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The purpose of this article is to provide an overview of the increasing problem of overweight children in Alabama including clinical definition, risk factors, and prevalence data. Health and physical educators should become familiar with guidelines released by national organizations, such as the Centers for Disease Control and Prevention, the Institute of Medicine, and state departments of education and public health. These guidelines provide direction to health promotion program activities in schools, community, and recreational settings aimed at modifying predisposing, reinforcing, and enabling factors. Four examples are presented in the narrative to illustrate collaborative partnerships among health care organizations, a health insurer, public schools, an academic research university, and state agencies to enhance youth health. The final section provides practical recommendations for professional health and physical educators regarding obesity risk reduction.

Keywords: *at risk for overweight; BMI; childhood underweight; overweight; school health program*

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More than 14 million children and adolescents in the United States are overweight, and an additional 8.6 million are at risk for being overweight as determined by body mass index (BMI, kg/m^2) scores (Center on an Aging Society, 2002). Before further consideration of prevalence, it is important to define key terms. BMI is an assessment of body composition based on the child's weight and height and used by the U.S. Centers for Disease Control and Prevention (CDC) to establish criteria for childhood obesity (Centers for Disease Control and Prevention [CDC], 2004). Clinicians use age- and gender-specific growth charts from the CDC to plot BMI values of children and adolescents. These growth charts reflect children's body fat changes as they grow older. Based on the information derived from the charts, clinicians can classify children ages 2 to 20 years using the following terminology (CDC, 2005b):

Underweight (UW): Children's BMI-for-age less than 5th percentile
At risk for overweight (ROW): Children's BMI-for-age between 85th and 94th percentile
Overweight (OW): Children's BMI-for-age greater than or equal to 95th percentile

The terms *overweight* and *obese* are used inconsistently throughout the literature to describe children's and adolescents' body composition (Crespo & Arbesman, 2003). The classification system for OW children and adolescents is

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not standardized like the adult classification system recommended by the National Heart, Lung, and Blood Institute (2000). The authors in the present study have chosen to use the CDC's terminology of underweight, at risk for overweight, and overweight, except when citing other studies.

The prevalence of ROW and OW children in the United States is significantly greater as compared with several industrialized nations (LaFontaine, 2005). Furthermore, a higher percentage of children in the southern United States are OW as compared with the rest of the nation (Institute of Medicine of the National Academies, 2004). According to data from the 1997 Medical Expenditure Panel Survey, 28% of the children in the South are "obese," compared with 22% of the children from other regions of the country (Center on an Aging Society, 2002).

The American Heart Association dramatically portrayed the extent of the health problem: "For the first time in history, children's life spans are predicted to be less than [those of] their parents because of inactivity and obesity-related illnesses" (American Heart Association, 2005). Overweight children experience higher rates of physical, social, and mental health problems than children who are not overweight. Overweight children and teens may experience health problems such as asthma, type 2 diabetes, sleep apnea, hypertension and orthopedic problems, depression, and low self-esteem (Gortmaker, Must, Perrin, Sobol, & Dietz, 1993; LaFontaine, 2005).

Estimates of the percentage of adolescents who are ROW and OW are tabulated by the CDC according to self-report data obtained from the Youth Risk Behavior Surveillance System (YRBSS). This cross-sectional survey of self-reported health behaviors revealed that 14% of Alabama adolescents are ROW and 14% are OW, which is comparable to the national sample (CDC, 2003). Between 70% and 80% of overweight adolescents will remain "obese" adults (Center on an Aging Society, 2002).

BMI Scores Among Children in the Birmingham Metro Area

Height, weight, blood pressure, and pulse rate were gathered from 15,560 children in kindergarten through fifth grade who participated in a popular mobile health education program in Alabama from 1999 to 2004. Students attended 41 public and private schools in the Birmingham Metropolitan Statistical Area (MSA). The projected 2004 population for the Birmingham MSA was 1,052,238 (Shattuck, 2005). Missing and incomplete data were excluded.

