
- All schools that participated in GYFA reported serving a USDA lunch to students.
- 5% of participating schools reported they allow students less than 20 minutes to eat lunch once seated.
- Brand name fast foods, such as Pizza Hut or Taco Bell, were offered at 14% of middle schools and only 1% of elementary schools participating in the GYFA.
- All elementary schools participating in the GYFA reported having a cafeteria at their school. However, 14% of participating middle schools said they did not have a cafeteria.
- Three out of four (76%) schools reported they do not have a committee that includes students who provide suggestions for the school nutrition services program.
- 18% of participating elementary schools and 3% of participating middle schools reported that newly-hired nutrition services managers are not required to have Registered Dietitian credentials, Registered Dietitian Technician credentials, School Food Service and Nutrition Specialist credentials, a School Nutrition Association certification, or the successful completion of a school nutrition services training program that is provided or sponsored by the state.



Nutrition Services Program Characteristics of Participating GYFA Schools

CONCLUSIONS AND RECOMMENDATIONS

The findings of the Georgia Youth Fitness Assessment indicate about one-third of Georgia's children and youth have a BMI that is considered a health risk, more than half lack the cardio-respiratory fitness and nearly one-fourth lack the muscular strength, flexibility, and endurance consistent with current and future good health. Because data like these from previous years are not available, it is not known how long these conditions have prevailed nor is it known whether, in recent years, they have been worsening or improving. It is most likely, however, that the decline in children's fitness in Georgia has been most rapid over the past 20-30 years, the same time period over which the startling increase in childhood and adult obesity has been occurring. The results of the GYFA can serve as a baseline for similar surveys in the future to monitor changes in these important measures of children's health.

Given the adverse health and economic implications of the decline in fitness and rise in obesity among Georgia's children, a strong and sustained response is necessary. Due to the complexity of causes for these changes, the response must involve all segments—private and public—of society. A recent survey by the Healthcare Georgia Foundation indicates that 97% of Georgia's adults consider low levels of physical activity, poor dietary habits, and obesity among our children to be serious problems.[34] Three conclusions emerged:

- Georgians agree with health experts that childhood overweight is a serious problem that demands action and that school-based physical activity and nutrition programs are key strategies for addressing the problem.
- Active leadership by parents, schools and communities is required to expand physical activity in schools, enhance school nutrition programs and provide safe paths to walk and bike to school.
- Georgians would support increases in alcohol and tobacco taxes, special purpose sales taxes, and increases in school property taxes to make these changes.

The Georgia Youth Fitness Assessment was designed to study and bring attention to the physical fitness and physical activity practices of Georgia's children and youth. The following suggestions for state and local leaders, schools and school systems, individual parents and caregivers, local communities, industry and business, and media continue this focus on fitness and activity.* If implemented, they will help bring about a healthier future for our children.

*Adapted from the Institute of Medicine report, Preventing Childhood Obesity: Health in the Balance.[35]

CONCLUSIONS AND RECOMMENDATIONS

As the developers of formal public policy, state and local officials should:

- Establish regular physical activity for children as a priority
- Provide coordination and leadership for activities likely to positively influence children's physical activity behaviors
- Increase resources and strengthen policies that provide opportunities for regular physical activity in communities, neighborhoods, and schools
- Support public health agencies and community coalitions in their efforts to implement and evaluate physical activity promotion programs
- Strengthen support for relevant surveillance and monitoring activities, including a repetition of the Georgia Youth Fitness Assessment or similar survey every 3-5 years

To maintain an environment conducive to regular physical activity, schools and school systems should:

- Ensure that all children and youth participate in a minimum of 30 minutes of moderate to vigorous physical activity during the school day
- Expand opportunities for physical activity through physical education, intramural and interscholastic sports, and physical activity clubs
- Allow community use of school facilities outside of school hours
- Assure that children have safe routes on which to walk or bike to school and encourage them to do so
- Locate schools in close proximity to the neighborhoods they serve

To encourage and facilitate regular physical activity by their children and their children's friends, parents and caregivers should:

- Serve as positive role models
- Encourage and support regular physical activity by children
- Encourage children to play outdoors
- Limit television and other recreational screen time to less than 2 hours per day
- Discuss their child's physical fitness and weight with their child's health care provider

To encourage and facilitate regular physical activity by children and youth, local communities should:

- Ensure that plans, ordinances, and practices assure access to safe and attractive places for children to be physically active
- Give priority to capital improvements such as sidewalks and local parks that enable children to be physically active
- Improve the safety of pathways for walking or bicycling to school
- Encourage child- and youth-centered organizations to promote regular physical activity

Recognizing their role as well as their self interest in a healthy society, industry and businesses should:

- Collaborate with other community leaders to make children's physical activity and fitness a community priority
- Emphasize products and opportunities that promote regular physical activity for children
- Support programs that enable, facilitate, and encourage children to be more physically active

Accepting responsibility for their role as providers of information and molders of opinion, the media should:

- Incorporate physical activity issues into its content, including the provision of positive role models
- Encourage discussion of public and private opportunities to encourage and facilitate children's physical activity

GLOSSARY

3 Day Physical Activity Recall (3DPAR) – a paper and pencil survey in which students report their activities for the three most recent days. Students select from a list of activities to describe what they were doing during 30-minute blocks of time throughout the day. For non-sedentary activities, students also indicate an intensity level at which each activity was performed. By examining activity and intensity levels, whether or not students are meeting national recommendations for moderate to vigorous physical activity (MVPA) can be calculated.

