



2010 Georgia Physical Activity Surveillance Report



Acknowledgements

Georgia Department of Community Health
David A. Cook, Commissioner

Division of Public Health
Dr. Brenda Fitzgerald, M.D., Director

Epidemiology Program
Anilkumar Mangla, Ph.D., M.P.H., FRIPH, Acting
Director

Chronic Disease, Healthy Behaviors, and Injury
Epidemiology Section
A. Rana Bayakly, M.P.H., Director

Katherine Mills, M.S.P.H., Epidemiologist

Health Promotion and Disease Prevention Program
Kimberly Redding, M.D., M.P.H., Director

Behavioral Risk Reduction Unit
Andrea Wimbush, M.P.A., CHES, Director

Graphic Design: Jimmy Clanton, Jr.

This publication was supported by Cooperative Agreement number DP08-805 from the Centers for Disease Control and Prevention (CDC), State Nutrition and Physical Activity Program. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.

Content

4	Highlights
6	Chapter 1: About Physical Activity
9	Chapter 2: How Active are Georgians?
11	Chapter 3: Burden of Inactivity and Benefit of Activity
13	Chapter 4: Policies and Environments Supporting Physical Activity
18	Chapter 5: Strategies Promoting Physical Activity in Georgia
22	Appendices
	I. Physical activity-related objectives from Healthy People 2010 and current status of objectives in Georgia
	II. Data Tables
	Table 1. Percent of middle and high school students engaging in activity by sex, race/ethnicity, and grade, Georgia 2009
	Table 2. Percent of adults engaging in activity by demographic groups, Georgia 2007
	Table 3. Percent of adults engaging in activity by health district of residence, Georgia 2005 and 2007
	Table 4. Percent of adults engaging in activity by year, Georgia 1984-2007
	Table 5. Most frequently reported leisure time activities among adults, Georgia 1984, 1994, and 2004
	Table 6. Age-adjusted percent of adults with a chronic condition, by physical activity level, Georgia 2003-2007
	Table 7. Percent of middle and high schools providing policies and environments supporting physical activity, Georgia 2006
	Table 8. Percent of schools that require two semesters of physical education, by grade, Georgia 2006
	Table 9. Percent of children aged 5-15 years who lived within one mile of school and walked to school, Georgia 2000 and 2002-2003
	Table 10. Barriers to students walking or biking to and from school, by school type, Georgia 2006
	Table 11. Percent of children living in neighborhoods with characteristics to promote physical activity, Georgia 2007
	Table 12. Percent of adults with a safe place to walk by location, Georgia 2001
	Table 13. Percent of regularly active adults by access to a safe place to walk, Georgia 2001
	Table 14. Percent of worksites providing policies and environments supporting physical activity, Georgia 2002 and 2008
	Table 15. Percent of Health Maintenance Organizations (HMOs) providing physical activity-related services, Georgia 2004
	III. Estimating the burden and benefits of physical activity
	IV. Data sources for physical activity

Highlights

- **Regular physical activity reduces the risk of heart disease, high blood pressure, stroke, colon cancer, diabetes, falls, fractures and excess abdominal fat, the type of fat most associated with increased risk of cardiovascular disease**
- **Insufficient activity and inactivity have a severe health and economic impact on the state**
 - **In 2007, insufficient activity and inactivity were responsible for:**
3,581 deaths
21,538 hospitalizations
\$542 million in hospital charges
- **Physical activity recommendations for good health are:**
 - **Children and adolescents: At least 60 minutes of physical activity from a variety of physical activities daily. The recommended weekly activity should include aerobic, muscle-strengthening and bone-strengthening activities**
 - **Adults: At least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity activity in a week. The recommended amount minutes can be accumulated in 10-minute segments and across all days of the week**
- **Too many Georgians do not get enough physical activity**
 - **52% of middle school students were vigorously active (Healthy People 2010 Target: 85%)**
 - **43% of high school students were vigorously active (Healthy People 2010 Target: 85%)**
 - **49% of adults were regularly active (Healthy People 2010 Target: 50%)**
- **More environmental features and organizational policies are needed in schools, communities, worksites and health care settings to promote regular physical activity**



Chapter 1

About Physical Activity

Physical Activity, Exercise, and Physical Fitness

In everyday speech, physical activity, exercise and physical fitness are commonly used interchangeably. However, there are important differences in the meanings of these terms.⁵ Physical activity is any bodily movement produced by skeletal muscles that results in energy expenditure. The purpose of the movement may be related to occupation, household chores, transportation, sports, hobbies or any other pursuit. Exercise is the part of physical activity that is planned, structured, repetitive and is usually done to improve or maintain fitness. Physical fitness is a set of attributes or skills that describes a person's ability to perform and sustain physical activity, such as cardiovascular endurance, flexibility and strength. Physical fitness is dependent upon both heredity and behavior. Genetic endowment cannot be changed, but physical activity behaviors can be changed.

Health Benefits of Regular Physical Activity

The benefits of physical activity are described and affirmed by numerous governmental and non-governmental organizations and supported by the Department of Health and Human Services' 2008 Physical Activity Guidelines for Americans.¹ These benefits include reduced rates of early death, heart disease, stroke, high blood pressure, diabetes, metabolic syndrome, colon cancer, breast cancer, depression and adverse blood lipid profiles. Physical activity also helps people maintain healthy body weight and have better cognitive function with aging. In addition, physical activity reduces the risk of falls and fractures by strengthening bones and muscles.

In addition to confirming and describing the health benefits of physical activity, the 2008 Physical Activity Guidelines for Americans¹ contains several important messages. Inactive individuals improve their health by becoming more physically active even if they do not reach the recommended levels. Benefits from physical activity increase as physical activity increases



in duration, frequency and intensity. The report also finds that aerobic, muscle-strengthening and bone-strengthening activities are all important components of physical activity for maximum health benefits.

The report recommends that adults do 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity physical activity every week. No specific number of days is recommended, although spreading the recommended minutes out over at least three days can reduce the chances of injury. Adults should also include muscle-strengthening activities in their weekly physical activity, such as resistance training. These activities contribute to bone and muscle strength.

School-aged children and adolescents should accumulate at least 60 minutes of age- and developmentally appropriate physical activity from a variety of physical activities daily.¹⁻³ Aerobic, muscle-strengthening and bone-strengthening activities should each be included at least three days a week. The National Association of Sports and Physical Education recommends toddlers and preschoolers engage in at least 60 minutes up to several hours of unstructured physical activity each day. Unstructured activities are those with no set rules and are determined by the toddlers' imaginations. Toddlers and preschoolers should have no more than 60 sedentary minutes at a time. Toddlers should accumulate 30 minutes and preschoolers 60 minutes of structured physical activity. Structured activities are those with a set sequence or rules, such as rolling a ball back and forth or singing songs with hand motions or movements.⁴

Short sessions

The recommended daily minutes of physical activity does not need to take place at once. For adults, it may be more feasible to break up the recommended weekly minutes into ten-minute sessions throughout the week.¹ Some examples of ten-minute sessions include parking your car farther rather than closer to your destination,

getting off public transportation a few stops early, and taking a ten-minute walk after lunch. Children may break up the recommended daily minutes into fifteen-minute sessions each day.²

Every Increase Helps

The benefits of physical activity vary depending on the frequency and duration of physical activity. The current recommendations for adults and children are not rigid thresholds. For people who are already meeting these goals, adding more time or increasing the intensity of the activity will lead to additional benefits. For less active people, a little more physical activity improves their health and quality of life even if they do not fully achieve the recommended goals. People should select enjoyable activities that fit into daily life and try to involve friends and family as a means of support.¹

Healthy People 2010

Healthy People 2010 (HP 2010) is a document published by the U.S. Department of Health and Human Services. The document contains goals and objectives to guide the efforts of health workers.⁶ This report provides information about Georgia's status in accomplishing many of the Healthy People 2010 objectives related to physical activity and fitness. Currently, the Healthy People 2020 objectives are being developed and will be available before the end of 2010. Georgia has collected and analyzed data pertaining to ten of HP 2010's fifteen physical activity related objectives. A list of the physical activity related objectives and the status of the objective in Georgia is presented in Appendix I.

Purpose of this report

This report includes information about the physical activity patterns of Georgians, the costs of inactivity, policies and environmental support for physical activity, and suggestions for future actions. Chapter 2 describes current patterns of physical activity in Georgia, including the prevalence of physical activity, changes over time, differences between geographic regions of the state, and differences between groups of people based on their age, race, ethnicity, sex and other characteristics. Chapter 3 describes rates of selected diseases by physical activity levels and estimates the cost of selected diseases in lives lost, hospitalizations, and hospital charges due to inactivity. It also estimates the additional cost in lives, hospitalizations, and hospital charges if all Georgians were inactive. Chapter 4 describes policies and environments supporting physical activity in Georgia. Chapter 5 suggests strategies to make it easier for people to be physically active.