Data from 1999 to 2004 reveal that 4% were classified as UW, 16% were classified as ROW, and 16% as OW. This represents a total of 5,560 children who were OW or UW. Data from the largest MSA in Alabama may be compared with statewide data collected in Arkansas between 2003 and 2004, which revealed that 2% of school-aged children were classified as UW, 17% as ROW, and 21% as OW (Arkansas Center for Health Improvement, 2004).

Data in Table 1 indicate that the majority of children screened in Birmingham area schools were White (65%), and more than one third were Black students. Fifteen percent of White students were classified as ROW, 13% as OW, and 4% as UW. A higher percentage of Black students were classified as ROW (18%) and OW (21%) as compared with Whites. This appears to indicate a higher risk for health problems among Black

TABLE 1
Weight Classification by Race for Elementary Students in the Birmingham Metro Area According to BMI Scores, 1999-2004[a,b] (in numbers, with percentages in parentheses)

Race	*ROW*	*OW*	*UW*	*Screened*
Asian/Pacific Islander	13 (11)	6 (5)	6 (5)	118 (7.58)
Black	892 (18)	1,035 (21)	184 (4)	4,929 (31.68)
Hispanic	41 (21)	44 (23)	4 (2)	191 (1.23)
Indian/Alaskan	1 (8)	3 (23)	0 (0)	13 (8.35)
Other	10 (20)	9 (18)	2 (4)	50 (3.21)
Unknown	26 (17)	26 (17)	6 (4)	154 (9.90)
Caucasian	1,562 (15)	1,329 (13)	361 (4)	10,105 (65)
Totals	2,545 (16)	2,452 (16)	563 (4)	15,560

a. Definitions: At risk for overweight (ROW): Children's BMI-for-age between 85th and 94th percentile; Overweight (OW): Children's BMI-for-age greater than or equal to 95th percentile; Underweight (UW): Children's BMI-for-age less than 5th percentile.
b. Outlying data were excluded. Data represent student ages between 60 and 168 months, total body weight between 30 and 300 pounds, height between 3 and 6 feet. Incomplete records without a school, race, gender, grade, and BMI value were excluded.

students. It is also important to examine how gender is related to weight classification. Caloric requirements differ based on physical maturation, body size, activity level, and metabolism.

Data indicate that 16% of female elementary students in Birmingham area schools were classified as ROW, and 15% were OW. An additional 4% were identified as UW. The distribution of over- and underweight males in Grades 3 through 5 was quite similar (17% ROW, 16% OW, and 3% UW). This was not unexpected, as the great majority of students had not reached puberty at the time of screening. Data in Table 2 reveal a slight trend for older students in Grade 5 to be ROW and OW as compared with younger elementary students (Children's Health System of Alabama and Blue Cross and Blue Shield of Alabama, 2004).

Currently, there exists no uniform definition or assessment of healthy weight in children. BMI is generally accepted as an index of overweight and obesity in adults. It has not however, been found to be the best indicator for at-risk weight issues among children and adolescents. The benefit in using BMI is that the information needed to calculate BMI can be easily obtained from height and weight data. A limitation in using height/weight data to determine health risks in children is that anthropometric measures for fatness are not currently adjusted for age as children grow in size (Figueroa-Colon, Franklin, Lee, Aldridge, & Alexander, 1997; Mast et al., 2002). Other studies indicate that waist-hip ratio may be a better indicator of disease risk for that population (Asayama et al., 1997; Power, Lake, & Cole, 1997).

TABLE 2
Weight Classification by Grade Level for Elementary Students in the Birmingham Metro Area According to BMI Scores, 1999-2004[a,b] (in numbers, with percentages in parentheses)

Grade	*ROW*	*OW*	*UW*	*Screened*
K	438 (16)	349 (13)	129 (5)	2,706
1	491 (16)	437 (15)	115 (4)	2,991
2	454 (16)	451 (16)	100 (3)	2,858
3	448 (16)	461 (16)	90 (3)	2,818
4	381 (17)	404 (18)	70 (3)	2,271
5	333 (17)	350 (18)	59 (3)	1,914
Totals	2,545 (16)	2,452 (16)	563 (4)	15,558

a. Definitions: At risk for overweight (ROW): Children's BMI-for-age between 85th and 94th percentile; Overweight (OW): Children's BMI-for-age greater than or equal to 95th percentile; Underweight (UW): Children's BMI-for-age less than 5th percentile.
b. Outlying data were excluded. Data represent student ages between 60 and 168 months, total body weight between 30 and 300 pounds, height between 3 and 6 feet. Incomplete records without a school, race, gender, grade, and BMI value were excluded.