Body Mass Index (BMI) – a calculation based on an individual's weight and height that, at a population level, is an acceptable indicator of adiposity, or fatness. BMI is expressed in units of weight (in kilograms) over height (in meters) squared, i.e., kg/m^2.

FitnessGram – a computerized tool that enables schools to perform fitness assessments that measure three components of health-related fitness: aerobic capacity; body composition; and muscular strength, endurance, and flexibility. For each of these components, several test options are available to assess each area. In addition to BMI, the test options selected for the GYFA include:

- Progressive Aerobic Cardiovascular Endurance Run (PACER) – similar to a shuttle run, students run as long as possible (up to 22:30 minutes) back and forth across a 15-meter course at a specified pace that gets quicker each minute. This test is used to provide an estimate of cardiovascular fitness level.
- Modified Pull-Up (MPU) – different from the regular pull-up, students perform the test by first lying on their backs directly under a bar. They then grasp the bar to pull up their upper bodies until their chest touches a strap that hangs from the crossbar. This test is a measure of upper arm and shoulder girdle strength and endurance.
- Curl-up – students lie on their backs with their knees bent at a 140° angle and their hands at their sides, palms face down. Moving slowly, students contract their abdominal muscles to curl up, sliding their fingers across a measuring strip that has been placed on the ground beneath their knees, before curling back down. Curl-ups are completed at a pace of 20 per minute. The purpose of the curl-up test is to measure abdominal strength and endurance.
- Trunk Lift – lying face down on a mat with hands at their sides, students slowly lift the upper body off the floor, using the muscles of the back, to a maximum of 12 inches. Students hold the position for measurement for about 2 seconds. The purpose of the trunk lift is to measure strength and flexibility of the back.
- Back-Saver Sit and Reach – starting in a sitting position on the floor with one leg straight and the other flexed at the knee with the foot flat on the floor, students slowly reach forward with both hands along a scale. The student reaches four times and holds the position on the fourth reach for at least one second. The test is then repeated with the other leg. This test predominantly measures the flexibility of the hamstring muscles.

GLOSSARY

Healthy Fitness Zone (HFZ) – term used by FitnessGram to describe a range of scores on each fitness test that are consistent with good health. FitnessGram is the only health-related fitness assessment tool to use criterion-referenced standards (rather than normative standards) to determine students' fitness levels based on what is required for good health for a youth's gender and age. The use of health-related criteria emphasizes personal fitness for health rather than for performance. The range of acceptable scores minimizes comparisons among children.

Intramural Activities – any physical activity program that is voluntary for students, in which students are given an equal opportunity to participate regardless of physical ability.

MET – also known as a metabolic equivalent, MET is a ratio of the metabolic rate of an activity to the metabolic rate while sitting quietly. Sitting quietly, the metabolic rate is approximately 1 kcal/kg-hour or an oxygen uptake of 3.5 ml/kg-min.

Moderate to Vigorous Physical Activity (MVPA) – activity requiring three or more times the energy required at rest (≥3 METs). According to the US Department of Health and Human Services, US Department of Agriculture, the American Heart Association, the National Association of Sport and Physical Education, the Medical College of Georgia, and others, school-aged children should participate, daily, in 60 minutes or more of moderate to vigorous physical activity (MVPA).

MSFE – term to describe the four tests in the GYFA that measure muscular strength, flexibility, and endurance (modified pull-up, curl-up, trunk lift, and back-saver sit and reach).

School Health Policies and Programs Study (SHPPS) – a national survey conducted by CDC every six years, most recently in the spring of 2006, to assess school health policies and programs at the state, district, school, and classroom levels. Two of the survey instruments used to assess programs and policies at the school-level were adopted for the GYFA: School Physical Education Questionnaire and School Food Service Questionnaire.

Significant or Significantly – use of these terms indicate that the differences between groups meet statistical criteria ($p < 0.05$) making it unlikely that the differences are due to chance.

Urbanicity – the degree to which a geographical area is urban. For the purposes of this report, urban and rural classification was based on county-level population density. Counties were ranked in order of descending population density. Beginning with the county with the highest population density, the population of counties were added until the sum equaled or just exceeded half the population of the state; these counties were classified as "urban" and all other counties were considered "rural."

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APPENDIX A.
Study Methodology

Purpose

GYFA sought specifically to determine the levels of physical fitness and obesity in a representative sample of Georgia's 5th and 7th grade students attending public and private schools; determine the proportion of Georgia's 5th and 7th grade students who are meeting the recommended levels of physical activity; draw distinctions by gender, grade, race/ethnicity, and urban/rural status; and describe the general characteristics of the nutrition services and physical education programs of participating schools. This baseline assessment can be used as a benchmark against which to measure future efforts to slow or reverse the current trend toward increasing obesity and decreasing fitness and physical activity among youth.

