

A Perfect Storm: An Analysis of the American Youth Obesity Epidemic

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It is our hope that the readers of *Iron Game History* will see this article for what we believe it is—an objective analysis of something that lies at the heart of physical culture. In order to build strength, to enhance muscle size, to improve endurance and cardiovascular fitness, and to live a long, full life it is important—if not essential—to remain healthy. Health lies at the core of the physical culture life, and it is almost impossible for a person who is either obese or significantly overweight to maintain health and the vigor that goes with it. There was a reason why the British magazine was called *Health and Strength* and why the American magazine was called *Strength & Health*. Health and strength cannot, and should not, be separate. Baker Harrell is a Ph.D. student at the University of Texas, and the following article reflects some of the research he has been doing for his dissertation. We suspect that most of you will nod your heads in agreement as you read what he has written, but we also suspect that you will shake your heads in shock as you realize the full extent of this problem and at how suddenly it has overtaken our culture.

—Terry Todd



Since the 1970s, the American political, economic, environmental, and cultural landscapes have changed in dramatic, unprecedented ways. As part of these changes, we, as a nation, have become increasingly sedentary, increasingly obese, and increasingly dependent upon those mediums and products which provide us quick and accessible “fixes.” More than ever, we live second-to-second and day-to-day in a world that values “fast” over “healthy,” “digital” over “real,” and “high scores” over “play.” No group lives in this world more than America’s children and adolescents.

In the last twenty-five years, the number of overweight and obese preschoolers ages two to five and adolescents ages twelve to nineteen in the U.S. has doubled, while the number of overweight and obese children ages six to eleven has more than tripled.¹ The Centers for Disease Control (CDC) has even labeled childhood

obesity an “epidemic.”² In a 2006 article, John Cawley writes, “The problem for researchers is not figuring out what could have caused the rise in childhood obesity; the problem is that too many things could have caused it.”³ This statement reveals both the complexity of the U.S. youth obesity epidemic and the persistent gaps in the scientific community’s understanding of the factors which contribute to the disease.

The quest to better understand the root causes of the U.S. youth obesity epidemic is, at best, a frustrating one. The current dearth of data, the quality of that data, and the often contradictory research that has produced the data make a definitive judgment about the etiology of the U.S. youth obesity epidemic an impossibility. Nevertheless, a review of the potential and identified causes is an important step in developing solutions for the health crisis. In an attempt to provide a more holistic analysis of the rapid growth of the disease over the last thirty years, this article will focus on the leading cultural, economic, environmental, and political changes that have together created the conditions for obesity’s “perfect storm.”

Eye of the Storm

The choice of the word “epidemic” by the CDC to describe the problem of youth obesity is well-intentioned, but is a poor choice. What this country faces is not an epidemic; it is a cancer. The cancer that is adolescent obesity did not occur like the outbreak of a highly communicable disease, as the term “epidemic” implies. Rather, the prevalence of youth obesity in the U.S. began as a slow-moving wave in the 1970s and rapidly gained momentum in the 1980s. Over these years, our nation grew increasingly motionless, living within a digital reality and addicted to fast food, sugary beverages, and larger portion sizes. The CDC is right, of course, in sensing that the problem of childhood and adolescent obesity has reached epidemic proportions. However, the word “epidemic” implies a sense of finality to the degree that one is left with the sense that the situation is as bad as it has ever been (which is true) or will ever get (which is completely false). This, in turn, leads

to a false perception that all we must do is find a cure, apply the cure, and sit back while the problem disappears.

Before a discussion of the contributing factors to this American “cancer” can take place, however, it is first necessary to outline the ways in which the U.S. defines and assesses youth “overweight” and “obesity.” The terms obesity and overweight are often used interchangeably. The two classifications, however, are not the same. Overweight refers to an increase in body weight above an arbitrary standard, whereas obesity refers to an abnormally high proportion of the body composition as body fat.