ADULT OBESITY IN THE UNITED STATES AND ALABAMA

The prevalence of American adults who were overweight and obese dramatically increased from 1985 to 2000. Nearly two of three adults are now classified as

overweight and/or obese (CDC, 2005a). Twenty-three states reported obesity prevalence exceeding 20% of adult residents in the year 2000. All but one of the remaining states reported obesity prevalence between 15% and 19% (Mokdad et al., 1999). In the Southeast, obesity has increased 67% since 1991 due to increased caloric consumption, decreased physical activity (PA), and limited knowledge of obesity.

Alabama has the second highest percentage of obese adults in the United States; this indicates the need for early primary prevention within families. According to the report *F as in Fat: How Obesity Policies are Failing in America* (2005), 27.7% of adults in Alabama are obese. An additional 35.8% of adults are overweight. Age-adjusted death rate rankings for diseases related to obesity in Alabama are among the highest in the nation: 5th for heart disease, 7th for stroke, and 10th for diabetes (Trust for America's Health, 2005).

NATIONAL PERSPECTIVE

A seminal document to focus attention on the health crisis of obesity was *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity* (U.S. Department of Health and Human Services, 2001). The report emphasized the health risks, economic consequences, and the age, gender, race, and ethnicity disparities associated with obesity. The surgeon general called for a comprehensive approach to implement improvements in five settings: families and communities, schools, health care, media and communication, and work sites. The CARE acronym (Communication, Action, Research, and Evaluation) guides program planning. In Alabama, public health professionals considered this framework when developing its state obesity prevention plan. For instance, a first step to plan continuing medical education is to assess clinicians' perceived needs for information and skill training to diagnose and treat obesity-related conditions. Another example is planning a statewide media campaign to promote increased consumption of whole grains, fruits, and vegetables (U.S. Department of Health and Human Services, 2001).

In 2000, the U.S. secretaries of health and human services and of education released a joint report titled *Promoting Better Health for Young People Through Physical Activity and Sports* (U.S. Department of Health and Human Services & U.S. Department of Education, 2000). The report emphasized the important role of schools in reversing the obesity epidemic and promoting the health of students and their families. The following year, the CDC issued eight priority actions for improving the health of young people (see Fisher et al., 2001). Three are most relevant to the partnerships described in this article: developing collaborative efforts among state and local health and education agencies, establishing policies supportive of coordinated school health programs, and providing educational in-services and workshops to assist health and physical education teachers and administrators. The health of children and the adults they will become is strongly related to their daily decisions about eating and exercise. Three levels of factors contribute to selecting healthy behaviors: predisposing, reinforcing, and enabling factors. Health and physical educators may implement planned changes in school, community, and family settings to promote healthy eating and a physically active lifestyle (LaFontaine, 2005; U.S. Department of Health and Human Services & U.S. Department of Education, 2000).

Harvard Forums on Health commissioned Lake Snell Perry and Associates, Inc. to survey a representative sample of 1,002 adults nationwide. Three fourths of respondents identified obesity in children as a major health problem today; 80% felt obesity is also a major health problem for adults. The majority felt that health care providers (74% affirmative response) and schools (65% affirmative) have vital roles to play in fighting obesity. Respondents supported healthier school lunches, increased physical education, and teaching families about the importance of exercising and eating healthy (Lake Snell Perry and Associates, 2003).

Insufficient training in health education and physical education and the lack of quality informational resources are obstacles to overcome in this battle. Through developing policies and initiatives, national and state organizations have become advocates for the prevention of childhood obesity. Health professionals should aim to reach the U.S. Department of Health and Human Services' (2000) *Healthy People 2010* Objective 19-3: reducing the proportion of obese children from 11% to 5%.