Sample Selection

The sampling design was developed to achieve 95% confidence intervals (CIs) within +/- 5% for estimates for black/white students, urban/rural students. For Hispanic students, the sampling design was designed to achieve 95% confidence intervals (CIs) within +/- 7%. The sample was stratified by urban/rural status and by school level (elementary or middle). In addition, strata with higher proportions of black or Hispanic students were constructed, and students from these schools were sampled at twice the rate of other schools. The goal was to enroll at least 2,000 5th and 2,000 7th grade students.

The sample size requirements were based on the assumption that of the 108 selected schools, 90 schools would participate and include: 8 small schools, 16 schools in the High-Black stratum, 22 schools in the High-Hispanic stratum, and 44 schools coming from other strata. Fifty-six elementary schools and 52 middle schools were selected in order to obtain participation from approximately 45 schools per level (Table A1).

Table A1. Number of elementary and middle schools selected within each sampling stratum.

Stratum	Rural High Black	Rural High Hispanic	Rural Other	Small School	Urban High Black	Urban High Hispanic	Urban Other	Total
Elementary School	6	5	13	4	12	8	8	**56**
Middle School	8	6	12	4	6	7	9	**52**
Total	14	11	25	8	18	15	17	**108**

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Study Methodology

For sampling purposes, schools with a percentage Hispanic or Black population larger than a certain threshold were defined in the High Hispanic or High Black stratum, respectively. Schools below this percentage threshold were considered part of the "other" stratum. The small school stratum contained schools with enrollment at grade 5 (for elementary schools) or grade 7 (for middle schools) of 30 students or fewer. The urban stratum was defined as the group of counties with the largest population densities in the state. Counties were sorted by population density, which was computed using U.S. Census data as county population divided by the area of the county. County populations were then cumulated starting from the ones with the largest density, and the cutoff for urban stratum was defined when the cumulative population reached half of the state's population. All other counties were considered rural. The urban stratum was defined as the following grouping of counties:

- Bibb County
- Chatham County
- Clarke County
- Clayton County
- Cobb County
- DeKalb County
- Douglas County
- Fayette County
- Forsyth County
- Fulton County
- Gwinnett County
- Muscogee County
- Richmond County
- Rockdale County

Assessment Tools

Fitness Testing

The GYFA sought to assess three aspects of physical fitness: body composition; aerobic capacity; and muscular strength, flexibility, and endurance. FitnessGram was selected as the fitness testing program to be used in the GYFA because its tests are widely-recognized and accepted in the scientific community and it includes a battery of options in these three areas. FitnessGram uses health-related, criterion-referenced standards to evaluate students on the various dimensions of fitness, which helps avoid ranking children in terms of percentile norms and consequent competition among students. Instead, it emphasizes personal fitness for health of all students. FitnessGram uses the term Healthy Fitness Zone, or HFZ, to describe a range of scores on a given measure that indicate whether a student's performance represents a level of fitness thought to provide adequate protection from health risks. Standards have been set separately for boys and girls based on age, and they reflect reasonable levels of fitness that most children can attain if they regularly participate in physical activity.

To assess aerobic capacity, GYFA used the 15-meter PACER (Progressive Aerobic Cardiovascular Endurance Run) test. Body composition was determined by measuring height and weight to determine a student's Body Mass Index (BMI), an indicator of adiposity. Four muscular skeletal tests were selected to determine various aspects of muscular strength, flexibility, and endurance: modified pull-up, curl-up, trunk lift, and back-saver sit-and-reach. More information on each of these tests, as well as the range of scores a student must fall within to attain the HFZ for his/her age and gender, can be found in Appendix B and Appendix C, respectively.

Physical Activity

The GYFA used one of few widely-used measures of physical activity, the 3 Day Physical Activity Recall (3DPAR). 3DPAR gathers information about children's activities over a three-day period to estimate the proportion of students who are meeting recommendations for moderate-to-vigorous physical activity (MVPA). Students select from a list of activities to describe what they were doing for each 30-minute block of time from 7am to midnight for at least one week day and one weekend day, starting with the most recently completed day. For activities that can be performed at varying levels of intensity, students also indicate whether the intensity was light, moderate, hard, or very hard. Based on the reported activity and intensity level, each 30-minute block is assigned a MET value. (Please see the Glossary for a definition of MET values and Appendix E for MET values assigned to each activity and intensity level.) To meet current recommendations for MVPA, students had to report an average of two or more 30-minute periods per day during which their predominant activity had a MET value of 3 or greater. More information about the 3DPAR is in Appendix D.

School Characteristics

To describe the physical education and nutrition services policies and programs at schools

APPENDIX A.
Study Methodology

participating in the GYFA, two questionnaires from CDC's School Health Policies and Programs Study (SHPPS) 2006 were used: School Physical Education Questionnaire and School Food Service Questionnaire. These paper-and-pencil surveys were completed by the school staff member identified as the most appropriate and knowledgeable respondent in each of the two topic areas.

