Where’s the Beef?

Childhood Obesity from the Lens of America’s Public Schools

Angela Farmer, Assistant Professor

Educational Leadership

[asfarmer@colled.msstate.edu](mailto:asfarmer@colled.msstate.edu)

662-325-4771

Jack Blendinger, Professor

Educational Leadership

[jblendinger@colled.msstate.edu](mailto:jblendinger@colled.msstate.edu)

Brad Vickers, Associate Professor

Kinesiology

[bvickers@colled.msstate.edu](mailto:bvickers@colled.msstate.edu)

Where’s the Beef?

Childhood Obesity from the Lens of America’s Public Schools

Angela Farmer, Jack Blendinger, Brad Vickers

Gone are the days of the lunch ladies handily preparing homemade recipes with generous amounts of sugar, butter, flour and commodity cheese. Unfortunately, the obesity rates have also changed dramatically. In an effort to combat the public health crisis of childhood obesity in the United States (Burke, 2006), the federal nutrition guidelines have changed accordingly (Harrington, 2014). Somewhat simultaneously, whether in response to federal, high stakes testing or budget shortfalls, paramount changes have also transpired in the school environment, resulting in decreased opportunities for students to engage in daily, extended physical exercise. According to “Shape of the Nation” in 2010, 65% of high school students did not meet recommended levels of physical activity; and nationwide, less than a third of children ages six to seventeen engage in vigorous physical activity at least 20 minutes daily.

These nutrition changes appear to have emanated from national obesity data, which indicates that sixteen percent of children from ages six to nineteen are obese. Childhood obesity is defined as “a body mass index in excess of the 95th percentile of a fixed distribution for a child’s age and gender” (Ogden, et al., 2004). With children at or above the 350% of the poverty level, obesity has increased from 6.5% to 11.9% in boys and 5.2% to 12% in girls from years measured between 1998 to 2008 (Ogden, et al., 2010). In 1995 Congress passed the “School Meals Initiative for Healthy Children” which required, among other things, that no more than 30% of the school meals come from fat. Furthermore, schools were directed to limit foods of “minimal nutritional value” (Schanzebach, 2009). Expanding on this initiative, Michelle Obama’s program to modify federal school lunch nutrition requirements further has had some surprising effects. Since the Healthy, Hunger-Free Kids Act was passed in 2010 as part of Obama’s Let’s Move! campaign; approximately one million fewer lunches are sold each day than just two years ago according to the School Nutrition Association (Suddath, 2014). The new standards which prevent schools from serving even such staples as peanut butter and jelly sandwiches or cheeseburgers, have resulted in students opting to purchase food from alternative sources, exacerbating the already declining participation. Those who do purchase or receive school lunches are wasting it at an alarming rate with 48 of 50 states citing waste as a challenge (Harrington, 2014).

While the obesity crisis in children is alarming, one must carefully analyze the entire picture of children’s health and fitness before concluding, like a version of the board game *Clue* by Hasbro, that instead of the Butler, that the Lunch Lady did it. The complexity of childhood adiposity is especially significant in the field of physical education, where a balanced lifestyle, nutrition and physical activities should all work cohesively to fight childhood obesity (Petracovschi, 2012). Physical activity, structured by physical education and even often during free play or recess, is a complex behavior. In order for physical activity to have an impact on one’s adiposity, “the type, intensity, frequency and duration” must be evaluated. Interestingly, the two times during a child’s instructional day when he is most likely to have the opportunity for any type of physical activity are during lunch and after-school (Stanley, et al., 2014). With all of the mandated time allocated to physical activity paired with increased focus on a healthy lunch, one might question how there could possibly be a school facet to the childhood obesity epidemic.

However, with no federal law requiring that physical education be provided to students in the United States, the states are left to individually decide how to craft and finance their programs (“Shape of the Nation,” 2012). When researchers at the University of Illinois at Chicago conducted a nationwide survey, some surprising data was collected. Results from 1,761 schools and 690 districts, for every state except Hawaii, Alaska, and Wyoming, were collected and districts were ranked as strong or weak, according to the degree to which they enforced the state mandated physical education policies and practices at their schools or districts. Results indicated that the strong schools were nearly three times more likely to comply with the 150 minutes per week of physical education recommended by the National Association of Sports and Physical Education. Of great concern however, is the fact that most of the schools fell into neither category as they have no regulations regarding time spent in physical education (Rochman, 2011).

According to the 2012 “Shape of the Nation Report”, only six states; Illinois, Hawaii, Massachusetts, Mississippi, New York and Vermont actually mandate physical education at each grade level from Kindergarten through grade 12. Furthermore, the study showed that twenty-eight states permit exemptions for physical education. Given that physical activity is related to a variety of healthy life experiences, including reduced adiposity, improved cardiovascular function, decreased depression, as well as improved self-esteem and academic performance, one could easily infer that the school setting is an important tool upon which children would model their physically active lifestyle in the future (Morano, Coletta, 2012).