In September 2004, the Institute of Medicine's Committee on Prevention of Obesity in Children and Youth (2005) developed the action plan *Preventing Childhood Obesity: Health in the Balance.* The committee examined behavioral, social, cultural, and environmental factors to prevent childhood obesity in various settings. The plan consisted of recommendations for 10 areas: national priority (federal, state, and local governments), industry, nutrition labeling, advertising and marketing, multimedia and public relations campaign, community programs, built environment, health care, schools, and home.

The Institute of Medicine report relates to initiatives recently begun in the state of Alabama. Several groups composed of elected officials, educators, public health and agency professionals, clinicians, business/industry, and citizens developed the state's first obesity prevention plan and guidelines to enhance nutrition and physical

activity in schools. These innovative documents are compatible with the social ecology model (Egger & Swinburn, 1997; McLeroy, Bibeau, Steckler, & Glanz, 1988), with an emphasis on policy changes and primary prevention activities in the settings of schools, communities, and homes. Planners believe that primary prevention focused on children is a necessary first step to reduce obesity-related morbidity and mortality.

Initiatives for Prevention of Childhood Obesity in Alabama

Many programs to prevent obesity are ongoing across Alabama. Four prevention initiatives illustrate multiple components important to reducing childhood obesity risk: (a) public policy (Action for Healthy Kids); (b) health and physical education curricula, healthy school environment, and child nutrition (state board of education committee); (c) clinical assessment and outreach (Body Trek); and (d) grassroots action for change (Dawson, Geiger, Nelson, & Pharrams, 2007). A unique feature of each of these initiatives is the active partnership between school and community education and health agencies and faculty of a research university.

Action for Healthy Kids (AFHK) is the only nonprofit organization formed specifically to address the epidemic of overweight, undernourished, and sedentary youth by focusing on changes at school. The organization is active in all 50 states to improve children's nutrition and increase PA, which will in turn improve their readiness to learn. In 2005, the state team received a grant from the national AFHK to support local school efforts to enhance PA and healthy school nutrition environments. School personnel in 30 rural, low-income schools were given training and equipment kits for physical education. Kits included a variety of balls, parachutes, jump ropes, hula hoops, pedometers, and a BMI calculator. AFHK plans to expand this initiative to include after-school programs during 2006-07. In addition, Alabama AFHK awarded 13 minigrants to schools; 8 grants enabled schools to integrate PA into a classroom setting. Five grantees focused on improving child nutrition outside of the lunchroom by implementing healthier choices for school fundraisers, parties, vending, and student stores (Action for Healthy Kids, n.d.).

Statewide committee to review the state of health of America's youth with particular emphasis on Alabama's youth. Alabama has a unique opportunity to enhance the health of its citizens. Two major state agencies, education and public health, the governor, and the legislature are all focused on reducing health threats of obesity. A powerful synergy of state leaders and citizens advocate a vision of long-term improvements.

In May 2004, the Alabama Legislature unanimously passed a Senate Joint Resolution to urge schools to provide instruction on healthy lifestyle choices. This resolution urged the state department and board of education to address the widespread practice of exempting students from physical education, as well as increasing instruction on living a healthier lifestyle ("Urging Schools," Ala. S. J. Res. 97, 2004). In response to the resolution, the state board of education voted to form the Statewide Committee to Review the State of Health of America's Youth with Particular Emphasis on Alabama's Youth. Forty committee members were chosen to represent different groups from the entire state (Alabama State Board of Education, 2004). Two subcommittees were formed to address the issues of exercise and nutrition.

Eight recommendations of the exercise subcommittee were approved in 2005: (a) funding for certified teachers, (b) reducing the student/teacher ratio, (c) eliminating waivers given for physical education in Grades K-8, (d) reviewing all current waivers for the secondary physical education graduation requirement, (e) adding physical education to the state monitoring process, (f) training teachers to integrate PA throughout the academic curriculum, (g) offering more PA opportunities for students in Grades K-12 before, during, and after school, (h) providing more professional development for high school teachers and leaders on the Lifelong Individualized Fitness Education Course (Sims, n.d.), and (i) forming a committee to address physical fitness testing (Alabama State Board of Education, 2005a).