Because children and adolescents mature along a spectrum of chronological age, assessments of youth overweight and obesity are more difficult than evaluations of adults. The Body Mass Index (BMI) is the most widely used method for assessing whether youth are overweight as it requires minimal equipment, measurements, and calculations. In children and adolescents, BMI is assessed by dividing a person’s weight in kilograms by his or her height in meters squared; the resulting value is then compared to baseline percentages based on gender and age. BMI’s major limitations are a result of its primary strength—its simplicity. Researchers have been unable to demonstrate BMI’s ability to precisely distinguish weight from adiposity. What’s more, very short and very tall individuals, as well as individuals with inordinate amounts of lean muscle-mass—like bodybuilders—are often classified as overweight or obese in error. BMI for adults is not based on baseline age percentages; instead a baseline score of twenty-five is used. The established “age norms” for children, however, are often imprecise due to the physiological changes that occur concurrent with the maturation process and which differ from child to child.

The classifications of overweight and obese for youth are further confounded by the way in which the CDC defines the terms. Unlike adults, the CDC defines those children and adolescents between the eighty-fifth and ninety-fifth percentile of BMI for age and gender as



Sitting on the sidelines happens all too often for overweight and obese children who are often fearful and embarrassed to participate in sports and exercise, thus perpetuating their weight problems. They are also more likely to be psychologically isolated, have lower levels of self-esteem than children and teenagers of normal weight, and are much more likely to become obese and unhealthy adults.

“at-risk-of-overweight” (the adult classification for this range is overweight) and those children or adolescents above the ninety-fifth percentile of BMI for age as “overweight” (the adult classification for this range is “obese”).⁴ The CDC uses these terms to avoid labeling children or adolescents as “obese” for fear of stigmatizing them.⁵

Although well-intentioned, the CDC’s classifications for children and adolescents often lead to conflicting reports about the prevalence of “childhood obesity” in the U.S. If one uses the CDC’s definitions, the percentage of “overweight” children and adolescents in the U.S.—sixteen percent—appears worrisome, but is in no way worthy of the “epidemic” label. When, however, the “at-risk-of-overweight” group of children and adolescents is combined with the “overweight” group, the number rises sharply to thirty-one percent.⁶

Beyond the potential for confusion that the CDC’s classifications cause, many researchers point out that the CDC definitions are not only inaccurate, but that they belie the seriousness of the disease within each classification. As such, most researchers use the same classifications for children as those for adults. In a report to the International Obesity Task Force, William Dietz and Mary Bellizzi concluded that the CDC’s definitions of overweight and obese for adults are consistent with the respective BMI ranges for youth and, thus, should be used in lieu of the CDC’s standard youth classifications.⁷

This article will do as Dietz and Bellizzi suggest in applying the term overweight to those children and adolescents within the eighty-fifth and ninety-fifth percentile of BMI for age and gender. Moreover, the term “obesity” will pertain to those children and adolescents with a BMI for age and gender above the ninety-fifth percentile.

Despite the problems with the multiple definitions of the disease, the speed at which the disease has gained ground within the U.S. youth population and the crisis this disease represents for the future of the country are undisputable. In the U.S., youth overweight and obesity are tracked by the National Health and Nutrition Examination Survey (NHANES), which began in 1971.⁸ According to the NHANES 1971-1974 survey, approximately five percent of American youth were obese. Between the years 1976 and 1980, the number of obese youth was only marginally higher. By 1994, the number of obese youth in the U.S. had nearly doubled. The 2002 NHANES revealed that fifteen percent of U.S. youth were obese and another sixteen percent were overweight.⁹ According to Dr. William J. Klish of Texas Children’s Hospital, today’s youth are the first generation in one-hundred years to have a lower projected life expectancy than their parents.¹⁰

In a recent article, Patricia Anderson and Kristin Butcher reported that overweight and obesity rates in the U.S. are higher among minority and low-income youth than among youth as a whole.¹¹ In a slightly earlier study, researchers found that 42.8% of Mexican-American boys and young men, ages six to nineteen, were overweight or obese, as compared to thirty-one percent of African-American, and 29.2% of Caucasian boys and young men.¹² Richard Strauss and Harold Pollack also concluded in 2001 that African-American and Hispanic youth were more likely to be overweight or obese than Caucasian children.¹³