Moreover, as obesity continues from childhood to adult life, there is an increased risk to adults who were also obese as children. This includes an increased risk of mortality from multiple causes such as cardiovascular incident further impacting the lives of obese children who carry forward these negative health habits (Burke, 2006). Physical activity of children is clearly a critical component in any obesity prevention strategy and has subsequently garnered the attention of the World Health Organization (2010), which cites obesity as one of the most important risk factors for a variety of diseases such as diabetes, cardiovascular diseases and cancer (Morano, Coletta, 2012). Therefore, obesity in children has been identified as a crisis in public health with specific and targeted focus being on the following conditions (Burke, 2006).

* Atheroma: fatty streaks in the aorta, common in even three year olds.
* Blood pressure: associate with obesity and exacerbated by paternal hypertension.
* Endothelia function and intima: impaired function consistent with obese children.
* Left ventricular hypertrophy: evident in children and predictable within such population of adults.
* Dyslipidaemia: significantly increased triglycerides (unhealthy fats) and decreased high density lipoproteins (healthy fats) as compared to non-obese weight children.
* Metabolic syndrome and type 2 diabetes: decreased glucose tolerance and insulin resistance.
* Cardiovascular disease: greater adiposity in children is associated with an increased cardiovascular and all-cause mortality as adults.

Despite the alarming need for fidelity in maintaining a physical education program that meets the minimum daily activity recommendations, abundant evidence exists that these problems are exacerbated in high minority and socioeconomically depressed schools (Rossen, Schoendorf, 2012). Furthermore, it is estimated that 35% of children born since 2000 will develop adult onset diabetes ( Larson, 2012). In a joint study by researchers at the University of Maine and Cleveland State University, a four-fold approach was recommended which included the following:

* Nontraditional activities to make physical education more enjoyable.
* Opportunities during the school day for organized activities.
* School-sponsored before/after school physical activities.
* President’s Challenge

Unfortunately, outcomes from this study indicated that children from high minority, low socioeconomic status, are the least likely to benefit from the recommended initiatives. These students, specifically, attend schools that are less likely to have the financial means or programs to offer nontraditional activities either during or outside of school times. Therefore, many of these children from high minority areas in low socioeconomic status schools are less likely to meet recommendations for daily physical education, compounded with reduced access to neighborhood facilities and recommended enrichment programs outside of school (Beaulieu, et al., 2012).

According to the 2012 “Shape of the Nation” report, the U. S. Department of Health and Human Services Physical Activity Guidelines for Americans recommend “children and adolescents should engage in 60 minutes (1 hour) or more of physical activity daily.” Furthermore, the report specifies the following:

* Aerobic: most of the 60 minutes should be moderate or vigorous in intensity, aerobic physical activity.
* Muscle-strengthening: as part of the 60 minutes per day, at least 3 days should include muscle strengthening exercise.
* Bone-strengthening: as part of the 60 minutes per day, at least 3 days should be bone strengthening exercise.

Unfortunately, the study also revealed that less than one-third of children ages 6-17 engage in intense physical exercise for at least 20 minutes per day. Consensus has been reached with the American Academy of Pediatrics, the American Heart Association, the U.S. Department of Education, the President’s Council on Physical Fitness and Sport, and the Centers for Disease Control and Prevention. All support the need for quality physical education in schools to combat the rates of childhood obesity in the United States; however, little has been done to facilitate its implementation especially in high poverty, high minority settings where access to high quality programming is at a minimum among the population needing its implementation the most. An active and engaging physical education program paired with a healthy lunch could, perhaps, serve to begin to reverse the current trend where “students are skipping lunch and stopping by the minimart…to avoid eating the federally mandated foods that they hate” (Suddath, 2014).

Abundant research is evidenced that a key cause in obesity is a “prolonged positive energy balance, linked to unhealthy eating and lack of physical activity” (Morano, Colella, 2012). It therefore stands to reason that clearly healthy, but palatable foods with adequate energy producing nutrients are key, paired with an active lifestyle to stop the escalation in childhood obesity rates presently witnessed. Given that the adiposity in children is directly linked to risk factors for cardiovascular disease and a variety of other maladies (Burke, 2006) presented when sedentary lifestyles meet inadequate nutritional and needs, today’s children are faced with a frightening future.