Five recommendations of the nutrition subcommittee were also approved by the state board of education in 2005: (a) promoting healthful eating behaviors during school hours and during after-school child care programs, (b) changing fundraising activities to healthy food choices and nonfood items, (c) providing in-service education for certified personnel on the importance of nutrition and physical education, (d) completing school environment health assessments, and (e) monitoring in-school media advertisements to eliminate unhealthy messages (Alabama State Board of Education, 2005a). The most controversial recommendations were changes in foods and beverages to be offered in vending machines and as part of the child nutrition program. The committee was charged with the task of creating guidelines for local implementation of these exercise and nutrition recommendations. Implementation began during fall of 2005 and will be completed by 2007 (Alabama State Board of Education, 2005b).

Body Trek, a primary prevention education program. Body Trek is a mobile community outreach program that travels to public and private schools within 1 hour of the Birmingham, Alabama, standard metropolitan area.

The mission of Body Trek is to provide children from five-year-old kindergarten through fifth grade with a learning experience to enable them to make positive health choices. Injury prevention and health education are the major foci of the program. Truly innovative in its design, Body Trek delivers a dynamic age-appropriate learning experience for young children, including those with special needs. Its interactive exhibits make learning about healthy choices interesting and fun. From its inception, planners emphasized the need for personal instruction about health. Trained volunteers teach small groups of two to three children during a scheduled visit to the exhibits lasting approximately 50 minutes.

Blue Cross and Blue Shield of Alabama and Children's Health System of Alabama began the partnership in 1993 to provide this exciting program for area elementary schools. The program currently has a 2-year waiting list due to limited personnel and a single mobile unit. Public and private schools may request a visit by Body Trek to enhance the instructional program across elementary grades. A colorful self-contained recreational vehicle houses hands-on learning stations. Lighted pathways, video monitors, and volunteer educators guide students through the creative and captivating exhibits.

Colorful activity books designed for younger and older elementary students are provided 4 weeks before Body Trek arrives at the school. Activities emphasize preventing home accidents, bicycle and seat belt safety, healthy nutritional habits, hand washing, physical fitness, and brain function. Two illustrated characters guide children through lessons presented in the activity books and exhibits.

Student data are collected throughout the exhibit (height, weight, blood pressure, and pulse rate, resting and after exercise) from this convenience sample (Figueroa-Colon, Franklin, Lee, Aldridge, & Alexander, 1997). Nurses document student data on individual sheets and enter values into a database by the zip code of the host school. Individual data reports are not shared outside of the family. Body Trek receives annual review and approval from a university Internal Review Board for the Protection of Human Subjects to ensure appropriate guidelines are followed when gathering and reporting student data.

Parents receive informative letters prior to the date of the in-school field trip with the option of declining permission for their child to participate. Parents receive a confidential report of the health assessment with recommendations to visit the child's pediatrician, if needed.

Nurses from Children's Health System are available for private consultation with students, their parents, and teachers during and after Body Trek school site visits; however, there are no resources for long-term follow-up through this program. Because of the growing youth obesity issue, more schools, community groups, and health agencies struggle with best methods of informing parents and educating families. There is a growing body of evidence suggesting that overweight and obese children are increasingly the target of social prejudice (Schwartz & Puhl, 2003; Tiggermann & Anesbury, 2000). Rarely, however, have children been excluded from Body Trek visits due to parental objections.

Program planners consider trends in the data as these indicate educational needs of local elementary students. Exhibits and activity books are regularly updated to address changing health needs. Teacher's evaluations also help planners improve and update interactive exhibits.

Approximately 6,500 students take a journey through the Body Trek each year. Children's Hospital provides a nurse to coordinate the exhibit. Each host school demonstrates its commitment to health education by providing six volunteers daily. Additional volunteer help is provided by students from the University of Alabama at Birmingham (Schools of Education and Nursing) who complete service learning as part of discipline-specific course requirements.

