

# Policy Options for Addressing Childhood Obesity in Missouri

Diana Gaughan Costa

December 2008

*Institute of Public Policy  
University of Missouri  
137 Middlebush Hall  
Columbia, MO 65211*



Conclusions are those of the author(s), not necessarily those of the Institute of  
Public Policy or the Truman School of Public Affairs.

The prevalence of overweight children has increased three-fold nationwide, from 5.7% to 18% between 1980 and 2004.<sup>1</sup> The current percentage of overweight children in Missouri is greater than the national average. These trends are alarming because they have implications for children's quality of life today as well as for when these children become adults. There are, however, policy options to improve children's quality of life.

**Health Consequences**

Being overweight as a child has serious health risks in childhood and potentially throughout life. According to a study of white men and women in the United States, those who were overweight at age 4 had a 20% probability of still being overweight in adulthood, while those overweight in adolescence had up to an 80% probability of being overweight at age 35.<sup>2</sup> Overweight children suffer psychologically from lower self-esteem. They also risk developing diabetes, high cholesterol, high blood pressure<sup>3</sup> or respiratory disorders<sup>4</sup> as children. In addition, overweight children have greater risks of developing cardiovascular disease, stroke and cancer as adults, as well as diabetes, high cholesterol and blood pressure.<sup>3</sup> One out of three children born in 2000 will develop adult onset (Type 2) diabetes in their lifetime, while Latino females born then have a 50% chance of developing diabetes.<sup>5</sup> Some researchers assert that US children may have shorter life expectancies than their parents due to the rise of obesity.<sup>6</sup>

Researchers have identified various aspects of a child's environment that can affect good health. These include "ethnicity, socioeconomic status, work demands, school lunch programs, school PE programs, neighborhood safety, accessibility to recreational facilities, and access to convenience foods and restaurants."<sup>3</sup> Children are influenced by all of these factors as they make decisions on nutrition and physical activity.

**History of BMI-for-age**

The BMI-for-age was produced by the Centers for Disease Control (CDC) in 2000 based on survey data over the previous 25 years. The percentiles are similar to the charts created by the National Center for Health Statistics in 1977. At that time, only 5% of the child population at any given age would have been overweight, but the percentage of children falling above the 95th percentile for BMI has increased since that time. Now approximately 18% of all children younger than 18 years of age have a BMI over the 95th percentile.

**Calculating Body Mass Index (BMI)**

Overweight and obesity are commonly measured using Body Mass Index (BMI), which is calculated by dividing an individual's weight in pounds by their height in inches squared and then multiplying that number by 703. An adult is overweight with a BMI greater than 25, and obese if it is greater than 30. For example, an adult that is 5 foot 5 inches tall and weighs 150 pounds has a BMI of 25, while a person of the same height that weighs 180 lb. would have a BMI of 30.

BMI is calculated the same for children as for adults, but whether a child is considered overweight is based on where he or she falls compared to other children the same age and gender (using percentiles). Children with a BMI greater than 85% are at risk for overweight, while children that have a BMI above the 95th percentile are overweight.

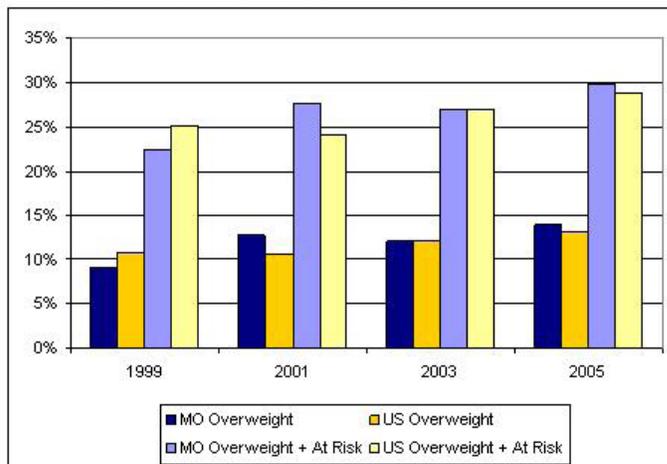
For example, a 10-year-old boy with a BMI of 23 would be above the 95th percentile. The same boy with a BMI of 21 is above the 85th percentile. A BMI below 20 falls in the normal range for a 10-year-old boy.