Obesity is a primary predisposing factor for chronic diseases such as hypertension, Type II diabetes mellitus, and coronary heart disease. In 2000, obesity and physical inactivity accounted for an estimated 365,000 deaths in the U.S.; in addition, obesity is a leading factor for the nation’s number one killer—heart disease.¹⁴ Numerous studies also link youth obesity to an increase in the incidence of Type II diabetes.¹⁵ In a 1999 study, Freedman, et al. determined that overweight and obese youth are at much greater risk for several cardiovascular disease risk factors.¹⁶ According to a 2005 report published by the Institute of Medicine, sixty percent of obese children, aged five to ten years, had a min-

imum of one cardiovascular disease risk factor and twenty-five percent demonstrated two or more risk factors.¹⁷ A 2003 study determined that a severely obese youth was 5.5 times more likely to have an impaired health-related quality of life as compared to a normal-weight youth.¹⁸

In addition to the numerous physiological complications associated with obesity, the negative psychosocial effects of the disease are many. In a 2003 study, researchers determined that overweight and obese adolescents are more likely to be socially isolated and peripheral to social networks than peers who have normal weights.¹⁹ Moreover, children and adolescents with chronic diseases such as obesity are at twice the risk of experiencing behavioral and social problems when compared to their peers.²⁰ Richard Strauss found that, on average, obese adolescents reported lower levels of self-esteem than normal-weight youth, and the obese adolescents with lower self-esteem demonstrated significantly increased degrees of sadness, loneliness, and nervousness.²¹ In a 2001 book, Jana Parizkova and Andrew Hill wrote that obese individuals generally report a fear of participating in sports, recreational activities, and other social activities. It is for these reasons, Parizkova and Hill claim, that overweight or obese youth often avoid physical activity, which only serves to perpetuate their unfavorable conditions.²²

As one might expect, the “boom” of overweight and obese children in the 1980s led to a rapid increase in the number of overweight and obese adults in the United States. Research suggests that obesity which begins in childhood is more severe than that which begins in adulthood because of the longer timeframe in which an individual carries additional body fat and his or her consequent increased risk of co-morbidity and enhanced mortality.²³ Whitaker et al. determined that fifty-two percent of children who are obese between the ages of three and six will be obese at age twenty-five, compared to only twelve percent of their normal-weight peers.²⁴ In another study, Guo and Chumlea determined that the probability of youth obesity persisting into adulthood increases from nearly twenty percent at age four to between forty and eighty percent at adolescence.

In an editorial for a February 1999, edition of *American Family Physician*, Dennis Styne, professor in the Department of Pediatrics and Director of Pediatric Endocrinology at the University of California at Davis, wrote:

The increase in childhood obesity in

the U.S. is not caused by a change in the gene pool, but rather by changes in the environment that have caused genetically susceptible populations to express the obesity phenotype in increasing numbers. For many reasons, including fewer mandated physical education programs in school, lack of safe areas to exercise and play in many inner-city neighborhoods, and the ever-present television set, physical activity levels are lower now than they were twenty years ago.²⁵

These “many reasons” are what this article will now explore and we start with an analysis of changes within the school environment.

Recess Takes a Time-Out

Unfortunately, there remains a shortage of reliable research on the ways in which the school environment may have contributed to the rise in youth overweight and obesity. The research that does exist falls primarily into three categories: A) trends in participation rates by students in physical education classes; B) school lunch and vending trends, and; C) trends in the provision of recess. Of the three categories of research, the “vending trends” category is the most robust in terms of raw data.