Selma Nutrition, Exercise, and Wellness Study for Students (Selma NEWS). Selma NEWS is a pilot program recently implemented in a rural school system in Alabama's impoverished Black Belt region. The project began in the winter of 2004 to study the determinants of childhood obesity and implement improvements to the school health program. Selma NEWS is a special initiative of the Selma City Schools System (SCSS) with encouragement from a state senator and city mayor. In 2004, the Alabama Commissioner of Agriculture and Industries provided a grant to the City of Selma in support of Selma NEWS program activities.

Five schools were selected by the superintendent to participate in the first phase of Selma NEWS: Kingston Elementary (234 average daily membership [ADM]), School of Discovery/Genesis Center (320 ADM), Payne Elementary (217 ADM), Selma Middle/C.H.A.T. Academy (594 ADM), and Selma High (1,049 ADM). Initial project activities included an audit of the school food service program completed by SCSS child nutrition program staff, followed by changes to menu and vending machine offerings. These included expanding the breakfast program to new schools, adding salad bars and a la carte menu choices for students, and substituting snacks with complex carbohydrates for less healthier choices. The dedication of school site personnel and community volunteers to implement a series of changes illustrates their enthusiasm for this initiative.

School personnel attended in-service education programs during the 2004-05 school year to learn more about

health and social problems related to childhood obesity and participated in an employee walking program. In December of 2004, the SCSS Board of Education unanimously endorsed planned activities of Selma NEWS. In 2005, Selma NEWS joined the Black Belt Action Commission to share information and resources of mutual benefit to Dallas County residents, and formed school wellness teams.

Wellness teams are composed of teachers, administrators, support staff, and parents. University health and physical education faculty and students provided training to wellness team members to utilize the School Health Index with support provided by the dean of the University of Alabama at Birmingham School of Education. The School Health Index is a school health program planning tool developed by the CDC (2004). Selma NEWS elected to focus on three components: health education, physical education and other activity programs, and nutrition services.

Data collected during March of 2005 indicated areas of strength and need in five public schools. Wellness teams met in April to select areas for priority action during the upcoming school year. A summary of recommendations was presented to the SCSS superintendent, the board of education, and the community task force for approval in May. The next step was to design and pilot test two instruments, Assessment of an Outdoor Elementary School Playground, containing 32 items, and Assessment of a School Gymnasium, containing 29 items (Geiger, 2005a, 2005b). Teachers and parents used these checklists during upcoming visits to Selma school sites.

Beginning the in fall term of 2005, faculty and student nurses from Wallace Community College, Selma Campus, collected general health data (height, body weight, blood pressure, and heart rate) from students enrolled in the five schools participating in Phase 1. This is an ongoing activity; student data will provide an initial estimate of students' health status. Future plans include (a) obtaining additional funding for specific health assessments to measure students' blood glucose, blood cholesterol, and anemia, (b) hosting an annual community Prevention and Wellness Day, (c) renovating playgrounds, and (d) implementing and evaluating the Lifelong Individualized Fitness Education Course in high school physical education classes.

CONCLUSION AND RECOMMENDATIONS

An essential step for health and fitness educators interested in planning prevention activities is learning about causes and contributors of excessive childhood weight. Southeastern states have seen dramatic increases in numbers of children and adults with weight-related health conditions including asthma, type 2 diabetes, sleep apnea, hypertension, orthopedic problems, depression, and low self-esteem. During an annual physical examination, the primary care professional should record the student's height and weight on growth charts to determine trends of weight loss or gain exceeding normative values. Clinicians may then educate parents about needed follow-up. Children who are underweight and overweight may benefit from ongoing intervention activities in home and community settings to learn and practice healthy eating and PA habits. Physical education and health education programs in schools offer unique opportunities to implement progressive curricula for healthy and active lifestyles, assess health status, and offer clinical referrals.

A passive approach to treat obesity as a health condition is anticipating further innovation in surgery and pharmacology. An active approach is preferred, promoting comprehensive changes at home, school, and community. This will require a coordinated effort of parents, teachers, students, clinicians, and state and local agency professionals to facilitate healthy nutrition and PA behaviors. Short-term programs will have limited impacts. Sustained cooperative efforts will yield lasting improvements.