Data Collection

Recruitment of Districts, Schools, and Students

The GYFA used a three-tiered approach to recruit Health Districts, school districts, and schools for their participation in the study. First, contact was established at each of the 17 local Health Districts in which there were sampled schools to create a climate of receptivity in the community. Second, a letter of invitation from the Philanthropic Collaborative for a Healthy Georgia was sent to the Superintendent of each of the 52 selected school districts to obtain their support and their permission to contact the selected schools. The letter was accompanied by various project-related materials, letters of support from a number of state agencies and associations (i.e., American Academy of Pediatrics-Georgia Chapter; Georgia Association for Health, Physical Education, Recreation, and Dance; Georgia Department of Education; Georgia Department of Human Resources' Division of Public Health; and Georgia Parent Teachers Association), and ready-to-send invitations for each school selected in their district. District Superintendents were asked to forward the individualized school invitation packets to the selected schools with a note encouraging their participation. The 11 selected private schools were sent their invitations directly. Finally, GYFA staff contacted principals or their designated contacts to obtain agreement to participate and schedule data collection.

Data collection typically occurred over a 5-day period to allow sufficient time to administer the physical activity survey, which was always given on a Tuesday or Wednesday, and the six fitness tests. Well in advance of the data collector's arrival, school contacts and participating teachers were sent a summary of the data collection procedures, active parental permission forms, descriptions of the fitness tests, and instructions to all school and volunteer personnel who would be assisting in any aspect of the GYFA. A toll-free line and a project-dedicated email address were also made available to administrators, teachers, parents, students, and community members to ask questions about the GYFA.

Informed Consent and Student Assent

All students and their parents were informed of the content of the survey, the types of fitness tests that students were asked to perform, and the risks and benefits of participation through an active parental permission form. Parents were also told that their child could withdraw from any aspect of the fitness testing or survey without penalty. In compliance with the No Child Left Behind Act of 2001, the consent form further informed parents that they could review a copy of the questionnaire and description of the fitness tests in the school office prior to making a decision about their child's participation. Parents were advised to say "no" to their child's participation if their child was limited for health reasons from vigorous physical activity, had been told by a doctor s/he should not take part in normal physical activity because of recent sickness or injury, or had a medical reason why s/he should not do the moderately vigorous exercises in the GYFA. If parents granted permission for their child to participate, yet answered in the affirmative to one or more of the screening questions, data collectors were required to contact parents to resolve the discrepancy prior to that student taking part in any fitness testing. If a parent refused to allow their child to participate in the GYFA, a second permission form was sent home asking for permission to participate in the physical activity survey only. Before students with parental permission participated in the GYFA, they were asked to assent, separately, for both the fitness test and the physical activity survey.

Classroom-level Data Collection

Data collection began September 18, 2006 and ended December 15, 2006. The physical activity survey and fitness tests were administered by specially trained field staff who were experienced in school-based data collection, fitness testing programs, exercise science, and health behavior. Specific training for this project included lectures, discussions, group role-plays, and simulations. Data collectors were also directly observed in the field to ensure compliance with protocols.

Response Rates

The school and student response rates were, in general, excellent for a survey of this type and complexity. Overall, 93 of the 108 sampled

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schools participated in the GYFA for a school participation rate of 86.1%. Among the 97 selected public schools, 87 of them participated (89.7%); six of the 11 selected private schools participated (54.5%).

Of the 6,432 students eligible to participate in the fitness testing, 5,045 (78.4%) completed at least one fitness test (Table A2). Of the 6,303 students who were eligible to participate in the physical activity survey, 3,981 (63.2%) of them provided sufficient information for at least one day's activity. In total, 5,248 students participated in the physical activity survey or the fitness testing. Of these, 372 participated in the fitness testing only, and 203 participated in the physical activity survey only.

Among schools participating in the student data collection, the School Physical Education questionnaire was completed by 87 schools (93.5%) and the School Food Service questionnaire was completed by 81 schools (87.1%).

Table A2. Student Eligibility, Reasons for Non-participation, and Participation Rates

	Number of Students Officially on Class Rosters	Number of Students Not Eligible/Able to Participate	Number of Eligible Students	Student Refusal	Parent Refusal	Absent/ In School Suspension	No Form Returned	Number of Participants	Participation Rate
Fitness Testing	6,631	199	6,432	25	252	140	960	5,045	78.4%
Activity Survey	6,529	226	6,303*	38	172	140	1,077	4,876	77.4%

*One school, representing 102 students, participated only in the fitness testing. Because the school allowed only fitness testing to be conducted, their students could not be regarded as eligible for the activity survey.

APPENDIX B.
Description of Selected FitnessGram Tests

Body Mass Index (BMI)

Each student is asked to empty pockets, remove bulky outer clothing, such as jackets and sweaters, shoes, hats, and any removable hair accessories prior to taking height and weight measurements. Student height is measured while the student stands up straight, with feet and knees together, arms hanging in a relaxed position by the sides of the body, and heels, buttocks and upper back touching the wall. To measure weight, students step onto a digital scale and distribute their weight equally on both feet and wait for the reading to register before stepping off the scale.