References

1. U.S. Department of Health and Human Services. *2008 Physical Activity Guidelines for Americans*. Washington D.C.: U.S. Department of Health and Human Services, October 2008.
2. National Association for Sport and Physical Education. *Physical Activity for Children: A Statement of Guidelines for Children Ages 5-12, 2nd edition*. National Association for Sport and Physical Education, Council on Physical Education for Children, December 2003.
3. Strong WB, Malina RM, Blimkie CJ, Daniels SR, et al. Evidence based physical activity for school-age youth. *J Pediatr* 2005;146(6):732-7.
4. National Association for Sport and Physical Education. *Active Start: A Statement of Physical Activity Guidelines for Children Birth to Five Years*. National Association for Sport and Physical Education, February 2002.
5. Caspersen CJ, Powell KE, Christenson GM. Physical activity, exercise, and physical fitness: Definitions and distinctions for health related research. *Public Health Reports* 1985;100:126-131.
6. U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd Edition. Washington, DC: U.S. Government Printing Office, November 2000.



Chapter 2

How active are Georgians?



Highlights

- 52% of middle school students were regularly active
- 43% of high school students were regularly active
- 46% of adults in Georgia were regularly active

Middle school students

Based on the 2009 Youth Risk Behavior Surveillance System (YRBS), 52% of middle school students in Georgia were physically active for at least 60 minutes on five or more days per week (Appendix II, Table 1, for YRBS description see Appendix IV).¹ Males were more likely to be active than females, and Whites were more likely to be active than Blacks or Hispanics. However, all race, sex and age groups were consistently below the Healthy People 2010 objective of 85% for recommended activity in adolescents (Figure 2-1).²

High school students

In 2009, 43% of high school students in Georgia were physically active for at least 60 minutes on five or more days per week (Appendix II, Table 1).¹ Males were more likely to be active than females and 9th grade students were more likely to be active than any other grade. However, the percent with recommended physical activity levels overall and in each sex, race, and age group were well below the Healthy People 2010 objective for adolescents (Figure 2-2).²

Adults

Based on the 2009 Behavioral Risk Factor Surveillance System (BRFSS), 46% of adults in Georgia were regularly active, 42% were insufficiently active, and 13% were inactive (Appendix II, Table 2, for BRFSS description see Appendix IV). Adults were considered regularly active if they were either

1. active on five or more days per week and accumulated at least 30 minutes or more of at least moderate activity on those days, or
2. active at least three days per week and accumulated at least 20 minutes of vigorous intensity activity on those days, or
3. met the criteria for being both moderately active and vigorously active .

The regularly active category is composed of the 18% of Georgians who were moderately active 30 minutes per day for five or more days per week, the 13% who were vigorously active for 20 minutes or more per day on three or more days per week, and the 15% who met the criteria for both moderate and vigorous physical activity (Figure 2-3).³ The percent of adults engaging in regular moderate or vigorous intensity activity was below the Healthy People 2010 objective of 50%.² However some of the sex, age, race, income and education groups met this objective, including younger adults (ages 18-34), upper income groups (\$75,000+) and college graduates (Figures 2-4 through 2-8).³

Participation in regular activity differed across regions of the state (Appendix II, Table 3). Adults living in the Cobb-Douglas and DeKalb health districts were most likely to be regularly active. The lowest rates of regular activity were found in the Northwest, South Central and Southeast health districts (Figure 2-9).³ Regions of high regular activity have remained consistent since the 1990s.⁴

Physical activity is known to be tied to obesity rates and education levels. In Georgia this holds true. Health districts with the highest percentages of inactive adults also have the highest percentages of obesity and the highest percentages of adults with a high school education or less (Figures 2-10 and 2-11).

Participation in leisure time physical activity among Georgia adults changed between 1999 and 2009 (Figure 2-12). The percent of regularly active adults increased while rates of physical inactivity (less than 10 minutes of moderate or vigorous activity per day) decreased during this period (Appendix II, Table 4).³

Walking was the most common activity reported during leisure time in 1984, 1994, and 2004 (Figure 2-13). Participation in home maintenance (e.g., gardening, raking lawn) and running decreased while indoor conditioning (e.g., aerobics, home exercise) and recreational activities (e.g., bicycling for pleasure, bowling) increased (Appendix II, Table 5).⁴

The percent of adults engaging in no physical activity for exercise during leisure time increased from 1984 to 1996, and then decreased since 1996 (Appendix II, Table 4).^{3,4} Despite this decrease, the percent of adults engaging in no leisure time physical activity did not meet the Healthy People 2010 objective (20%) in 2009 (Figure 2-14).²

References

1. *Youth Risk Behavior Surveillance System: Atlanta, GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.*
2. *U.S. Department of Health and Human Services. Healthy People 2010: Understanding and Improving Health. 2nd Edition. Washington, DC: U.S. Government Printing Office, November 2000.*
3. *Behavioral Risk Factor Surveillance System: Atlanta, GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.*
4. *Falb M, Kanny D, Thompson S, Wu M, Powell, K. 2006 Georgia Physical Activity Surveillance Report. Georgia Department of Human Resources, Division of Public Health, Chronic Disease, Injury, and Environmental Epidemiology Section, May 2006. Publication number: DPH06.062HW.*

Chapter 3

Burden of Inactivity and Benefits of Activity

Highlights

- Inactive adults were more likely to be obese, have diabetes, high blood pressure, stroke, arthritis and report poor mental health than regularly active adults
- In 2009, insufficient activity and inactivity were responsible for an estimated:
 - 3,031 deaths
 - 20,193 hospitalizations
 - \$649 million in hospital charges
- If all adults in Georgia were inactive in 2009, this would result in an additional:
 - 6,403 deaths
 - 39,661 hospitalizations
 - \$1.3 billion in hospital charges

Health Burden of Insufficient Activity

Physical inactivity is associated with increased risk for some chronic diseases and mortality as well as excessive health care costs. In 2009, physically inactive adults were more likely to be obese, diabetic, have high blood pressure and suffer from stroke compared to those who are regularly active. In addition, inactive adults were more likely to have arthritis or joint symptoms and report one or more days of poor mental health (Figure 3-1; Appendix II, Table 6).

The Burdens: Preventable deaths, hospitalizations, and hospital charges

Physically inactive and insufficiently active lifestyles result in health and economic burdens that are potentially avoidable if everyone was regularly active.



These burdens resulting from physically inactive and insufficiently active lifestyles can be estimated based upon the health risks of inactive lifestyles and the proportion of inactive and irregularly active people in Georgia. These estimates, called the Population Attributable Risk (PAR), provide a useful measure of the burden of lack of regular physical activity on the health of the population. PAR estimates suggest that if all Georgians were regularly active, there would be fewer deaths, hospitalizations, and hospital charges due to coronary heart disease (17% less), high blood pressure (12% less), stroke (17% less), colon cancer (23% less), diabetes (27% less) and osteoporotic falls with fractures (27% less). If all Georgians became regularly active, there would be an estimated 3,031 fewer deaths, 20,193 fewer hospitalizations and \$649 million fewer hospital charges due to these conditions (Table 3-1). See Appendix III for more information about PAR.

The Benefits: Prevented deaths, hospitalizations, and hospital charges

The additional deaths, hospitalizations, and hospital charges that theoretically would have happened if all Georgians were inactive but were prevented because some persons were either regularly or insufficiently active are called the Population Events Prevented (PEP). The PEP is an estimated figure and, like the PAR, is not precise. Nevertheless, it is important to note that some Georgians are in better health because they are physically active, and that these health benefits lead to reductions in deaths, hospitalizations, and hospital charges. See Appendix III for more information about PEP.

If all Georgians were inactive, then there would have been additional deaths, hospitalizations, and hospital charges due to coronary heart disease (38%), high blood pressure (26%), stroke (38%), colon cancer (53%), diabetes (38%), and osteoporotic falls with fractures (38%). For the six conditions combined, an estimated additional 6,403 deaths, 39,661 hospitalizations and over \$1.3 billion in hospital charges did not occur (Table 3-2).

Chapter 4

Policies and Environments Supporting Physical Activity

Highlights

Schools

- Most middle schools (76%) and almost all high schools (99%) in Georgia require students to take at least one physical education course, but the proportion of schools requiring physical education in every grade level is unknown
- Less than half of middle (44%) and high school students (30%) in Georgia attended daily physical education class
- Over half of middle (64%) and high (54%) school students in Georgia participated on one or more sports teams in the last year
- Most middle schools (86%) and high schools (78%) in Georgia allowed use of school's athletic facilities outside of school hours

Community

- Few children (13%) ages five to 15 years in Georgia who lived one mile or less from school walked to school
- Traffic was the most frequently reported barrier (65%) to walking to school reported by school administrators in Georgia
- Adult Georgians with a safe and convenient place to walk were more likely to engage in regular activity (42%) than those with no place to walk (27%)

Worksites

- Few worksites in Georgia offered policies, environments and programs supporting physical activity for employees

Health care

- Most Health Maintenance Organizations (HMOs) in Georgia had policies to support physical activity by providing educational material, counseling, or discounts or fee reductions to join programs to all members
- Only one HMO in Georgia had a policy to reimburse for physical activity assessments

Introduction

One promising approach to increasing physical activity is to make it easier for people to be active. This includes changing the environment in which activity occurs and modifying or creating organizational policies that affect the environment and people's behavior. Focusing attention on the environment acknowledges that there are certain barriers that individuals cannot control. This chapter presents data on environments and policies promoting physical activity by setting in Georgia.

