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It's Not Just Genetics

By Bryan Walsh

Safety Community Environment Education Race Income Diet Neighborhood Poverty

You're a native-American baby born into the Oglala Sioux tribe, living on the Pine Ridge reservation in South Dakota. There are a lot of things that are going to make life a challenge for you, but one of the most perilous will be your weight. Chances are very good that your parents already have a weight problem; obesity is rampant in the 30,000-member community, and half the residents over the age of 40 have Type 2 diabetes. Their genes--and yours, of course--are part of the problem: researchers theorize that Native Americans have a higher than average tendency to gain and store weight, a protection in times of famines past but a risk factor in an America of caloric abundance.

Even without this so-called thrifty gene, you'd face an uphill battle to stay trim. Like many Americans in rural areas, the poorer Oglala Sioux have far less access to fresh fruits and vegetables than those in more connected settlements. This means you're likely to be filling up on high-calorie, processed foods, especially since fatty foods are cheaper than healthy ones, and your family--like more than half the families on the reservation--is probably poor. What's more, the calories you consume stick around, since you're not doing much to burn them off. Your school is probably too far away for you to reach it on foot. Playmates may be similarly distant. And don't even think about parks or playgrounds--multiple studies over the past several years have shown that low-income communities tend to have fewer recreational areas. Though it's all outside your control, nearly every aspect of your environment is pushing you toward gaining weight--which is why 43% of Native-American 5-year-olds in South Dakota are overweight or obese.

You're a Caucasian baby born in Boulder, Colo., and it's hard to count all your advantages in the good-health game. Chances are better than average that your parents are a healthy weight--only 11.9% of Boulder County residents are obese, compared with more than 30% for the U.S. as a whole. Colorado has the second lowest childhood overweight rate in the U.S., according to one survey. You live in a town blessed with parks and rugged natural beauty, where physical activity is all but mandatory and 14 triathlons were held last year--including one for kids as young as 3. But Boulder, with a population of more than 90,000 people, is large and dense; if you live in town, you can probably walk or bike to school. Chances are your family is at least middle class--the median income in Boulder County is significantly higher than the U.S. average. That means your parents can afford to shop at the many health-food stores in the city, where the organic chain Whole Foods moved its regional headquarters last year. Nearly every aspect of your environment is pushing you toward maintaining a healthy weight.

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It's no secret that the U.S. has a crippling weight problem and that our children are hardly exempt. Rising obesity threatens to condemn a significant share of the next generation to a lifetime of weight-related disease, overburdening the already struggling U.S. health-care system. Though a recent study by Centers for Disease Control and Prevention (CDC) researchers found that childhood-obesity levels may finally have leveled off, more than 30% of American schoolchildren are still overweight, with little indication that rates will drop anytime soon. The CDC defines as overweight those children with a body mass index (BMI)--a rough factoring of height and weight--higher than the 85th percentile of figures from the 1960s and '70s, before the obesity epidemic hit. Obesity is defined as the 95th percentile. That's far from healthy. "The childhood obesity epidemic is a tsunami," says David Ludwig, an obesity researcher at Children's Hospital in Boston and the author of *Ending the Food Fight*. "We can see the wave heading toward shore."

This tsunami, however, is a highly selective one. It discriminates by race: according to the CDC's 2006 figures, 30.7% of white American kids are overweight or obese, compared with 34.9% of blacks and 38% of Mexican Americans. It discriminates by income: 22.4% of 10-to-17-year-olds living below the poverty line--less than \$21,200 for a family of four--are overweight or obese, compared with 9.1% of kids whose families earn at least four times that amount.

It discriminates, perhaps most tellingly, by geography, with 16.5% of rural kids qualifying as obese, compared with 14.4% of urban kids, according to the 2003 National Survey of Children's Health. The poorest states of the South and Appalachia--Arkansas, West Virginia, Mississippi and Kentucky--have the heaviest children. Adult obesity levels triple when you cross north of 96th Street in Manhattan, leaving the mostly white and well-off Upper East Side for the predominantly minority, poorer neighborhood of Spanish Harlem. Even in trim Colorado, there are obesity hot zones.

All that provides a new way to look at--and attack--obesity. We tend not to talk about a problem like body weight in the language of infectious disease, but scientists do, knowing that like any other epidemic, the U.S.'s obesity scourge hits some communities harder than others. The skyrocketing increase in childhood obesity--the percentage of 6-to-11-year-olds classified as obese has nearly tripled since 1980--may argue strongly that the American environment has changed in a way that makes gaining weight much less avoidable. But the uneven distribution of the problem argues that who you are, where you are and how much your family has in the bank have a lot to do with whether your child will be claimed by the crisis or emerge unharmed.