PACER (Progressive Aerobic Cardiovascular Endurance Run)

This test estimates aerobic capacity from the number of 15-meter lengths that a student can run back and forth across a straight course. The class is split into at least two paired groups; one group will be running while the other group counts and records the number of lengths the running partner completes on a score sheet used specifically for this test. This test starts out slowly and becomes progressively more difficult. Students are instructed to run as long as possible back and forth across the distance and at a specified pace set to beeps played on a CD player. For this test, a set of parallel lines is drawn 15 meters apart. Students start on one line, run the distance, and cross the opposite line. Once they hear the sound of a single chime, students turn around and run back to the starting line. Every minute, indicated by a triple chime, the pace gets faster. Students continue in this manner until they fail twice to reach the line before they hear the single chime.

Modified Pull-Up

In the administration of this test, students are instructed to successfully complete as many modified pull-ups as possible in order to measure upper arm and shoulder girdle strength and endurance. The modified pull-up differs from the regular pull-up in that students perform the test by lying on their backs directly under a bar. Students grasp the bar (pictured below) and pull up their upper bodies until their chest touches a strap that hangs from the crossbar. Students are stopped when they use improper form the second time. Correct form means that the student's chest must touch the strap, the body must be kept straight and not bend at the hips, arms must be fully extended in the "down" position, and students cannot rest their weight on the floor between attempts. The number of modified pull-ups is recorded. There is no maximum.

APPENDIX B.
Description of Selected FitnessGram Tests

Curl-up

Students are to complete as many curl-ups as possible, up to 75, at a specified pace set to beeps played on a CD player (20 per minute or one every three seconds). On the ground, students lie on their backs with their knees bent at a 140° angle and their hands at their sides, palms face down. Moving slowly, students curl up, sliding fingers across a measuring strip on the mat and then curl back down until the head touches the mat (pictured below). Students are stopped after completing 75 curl-ups or when they use improper form for the second time. Correct form means that students must return their heads all the way back to the ground after each curl-up, reach the far end of the measuring strip with their fingertips at the top of every curl-up, maintain their heels in contact with the floor at all times, and keep at the same pace as a CD that will be played while doing this test.

Trunk Lift

While lying face down on a mat, students are asked to slowly lift the upper body off the floor, using the muscles of the back, to a maximum of 12 inches. Students need to hold the position for measurement (i.e., distance from the floor to the student's chin) for about 2 seconds. During the test, students are instructed to keep their eyes focused on a spot on the floor. Once the measurement is made, the student returns to the starting position. A second trial is conducted and the higher score is recorded. Students should lift up and lower themselves back to the floor in a slow, controlled manner. As a safety precaution, students are instructed not to rise higher than 12 inches.

Back-Saver Sit and Reach

This test predominantly measures the flexibility of the hamstring muscles. Starting in a sitting position, students are instructed to reach forward to a specified distance, with first one leg extended and then switching to extend the other leg. The student slowly reaches forward with both hands along a scale (pictured below). The student reaches four times and holds the position on the fourth reach for at least one second. The distance the student reaches is recorded, and the same procedure is conducted on the opposite leg. The student is not allowed to bend the knee of the straightened leg and must keep the sole of the other foot flat on the ground. Students must reach forward slowly and keep both hands at the same level as they move forward. As a safety precaution, reach performance is limited to 12 inches.

APPENDIX C.
FitnessGram Standards for Healthy Fitness Zone

Table C1. FitnessGram Standards for Healthy Fitness Zone, Females

Girls	Pacer (lengths)		BMI (kg/m²)		Curl-up (number)		Trunk Lift (inches)		Modified Pull-up (number)		Back-Saver Sit & Reach (inches)
Age	Low	High	Low	High	Low	High	Low	High	Low	High	
8	No Standard		16.2	22	6	20	6	12	4	11	9
9	No Standard		13.5	23	9	22	6	12	4	11	9
10	7	41	13.7	23.5	12	26	9	12	4	13	9
11	15	41	14	24	15	29	9	12	4	13	10
12	15	41	14.5	24.5	18	32	9	12	4	13	10
13	23	51	14.9	24.5	18	32	9	12	4	13	10
14	23	51	15.4	25	18	32	9	12	4	13	10
15	32	51	16	25	18	35	9	12	4	13	12

Table C2. FitnessGram Standards for Healthy Fitness Zone, Males

Boys	Pacer (lengths)		BMI (kg/m²)		Curl-up (number)		Trunk Lift (inches)		Modified Pull-up (number)		Back-Saver Sit & Reach (inches)
Age	Low	High	Low	High	Low	High	Low	High	Low	High	
8	No Standard		15.1	20	6	20	6	12	4	11	8
9	No Standard		13.7	20	9	24	6	12	5	11	8
10	23	61	14	21	12	24	9	12	5	15	8
11	23	72	14.3	21	15	28	9	12	6	17	8
12	32	72	14.6	22	18	36	9	12	7	20	8
13	41	83	15.1	23	21	40	9	12	8	22	8
14	41	83	15.6	24.5	24	45	9	12	9	25	8
15	51	94	13.2	25	24	47	9	12	10	27	8

APPENDIX D.
Description of 3 Day Physical Activity Recall

The purpose of the physical activity survey was to measure the types and intensities of children's physical activity. Physical activity data are important because of evidence that regular physical activity improves health.