Schools

The physical and social environment at school should support safe and enjoyable physical activity. Physical education can increase students' learning ability and overall fitness.¹ In Georgia, physical education is a required course at 76% of middle schools and 99% of high schools (Appendix II, Table 7).² Only seven to eight percent of middle schools and two to eight percent of high schools require two semesters of physical education per academic year (Appendix II, Table 8).²

While the majority of middle and high schools required physical education, only 69% of middle school students (Figure 4-1) and 42% of high school students (Figure 4-2) attended physical education class on one or more days during an average school week. Weekly physical education attendance in middle school students did not differ substantially by sex or race and ethnicity (Figures 4-1). High school males were more likely to participate in weekly physical education than females and 9th grade students were more likely to attend weekly physical education than students in the other grades (Figure 4-2) (Appendix II, Table 1).³ The percent of high school students in Georgia attending school physical education class on at least one day per week was consistently below the national average in 2007.³

In addition, participation in daily physical education class by middle and high school students in Georgia was low. Only 42% of middle (Figure 4-1) and 30% of high school (Figure 4-2) students reported daily physical education attendance (Appendix II, Table 1).³ The Healthy People 2010 objective for daily school physical education attendance is 50%.⁴ Daily physical education attendance in middle school students did not differ by sex or race and ethnicity (Figures 4-1). Ninth-grade students were more likely to attend daily physical education than students in the other grades (Figure 4-2). However, all sex, race, and age groups of middle and high school students were below the national goal (Appendix II, Table 1).³

Participation in extracurricular activities such as intramurals and school or community sports teams contributes to the physical and social development of young people.⁵ Over half of middle (64%) and high school (54%) students in Georgia participated on one or more sports teams in 2009 (Figure 4-3) (Appendix II, Table 1). Middle and high school males were more likely to participate on a sports team than females. Lower rates of participation were found in Hispanic students compared to black and white students. Participation did not differ by grade in middle or high school students (Appendix II, Table 1).³

Middle schools (66%) were more likely to offer intramural activities than high schools (54%) (Figure 4-4) (Appendix II, Table 7).²

Outside of school hours school spaces and facilities should be available to young people.¹ Healthy People 2010 recommends the nation's public and private schools provide access to their physical activity facilities for all persons outside of normal school hours.⁴ Most public middle (86%) and high (78%) schools allowed children or adolescents to use the school's athletic facilities for community-sponsored sports teams or physical activity programs outside of school hours or when school is not in session (Figure 4-5) (Appendix II, Table 7).²

Community

Sedentary after-school activities such as excessive television viewing or computer use may contribute to the growing rates of overweight children.⁶ In 2009, approximately half of middle (56%) and 61% of high school students in Georgia limited their television viewing to 3 or less hours on school days (Figure 4-6).³ This percentage was well below the goal (75%) established in Healthy People 2010.⁴ Non-Hispanic black middle and high school students were less likely to limit television viewing than non-Hispanic white or Hispanic students. However, all sex, race, and age groups of middle and high school students were below the Healthy People 2010 goal (Appendix II, Table 1).³

Walking to school provides a convenient opportunity for children and adolescents to make physical activity a part of their daily routines. Few (13%) children aged 5 through 15 years, who lived within one mile of school, walked to school the majority of days of the week in 2002 (Figure 4-8) (Appendix II, Table 9).⁷ The Healthy People objective for children aged 5 to 15 years who live within one mile and walk to school is 50% by 2010.⁴

While the decision to participate in physical activity is made by individuals, safety and convenience are important factors in promoting activity. Sixty-four percent of principals in Georgia report traffic as a barrier to stu-

dents walking or biking to school and 45% report lack of sidewalks or poor maintenance of sidewalks as a barrier (Figure 4-9) (Appendix II, Table 10).² Parents reported that 59% of Georgia's children live in neighborhoods with sidewalks, 68% of children have access to neighborhood park and playgrounds, and 86% of children live in neighborhoods described by their parents are usually or always safe (Figure 4-10) (Appendix II, Table 11).⁸

Among adults in Georgia, the most frequently reported place where they would feel safe to walk was neighborhood streets or sidewalks (32%), followed by public parks (27%), and school tracks (10%) (Figure 4-11) (Appendix II, Table 12). Adults with access to safe and convenient places to walk were more likely to engage in regular activity than those with no place to walk (Appendix II, Table 13).^{9, 10}

Worksites

With the majority of adults in Georgia working at mostly sedentary jobs and not engaging in regular physical activity,⁹ worksites provide an opportune setting to tackle this challenge by modifying and creating policies and environments that support active lifestyles.¹¹

In 2008, few worksites in Georgia offered policies, environments, or programs to support physical activity for employees (Appendix II, Table 14). Only eight percent had a policy to encourage commute by foot or bike and five percent subsidized the cost of public transportation (Figure 4-12). Fewer than one in four worksites (22%) offered flextime or special breaks for physical activity and less than one in five (18%) offered subsidized or reduced rate health memberships. Few worksites had on-site exercise facilities (11%) or supported active commuting through providing locker rooms with showers (18%) or bike racks (15%) (Figure 4-13). In addition, only one in four (25%) offered physical activity or fitness programs to employees.¹² This percentage was well below the Healthy People 2010 target of 75% (Appendix II, Table 14).⁴

Large worksites (250 or more employees) were more likely to have policies, environments, and programs supporting physical activity than small worksites (15-99 employees).¹³

Health care

The practices and policies of the health care community play a large role in disease prevention. The U.S. Department of Health and Human Services has encouraged providers to incorporate physical activity counseling in the primary care setting.⁴ Despite this recommendation, physical activity counseling was only provided in 30% of visits by adults with high cholesterol, high blood pressure, obesity or diabetes.¹³ Given the large proportion of Georgia residents receiving health benefits through employer based coverage, managed care organizations can play a significant role in promoting behavior modification by offering policies supporting physical activity.

In 2004, the Center for Health Services Research at Georgia State University and Georgia Division of Public Health assessed the prevalence of health promotion policies and practices in health plans offered by six Health Maintenance Organizations (HMOs) covering 93% of the HMO member population in Georgia.¹⁴

Among the six HMOs, most supported physical activity by providing educational materials (5), counseling (4), or discounts or fee reductions to join programs (3) to all members (Figure 4-14). One HMO offered physical activity counseling to high-risk members (Appendix II, Table 15).¹⁴ While most HMOs had policies to counsel members on the benefits of physical activity, only one of the six HMOs reimbursed for physical activity assessments (Figure 4-14, Appendix II, Table 15).¹⁴

References

1. Centers for Disease Control and Prevention. *Guidelines for school and community programs to promote lifelong physical activity among young people*. MMWR 1997;46(No. RR-6).
2. Falb M, Figueroa A, Kanny D. 2006 Georgia School Health Profiles Report. Georgia Department of Human Resources, Division of Public Health, Chronic Disease, Injury, and Environmental Epidemiology Section, March 2007. Publication Number: DPH07/027/027.HW.
3. Youth Risk Behavior Surveillance System: Atlanta, GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.
4. U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd Edition. Washington, DC: U.S. Government Printing Office, November 2000.
5. Burgeson C, Wechsler H, Brener N, Young J, and Spain C. Physical education and activity: results from the School Health Policies and Programs Study 2000. *Journal of School Health* 2000; 71: 279-93.
6. Dowda M, Ainsworth BE, Addy CL, Saunders R, Riner W. Environmental influences, physical activity and weight status in 8- to 16-year olds. *Arch Pediatr Adolesc Med* 2001;155:711-7.

7. Choi, H. and Kanny, D. How do Georgia children get to school? Results from the 2002 Georgia Asthma Survey. Georgia Department of Human Resources, Division of Public Health, July 2003. Unpublished Data.
8. Child and Adolescent Health Measurement Initiative. 2007 National Survey of Children's Health, Data Resource Center for Child and Adolescent Health website. Retrieved [06/08/10] from www.nschdata.org
9. Behavioral Risk Factor Surveillance System: Atlanta, GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.
10. Powell KE, Martin LM, Chowdhury PP. Places to Walk: Convenience and Regular Physical Activity. *Am J Public Health* 2003;93(9):1519-21.
11. Centers for Disease Control and Prevention. Promising Practice in Chronic Disease Prevention and Control: A Public Health Framework for Action. Atlanta, GA: U.S. Department of Health and Human Services, 2003.
12. Worksite Health Promotion Policies and Practices in Georgia: 2008 Georgia Worksite Survey. Georgia Department of Human Resources, Division of Public Health, 2008. Unpublished Data.
13. Ma J, Urizar GG Jr, Aleghen T, Stafford RS. Diet and physical activity counseling during ambulatory care visits in the United States. *Prev Med* 2004;39(4):815-22.
14. Kanny D, Newman JF, Choi HS, Curry RH, Powell KE. "Survey of Georgia's health plan policies and practices related to cardiovascular health and HEDIS measures". Second National CDC Prevention Conference on Heart Disease and Stroke, August 18, 2004, Atlanta, GA, USA.



Chapter 5

Strategies to Promote Physical Activity in Georgia

Georgia has begun to address the problem of overweight and obesity by convening stakeholders to lead the development and implementation of a 10-year nutrition and physical activity plan for Georgia. The statewide collaborative Nutrition and Physical Activity Initiative includes Department of Community Health, Division of Public Health staff; State Departments of Education, Transportation, and Parks and Recreation staff; leaders from faith- and community-based organizations; health care professionals; universities; and statewide coalitions.