"The environment makes it easier or harder for healthy choices to be the default choices," says Risa Lavizzo-Mourey, president of the Robert Wood Johnson Foundation, which last year pledged \$500 million to end the rise in childhood obesity by 2015. "And adults create the environment that kids live in."

The geography of childhood obesity is largely the geography of poverty. There's no pretending that the problem--and resultant disparities in income, education and opportunity--will be easy to address, but there's no denying that it's imperative that we try. "It's the poorest and most deprived neighborhoods that suffer the most," says Adam Drewnowski, director of the nutritional-science program at the University of Washington. "This has to be

fixed."

The Front Lines

Ludwig's clinic at children's hospital, Optimal Weight for Life, offers a glimpse of the diversity of childhood obesity in the U.S. The clinic straddles the border between the wealthy neighborhood of Brookline and the poorer areas of Roxbury and Dorchester, and Ludwig's patients--black, white, Hispanic--are drawn from around the city. Ludwig's unique weight-control program focuses on the glycemic index of his patients' diets, attempting to reduce the sharp ups and downs in blood-sugar levels that he believes encourage children to overeat. That means cutting back severely on the highly processed carbohydrates that make up the backbone of the diet of too many kids. A first-time trip to the clinic includes a visit with a nutritionist, who listens as parents detail what a child has eaten over the past couple of days--and then informs them that almost all of it will have to go, to be replaced by lots of whole grains, fresh fruits and vegetables. "It can be challenging," says Suzanne Rostler, a top nutritionist at the clinic.

On a recent visit to Children's Hospital, 38-year-old Rachel (who, like many parents at this and other weight-loss clinics, prefers to use first names only with outsiders in order to protect her child's identity) listened to the changes she'd have to make in her 4-year-old son's diet and seemed a little daunted. "I'm still trying to process it all," she said a few days later. But Rachel's child is more fortunate than many of Ludwig's patients. The family lives in Brookline--in fact, right next to a Whole Foods store--so buying the healthy staples of a new and better diet wouldn't be that difficult. (Weaning her son off the snack food Pirate's Booty, she admitted, might be another story.) But not everyone is so fortunate, like a patient who visits soon after, an 11-year-old African-American girl. Her father works days, and her mother works nights; trying to find the time and budget to search out and prepare healthier food was clearly going to be harder for this family. "It's not impossible, but it's absolutely tougher for the family from the inner city where the parents are working two jobs," says Ludwig. "These are the trenches in the war against obesity."

For all the thousands of books published on obesity, body weight is the result of a pretty simple equation: calories taken in vs. calories expended. Over the past few decades, the entire American environment has become much more obesogenic, or obesity-supporting. Think of the ever increasing supply of fast-food outlets, where meal sizes have ballooned, or the fact that simple physical activity has been largely eliminated from the daily lives of children, who ride in cars where their grandparents might have walked and entertain themselves with an array of sedentary electronic pastimes that didn't even exist a generation ago. It shouldn't be surprising that many overfed, underactive kids lose the battle with their weight. "The environmental factors are much more compelling toward obesity than they were 30 years ago," says William Dietz, director of the division of nutrition and physical activity at the CDC.

It's the lack of good food choices that appears to play the greatest role in making poor kids fat, and the problem goes beyond parents' simply not having enough time away from the job to shop and cook. Often the healthiest foods--vegetables, fruits, whole grains--just aren't available. Many obese children live in what are called

nutritional deserts, where there are few nearby supermarkets offering the produce nutritionists recommend. Instead, families may rely on corner delis and bodegas, which tend to stock fattening, processed food, in part for economic reasons: processed foodstuffs are cheaper and can sit on shelves indefinitely. (Between 1989 and 2005 the real price of fruits and vegetables rose 74.6%, while the price of fats fell 26.5%.) Supermarkets, where better choices are found, are three times as common in neighborhoods that are in the highest quintile of income as they are in communities in the lowest quintile. "What good is it to tell people they need to eat fresh produce if you have to take three buses to get apples?" asks Drewnowski. And if your parents are working long hours to pay the monthly bills, he notes, "making sure you have a salad at the end of the day is not the highest priority."