Survey data indicates that children are not getting the nutrients or exercise they need. The Youth Risk Behavior Surveillance (YRBSS)<sup>7</sup> data from 2005 suggests that only one in three American youth meet the recommended amount of physical activity, and only one of five consumed at least five servings of fruits and vegetables a day.<sup>8</sup> These statistics suggest there is a need for policies designed to increase physical activity and healthy eating among youth.

**Missouri Trends**

The Trust for America's Health ranked Missouri as the 15th worst state in terms of the percentage of overweight children in 2004, at a rate of approximately 15.6%, while the national average was 14.8%.<sup>9</sup>

FIGURE 1: HIGH SCHOOL OVERWEIGHT AND AT RISK FOR OVERWEIGHT RATES (YRBSS DATA)



Overweight: BMI >=95 percentile; Overweight + At Risk (BMI >=85 percentile)



While childhood obesity has been on the rise in Missouri, the trends on physical activity and nutrition are mixed. Data from the YRBSS suggests that physical activity among Missouri teens has increased in the 10 years leading up to 2005. In 1995, approximately 63% of students reported participating in vigorous physical activity for 20 minutes at least three days per week, while that percentage was up to nearly 70% in 2005.<sup>10</sup> This upward trend has occurred in Missouri while the percentage of students nationwide that engage in sufficient vigorous physical activity has remained virtually unchanged at around 64%-65% for the past 10 years.

The number of Missouri youth reporting having consumed at least 5 daily servings of fruits and vegetables decreased slightly in this time period, and now only 1 in 6 teens meet this criterion.<sup>11</sup> Missouri has consistently ranked below the national average in this measure, although the national trend also shows fewer students getting enough fruits and vegetables as well. While more Missouri students are more active than they used to be, the higher rate of overweight students in Missouri suggests a need for coordinated policies that increase physical activity and improve nutrition.

### Current State Policy

Missouri's physical education requirements for public schools are lower than Center for Disease Control (CDC) and National Association for Sport and Physical Education (NASPE) recommendations. NASPE suggests elementary students participate in 150 minutes of physical education (P.E.) per week, and older students should have 225 minutes of P.E. per week.<sup>12</sup> In Missouri, elementary school children must have at least 50 minutes of P.E. per week, middle school or junior high students must have 3,000 minutes of P.E. instruction per school year, and high school students are required to complete a one year long course of physical education in 4 years.<sup>13</sup> In 2008, Missouri legislators considered, but did not adopt House Bill 1891, which would require daily physical education for children in kindergarten through 8th grade, and 4 semesters of physical education for high school students.<sup>14</sup>

Missouri does not have additional requirements beyond the United States Department of Agriculture (USDA) school lunch standards.<sup>15</sup> Currently, about half of the states in the nation have restrictions on competitive foods sold at school or have more stringent requirements for nutrition in school lunches than USDA standards. Competitive foods are any foods sold in competition with the lunch program; these foods include soda, chips and other junk food. Competitive foods are exempt from USDA standards. Also, any Missouri school that participates in the federal school lunch program

has developed a school wellness policy.<sup>16</sup>

### Policy Alternatives at the Local Level

According to the CDC, 30% of Missouri's high school students were either overweight or obese in 2005. In response, the CDC recommends better health education, more physical education and physical activity, and healthier school environments as solutions.<sup>17</sup> The CDC also recommends community involvement, such as community-wide campaigns, improved access to physical activity opportunities, and informational outreach in addressing childhood obesity as well.<sup>18</sup> These guidelines support the more specific recommendations below, which include options for school districts and for community leaders to address the rise in childhood obesity.