In a 2003 study, French and colleagues found a three percent increase in the share of soft drinks served in school cafeterias between the years 1977-1978 and 1994-1998. They also noted a forty-eight percent increase in the share of soft drinks consumed by students from vending machines over that same period of time.²⁶ In a 2003 report, researchers found that seventy-three percent of high schools, fifty-eight percent of middle schools, and forty-two percent of elementary schools had exclusive “pouring contracts” with soft drink manufacturers; these agreements allowed manufacturers to place vending machines within the school grounds in exchange for revenue sharing between the school and manufacturer. Forty-six percent of the high schools, twenty-nine percent of the middle schools, and thirteen percent of the examined elementary schools allowed these manufacturers to advertise to students.²⁷

Using the Youth Risk Behavior Surveys (YRBS), the primary source of data on U.S. physical education participation rates, conducted between 1991-1997, Lowry et.al. found significant decreases in the number of high school students who attended daily physical education (down from 41.6% to 27.4%). A sharp

drop-off was also shown in terms of the percentage that participated in more than twenty minutes of moderate to vigorous activity during daily physical education classes (down from 34.2% to 21.7%).²⁸ More recent data from a 2004 survey by the CDC supported these findings.²⁹

A 2000 report by the CDC demonstrated that 71.4% of elementary schools provided “regularly scheduled” recess for kindergarden to fifth grade students.³⁰ In a report issued the following year, it was noted that forty percent of elementary schools had reduced, deleted, or had considered terminating recess since 1989, when ninety percent of elementary schools had some form of regularly scheduled recess.³¹ As will be discussed, it is not just the school environment that has changed over the last few decades. Home environments have also undergone significant shifts in the last thirty years.

The Meltdown of the Nuclear Family

From 1960 to 2000, the number of single-parent families with children under eighteen grew from 8.2% to 27.1%.³² This is a significant statistic, as was demonstrated in a 1999 study, in that children in homes with single mothers are at a significantly greater risk for becoming overweight or obese compared to children in two-parent homes.³³ In a related issue, a 2004 report revealed that over the last thirty years the number of women (with children younger than age eighteen) participating in the labor force grew from forty-seven percent to seventy-two percent, with the most significant rise among mothers with children younger than three years.³⁴ This shift, which includes an increasing number of married women with children under the age of one entering the labor force (thirty-one percent in 1975 to fifty-five percent in 2003) may have resulted in the increased prevalence of youth obesity: first, because of more meals being consumed away from home and, second, because there were more children who required child care.³⁵

In a 2004 study, Roland Sturm found that for the entire U.S. population, the number of daily minutes dedicated to preparing meals declined from forty-four minutes in 1965 to thirty-two minutes in 1999.³⁶ A 1999 report revealed that the total share of calories consumed away from home rose from eighteen percent to thirty-four percent between the years 1977 and 1995.³⁷ In another study, Lin and Guthrie determined that between 1994 and 1996, children consumed thirty-two percent of their calories away from home.³⁸

Story and colleagues found in 2006 that thirteen million of the twenty-one million pre-school children in the U.S. “spend a substantial part of their day in

child care facilities.”³⁹ Moreover, the Children’s Foundation and National Association for Regulatory Administration estimated that the number of child care facilities in the U.S. grew from 25,000 in 1977 to more than 116,000 in 2004.⁴⁰ In a 2003 study, Smolensky and Gootman determined that employed mothers of children aged five and younger have their children in child care for an average of nearly forty hours a week.⁴¹ Unfortunately, little scholarship has been done regarding the quality of food offered at these child care facilities.⁴² Kranz and colleagues, in a study of a nationally representative sample of children aged three to five between the years 1977 and 1998, found that total energy intake increased, along with the consumption of excess juice and added sugars. Also, while the consumption of grains, fruits, and vegetables also improved, they fell far below recommended quantities.⁴³

More is known, however, about the amount of physical activity in which individuals in child care facilities are engaged. A 2004 study determined that many children in pre-school settings are not receiving the recommended two hours of daily physical activity and that youth in these settings need more play and exercise.⁴⁴ These findings are significant because, as was noted by Cubed in a 2002 report, the number of U.S. children aged four and younger is, in the next decade, expected to grow by six percent, which equates to an increase of 1.2 million children. Accordingly, the number of working parents dependent upon child care is also expected to rise.⁴⁵

Big Gulps in a Fast Food Nation

John Cawley, citing a report by the U.S. Bureau of Labor Statistics, writes:

A quick comparison of the various consumer price indexes indicates that between January 1989 and January 2005, the real price of fruits and vegetables rose 74.6% while that of fats and oils fell 26.5% and that of sugars and sweets fell 33.1%. Thus energy dense foods have become considerably cheaper, relative to less energy-dense foods in the past 15 years.⁴⁶

Drewnowski and Specter, in a 2004 article, support Cawley’s findings. Like Cawley, they find that energy-dense foods are much cheaper than foods that are low in energy density.⁴⁷ Lakdawalla and Philipson, in a 2002 report, make the case that the decline in the relative price

of food over the last twenty years has resulted in people eating more which has, in turn, led to increased obesity.⁴⁸

Of the myriad categories of “energy-dense” consumables, regular (non-diet) soft drinks and fast foods have demonstrated the most significant link to youth overweight and obesity. In a 2004 study, James and colleagues demonstrated that a reduction in the consumption of regular sodas by a sample of children aged seven to eleven resulted in a reduction of the number of overweight and obese participants.⁴⁹ In a 2003 article, French and colleagues chronicled the consumption of regular soft drinks by children between the years 1977-78 and 1994-98. They found that the average intake of regular soft drinks by children more than doubled, from five to twelve ounces a day.⁵⁰ Likewise, Gleason and Suitor, in a 2001 report, documented that children aged nine and older are heavy consumers of regular soft drinks. They noted that by age fourteen, thirty-two percent of young women and fifty-two percent of young men consume at least three servings of regular soft drinks each day.⁵¹

In the preceding section, the dramatic increase in the number of calories and meals consumed away from home was noted. In a 2003 study, Paeratakul and colleagues found that those people consuming fast food meals experience higher energy intake with lower nutritional values than those individuals not consuming fast food.⁵² Bowman and colleagues, in a 2004 study, come to a similar conclusion. They found that children who eat fast food, as compared to those who do not, consume more total calories, more calories per gram of food, more total fat, more total carbohydrates, more sugar-sweetened beverages, more added sugars, less milk, less fiber and fewer fruits and non-starchy vegetables.⁵³ Moreover, in a longitudinal study of girls aged eight to twelve, Thompson and colleagues concluded that those participants eating fast food a minimum of two times a week had larger weight gains at the end of the three-year study.⁵⁴

But it is not only the frequency of the consumption of fast food that has led to the increases in youth overweight and obesity. With the fall of the relative price of food, the ability of vendors to provide larger and larger portions became a reality. In a 2002 study, Young and Nestle document the increases in portion sizes that have occurred in the U.S. from the 1970s to the late 1990s. For 181 products, Young and Nestle report a sixty percent increase in portion sizes.⁵⁵ Rolls and colleagues, in a 2000 study, found that individuals as young

as five would eat more if offered larger portion sizes.⁵⁶

It was the promotion of those low prices and ever-increasing quantities that developed a significant youth market for these energy-dense products. These promotions drove the youth market to demand and consume more and more of these calorie-laden foods and beverages. In a 1999 report, Anthony Gallo reveals that, the food industry spent seven billion dollars on advertising in 1997—second only to the automobile industry.⁵⁷ Harris and colleagues, in a 2002 report, document the increase in spending for the advertising of soft drinks from \$541 million in 1995 to \$799 million in 1999—an increase of nearly fifty percent. As a contrast, Harris and colleagues point out that overall food advertising increased only twenty percent, from \$9.8 billion to \$11.6 billion, during the same time period.⁵⁸

Kunkel estimates that the number of television commercials viewed by U.S. children doubled from nearly twenty thousand in 1970 to forty thousand by the year 2000.⁵⁹ During this same time period, the length of the average commercial had decreased, thus exposing children to a greater number of commercials within a more compressed amount of viewing time.⁶⁰ In a 1995 article, Taras and Gage reported eleven percent more commercials per hour of children's programming than in 1987.⁶¹ In a 2003 report, Hastings and colleagues conclude that the trend among advertising to children is a near total reduction in advertisements for fruits and vegetables and a rapid increase in the numbers of advertisements for fast food, soft drinks, snacks, and breakfast cereals.⁶²

With the discussion of advertising, it is appropriate that we now turn our attention to the ways in which the media—especially television, the internet, and video games—have contributed to the youth obesity epidemic. As the title of the next section (a play on the popular, online game *Second Life*) suggests, modern young people straddle two realities: one real and one virtual. Increasingly, it seems, the virtual, digitally-mediated world is where children are spending their leisure time, rather than in active play.