In Los Angeles' Pico-Union neighborhood, just west of downtown, you can see what kids and their parents are up against. Outside Union Avenue Elementary School in this mostly working-class Latino community, an army of street vendors selling potato chips, candy and ice cream has set up shop, waiting for schoolchildren to be released by the afternoon bell. Technically, it's against city ordinances for the vendors to operate near school grounds during the day, but no one is stopping them. Elizabeth Medrano--an activist with the Healthy School Food Coalition and the mother of a 9-year-old boy--tours the streets around the school, where nearly all the food options are found at a handful of liquor stores and bodegas. Each prominently displays candy and packaged snacks; only a few small retailers carry produce--and unappetizing produce at that. "Would you buy this?" she asks, pointing to a handful of bruised cantaloupes. "You walk in, and you see candy, soda and chips. Nothing healthy." It's no surprise that a recent study found that the obesity rate among fifth-, seventh- and ninth-graders in the 10 poorest communities in Los Angeles County was 32%, compared with 8% for the city's 10 wealthiest communities.

Another, often overlooked, factor is the simple matter of safety. Urban children should get at least one break in trying to stay healthy, since the greater density of city life makes it easier to walk to school, the park or just about anyplace else. But that advantage often evaporates in poorer neighborhoods, where recreational areas can be few and walking anywhere is perceived to be dangerous. Xuemei Zhu, a doctoral student at Texas A&M University, surveyed the neighborhoods of Austin and found that even in dense communities, parents often refused to allow kids to walk to school, fearing they would become victims of crime or traffic accidents. "In low-income neighborhoods, the walkability didn't matter," says Zhu. "Safety is the No. 1 factor influencing them." Antronette Yancey, a professor at UCLA's School of Public Health, sees the same phenomenon in her city. "Parents say they'd rather have a fat kid than a dead kid," she says.

But inner cities are only part of the problem. Despite the image we might have of the abundance and open spaces of the countryside, Americans living in isolated rural communities also tend to have few places to walk and play and few convenient options for decent food. "You have to drive miles and miles to find a grocery store," says Jan Probst, who directs the South Carolina Rural Health Research Center at the University of South Carolina. Indian reservations are often the most extreme example of this rural nutritional isolation. The Pine Ridge reservation is nearly 3,500 sq. mi. (9,000 sq km)--more than half the size of Connecticut--but there are just a handful of stores in the area that sell fresh produce. And with average income well below the poverty line, even Pine Ridge families who have access to the good stuff can't afford to buy it. "When you have families on a limited income, it gets

difficult to make that decision to eat well," says Bonnie Holy Rock, an Oglala Sioux from Pine Ridge. Holy Rock is the field-site coordinator for Bright Start, a University of Minnesota--sponsored program to reduce child obesity and diabetes on Pine Ridge. "What do you have to eliminate to buy fresh fruit and vegetables?" she asks.

And if you think rural kids at least spend more time outside, working off the extra calories they consume every day, think again. Country life isn't what it looked like on Lassie. "You say rural, and you think kids are on the farm, lifting hay bales," says Probst. "But they don't do that anymore." What they do is the same thing other kids do, which is to say they spend more and more time inside, in front of a screen--even more so since their homes are a lot likelier than those of suburban kids to lie next to a four-lane interstate or some other decidedly unsuitable place to play. "Kids need a support system for activity," says David Hartley, director of the Maine Rural Health Center. "And in rural areas, too often they don't have that."

Other cultural factors, harder to define, could influence the geography of obesity as well. Yancey, an African-American woman, points out that being overweight isn't looked down on as much in the black community as it is in the white community and that extremely high levels of adult obesity among African Americans--31.2% of black men and 51.6% of black women are classified as obese--may have shifted social norms. (Race isn't an absolute determinant, though--largely African-American Mississippi and overwhelmingly white West Virginia both have high obesity levels.) The same could be true among Hispanics, especially recently arrived immigrants, according to Amelie Ramirez, director of the Institute for Health Promotion Research at the University of Texas Health Science Center. "There's a perception in the community that a chubby baby is a healthy baby," she says.

Fighting the Fight

So if an obesogenic environment is responsible for our national weight problem, how can we fix our surroundings so we fix our health? "We have to realize that we're not going to get anywhere in getting people to eat healthy and be more physically active until we create an environment that supports that," says James Hill, director of the Center for Human Nutrition at the University of Colorado Health Sciences Center.