#### *Policy actions for schools*

The CDC recommend that schools implement a "coordinated school nutrition policy" with nutrition lessons, healthy food options throughout the campus, staff training and family involvement.<sup>19</sup> Furthermore, they propose that health education be part of a wellness policy that includes adequate opportunities for physical activity. Some school districts have implemented classroom policies that include "active time" in the curriculum, or have increased the amount of physical education or recess time during the day. For instance, the Toronto public schools have utilized their PA system to lead daily exercises for children in the classroom. Teachers schedule class work around these breaks and children get an extra dose of structured physical activity.<sup>20</sup>

A variety of research indicates that children would benefit if schools adopted daily physical education. According to data from the National Longitudinal Study of Adolescent Health, children who participated in physical education 5 days per week were 28% less likely to be overweight as young adults than those who did not.<sup>21</sup> The Missouri legislature considered but did not adopt a bill to implement daily P.E. in 2008, but school districts could consider implementing more physical education on their own, as one way to increase physical activity during the school day.

In combination with increased physical activity, there are creative ways for schools to improve the nutritional options available at breakfast or lunch. Schools in Lafayette County, Missouri, are working with local farmers to provide local produce at school lunches.<sup>22</sup> This type of policy increases the fruits and vegetables available to students, and can also include an education component where students visit local farms to learn about farming or gardening. In addition, the collaboration promotes economic development for farmers

and farm co-ops.

#### *Policy actions for local government*

Recent research suggests that multilevel community approaches can slow or reverse BMI gains in children.<sup>23</sup> The community approach brings together stakeholders such as parents, physicians, business leaders, restaurant owners and schools to develop plans addressing childhood obesity. Potential plans include expanding recreation opportunities, changing cooking techniques at local restaurants to reduce fat content, increasing access to healthier foods and offering cooking classes to parents. In order to increase access to more nutritious foods, communities can cultivate community gardens, bring in farmer's markets or petition grocers to carry more fresh produce. These activities can be done in conjunction with school-based interventions to improve children's health.

The Robert Wood Johnson Foundation's Active Living by Design promotes walking and biking to school as a good way to increase physical activity among children. Particularly in smaller Missouri communities, there may not be sidewalks from residential areas to schools. Communities can apply for federal Safe Routes to School grants to improve the safety of sidewalks near schools.<sup>24</sup> With safe sidewalks in place, schools have the opportunity to implement walking school bus programs, similar to the program in Columbia, MO.<sup>25</sup>

Because Missouri has both rural and urban areas, some options for improving children's health will not work in every community. Some rural communities in Missouri have recently received grants to install walking trails in parks, giving children and adults a safe place to exercise.<sup>26</sup> Urban areas may need to focus on improving safety in existing parks, or on offering more supervised parks and recreation activities. No matter what the size of the community, there are many resources available on how to improve the built environment and walkability at the local level.<sup>27</sup>

#### **Conclusions**

The substantial increase of overweight children in Missouri and around the nation is a serious public health concern. This problem requires a range of efforts to improve the environment that influences children's eating and exercise habits. Although the decision to engage in health-enhancing activity rests with the individual, policy-makers can ensure that healthy options for nutritious foods and daily physical activity are available. Concerned practitioners at the local level have several options to create a healthier environment for children.

#### **NOTES**

<sup>1</sup>The data was reported at <http://childstats.gov/americas-children/tables/health5.asp>, but drawn from the National Health and Nutrition Examination Survey, Centers for Disease Control and Prevention, National Center for Health Statistics.

<sup>2</sup>Guo, Shumei S., and William C. Chumlea. 1999. Tracking of body mass index in children in relation to overweight in adulthood. *American Journal of Clinical Nutrition* 70:145S-48S.

<sup>3</sup>DeMattia, Laure and Shannon Lee Denney (2008). "Childhood Obesity Prevention: Successful Community-Based Efforts," *The ANNALS of the American Academy of Political and Social Science*, 615; 83.