Few instruments have been developed for measuring children's physical activity. The FitnessGram software package includes a physical activity component called ActivityGram. However, ActivityGram was not used in the GYFA because it placed an unreasonable burden on the school staff. Instead, the paper-and-pencil survey instrument known as the 3 Day Physical Activity Recall (3DPAR) was selected. The 3DPAR is conceptually based upon and collects information similar to the ActivityGram; its advantage for the GYFA was that it allowed for a mass administration to students during a portion of a regular class session, either in physical education or another subject area. The GYFA was the first time that 3DPAR was administered to students as young as 5th grade.

The 3DPAR was administered over a 45-minute period of time and requested students to report their activities for the previous three days, starting with the most recent day. The instrument is organized into a grid (pictured on right), which partitions each day into 30-minute blocks of time from 7am-midnight. For each 30-minute block of time, students selected an activity from a numbered list (see Appendix E) to indicate the primary activity s/he completed during that time slot. For non-sedentary activities, students were also asked to indicate whether the intensity at which that activity was done was "light," "moderate," "hard," or "very hard." To help students judge whether an activity was light, moderate, hard, or very hard, they were given a document along with their survey booklet called an Intensity Level Handout. The handout gave examples of different types of activities and the intensity level at which one might typically perform them.

Because the GYFA sought physical activity data for at least one weekday and at least one weekend day, it was administered exclusively on Tuesdays or Wednesdays at every school.

Day of week: _____

For activities 19-17, put a "✓" in ONE column to show how intensely you did an activity. You can say "light," "moderate," "hard," or "very hard." Do not check any of the columns for activities 1-18.

Write activity number in this column.

	Activity Number	Light	Moderate	Hard	Very Hard
7:00-7:30 am					
7:30-8:00					
8:00-8:30					
8:30-9:00					
9:00-9:30					
9:30-10:00					
10:00-10:30					
10:30-11:00					
11:00-11:30					
11:30-12:00 pm					
12:00-12:30					
12:30-1:00					
1:00-1:30					
1:30-2:00					
2:00-2:30					
2:30-3:00					
3:00-3:30					
3:30-4:00					
4:00-4:30					
4:30-5:00					
5:00-5:30					
5:30-6:00					
6:00-6:30					
6:30-7:00					
7:00-7:30					
7:30-8:00					
8:00-8:30					
8:30-9:00					
9:00-9:30					
9:30-10:00					
10:00-10:30					
10:30-11:00					
11:00-11:30					
11:30-12:00 am					

APPENDIX E.
MET Values Table

Table E1. MET Values for Each Activity and Given Intensity Level in 3 Day Physical Activity Recall

		Intensity			
Activity		**Low**	**Moderate**	**High**	**Very High**
1	Eating a meal	1.5	1.5	1.5	1.5
2	Snacking	1.5	1.5	1.5	1.5
3	Church	1.5	3	3	3
4	Hanging around	1.5	1.5	1.5	1.5
5	Homework	1.5	1.5	1.5	1.5
6	Listening to music	1.5	1.5	1.5	1.5
7	Music lesson/playing instrument	2.5	2.5	2.5	2.5
8	Playing video games/surfing internet	1.5	1.5	1.5	1.5
9	Reading	1.5	1.5	1.5	1.5
10	Shopping	2.5	3	3	3
11	Talking on phone	1.5	1.5	1.5	1.5
12	Watching TV or movie	1.5	1.5	1.5	1.5
13	Getting dressed	2.5	2.5	2.5	2.5
14	Getting ready (hair, make-up, etc.)	2.5	2.5	2.5	2.5
15	Showering/bathing	2.5	2.5	2.5	2.5
16	Sleeping	1	1	1	1
17	Lunch/free time/study hall	1.5	1.5	1.5	1.5
18	Sitting in class	1.5	1.5	1.5	1.5
19	Club/student activity	1.5	1.5	7.5	10
20	Marching band/flag line	3.5	3.5	6.5	6.5
21	P.E. Class	1.5	4.5	7.5	10
22	Riding in a car/bus/airplane/trolley/boat	1.5	1.5	1.5	1.5
23	Travel by walking	2.5	4	6	6
24	Travel by bicycling	4	4	7	10
25	Working (e.g., part-time job, baby-sitting)	1.5	3	6	6

APPENDIX E.
MET Values Table

Table E1. (Continued) MET Values for Each Activity and Given Intensity Level in 3 Day Physical Activity Recall