One place to begin that transformation is in schools, since that's where children spend much of their waking lives--and ingest up to 50% of their daily calories. Here, Arkansas--a state that has had one of the nation's highest rates of childhood obesity--is in the vanguard. Led by Joseph Thompson, director of the Arkansas Center for Health Improvement, the state in 2004 began tracking the BMI of more than 400,000 children, sending home confidential health reports to parents. BMI is an imperfect metric since it often mistakes a stocky or muscular kid for an obese one, but as a quick way to spot weight problems it can reveal a lot. Officials also eliminated junk-food vending machines in all elementary schools--a policy that's becoming more common around the U.S.--and added half an hour of daily physical education to the school curriculum. The plan has had its critics, but Thompson knows that without help, children in Arkansas--poor, relatively rural--face a lifetime struggle against obesity.

"This is not a disease that will be solved with medicines or vaccines," says Thompson. "A social movement has to solve this." So far, the interventions seem to be working--after years of increase, obesity rates among children in

Arkansas have leveled off.

Arkansas isn't the only state trying to tackle childhood obesity. In 2003, California led the way by banning sugary sodas from public schools and was soon followed by states across the country, with the result that the major soft-drink companies agreed to withdraw all high-calorie sodas from schools by 2009. In Arizona, the Pima tribe of Native Americans, which has some of the highest obesity levels in the world, is growing school gardens in the desert to supply cafeterias with fresh vegetables and reconnect kids to a traditional cuisine. Today at least 17 states have set nutritional standards for school meals that are stricter than those demanded by the U.S. Department of Agriculture.

As part of its fight against childhood obesity, the Robert Wood Johnson Foundation is seeding local initiatives like the Healthy Schools Program, which will provide on-site support for more than 8,000 schools by 2010, improving access to healthy food and increasing opportunities for students to exercise. Last year 16 states supported policies to improve physical-education classes, which have been cut back severely in recent years, and just this month Florida governor Charlie Crist signed a bill requiring physical-education programs in the state's elementary schools. Denver has renovated more than 50 school playgrounds, significantly increasing children's activity levels, and towns and cities elsewhere have launched similar efforts to make it easier for kids to be active. "If you build a park or playground, people will come," says James Sallis, a professor of psychology at San Diego State University and the director of the Active Living Research initiative.

But the school day has to end, and when it does, too many kids emerge into a world in which their food choices begin with Arby's and end with Wendy's. There are groups working to get different foods blooming in the nutritional desert, however. One of the most successful is the Food Trust in Philadelphia. Begun as a produce market in Philadelphia's Reading Terminal, the trust sponsors farmers' markets throughout the city, taking fresh fruits and vegetables to neighborhoods that lack them. The group is also working to improve the selection of corner stores and bring back supermarkets to poor neighborhoods that have lost them over the years.

The program has been a remarkable success: one part of it, increasing the availability of fresh fruits and vegetables in elementary schools, along with nutrition education, is credited with helping reduce the incidence of overweight students 50%, according to a study published in the journal *Pediatrics*. The Food Trust is expanding into New York, Louisiana and Illinois, and executive director Yael Lehman believes every American city could benefit. "When the only thing that is available is fast food, that's what kids will be eating," she says.

Grass-roots groups like the Food Trust are a fragile shield against the onslaught of bad food all Americans--but especially American kids--face. In 2000 the average child watched 40,000 commercials, double the number in 1970, and many of the ads were for just the kinds of nutritional junk that's causing so many of our problems. The \$2 billion--plus marketing budget of a company like Coca-Cola dwarfs even the \$500 million over five years being spent on childhood obesity by the Robert Wood Johnson Foundation.

Perhaps it's American to take caveat emptor as our creed, to let the junk food we so clearly love flow freely into the

marketplace--and if you can't be bothered to hunt up some vegetables or take a jog now and then, your weight problems are your own. But if that philosophy seems harsh when we're dealing with adults--not to mention blind to the enormous health-care costs that will burden the nation--it's positively heartless toward children. An Oglala Sioux on the reservation, a first-generation Hispanic American in L.A., a poor white kid in the hills of West Virginia--no one asks to be born into an environment where obesity seems to be the default fate. "This is probably the most important public-health problem facing the country today," says Lavizzo-Mourey of the Robert Wood Johnson Foundation. "We are committed to doing what it takes, for as long as it takes." So should we all be, until childhood obesity no longer has a geography.

With reporting by With Reporting by Rita Healy/Boulder, Thomas Fields-Meyer/Los Angeles, Hilary Hylton/Phoenix

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