As a result, school programs have now been taxed to play an even larger role in children’s lives. Paired with the urgent need to address escalating rates of childhood obesity with improved, balanced nutrition and enhanced physical education programming (NASPE, 2010), it has become the phenomenal role of the schools today to discover innovative ways to deploy positive strategies for not only learning, but longevity as well. Unfortunately, these challenges are met with a system characterized in “No Body Left Behind” by L. F. Wiley as “woefully underfunded.” Perhaps, with an expanded appreciation of the multifaceted, societal, and physiological problems associated with childhood obesity, additional education and support, extrinsic to the existing public school systems, will be realized as essential to enabling society to reverse this staggering obesity trend.

References

Beaulieu, L.; Butterfield, S.; Mason, C. A.; Loovis, E. M. (2012). Physical Activity and U.S. Public Elementary Schools: Implications for our Profession. *International Council for Health Physical Education, Recreation, Sport and Dance. Journal of Research, 43(1), 12-16.* Retrieved from ERIC database. (EJ973950)

Burke, V. (2006). Obesity in Childhood and Cardiovascular Risk. *Clinical and Experiential Pharmacology and Physiology. 33(9), 831-837.* doi: 10.1111/j. 1440-1681.2006.04449.x

Harrington, E. (2014, March 6). 1M kids stop school lunch due to Michelle Obama’s standards. *The Washington Times.* Retrieved from <http://www.washingtontimes.com/news/2014/mar/6/1m-kids-stop-school-lunch-due-michelle-obamas-stan/print/>

Larson, A. A., (2012). Childhood obesity in USA: A descriptive snapshot of current responses, disconnects, and what could hold promise for additional mitigation. *Movement & Sport Sciences, 78, 61-74. 10.* doi: 10.1051/sm/2012016

Morano, M.; Colella, D. (2012). Physical Activity for the Prevention of Childhood Obesity: An Overview of Key Research Challenges for Physical Education. *Acta Faculatis Educationis Physicae Universitatis Comenianae, 52(2), 49.* Retrieved from: connection.ebscohost.com/c/articles/86113419/physical-activity-prevention-childhood-obesity-overview-key-research-challenges-physical-education

National Association for Sport and Physical Education & American Heart Association. (2010). *2010 Shape of the nation report: Status of physical education in the USA.* Reston, VA: National Association for Sport and Physical Education.

Ogden, C. L.; Lamb, M. M.; Carroll, M. D.; Flegal, K. M.; (2010). Obesity and Socioeconomic Status in Children and Adolescents: United States, 2005-2008. *National Center for Health Statistics Data Brief, 51.* U.S. Department of Health and Human Services Center for Disease Control and Prevention. Retrieved from: <http://www.cdc.gov/nchs>

Petracovschi, S. (2012). Obesity and Gender Differences in the Physical Education and Sports Class and their Influence on Body Image. *Facta Universitatis: Series Physical Education and Sport, 10(3),* 193-201. Retrieved from: <http://factajunnis.ni.ac.rs/pe/pe201203/pe201303-0>

Rochman, B. (2011, December 7). Childhood Obesity: Most U.S. Schools Don’t Require P.E. Class or Recess. *TIME.* Retrieved from: <http://healthland.time.com/2011/12/07/childhood-obesity-most-u-s-schols-dont-require-p-e-class-or-recess/print/>

Rossen, L. M.; Schoendorf, K. C. (2012). Measuring health disparities: trends in racial-ethnic and socioeconomic disparities in obesity among 2- to 18-year old youth in the United States, 2001-2010. *Annals of Epidemiology.* 698-704. doi: 10.1016/j.annepidem.2012.07.005

Schanzebach, D. W. (2009). Do School Lunches Contribute to Childhood Obesity? *The Journal of Human Resources.* 44(3). 684-709. Retrieved from: jhr.uwpress.org/content/44/3/684.refs

Stanley, R. M.; Ridley, K.; Olds, T. S.; Dollman, J.; (2014). Increasing Specificity of Correlate Research: Exploring Correlates of Children’s Lunchtime and After-School Physical Activity. *PLoS ONE*. 9(5): e96460. doi: 10.1371/journal.pone.0096460

Suddath, C. (2014, August 21). Tossing the First Lady’s lunch. *Businessweek.* Retrieved from: [www.bloomberg.com/bw/articles/2014-08-21/school-districts-avoid-nutrition-rules-by-shunning-federal-funds](http://www.bloomberg.com/bw/articles/2014-08-21/school-districts-avoid-nutrition-rules-by-shunning-federal-funds)

Wiley, L. F. (2014). “No Body Left Behind”: Re-Orienting School-Based Childhood Obesity Interventions. *Duke Forum for Law and Social Change.* 5(1), 97-128. Retrieved from: <http://scholarship.law.duke.edu/dflsc/vol5/iss1/5>