The Nutrition and Physical Activity Initiative uses the Socio-Ecological Model as a theoretical framework for understanding the multiple factors that influence health behavior. This theoretical model is designed to guide researchers and practitioners to comprehensively and systematically assess and intervene on each level as appropriate. The five levels of influence are individual factors such as awareness, knowledge, attitudes, beliefs, values, and preferences; interpersonal factors such as family, friends, and peers that provide social identity and support; organizational factors such as rules, policies, procedures, environment, and informal structure within an organization; community factors such as social networks and norms which exist formally or informally among individuals, groups, and organizations; and society factors such as local, state, and federal government policies and laws that regulate or support healthy actions and practices for disease prevention, early detection, control, and management. An underlying assumption is that a comprehensive approach is more effective than a single-level approach.¹

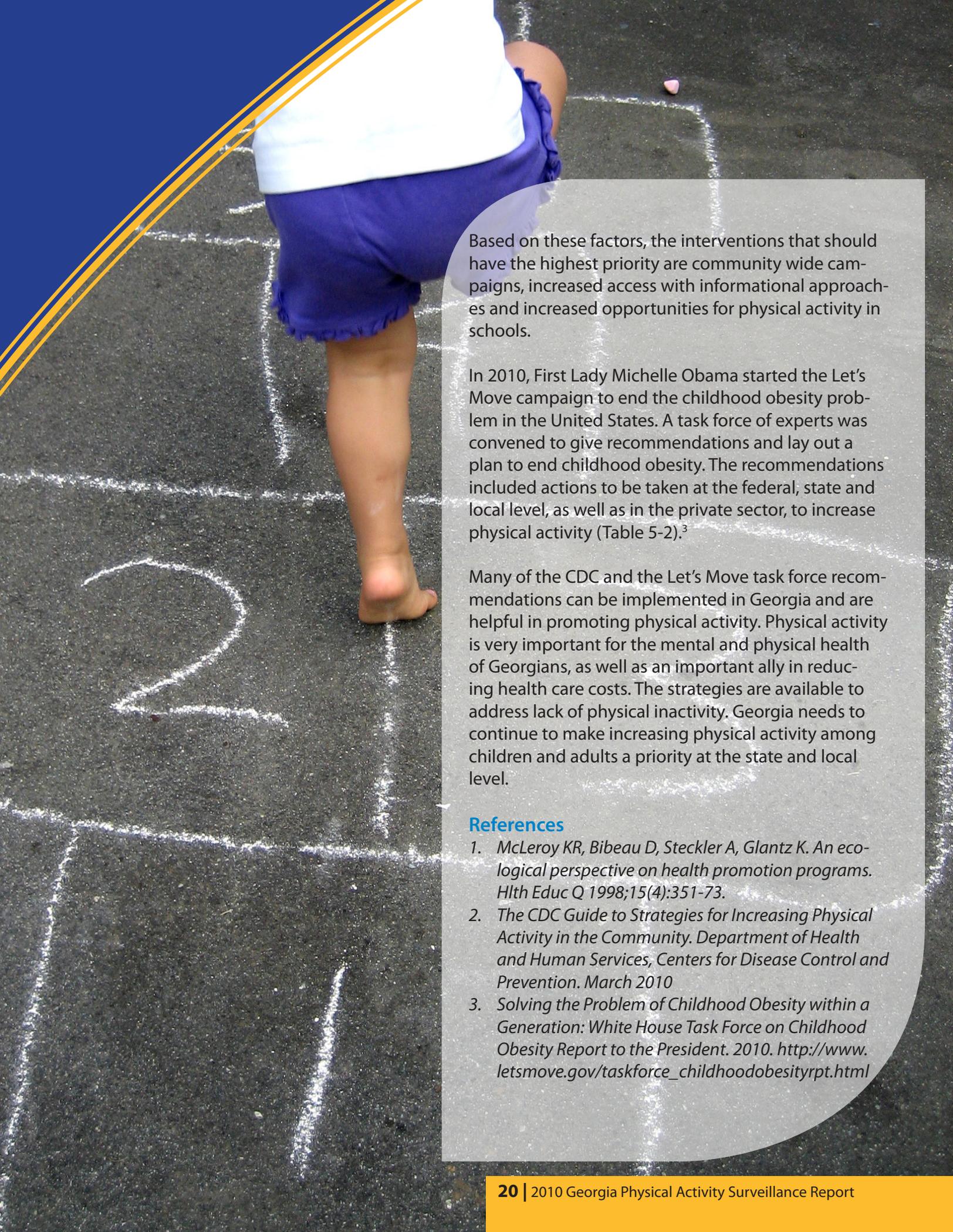
In 2010, The Centers for Disease Control and Prevention released a guide to evidence-based interventions for addressing physical activity at the community level (Table 5-1).² They chose interventions that have been scientifically evaluated and shown that they can increase physical activity. The best interventions are those that can reach the most people and have a substantial impact on physical activity, while being cost-effective and sustainable over time.



Table 5-1: CDC Strategies for Increasing Physical Activity in the Community

Intervention	Description
Community-Wide Campaigns	These campaigns use a combination of media messaging (such as TV, radio and newspapers), events in the community (such as counseling, health screenings and health fairs) and policy and environmental changes. They can be custom made for a given community and usually include a central message, logo and slogan.
Point of Decision Prompts	These prompts are signs placed near elevators to encourage stair use instead of riding the elevator. The signs usually contain messages about calories burned or other health benefits of walking instead of riding.
Individually Adapted Health Behavior Change	Programs are used to create individual plans to increase physical activity by assessing willingness to change, encouraging social support, providing tools to help participants add physical activity into their lives, and working on sustainability of the new activity level. This strategy can be very useful for diverse populations and in worksite settings
Enhanced Physical Education in Schools	Children benefit from both more physical education (PE) classes and increased physical activity during the classes. This type of intervention addresses getting more PE classes, longer PE classes and more intense physical activity during the classes.
Social Support Interventions in Community Settings	It is easier to change physical activity behavior and sustain the changes, when a support system is available for encouragement. This type of intervention focuses on creating social networks for promoting physical activity. Existing networks, such as church members or work colleagues, can be used to promote physical activity. Examples include the buddy system for exercising and walking groups during lunch at the office.
Create or Enhance Access to Places for Physical Activity combined with Informational Outreach	The two components of this type of intervention are change in access to physical activity (such as a new walking trail or fitness center) and education (such as providing information on the benefits of physical activity or instruction on how the new equipment is used). Targeting the environmental and personal levels make these interventions effective.
Street Scale Urban Design and Land Use	People are more likely to use streets for recreational physical activity and pedestrian travel if the streets have side walks, adequate lighting and other features making walking, biking and running along the streets safe and convenient. These interventions create environmental changes when new construction occurs or old streets and buildings are updated.
Community Scale Urban Design and Land Use Policies and Practices	Similar to Street Scale Urban Design, Community Scale Urban Design interventions address aspects of communities that make them easier for foot and bike transportation. These design features include zoning residential and commercial properties close together and road and building construction to encourage destination walking.
Active Transport to School	These programs promote children walking and biking to school. They can include environmental changes, such as sidewalks and bike paths, to increase ease and safety, as well as organizing groups of students to walk to school together.
Transportation and Travel Policies and Practices	This category of intervention promotes walking, biking and public transportation use. Changes to roadway design, bike rack availability and increasing parking meter costs are all examples of this type of intervention.

Source: The CDC Guide to Strategies for Increasing Physical Activity in the Community²



Based on these factors, the interventions that should have the highest priority are community wide campaigns, increased access with informational approaches and increased opportunities for physical activity in schools.

In 2010, First Lady Michelle Obama started the Let's Move campaign to end the childhood obesity problem in the United States. A task force of experts was convened to give recommendations and lay out a plan to end childhood obesity. The recommendations included actions to be taken at the federal, state and local level, as well as in the private sector, to increase physical activity (Table 5-2).³

Many of the CDC and the Let's Move task force recommendations can be implemented in Georgia and are helpful in promoting physical activity. Physical activity is very important for the mental and physical health of Georgians, as well as an important ally in reducing health care costs. The strategies are available to address lack of physical inactivity. Georgia needs to continue to make increasing physical activity among children and adults a priority at the state and local level.