		Intensity			
Activity		**Low**	**Moderate**	**High**	**Very High**
26	Doing house chores (e.g., vacuuming, dusting, washing dishes, animal care, etc,)	2.5	3.5	3.5	3.5
27	Yard work (e.g., mowing, raking)	2.5	4.5	4.5	4.5
28	Aerobics, jazzercise, water aerobics, taebo	5	6	7	8
29	Basketball	4.5	4.5	7	8
30	Bicycling, mountain biking	4	4	7	10
31	Bowling	3	3	3	3
32	Broomball	6	6	7	8
33	Calisthenics / Exercise (push-ups, sit-ups, jumping jacks)	3.5	4.5	7	8
34	Cheerleading, drill team	3	5	7	7
35	Dance (at home, at a class, in school, at a party, at a place of worship)	4.5	4.5	4.5	4.5
36	Exercise machine (cycle, treadmill, stair master, rowing machine)	4	4	7	10
37	Football	2.5	4	8	9
38	Frisbee	3	5	6	8
39	Golf / Mini-golf	3.5	4.5	4.5	4.5
40	Gymnastics / Tumbling	4	4	5	6
41	Hiking	5	5	6	7
42	Hockey (ice, field, street, or floor)	6	6	8	9
43	Horseback riding	2.5	4	6	7
44	Jumping rope	8	8	10	12
45	Kick boxing	5	6	7	8
46	Lacrosse	6	6	8	9
47	Martial arts (karate, judo, boxing, tai kwan do, tai chi)	4	4	8	10

APPENDIX E.
MET Values Table

Table E1. (Continued) MET Values for Each Activity and Given Intensity Level in 3 Day Physical Activity Recall

Activity		Intensity			
		Low	Moderate	High	Very High
48	Playground games (tether ball, four square, dodge ball, kick ball)	5	5	5	5
49	Playing catch	2.5	2.5	2.5	2.5
50	Playing with younger children	4	4	4	4
51	Roller blading, ice skating, roller skating	5	5	6.5	8
52	Riding scooters	5	5	7	7
53	Running / Jogging	7	7	10	12
54	Skiing (down hill, cross country, or water)	7	7	8	9
55	Skateboarding	5	5	7	7
56	Sledding, tobogganing, bobsledding	7	7	7	7
57	Snowboarding	5	5	5	5
58	Soccer	7	7	7	7
59	Softball/baseball	5	5	5	5
60	Surfing (body or board) / Skimboarding	3	3	4	4
61	Swimming (laps)	4	4	8	10
62	Swimming (play, pool games - Marco Polo, water volleyball, snorkeling)	4	4	6	6
63	Tennis, racquetball, badminton, paddleball	6	6	7	7
64	Trampolining	4	4	5	5
65	Track & field	4	4	6	10
66	Volleyball	3.5	5	6	8
67	Walking for exercise	3	4	5	5
68	Weightlifting	3	3	6	7
69	Wrestling	6	6	6	6
70	Yoga, stretching	2.5	2.5	2.5	2.5
71	Other	1.5	4.5	7.5	10

APPENDIX F.
Description of School Physical Education and School Food Service Questionnaires

To provide a context within which to interpret the student-level data, the GYFA sought information about the physical education and nutrition policies and programs at each of the participating schools. Two of the questionnaires used in CDC's School Health Policies and Programs Study (SHPPS) 2006, which is the largest, most comprehensive assessment of school health policies and programs in the country, were adapted for use in the GYFA. Responses for the national 2006 SHPPS survey were obtained by on-site interviewers using computer-assisted personal interviewing (CAPI) laptops. For GYFA, the most appropriate respondent for each questionnaire was identified and that person was provided a paper-and-pencil version of the School Physical Education or School Food Service questionnaire. GYFA data collectors did not assist with the completion of the forms.

The School Physical Education questionnaire covered topics such as standards and guidelines, physical education requirements including time requirements, type of recreation/physical education facilities available, and intramural opportunities for students. It was estimated to take less than 60 minutes to complete this paper questionnaire. The Food Service questionnaire covered topics such as breakfast and lunch offerings, time allowed for students to eat lunch, brand name/fast food options, and requirements for school nutrition services personnel. It was estimated to take less than 40 minutes to complete this questionnaire.

APPENDIX G.
Tables of Results

Table G1. Percentage of All Students Not Attaining Healthy Fitness Zone in Each Test and Not Meeting Recommendations for Moderate to Vigorous Physical Activity, by Gender, Race/Ethnicity, and Urbanicity.