Second Lives

In a 1999 Kaiser Family Foundation report, Roberts and colleagues chronicle the dominance of television over the last thirty years. They report that in 1970, thirty-five percent of homes had more than one television set, six percent had three or more sets, and only six percent of sixth grade students had a set in their bedroom. By the year 1999, things had dramatically

changed. Eighty-eight percent of families had more than one television set by then, sixty percent had three or more sets, and seventy-seven percent of sixth grade students had a set in their bedroom.⁶³ Despite the proliferation of television sets during this period, the amount of television being watched by children actually decreased. A 2001 study, for example, revealed that the amount of weekly television viewing fell four hours between the years 1981 and 1997.⁶⁴ According to Nielsen Media Research data, children aged six to eleven in 1982 watched twenty-four hours of television weekly. Female teens averaged nearly twenty-one hours of weekly television and male teens averaged twenty-four hours. By 1999, though, weekly television viewing for both groups had fallen to 19.7 hours.⁶⁵

The decline in television viewing in these years, particularly the mid-1990s, resulted from youth substituting other forms of media. The Roberts 1999 report found that children spent 19.3 hours a week viewing television, another 2.5 hours in front of the computer, and 2.3 hours playing video games.⁶⁶ Furthermore, Vandewater and her colleagues revealed that even the youngest of children are becoming heavy media consumers. In her 2007 study she found that seventy-five percent of children up to six years of age watch television for an average of eighty minutes a day, and thirty-two percent of those same children average an additional eighty minutes of video or DVD viewing in a typical day. They also found that twenty-seven percent of children aged five to six use a computer for fifty minutes a day. Finally, they found that twenty percent of children up to the age of two, and thirty-three percent of children aged three to six, have a television set in their room.⁶⁷

Also worth noting is the modern dominance of video game consoles, even over computers, among children and adolescents. In 1999, thirty percent of boys and seventeen percent of girls owned at least one video game console. By 2004, sixty-three percent of boys and thirty-three percent of girls owned at least one video game console. Television sets owned by boys during the same time period only increased by two percentage points while for girls the number actually decreased by six percentage points. Computers owned by boys during this period increased from twenty-two percent to thirty-five percent, while ownership decreased by a single percentage point, from twenty-seven percent to twenty-six percent, for girls.⁶⁸ When looking at the rapid increase in popularity of video games among youth, it is no wonder then that the video game industry—with \$12.5 billion in sales in 2006—surpassed the movie industry's \$9

billion in total box office sales.⁶⁹

The discussion of media's dominance in the lives of modern youth is an important one because of the link between sedentary behaviors and overweight and obesity. In their groundbreaking study, Dietz and Gortmaker determined that each additional hour of television viewing per day increased the prevalence of childhood obesity by two percent.⁷⁰ Thomas Robinson, in a 1999 study, confirmed the results of Dietz and Gortmaker's study. He found that a reduction in children's television viewing lowers their BMI.⁷¹ In a 2004 study, however, Vandewater and colleagues collected data that contradicted the studies of Dietz and Gortmaker, and Robinson. Vandewater and colleagues found that video game usage was related to children's weight status while television viewing was not. They also noted that children with higher weight status spent more time involved in sedentary activities than their normal-weight peers.⁷²

Researchers are nearly unanimous in stating that increased amounts of sedentary activity (the kind of activity so often associated with media consumption) accompanied by higher caloric intake leads to increases in adiposity and weight status. But it is not merely the changes in media consumption that have led to the increases in sedentary activity among youth. Larger environmental changes have also played a significant role in the way in which youth interact with their world.