<sup>4</sup><http://www.cdc.gov/mmwr/preview/mmwrhtml/00042446.htm>

<sup>5</sup>Narayan KMV, Boyle JP, Thompson TJ, Sorensen SW, Williamson DF. Lifetime risk for diabetes mellitus in the United States. *JAMA* 2003 October 8;290(14):1884-1890.

<sup>6</sup>Olshanksy, S. Jay, et al (2005). "A Potential Decline in Life Expectancy in the United States in the 21st Century," *The New England Journal of Medicine*, 352:11.

<sup>7</sup>The YRBSS is an annual survey conducted nationwide to determine what percentage of high school students engage in risky behaviors, such as smoking, drinking and substance abuse. It also includes questions on diet and physical activity. There is a similar survey conducted among adults.

<sup>8</sup><http://apps.nccd.cdc.gov/yrbss/>

<sup>9</sup>Trust for America's Health, <http://healthyamericans.org/state/index.php?StateID=MO>, accessed 2/15/08

<sup>10</sup><http://apps.nccd.cdc.gov/yrbss/QuestYearTable.asp?cat=6&quest=Q78&loc=MO&year=Trend>

<sup>11</sup><http://apps.nccd.cdc.gov/yrbss/>

<sup>12</sup>[http://www.ncsl.org/magazine/articles/2007/07SLDec07\\_PE.htm](http://www.ncsl.org/magazine/articles/2007/07SLDec07_PE.htm)

<sup>13</sup>Missouri School Improvement Program, as explained by National Association of State Boards of Education, <http://www.nasbe.org/HealthySchools/States/states.asp?Name=Missouri>

<sup>14</sup><http://www.house.mo.gov/billtracking/bills081/bilsum/intro/sHB1891I.htm>

<sup>15</sup>See note 13 (NASBE).

<sup>16</sup>[http://www.fns.usda.gov/tn/healthy/wellness\\_policyrequirements.html](http://www.fns.usda.gov/tn/healthy/wellness_policyrequirements.html)

<sup>17</sup><http://www.cdc.gov/healthyyouth/overweight/pdf/Missouri.pdf>

<sup>18</sup><http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5018a1.htm>

<sup>19</sup><http://www.cdc.gov/mmwr/preview/mmwrhtml/00042446.htm>

<sup>20</sup>JoAnne Owens-Nauslar, seminar at the University of Missouri, April 7, 2008.

<sup>21</sup>Menschick, D, Ahmed, S, Alexander, M, Blum, R. Adolescent Physical Activities as Predictors of Young Adult Weight, *Archives of Pediatrics and Adolescent Medicine*, Vol 162 (No 1), Jan 2008.

<sup>22</sup>Personal interview with Ann Cohen, 3/3/08

<sup>23</sup>Friedrich, M.J. (2007). Researchers address childhood obesity through community based programs, *JAMA* Vol 298, No 23.

<sup>24</sup><http://www.saferoutespartnership.org/local/4149>

<sup>25</sup><http://www.walkingschoolbus.org/>

<sup>26</sup>Healthy and Active Communities Initiative, Missouri Foundation for Health, <http://truman.missouri.edu/ipp/mfh/tab6.asp>

<sup>27</sup>[www.walkable.com](http://www.walkable.com), [www.walkableamerica.org](http://www.walkableamerica.org), <http://www.vtppi.org/walkability.pdf>

#### **AUTHOR BIOGRAPHY**

Diana Gaughan Costa is a policy analyst with the Institute of Public Policy at the Harry S Truman School of Public Affairs. She holds a Master of Public Affairs degree from the Truman School at the University of Missouri. Ms. Costa has been involved in evaluation and research for healthy and active living.

#### **Suggested Citation**

Costa, Diana. (2008). "Policy Options for Addressing Childhood Obesity in Missouri." Report 24–2008. Retrieved [Month Day, Year], from University of Missouri Columbia, Institute of Public Policy Web site: <http://www.truman.missouri.edu/ipp/>

---

Institute of Public Policy  
137 Middlebush  
University of Missouri  
Columbia, MO 65211

<http://www.truman.missouri.edu/ipp>