References

1. McLeroy KR, Bibeau D, Steckler A, Glantz K. An ecological perspective on health promotion programs. *Health Educ Q* 1998;15(4):351-73.
2. *The CDC Guide to Strategies for Increasing Physical Activity in the Community*. Department of Health and Human Services, Centers for Disease Control and Prevention. March 2010
3. *Solving the Problem of Childhood Obesity within a Generation: White House Task Force on Childhood Obesity Report to the President*. 2010. http://www.letsmove.gov/taskforce_childhoodobesityrpt.html

Table 5-2: Let's Move Task Force Childhood Physical Activity Recommendations

Developers of local school wellness policies should be encouraged to include strong physical activity components, on par with nutrition components
The President's Challenge should be updated to ensure consistency with the Physical Activity Guidelines for Americans and to ensure ease of use and implementation by schools
State and local educational agencies should be encouraged to increase the quality and frequency of sequential, age- and developmentally-appropriate physical education for all students, taught by certified PE teachers
State and local educational agencies should be encouraged to promote recess for elementary students and physical activity breaks for older students, and provide support to schools to implement recess in a healthy way that promotes physical activity and social development
State and local educational agencies should be encouraged to provide opportunities in and outside of school for students at increased risk for physical inactivity, including children with disabilities, children with asthma and other chronic diseases, and girls
Federal, state, and local educational agencies, in partnership with communities and businesses, should work to support programs to extend the school day, including afterschool programs, which offer and enhance physical activity opportunities in their programs
State and local educational agencies should be encouraged to support interscholastic sports and help decrease prohibitive costs of sports by curbing practices such as "pay-to-play," working with other public and private sector partners
Reauthorize a Surface Transportation Act that enhances livability and physical activity
The Environmental Protection Agency should assist school districts that may be interested in siting guidelines for new schools that consider the promotion of physical activity, including whether students will be able to walk or bike to school
Communities should be encouraged to consider the impacts of built environmental policies and regulations on human health
The Federal Safe Routes to School Program (SRTS) should be continued and enhanced to accommodate the growing interest in implementing Safe Routes to School plans in communities
"Active transport" should be encouraged between homes, schools, and community destinations for afterschool activities, including to and from parks, libraries, transit, bus stops, and recreation centers
Increase the number of safe and accessible parks and playgrounds, particularly in underserved and low-income communities
The Federal government should continue to support investments in a wide range of outdoor recreation venues, such as National Parks, Forests, Refuges and other public lands, and expand opportunities for children to enjoy venues.
Local governments should be encouraged to enter into joint use agreements to increase children's access to community sites for indoor and outdoor recreation
The business sector should be encouraged to consider which resources and physical assets like fields and gyms can be used to increase students' access to outdoor and indoor recreational venues
Entertainment and technology companies should continue to develop new approaches for using technology to engage children in physical activity

Quoted directly from: Solving the Problem of Childhood Obesity within a Generation: White House Task Force on Childhood Obesity Report to the President³



Appendix I

Physical Activity-Related Objectives from Healthy People 2010* and Current Status of Objectives in Georgia

Objective No.	Objective	2010 Target	Georgia
22-1	Reduce the proportion of adults who engage in no leisure-time physical activity	20%	23% Source: GA BRFSS 2008
22-2	Increase the proportion of adults who engage regularly in moderate or vigorous physical activity.	50%	49% Source: GA BRFSS 2008
22-3	Increase the proportion of adults who engage in vigorous activity that promotes the development and maintenance of cardio-respiratory fitness three or more days per week for 20 or more minutes per occasion	30%	27% Source: GA BRFSS 2008
22-6	Increase the proportion of adolescents who engage in moderate physical activity for at least 30 minutes on five or more of the previous seven days	35%	24% high school students Source: GA YRBS 2008
22-7	Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardio-respiratory fitness three or more days per week for 20 or more minutes per occasion	85%	52% middle school students 43% high school students Source: GA YRBS 2008
22-9	Increase the proportion of adolescents (grades 9-12) who participate in daily school physical education	50%	30% Source: GA YRBS 2008
22-11	Increase the proportion of children and adolescents who view television two or fewer hours per day.	75%	56% middle school students 61% high school students Source: GA YRBS 2008
22-12	Increase the proportion of the Nation's public and private schools that provide access to their physical activity spaces and facilities for all persons outside of normal school hours (that is, before and after the school day, on weekends, and during summer and other vacations).	**	86% public middle schools 78% public high schools Source: GA School Health Education Profiles Survey 2006
22-13	Increase the proportion of worksites (50+ employees) offering employer-sponsored physical activity and fitness programs.	75%	25% Source: GA Worksite Health Promotion and Practices Survey 2008
22-14b	Increase the proportion of trips to school made by walking one mile or less among children aged 5-15 years	50%	13% Source: Georgia Asthma Survey 2002

* U.S. Department of Health and Human Services. Healthy People 2010: Understanding and Improving Health. 2nd Edition. Washington, DC: U.S. Government Printing Office, November 2000.

** Developmental objective: Healthy People 2010 target not set

Appendix II

Table 1. Percent of middle and high school students engaging in activity by sex, race/ethnicity, and grade, Georgia 2009

	Recommended Physical Activity		PE Classes 1+ times a week		PE Classes Daily		Participation on Sports Teams in past year		TV Viewing 2 hours or less per school day		Recreational screen time less than 3 hours per school day	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Middle School	51.6	48.1-55.1	69.4	63.2-74.9	41.7	33.0-51.0	63.8	59.9-67.6	56	50.7-61.1	75.4	71.8-78.7
Sex												
Male	58.8	54.8-62.8	69.3	61.6-76.2	41.5	32.1-51.5	68.9	64.1-73.2	56.6	50.2-62.8	72.9	68.2-77.1
Female	43.9	39.3-48.6	69.4	63.8-74.5	41.9	33.5-50.9	58.5	54.0-62.8	55.2	50.1-60.2	78.1	74.1-81.6
Race/Ethnicity												
Black, non-Hispanic	47.2	41.5-53.0	71	64.2-77.0	40	27.3-54.2	61.4	54.9-67.4	37	33.0-41.3	70.1	65.7-74.1
White, non-Hispanic	59.2	54.6-63.7	70.5	62.2-77.7	43.7	33.1-54.9	70.7	65.6-75.4	70.5	65.2-75.3	80.7	77.4-83.6
Hispanic	42.3	34.8-50.3	63.3	49.2-75.4	44.5	27.0-63.5	46.4	38.8-54.2	49.2	38.2-60.3	72.3	63.1-79.9
Grade												
6th	48.2	42.9-53.4	68.9	56.6-79.0	39.1	23.6-57.1	62.1	56.1-67.7	54	46.9-61.0	73.5	68.7-77.8
7th	54.1	48.5-59.6	66.4	56.4-75.1	35.7	23.1-50.7	63	55.0-70.4	55.5	47.7-63.0	76.2	60.4-81.2
8th	53.8	49.5-58.1	71.1	63.7-77.5	46.9	32.5-61.8	65.5	61.4-69.4	56.7	50.5-62.6	76.6	72.4-80.3
High School	42.8	39.1-46.5	43.6	36.1-51.4	29.8	23.7-36.7	54.3	51.0-57.6	60.8	57.6-64.0	77.1	75.2-78.9
Sex												
Male	54.1	47.9-60.2	51.2	42.3-60.0	32.9	25.7-41.0	61.9	57.6-66.2	61.6	57.2-65.8	73.7	70.8-76.3
Female	31.5	27.2-36.1	36.1	28.7-44.3	26.8	20.3-34.6	46.8	43.2-50.4	60.1	56.3-63.7	80.8	77.2-83.9
Race/Ethnicity												
Black, non-Hispanic	40.3	35.4-45.5	46.6	40.8-52.	28.2	22.3-34.9	56.7	51.8-61.5	47.5	43.1-51.9	72.6	69.4-75.6
White, non-Hispanic	47.9	44.0-51.8	41.9	30.6-54.1	32.6	24.0-42.6	54.4	49.9-58.7	71.6	67.1-75.7	80.1	77.8-82.3
Hispanic	30.9	25.4-37.0	38	20.9-58.6	25.2	11.1-47.6	44.5	34.6-54.9	60.2	48.9-70.5	83.2	76.1-88.5
Grade												
9th	47.1	40.4-53.8	63.7	50.8-74.8	46.1	33.9-58.8	56.4	49.3-63.3	56.4	50.5-62.1	75.0	70.4-79.0
10th	40.7	35.3-46.3	37.4	28.6-47.2	24.8	18.8-31.9	51.6	44.4-58.8	59.1	53.8-64.2	77.5	72.0-82.2
11th	43.2	37.5-49.0	33.6	26.7-41.3	20.8	15.3-27.6	54.4	48.7-59.9	64.7	57.5-71.3	79.0	74.1-83.2
12th	39.5	34.8-44.3	33.8	28.1-39.9	22.8	18.0-28.5	54.7	46.7-62.5	64.3	55.8-72.0	77.4	71.2-82.6

Source: 2009 GA YRBS

Table 2. Percent of adults engaging in activity by demographic groups, Georgia 2009

	Regularly active		Insufficiently Active		Inactive	
	%	95% CI	%	95% CI	%	95% CI
Overall	45.7	43.6-47.9	41.6	39.5-43.8	12.7	11.3-14.2
Sex						
Males	47.2	43.5-50.9	41.2	37.6-44.9	11.6	9.3-14.4
Females	44.3	41.9-46.8	42	39.6-44.4	13.7	12.2-15.3
Age						
18-24	54.9	42.9-66.4	38.8	28.1-50.6	6.4	2.9-13.2
25-34	49.6	43.6-55.5	39.7	34.0-45.8	10.7	7.0-16.1
35-44	47.4	43.0-51.8	43.7	39.4-48.1	8.9	6.7-11.8
45-54	47.2	43.6-50.8	41.6	38.1-45.2	11.2	9.2-13.5
55-64	41.4	37.9-44.9	44.7	41.2-48.3	13.9	11.4-16.9
65 and older	33.6	30.8-36.4	40.3	37.3-43.4	26.1	23.5-28.9
Race/Ethnicity						
White, non-Hispanic	48.9	46.6-51.2	40.9	38.7-43.2	10.2	9.1-11.4
Black, non-Hispanic	39	34.2-44.1	46.3	41.4-51.3	14.7	12.0-17.9
Hispanic	40.8	30.0-52.5	33.3	23.1-45.3	25.9	15.2-40.7
Income						
Less than 15,000	40.7	33.2-48.7	34.4	28.2-41.2	24.9	19.7-30.9
15,000-24,999	37.9	31.9-44.3	42.6	36.7-48.7	19.5	14.3-26.1
25,000-34,999	39.6	33.2-46.4	47.1	40.1-54.1	13.3	9.8-17.9
35,000-49,999	48.7	42.2-55.2	39.2	33.3-45.4	12.1	8.5-17.1
50,000-74,999	45.5	40.2-50.8	46.1	40.7-51.5	8.5	6.5-10.9
75,000 or more	52.6	48.7-56.5	40.5	36.7-44.4	6.9	5.1-9.3
Education						
High school or less	32.5	26.4-39.3	41.3	34.2-48.7	26.3	20.2-33.5
High school graduate	42.9	38.4-47.5	39.6	35.5-43.9	17.5	14.3-21.3
Some college	47.2	43.1-51.4	43.2	39.2-47.3	9.6	7.9-11.6
College Graduate	51	47.6-54.4	41.8	38.5-45.3	7.2	5.8-8.9