Built for Big

In a 2006 article, James Sallis and Karen Glanz define the "built environment" as "the neighborhoods, roads, buildings, food sources, and recreational facilities in which people live, work, are educated, eat, and play."⁷³ Their definition includes the environments of home and school, which we have already explored. For this section, the focus will be limited to two primary components of the "built environment": transportation routes and neighborhood composition.

In a 2002 report, Ewing and colleagues document the urban sprawl that has occurred in the U.S. in recent decades. They determined that urban sprawl increases automobile travel and as sprawl has expanded, so too have the number of vehicle miles the average person travels on a regular basis.⁷⁴ Hu and colleagues, in a 2004 report, found that the number of daily vehicle miles traveled per household was fairly consistent at thirty-three between the years 1977 and 1983. By 1990, the number had increased to forty-one daily vehicle miles and in 2001, the number reached fifty-eight.⁷⁵

Closely related to the number of daily vehicle

miles is the subject of how children travel to school. In a 1999 report, Corless and Ohland concluded that between the years 1977 and 1990 the percent of trips to school by bicycle or foot by students had fallen from 15.8% to 14.1%. In 1995, the percent of trips to school by bicycle or foot by students had dramatically decreased to 9.9%.⁷⁶ The decline in the amount of walking and cycling to school by students is an important statistic to track because research demonstrates that both activities require substantial energy expenditure by students.⁷⁷ Other research has shown that children who walk to school are, overall, more physically active than those who do not.⁷⁸

A 2003 report completed by Russonello confirmed the findings of Corless and Ohland. In 2002, Russonello surveyed a nationally representative sample of parents. He found that fifty-three percent of school-aged children were often driven to school by their parents and thirty-eight percent rode the school bus. Only seventeen percent of the children sometimes walked to school and five percent rode a bike to school.⁷⁹ Among the parents surveyed who reported driving their kids to school or putting them on the bus, the most common response (sixty-six percent) as to why their children did not walk or ride their bike to school was that the school was too far away.⁸⁰ Finally, as a pure example of the urban sprawl phenomenon previously discussed, seventy-one percent of all parents participating in the survey reported walking or biking to school as children.⁸¹

Research on the composition of neighborhoods may partially explain why youth obesity is more prevalent among low income and minority populations. In a 2004 study, Estabrooks and colleagues found less access to fitness clubs, parks, sports fields, and walking and biking trails in low-income neighborhoods as compared to more affluent ones.⁸² Gordon-Larsen and colleagues, in a study conducted in 2006, also found that recreational facilities which promoted physical activity were less common among minority and low-income populations. They noted that the availability of just one such facility per census block group is related to a five percent decrease in the probability of overweight among the group.⁸³ In a 2000 study, Sallis and colleagues determined that youth with easy access to recreational facilities are more physically active than those without access.⁸⁴

The perceived safety of a neighborhood may also influence whether parents encourage their children to be active outdoors. Timperio and colleagues, in a 2004 study, found that the way people in a neighborhood

perceive the environment can affect the degree to which children regularly walk and cycle.⁸⁵ They demonstrated that in settings with heavy vehicle traffic (as is often the case in many dense, urban neighborhoods), children are less likely to walk.⁸⁶

The effect of the built environment upon physical activity is just one side of the coin; the built environment also influences the way in which residents consume. In a 2002 study, Morland and colleagues discovered that supermarkets were less common in low-income and minority neighborhoods.⁸⁷ This finding is important because recent research has linked availability of supermarkets with fruit and vegetable intake among African-Americans.⁸⁸ What's more, Block and colleagues, in a 2004 study, found higher fast-food restaurant density in minority and low-income neighborhoods.⁸⁹

In summary, the many disparate and interrelated factors associated with the U.S. youth obesity epidemic make comprehensive research on the issue a daunting task. Though intimidating, the work is critical if effective preventative measures are to be developed, implemented, and tested. The future viability of our country hangs in the balance. As a society, we must all commit to end the cancer of obesity if we are to save generations of young people from a life that will be less active, less socially satisfying, and significantly shorter.

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