Congress and health and education agencies have responded to the epidemic of overweight children with new legislation, guidelines, and policies promoting curricular and nutrition program improvements. Several examples in Alabama illustrate efforts to alter food selection and preparation in child nutrition programs, increase physical education and health education in schools, and encourage involvement of clinicians and community residents in school wellness teams.

REFERENCES

Action for Healthy Kids. (n.d.). Retrieved August 22, 2005, from http://www.actionforhealthykids.org/state_profile.php?state=AL

Alabama State Board of Education. (2004, July 13). *Resolution forming a statewide committee to review the state of health of America's youth with particular emphasis on Alabama's youth*. Montgomery: Author.

Alabama State Board of Education. (2005a, February 10). *Adopted report of statewide committee to review the state of health of America's youth with particular emphasis on Alabama's youth*. Montgomery: Author.

Alabama State Board of Education. (2005b, July 12). *Approved implementation guidelines for the report of statewide committee to review the state of health of America's youth with particular emphasis on Alabama's youth*. Montgomery: Author.

American Heart Association. (2005). *Why jump rope for heart?* Retrieved September 1, 2005, from http://www.americanheart.org/presenter.jhtml?identifier=3023404

Arkansas Center for Health Improvement. (2004). *The Arkansas assessment of childhood and adolescent obesity*. Little Rock: Arkansas Center for Health Improvement.

Asayama, K., Hayashi, K., Kawada, Y., Nekane, T., Uchida, N., Hayashibe, H., et al. (1997). New age-adjusted measure of body fat distribution in children and adolescents: Standardization of waist-hip ratio using multivariate analysis. *International Journal of Obesity, 21*, 594-599.

Center on an Aging Society. (2002). *Childhood obesity: A lifelong threat to health*. Retrieved January 15, 2005, from http://www.aging-society.org

Centers for Disease Control and Prevention. (2004). *School health index: A self-assessment and planning guide. Elementary and middle school/high school versions*. Atlanta, GA: Author.

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. (2003). *Alabama 2003 Youth Risk Behavioral Survey (YRBS) results*. Retrieved September 20, 2005, from http://www.cdc.gov/HealthyYouth/YRBS/statefacts.htm

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. (2005a). *U.S. obesity trends 1985 to 2004*. Retrieved October 7, 2005, from http://www.cdc.gov/nccdphp/dnpa/obesity/trend/index.htm

Centers for Disease Control and Prevention: Nutrition and Physical Activity (2005b). *BMI for children and teens.* Retrieved March 15, 2006, from http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm

Children's Health System of Alabama and Blue Cross and Blue Shield of Alabama. (2004, August 27). *BodyTrek BMI data according to CDC guidelines*. Birmingham, AL: Comprehensive Health Education Center for Kids.

Crespo, C. J., & Arbesman, J. (2003). Obesity in the United States: A worrisome epidemic. *The Physician and Sportsmedicine, 31*(11). Retrieved August 10, 2004, from http://www.physsportsmed.com/issues/2003/1103/crespo.htm

Dawson, V. L., Geiger, B. F., Nelson, G. T., & Pharrams, L. (2007, Feb. 21). *What's working in Alabama schools*: *An invited panel discussion*. Alabama Healthy Schools Summit, Mongtomery.

Egger, G., & Swinburn, B. (1997). An "ecological" approach to the obesity pandemic. *British Medical Journal, 315,* 477-480.

Figueroa-Colon, R., Franklin, F. A., Lee, J. Y., Aldridge, R., & Alexander, L. (1997). Prevalence of obesity with increased blood pressure in elementary-school aged children. *Southern Medical Journal, 90*(8), 806-813.

Fisher, C., Hunt, P., Kann, L., Kolbe, L., Patterson, B. & Wechsler, H. (2001). *Building a healthier future through school health programs*. Retrieved May 24, 2007, from http://www.cdc.gov/HealthyYouth/publications/pdf/PP-Ch9.pdf

Geiger, B. F. (2005a, November 10). *Assessment of an outdoor elementary school playground*. Available from Dr. Brian F. Geiger, University of Alabama at Birmingham, Room EB 209, 1530 3rd Avenue South, Birmingham, AL 35294-1250.