Source: 2009 GA BRFS

Table 3. Percent of adults engaging in activity by health district of residence, Georgia 2005 and 2007

District	Regularly active		Insufficiently Active		Inactive	
	%	95% CI	%	95% CI	%	95% CI
1-1 Northwest (Rome)	40.4	35.8-45.2	45.3	40.5-50.3	14.3	11.5-17.6
1-2 North Georgia (Dalton)	48.6	43.5-53.6	37.4	32.8-42.2	14.1	10.8-18.0
2-0 North (Gainesville)	46.6	42.3-50.9	41.3	37.1-45.5	12.1	9.8-15.0
3-1 Cobb-Douglas	50.3	45.4-55.2	39.8	35.2-44.7	9.9	7.5-13.0
3-2 Fulton	43.6	38.0-49.2	42.6	37.3-48.2	13.8	10.3-18.2
3-3 Clayton (Morrow)	49.9	41.3-58.5	35.8	29.1-43.2	14.3	10.1-19.8
3-4 East Metro (Lawrenceville)	45.1	39.6-50.8	42.8	37.4-48.4	12.1	9.1-15.8
3-5 DeKalb	50.9	45.3-56.5	38.7	33.4-44.3	10.4	7.5-14.4
4-0 LaGrange	45.4	40.2-50.7	39.8	34.8-45.1	14.8	11.3-19.2
5-1 South Central (Dublin)	40.8	34.6-47.2	41.6	34.3-49.3	17.6	14.3-21.5
5-2 North Central (Macon)	41.2	36.2-46.4	40.9	35.9-46.1	17.9	13.9-22.8
6-0 East Central (Augusta)	43.3	39.1-47.7	41.9	37.7-46.2	14.8	12.2-17.9
7-0 West Central (Columbus)	45.5	40.1-50.9	38.9	33.8-44.2	15.6	12.6-19.3
8-1 South (Valdosta)	45.3	40.1-50.6	41.1	36.1-46.4	13.6	10.8-17.0
8-2 Southwest (Albany)	41.1	36.2-46.1	42.8	37.7-48.0	16.2	13.2-19.6
9-1 East (Savannah)	49.1	44.6-53.5	37.6	33.4-42.0	13.4	10.5-16.8
9-2 Southeast (Waycross)	40.1	35.5-44.8	38.6	34.1-43.4	21.3	17.6-25.6
10-0 Northeast (Athens)	43.3	38.7-48.1	43.7	39.1-48.5	12.9	10.6-15.7

Source: 2005 and 2007 GA BRFSS

Table 4. Percent of adults engaging in activity by year, Georgia 1984-2009

Year	No Leisure Time Physical Activity		Inactive		Insufficiently active		Regularly Active	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
1984	29.8	25.3-34.3						
1985	38.3	34.5-42.1						
1986	38.4	35.3-41.5						
1987	33.4	30.6-36.2						
1988	32.3	29.0-35.6						
1989	36.7	34.1-39.3						
1990	37.0	34.5-39.5						
1991	39.9	37.3-42.5						
1992	39.6	37.0-42.2						
1993	*	*						
1994	33.0	30.7-35.3						
1995	*	*						
1996	51.4	49.0-53.8						
1997	40.5	38.1-42.9						
1998	29.6	27.3-31.9						
1999	25.8	23.7-27.9	21.7	19.5-23.9	43.0	40.4-45.6	35.3	32.8-37.8
2000	29.0	27.3-30.7	23.8	21.5-26.1	44.3	41.6-47.0	31.9	29.3-34.5
2001	27.3	25.7-28.9	21.2	19.7-22.7	39.0	37.1-40.9	39.8	37.9-41.7
2002	25.7	24.2-27.2	*		*		*	
2003	24.5	23.1-25.9	17.4	16.2-18.6	40.2	38.6-41.8	42.4	40.7-44.1
2004	25.8	23.3-28.3	*		*		*	
2005	27.1	25.5-28.8	16.7	15.4-18.1	41.3	39.4-43.2	42.0	40.1-44.0
2006	24.7	23.3-26.1	*		*		*	
2007	24.7	23.3-26.1	11.3	10.3-12.4	40.5	38.8-42.2	48.2	46.5-49.9
2008	23.1	21.5-24.7	*		*		*	
2009	24.2	22.5-26.0	12.7	11.3-14.2	41.6	39.5-43.8	45.7	43.6-47.9

Source: GA BRFSS

* Data were not collected

Note: 3-year averages presented in Figure 2-12 were estimated based on data in Table 4

Table 5. Most common types of leisure time activity among adults, Georgia 1984, 1994 and 2004

Year	Walking		Home Maintenance		Running or Jogging		Indoor Conditioning Activities		Recreational Activities	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
1984	52.0	46.3-57.7	34.8	29.4-40.2	22.1	17.2-27.0	19.1	14.8-23.4	3.3	1.6-5.0
1994	49.5	46.6-52.4	8.9	7.4-10.4	11.6	9.7-13.5	25.5	23.1-27.9	5.8	4.4-7.2
2004	53.3	50.9-55.7	10.6	9.3-11.9	16.9	14.8-19.0	27.2	25.1-29.3	7.9	6.7-9.1

Source: GA BRFSS

Table 6. Age-adjusted percent of adults with a chronic condition, by physical activity level, Georgia 2005-2009

Physical Activity Level	Obesity		Diabetes		High blood pressure		Stroke		Arthritis		Poor mental health	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
Regularly Active	22.4	21.0-23.8	7.5	6.7-8.3	5.5	24.2-26.8	2.0	1.7-2.4	22.1	21.1-23.1	28.8	27.3-30.3
Insufficiently Active	30.3	28.7-32.0	14.1	13.0-15.2	29.6	28.4-30.9	2.4	2.0-2.9	25.8	24.7-27.0	32.6	31.0-34.3
Inactive	38.1	34.7-41.4	13.1	11.5-14.7	38.0	34.9-41.1	4.9	3.8-6.0	33.9	30.8-36.9	40.0	36.5-43.5

Source: GA BRFSS

Table 7. Percent of middle and high schools providing policies and environments supporting physical activity, Georgia 2006

	Middle Schools		High Schools	
	%	95% CI	%	95% CI
Require students to take at least one course in physical education	76.3	69.6-83.1	99.3	98.0-100.0
Offer students an opportunity to participate in intramural activities or physical activity clubs	65.6	58.8-72.4	54.2	44.7-63.7
Provide transportation home for students participating in intramural activities or physical activity clubs	17.1	11.3-22.8	12.3	6.5-18.0
Promote walking or biking to school	35.9	28.3-43.4	16.3	10.3-22.2
Allow children or adolescents to use of school's athletic facilities for community-sponsored sports teams or physical activity programs	85.5	79.9-91.1	77.6	70.2-84.9

Source: School Health Education Profiles Survey 2006



Table 8. Percent of schools that require two semesters of physical education, by grade, Georgia 2006

Grade	%	95% CI
6th	7.3	4.1-12.8
7th	8.0	4.8-13.0
8th	8.0	4.8-13.1
9th	8.0	4.2-14.7
10th	2.4	0.8-7.6
11th	2.4	0.8-7.6
12th	1.5	0.4-6.1

Source: School Health Education Profiles Survey 2006

Table 9. Percent of children aged 5-15 years who lived within one mile of school & walked to school, Georgia 2000 and 2002-2003

Year	Children walking to school	
	%	95% CI
2000	18.6	12.8-24.4
2002-2003	13.3	9.3-18.2

Source: Georgia Household Asthma Study

Table 10. Barriers to students walking or biking to and from school, by school type, Georgia 2006

Difficulties	%	95% CI
Traffic	64.7	56.5-73.0
Something else	51.9	43.3-60.4
No sidewalks or poorly maintained sidewalks	45.5	36.8-54.1
Lack of adult supervision	44.2	35.5-52.9
Neighborhood safety concerns	13.5	7.4-19.5

Source: Georgia School Health Profiles 2006

Table 11. Percent of children living in neighborhoods with characteristics to promote physical activity, Georgia 2007

Characteristic	%	95% CI
Sidewalks or Walking Paths	58.9	55.3-62.4
Parks or Playgrounds	67.6	64.2-71.0
Usually or Always Safe	86.4	83.6-89.2