	BMI		PACER		Failed 2 or More MSFE Tests		Modified Pull-up		Curl-up		Trunk Lift		Back-Saver Sit & Reach		MVPA	
	%	+/- 95%CI*	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI
Total	**29.5**	**2.1**	**51.8**	**4.8**	**22.6**	**3.5**	**20.5**	**2.9**	**12.9**	**2.6**	**38.3**	**7.5**	**21.3**	**3.0**	**21.8**	**2.8**
Male	35.0	2.6	70.0	5.9	22.6	3.6	19.4	2.9	13.1	2.9	37.0	7.3	22.8	3.6	19.8	3.2
Female	23.7	2.8	32.2	4.4	22.7	4.4	21.6	5.0	12.8	2.9	39.8	8.0	19.6	3.5	23.8	3.3
Black	32.1	2.8	55.0	7.3	27.5	4.8	20.5	4.3	13.0	2.8	49.2	7.7	23.4	4.4	28.6	4.0
Hispanic	35.5	5.3	54.2	6.3	31.5	5.3	28.4	6.2	21.6	5.4	36.6	7.9	27.8	4.9	25.4	4.3
White	27.1	3.2	49.5	6.0	17.8	4.2	19.1	3.1	11.8	3.5	30.8	8.9	18.8	3.7	16.5	3.4
Urban	28.8	2.9	44.7	7.4	22.6	4.5	19.6	5.5	11.3	2.9	36.2	9.0	23.7	4.3	25.5	3.6
Rural	30.0	3.0	56.7	6.1	22.7	5.0	21.1	3.0	14.0	3.9	39.8	11.0	19.5	3.6	19.2	4.0

*CI = Confidence Interval

APPENDIX G.
Tables of Results

Table G. Percentage of 5th Grade Students Not Attaining Healthy Fitness Zone in Each Test and Not Meeting Recommendations for Moderate to Vigorous Physical Activity, by Gender, Race/Ethnicity, and Urbanicity.

Grade 5	BMI		PACER		Failed 2 or More MSFE Tests		Modified Pull-up		Curl-up		Trunk Lift		Back-Saver Sit & Reach		MVPA	
	%	+/- 95%CI*	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI
Total	**28.9**	**3.1**	**41.1**	**5.4**	**21.4**	**3.6**	**19.7**	**2.4**	**14.8**	**4.4**	**36.6**	**10.7**	**19.6**	**3.8**	**18.9**	**3.0**
Male	35.0	4.2	66.2	7.8	21.0	4.1	18.3	3.2	15.2	5.0	36.1	10.6	20.2	4.0	18.4	3.8
Female	22.4	4.1	14.2	3.8	21.8	4.6	21.3	3.9	14.3	4.4	37.2	11.6	19.0	4.7	19.4	4.0
Black	30.5	3.6	43.9	6.1	24.0	6.4	17.1	2.9	12.8	3.9	46.1	11.5	23.2	5.1	25.1	4.9
Hispanic	33.6	8.1	43.3	7.2	32.2	7.4	27.8	7.8	24.7	7.8	33.5	11.3	26.6	7.5	24.1	6.4
White	27.5	4.9	39.5	6.6	18.0	3.8	20.4	3.3	15.1	6.1	30.2	12.3	16.3	4.5	14.7	2.9
Urban	28.4	2.9	38.6	6.7	21.7	5.8	17.0	3.3	12.4	4.1	34.1	12.3	24.6	6.8	21.1	5.3
Rural	29.2	5.2	42.9	7.9	21.2	4.6	21.9	3.2	16.6	7.1	38.9	16.8	15.6	3.6	17.2	3.4

*CI = Confidence Interval

APPENDIX G.
Tables of Results

Table G3. Percentage of 7th Grade Students Not Attaining Healthy Fitness Zone in Each Test and Not Meeting Recommendations for Moderate to Vigorous Physical Activity, by Gender, Race/Ethnicity, and Urbanicity.

Grade 7	BMI		PACER		Failed 2 or More MSFE Tests		Modified Pull-up		Curl-up		Trunk Lift		Back-Saver Sit & Reach		MVPA	
	%	+/- 95%CI*	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI	%	+/- 95%CI
Total	**30.1**	**2.9**	**62.2**	**7.5**	**23.8**	**6.0**	**21.2**	**5.2**	**11.0**	**2.8**	**40.0**	**10.4**	**22.9**	**4.7**	**24.4**	**4.6**
Male	35.0	3.2	73.7	8.8	24.1	5.9	20.5	4.9	10.9	2.9	37.8	10.2	25.4	5.7	21.1	5.1
Female	24.8	3.9	49.7	7.2	23.5	7.3	22.0	9.0	11.1	3.8	42.3	11.1	20.2	5.3	27.7	5.1
Black	33.6	4.0	64.9	12.9	30.8	7.3	23.6	7.3	13.2	4.1	52.2	10.8	23.6	4.6	31.4	6.1
Hispanic	37.6	6.8	65.2	11.1	30.7	7.5	29.1	9.7	17.8	7.3	40.3	11.5	29.1	6.0	26.9	5.8
White	26.7	4.1	59.6	9.7	17.7	7.3	17.8	5.2	8.4	3.0	31.5	12.9	21.3	5.7	18.1	5.9
Urban	29.2	5.2	51.1	13.0	23.7	7.0	22.4	10.7	9.8	3.9	38.8	13.2	22.8	4.8	29.7	5.0
Rural	30.7	3.3	69.5	8.5	24.0	8.3	20.4	4.9	11.7	3.8	40.7	14.5	23.0	5.9	20.9	6.8

*CI = Confidence Interval

Copies of the report may be downloaded at www.gsu.edu/ghpc

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