Geiger, B. F. (2005b, November 10). *Assessment of a school gymnasium*. Available from Dr. Brian F. Geiger, University of Alabama at Birmingham, Room EB 209, 1530 3rd Avenue South, Birmingham, AL 35294-1250.

Gortmaker S. L., Must, A., Perrin, J. M., Sobol, A. M., & Dietz, W. H. (1993). Social and economic consequences of overweight in adolescence and young adulthood. *New England Journal of Medicine, 329*(14), 1008-1012.

Institute of Medicine, Committee on Prevention of Obesity in Children and Youth, Food and Nutrition Board, Board on Health Promotion and Disease Prevention (2005). *Preventing childhood obesity: Health in the balance.* Washington, DC: National Academies Press.

Institute of Medicine of the National Academies. (2004, October 7). *Childhood obesity in the United States: Facts and figures.* Retrieved August 15, 2005, from http://www.iom.edu

LaFontaine, T. (2005). Overweight and at risk for overweight among youth: An evolving American tragedy? *ACSM's Certified News, 15*(4), 1-3.

Lake Snell Perry and Associates. (2003). *Obesity as a public health issue: A look at solutions. Results from a national poll*. Retrieved May 8, 2007, from http://www.phsi.harvard.edu/health_reform/poll_results.pdf

Mast, M., Langnase, K., Labitzke, K., Bruse, U., Preub, U., & Muller, M. J. (2002). Use of BMI as a measure of overweight and obesity in a field study on 5-7 year old children. *European Journal of Nutrition, 41*(2), 61-67.

McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly, 15,* 351-377.

Mokdad, A. H., Serdula, M. K., Dietz, W. H., Bowman, B. A., Marks, J. S., & Koplan, J. P. (1999). The spread of the obesity epidemic in the United States, 1991-1998. *Journal of the American Medical Association, 282*(16), 1519-1522.

National Heart, Lung, and Blood Institute Obesity Education Initiative. (2000, October). *The practical guide: Identification, evaluation and treatment of overweight and obesity in adults* (DHHS Publication No. 00-4084). Bethesda, MD: U.S. Government Printing Office.

Power, C., Lake, J. K., & Cole, T. J. (1997). Measurement and long-term health risks of children and adolescent fatness. *International Journal of Obesity, 21*, 507-526.

Schwartz, M. B., & Puhl, R. (2003). Childhood obesity: A societal problem to solve. *Obesity Reviews, 4*, 57-71.

Shattuck, M. (2005). *Birmingham-Hoover metropolitan area*. Retrieved October 17, 2005, from http://www.birminghamchamber.com/business/reports/reports_docs/population.htm

Sims, S. K. (n.d.). *Lifelong Individualized Fitness Education Course* (L.I.F.E.). Available from Dr. Sandra K. Sims, University of Alabama at Birmingham, Room EB 2320, 1530 3rd Avenue South, Birmingham, AL 35294-1250.

Tiggermann, M., & Anesbury, T. (2000). Negative stereotyping of obesity in children: the role of controllability beliefs. *Journal of Applied Social Psychology, 30,* 1977-1993.

Trust for America's Health. (2005). *F as in fat: How obesity policies are failing in America*. Retrieved September 15, 2005, from http://healthyamericans.org/reports/obesity2005

Urging Schools to Provide Instruction on Healthy Lifestyle Choices Including Programs for Physical Education, Ala.S.J. Res.97, Reg. Sess. (2004).

U.S. Department of Health and Human Services. (2000). *Healthy People 2010: Understanding and improving health*. Retrieved May 21, 2004, from www.health.gov./healthlypeople/document/HTML?volume2/19Nutrition.htm

U.S. Department of Health and Human Services. (2001, December). *The surgeon general's call to action to prevent and decrease overweight and obesity*. Retrieved September 22, 2005, from http://www.surgeongeneral.gov/topics/obesity/

U.S. Department of Health and Human Services & U.S. Department of Education. (2000, Fall). *Promoting better health for young people through physical activity and sports: A report to the president from the secretary of health and human services and the secretary of education*. Retrieved September 21, 2005, from http://www.cdc.gov/HealthyYouth/physicalactivity/publications.htm