Source: National Survey of Children's Health (NSCH) 2007

Table 12. Percent of adults with a safe place to walk by location, Georgia 2001

Location	%	95% CI
Neighborhood street or sidewalk	32.0	30.2-33.8
Public park	26.8	25.0-28.6
School track	10.2	9.1-11.3
Gym or fitness center	7.8	6.6-9.0
Walking or jogging trail	6.6	5.6-7.6
Treadmill at home	4.1	3.3-4.9
Shopping mall	2.9	2.2-3.6

Source: GA BRFSS

Table 13. Percent of regularly active adults by access to a safe place to walk, Georgia 2001

	Access to a safe place to walk		No access to a safe place to walk	
	%	95% CI	%	95% CI
Regularly active adults	41.5	39.4-43.6	27.4	21.2-33.6

Table 14. Percent of worksites providing policies and environments supporting physical activity, Georgia 2002 and 2008

	2002		2008	
	%	95% CI	%	95% CI
Policies				
Encouraged commute by foot or bike	2.1	1.2-3.0	8.0	6.8-9.4
Subsidized cost of public transportation	9.3	6.1-12.5	5.4	4.4-6.5
Allowed flextime for physical activity	16.8	13.8-19.8	21.9	19.9-23.9
Subsidized cost of fitness club memberships	23.7	20.4-27.0	17.5	15.8-19.3
Environments				
Had on-site exercise facilities	12.8	10.2-15.4	11.8	10.4-13.4
Had bike racks	15.0	12.2-17.8	15.0	13.4-16.8
Had locker room with showers	20.7	17.8-23.6	17.6	15.9-19.4
Had indoor stairway	46.4	42.5-50.3	40.4	38.1-42.7
Programs				
Offered physical activity or fitness program	16.8	14.0-19.6	24.8	22.8-26.8

Source: Georgia Worksite Health Promotion Policies and Practices Survey

Table 15. Number of Health Maintenance Organizations (HMOs) providing physical activity-related services, Georgia 2004

Services	HMOs	
	All Members	At Risk Members
	N (%)	N (%)
Routinely provide physical activity education to members	5 (83)	0 (0)
Assess and counsel members on physical activity	4 (67)	1 (17)
Allow discounts or fee reductions to members who join specified programs to help start and maintain physical activity	3 (50)	0 (0)
Reimburse providers and pay members who receive a physical activity assessment or counseling from specialists	1 (17)	0 (0)

Source: 2004 Georgia Health Plan Policies and Practices Survey



Appendix III

Estimating the Burden of Inactivity and the Benefits of Activity

Population Attributable Risk:

Population attributable risk (PAR) is an estimate of the proportion of deaths or other measures of disease burden caused by a particular risk factor. The PAR represents the proportion of disease in a population that could be eliminated if the risk factor were removed from the population. For example, the PAR of heart disease deaths due to inactivity is the fraction of heart disease deaths that would not occur if everyone were regularly active. As a formula, PAR is expressed:

$$(1) \text{ PAR} = \frac{\text{\# of Heart Disease Deaths (actual)} - \text{\# of Heart Disease Deaths (if all regularly active)}}{\text{\# of Heart Disease Deaths (actual)}}$$

Because the value for "# of Heart Disease Deaths (if all regularly active)" cannot be directly measured, PAR is usually calculated using another formula that requires the prevalence of the risk factor and the relative risk for dying among those with the risk factor compared to those without the risk factor.

$$(2) \text{ PAR} = \frac{\sum P_{\text{exp}(i)} * (RR_i - 1)}{1 + \sum [P_{\text{exp}(i)} * (RR_i - 1)]} * 100$$

In this equation, P_{exp} is the prevalence of the exposure, RR is the relative risk, and (i) is the level of exposure to the risk factor if there is more than one level of the risk factor. The categories of activity used in this report provide two levels of risk, one level for those who are inactive and one level for those who are irregularly active. It is important to note that even if everyone was regularly active, the disease of interest, such as heart disease or

diabetes, would not be completely eliminated from the population. The rate of disease would be determined by the prevalence of other causal factors.

Calculating the PAR using formula (2) above, assumes that other risk factors, known or unknown, are unassociated with the risk factor of interest. This assumption often does not hold and causes the calculated PAR to be either higher or lower than the actual number. A second assumption of the PAR calculated with formula (2) is that the prevalences of the other risk factors would not change if the risk factor of interest disappeared. These assumptions and others make the PAR an imperfect estimate of the proportion of disease caused by a specific risk factor. Nevertheless, the PAR provides a useful approximation of the potential gains from reducing the prevalence of various risk factors, including inactivity.

Population events prevented:

Population events prevented (PEP) is an estimate of the proportion of deaths or other measures of disease burden prevented by a protective exposure. The PEP represents the additional proportion of disease in a population that would occur if the protective exposure were removed from the population. For example, the PEP of activity is the additional fraction of heart disease deaths that would occur if everyone were inactive. The formulas for PEP corresponding to formula (1) and formula (2) are:

$$(3) \text{ PEP} = \frac{\text{\# of Heart Disease Deaths (if all inactive)} - \text{\# of Heart Disease Deaths (actual)}}{\text{\# of Heart Disease Deaths (actual)}}$$

$$(4) \text{ PEP} = \frac{(\text{RRs}-1) - (\sum P_{\text{exp}(i)} * (\text{RR}_i - 1))}{1 + \sum [P_{\text{exp}(i)} * (\text{RR}_i - 1)]} \times 100$$

RRs is the relative risk of the sedentary group with respect to the regularly active, P_{exp} is the prevalence of exposure, RR is the relative risk and $_{(i)}$ is the level of exposure to the risk factor if there is more than one.

Conditions selected for PAR and PEP analysis:

The PAR and PEP estimates have been calculated for four conditions for which physical activity is known to reduce risk – heart disease, hypertension, colon cancer, and non-insulin dependent diabetes mellitus – and for stroke and osteoporotic fractures.

Table 3-1. Estimated burden of inactive and insufficiently active lifestyles, Georgia, 2007

Condition		Deaths		Hospitalizations		Hospital Charges (millions)	
		Actual	Avoid-able	Actual	Avoid-able	Actual	Avoid-able
	PAR*						
Heart Disease	16%	8,099	1,292	45,516	7,259	\$1,843	\$294
High Blood Pressure	11%	2,275	253	10,290	1,145	\$222	\$25
Stroke	16%	3,948	630	23,975	3,823	\$694	\$111
Colon Cancer	22%	1,135	245	2,541	549	\$118	\$25
Falls with Osteoporotic Fractures	16%	23	4	8,499	1,355	\$307	\$49
Type 2 diabetes	16%	1,641	262	15,797	2,519	\$299	\$48
Total			2,685		16,651		\$551

* PAR = Population Attributable Risk

Increasingly, more studies have shown evidence of a beneficial effect of regular physical activity on the incidence of stroke, and the American Heart Association considers physical activity to protect against stroke. Stroke is a heterogeneous disorder with several different pathologies. Stronger associations are seen between physical activity and ischemic stroke, the most prevalent subtype of stroke in the United States accounting for approximately 87% of all stroke cases.

The PAR and PEP estimates for osteoporotic fractures were based on hospital discharges for hip fractures among individuals 60 years of age or older. Physical activity has been shown to help maintain normal muscle strength, joint structure, and joint function. This decreases the risk of fall-related hip fracture and enables older adults to remain functionally independent for longer periods of time.

There is also evidence that regular physical activity reduces the symptoms of depression and anxiety, and improves overall quality of life.⁶ In this report we did not attempt to quantify these important benefits of regular physical activity. More research is needed for confirmation of the effects of physical activity on the risk of other conditions such as cholecystitis (gall bladder inflammation, usually from gallstones), other cancers, and suicide.

Relative risks for the selected conditions:

The summary relative risk (RR) is considered the risk of inactive persons compared to regularly active persons. All the RR estimates were obtained from a recent article on the costs of diet, inactivity and obesity. The geometrical mean of each summary RR plus 1 was assigned for insufficiently active persons. Relative risks for inactivity and insufficient activity for each condition are listed in the table above. Differences in the PAR and PEP estimates in this report compared to those in prior Georgia physical activity reports are due to the use of more recent literature for the relative risk estimates.

Hospitalizations and hospital charges:

The number of hospitalizations and hospital charges for each of the six conditions in Georgia in 2007 were obtained from the Georgia Hospital Discharge Survey data. The following primary diagnosis ICD-9 codes were used: Ischemic Heart Disease, 410-414; Hypertension (High Blood Pressure), 401-404; Stroke, 430-438; Diabetes, 250; Colon Cancer, 153; Osteoporosis, 733 and for persons 60 years of age or more, 820 (fracture of the neck of the femur).

Deaths:

The number of deaths in Georgia in 2007 due to each of the six conditions was obtained from Georgia Vital Statistics data. The following ICD-10 codes were used: Ischemic Heart Disease, I20-I25; Hypertension (High Blood Pressure), I10-I13; Stroke, I60-I69; Diabetes, E10-E14; Colon Cancer, C18; Osteoporotic falls and fractures, M80-M81.

1. Hanley JA. A heuristic approach to the formulas for population attributable fraction. *Journal of Epidemiology and Community Health* 2001; 55: 508-514.
2. Wendel-Vos GCW, Schuit AJ, Feskens EJM, Boshuizen HC, Verchuren WMM, Saris WHM, Kromhout D. Physical activity and stroke: a meta-analysis of observational data. *International Journal of Epidemiology* 2004; 33: 787-798.
3. Lloyd-Jones D, Adams RJ, Brown TM, Carnethon M, Dai S, De Simone G, Ferguson TB, Ford E, Furie K, Gillespie C, Go A, Greenlund K, Haase N, Hailpern S, Ho PM, Howard V, Kissela B, Kittner S, Lackland D, Lisabeth L, Marelli A, McDermott MM, Meigs J, Mozaffarian D, Mussolino M, Nichol G, Roger VL, Rosamond W, Sacco R, Sorlie P, Stafford R, Thom T, Wasserthiel-Smoller S, Wong ND, Wylie-Rosett J; on behalf of the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics—2010 update: a report from the American Heart Association. *Circulation*. 2010;121:e46–e215.
4. Kurth T, Gaziano M, Rexrode KM, Kase CS, Cook, NR, Manson JE, Buring JE. Prospective study of body mass index and risk of stroke in apparently healthy women. *Circulation* 2005;111:1992-1998.
5. Kurth T, Gaziano M, Berger K, Kase CS, Rexrode KM, Cook, NR, Buring JE, Manson JE. Body mass index and the risk of stroke in men. *Archives of Internal Medicine* 2002; 162: 2557-2562.
6. U.S. Department of Health and Human Services. *Physical Activity and Health: A Report of the Surgeon General*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.
7. Popkin BM, Kim S, Rusev ER, Du S, Zizza C. Measuring the full economic costs of diet, physical activity and obesity-related chronic diseases. *Obesity Reviews* 2006; 7: 271-293.

Appendix IV

Data Sources for Physical Activity

Youth Risk Behavior Survey (YRBS)

The Youth Risk Behavior Survey was developed by the Centers for Disease Control and Prevention (CDC) to collect data on behaviors among youth (grades 7-12) related to the leading causes of morbidity and mortality through a self-administered survey. The schools are selected with probability sampling proportionate to the school size from all public middle and high schools in Georgia. From the selected schools, classes were chosen with equal probability sampling. A total 1,910 middle school students and 1,882 high school students participated in the 2009 Georgia YRBS. The 2009 questionnaires consisted of 55 questions for middle school students and 95 questions for high school students. Questions related to physical activity included participation in vigorous intensity activity, strengthening or toning muscles, school physical education attendance, and time spent in school physical education class being active. Results from the survey were weighted to represent students attending all public middle and high schools in Georgia. For more information see: www.cdc.gov/yrbs/.

Georgia Behavioral Risk Factor Surveillance System (BRFSS)

BRFSS data were analyzed to assess the physical activity patterns among adult Georgians. The BRFSS is a survey conducted annually, since 1984, by the Division of Public Health, Georgia Department of Community Health. Each month, civilian, non-institutionalized adults 18 years of age and older in Georgia were randomly selected to be interviewed by telephone using standardized methods and questionnaires. Random digit dialing is used with a higher probability for numbers thought to be in residential areas. After a residence is contacted, an adult in the home is randomly selected to answer the survey. At the end of the survey year, the data is weighted to age, race/ethnicity and sex distributions by health district. The BRFSS questions cover a wide range of health behaviors including seat belt use, high

blood pressure, and physical activity, providing prevalence estimates of these risk factors for injury and disease.

In 2008, a total of 5,716 civilian, non-institutionalized adults aged 18 and over in Georgia were included in the BRFSS. All estimates by demographic characteristics in this report were based on the 2007 survey. Trends in the percent of adults reporting no leisure time physical activity were from 1984 through 2009 data. The district specific estimates used data from 2005 and 2007. The estimates for the most frequent reported types of physical activity were from 1984, 1994, and 2004. The analysis by race and ethnicity was limited to white non-Hispanics, black non-Hispanics, and Hispanics because the number of people of races and ethnicities other than white, black, or Hispanic was too small to provide a stable estimate.

Information about the frequency, intensity, and duration of a respondent's physical activity behaviors was obtained from a series of questions regarding exercise, recreational activity, or physical activities away from the job. The BRFSS questions about moderate physical activity begin by asking, "In a usual week, do you do moderate activities for at least 10 minutes at a time, such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes a small increase in breathing or heart rate?" If the respondent answered yes, information is then obtained about the type, frequency, and duration of the activity. Respondents were then asked about vigorous activity in an identical manner. Vigorous activity was defined as any activities that cause a large increase in breathing rate or heart rate such as running, aerobics, or heavy yard work.

Three levels of physical activity among Georgians were defined in this report based on the number of days per week the respondents reported performing the activities and the number of minutes the respondent was active each time they performed the activities. Respondents were considered regularly active if:

- They reported activity on five or more days per week and accumulated 30 minutes or more of at least moderate intensity activity on those days, or
- They reported activity on three or more days per week and accumulated 20 minutes or more of vigorous intensity activity on those days, or
- Met the criteria for both regular moderate and vigorous activity.

Respondents were considered insufficiently active if they reported doing some moderate or vigorous activity but did not meet the criteria for regular moderate or vigorous activity. The BRFSS has two methods to estimate the percent of inactive adults. One method considered respondents inactive if they did not engage in at least 10 minutes of moderate or vigorous activity outside of work in a usual week. The other method considered respondents inactive during leisure time if they did not participate in any physical activities for exercises such as running, calisthenics, golf, gardening, or walking

for exercise during the past month. More respondents reported no leisure time physical activity for exercise than no moderate or vigorous activity. It is likely that the 'no moderate or vigorous activity' category is an underestimate of inactivity because adults may have only responded to the increased heart rate criteria and ignored the 10-minute requirement in the question. For more information see: www.cdc.gov/BRFSS/.

School Health Education Profiles (SHEP) Survey

The School Health Education Profile (SHEP) survey consisted of two mailed questionnaires developed by the CDC. The surveys asked principals and lead health educators questions about the implementation, organization, structure, and support of health education in their schools. The 2006 SHEP survey instruments consisted of 45 questions related to administration of health education and 21 questions related to instruction. In addition, Georgia added 18 additional questions to the school principals to gather further information.

All public middle and high schools in Georgia having at least one of grades 6 through 12 were included in the sample frame (n=797). Two hundred seventy nine sampled principals (72% response rate) and 271 sampled lead health educators (70% response rate) completed and returned the survey. Results from the survey were weighted to reduce bias by compensating for differing patterns of non-response and to reflect the likelihood of sampling each school. The weighted survey results in this report can be used to make inferences about health education in all Georgia public middle and high schools. For more information see: www.cdc.gov/healthyYouth/profiles/.

Georgia Household Asthma Survey

Data on modes of transportation to school were collected on the Georgia Asthma Survey, a statewide, representative, random-digit telephone survey of Georgia households with children. A parent or caregiver in households with at least one child age 18 or younger reported on all children residing in the home. Respondents were asked about the mode of transportation to school, distance between home and school rounded to the nearest mile, and barriers of walking and biking to school among those who did not walk or bike.

A total of 1,656 children aged 5-15 years in Georgia were included in 2000 and 2,357 children aged 5-15 years were included in the 2002-2003 survey. Results from the surveys were weighted to represent all children aged 5-15 years in Georgia. For more information see: <http://health.state.ga.us/epi/cdiee/asthma.asp>.

National Survey of Children's Health (NSCH)

The National Survey of Children's Health was conducted in 2007-2008 by the Maternal and Child Health Bureau of the U.S. Department of Health and Human Services to collect information on children's health in the United States. Random digit dialing was used to locate homes with a resident age 0-17. One child is selected at random from the houses with more than one child. The adult with the most knowledge about the child's health is asked the survey questions. The data is then weighted to represent the population of non-institutionalized children ages 0-17. In 2007-08, 1,766 interviews were completed in Georgia. For more information see: <http://www.nschdata.org>.

Georgia Worksite Health Promotion Policies and Practices Survey

The Georgia Worksite Health Promotion Policies and Practices Survey, modeled after the National Worksite Health Promotion Survey, was conducted in 2002 and 2008 to document existing policies, environments, and programs affecting the health of Georgia workers. Computer-assisted telephone interviews were conducted with the director of human resources or employee health. Survey findings represent a random sample of private sector worksites with at least 15 employees identified from the Dun and Bradstreet database. A total of 1,972 worksites completed the survey with a response rate of 18% and a cooperation rate of 44%. Final data were weighted so that each stratum represented its true proportion in the worksite population.

Georgia Health Plan Policies and Practices Survey

The Georgia Health Plan Policies and Practices Survey, adapted from existing tools in Montana and New York, was conducted for the first time in 2004. The purpose of the survey was to document existing policies and guidelines for primary and secondary prevention of cardiovascular disease, counseling and health education on physical activity, nutrition, and tobacco cessation, and assessment and counseling for high blood pressure and high cholesterol in health plans in Georgia. Requests for data were sent to all health plans in Georgia, however only HMOs had direct managed care responsibility for members and were eligible to provide data. Of the nine eligible HMOs, six provided data (response rate: 67%) covering 93% of the HMO member population in Georgia. Data was collected through face-to-face interviews with the Chief Medical Officer or other appropriate person from each participating HMO. For additional information see: <http://health.state.ga.us/pdfs/publications/reports/HMOSummaryWeb.pdf>



