

Testimony of Francine Kaufman, M.D.
Before the Subcommittee on Children and Families
Committee on Health Education Labor and Pensions
United States Senate
Childhood Obesity: The Declining Health of America's Next Generation
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Chairman Dodd, Ranking Member Alexander and members of the subcommittee, good afternoon. My name is Dr. Fran Kaufman and I am a pediatric endocrinologist and professor of Pediatrics and Communications at the Keck School of Medicine and the Annenberg School of Communications at the University of Southern California. Examining the ravages of the obesity and diabetes epidemics in the United States and around the globe is not only my specialty, but also my passion. I thank you for holding this hearing and allowing me the opportunity to testify before you today on the dangerous health consequences of childhood obesity.

Obesity has reached epidemic proportions in the United States. It has increased in both genders, and in all racial, ethnic and socioeconomic groups. With 198 million Americans estimated to be overweight or obese according to the CDC and the prevalence of diabetes having risen to 23.6 million Americans—an increase of nearly 3 million people over the two-year period from 2005 to 2007 – it is especially valuable to be holding this hearing on this topic today.

We have seen the prevalence of obesity triple among children 6 to 11 years and adolescents 12 to 17 years since 1980.¹ A total of 9 million children ages 6 to 19 in the United States are now classified as overweight or obese. The overall prevalence of obesity in children was 17% in 2006. Alarming, we are seeing an increase in very young children, now over 1 in 5 young children 2 to 5 years of age are overweight or

¹ National Health and Nutrition Examination Surveys (NHANES) (Ogden CL, Flegal KM, Carroll MD, Johnson CL: Prevalence and trends in overweight among United States children and adolescents, 1999-2000. JAMA 288:1728-1732, 2002).

obese. Of great importance is the fact that obesity in childhood is a significant predictor of obesity in adulthood.

Many researchers have placed the origin of the childhood obesity epidemic at the beginning of the 1980s. Since that time, we have seen dramatic changes in the nutrition and physical activity habits of American children, along with changes in demographics and societal norms that have all contributed to the rise in childhood obesity. According to the CDC only 20 percent of students eat the recommended 5 servings of fruits and vegetables per day and only 2% of children currently meet the USDA's 5 main healthy diet recommendations. Additionally only 35% of students are physically active for at least 60 minutes per day meeting the recommended guidelines. Barely more than half of students, 54%, attend physical education classes at least one day a week.

During childhood, obesity impairs psychosocial well-being and obese children are socially isolated. They perform poorly in school and have a poorer self-image than children who have a normal weight. Obesity in children is associated with severe impairments in quality of life. In fact, obese children have characterized their lives as being equal to those of children with cancer.

Childhood obesity is associated with serious metabolic disturbances, obstructive sleep apnea, asthma, fatty liver disease, orthopedic problems, ovarian dysfunction, and chronic kidney ailments. Children who are overweight, obese and unfit are at increased risk of developing high blood pressure, abnormal lipid levels, inflammation in their blood vessels, and higher than normal blood sugar levels.

These factors are the precursors of adult-onset cardiovascular disease and diabetes. During the mid-1990s, type 2 diabetes in youth increased ten-fold in the US, and mirrored the childhood obesity epidemic. Diabetes is a chronic condition in which the pancreas either does not create any insulin, which is type 1 diabetes, or the body doesn't create enough insulin and/or cells are resistant to insulin, which is type 2 diabetes.

Diabetes is the leading cause of kidney disease, adult onset blindness, and lower limb amputations and can lead to heart disease and stroke.

Childhood obesity disproportionately affects minority and poor children. The prevalence of childhood obesity among African Americans, Mexican Americans and Native Americans exceeds that of other ethnic groups. The Centers for Disease Control reported that in 2000 the prevalence of obesity was 19% for non-Hispanic black children and 20% for Mexican American children, compared to 11% for non-Hispanic white children. The increase since 1980 is particularly evident among non-Hispanic black and Mexican American adolescents.

Similarly, type 2 diabetes in the pediatric population is disproportionately seen in Hispanic, Native American, and African American adolescents. Estimates show that one in three children born in the year 2000 will develop diabetes at some point in his or her life, but this statistic is nearly one in two for minority children. The SEARCH for Diabetes in Youth Population Study, sponsored by the CDC and NIH, found that the proportion of all diabetes that was diagnosed as type 2 varied by ethnicity among 10 to 19 year-olds: 6% for non-Hispanic whites, 22% for Hispanics, 33% for African Americans, 40% for Asians/Pacific Islanders, and 76% for Native Americans.²

An extraordinary example of the rise of type 2 diabetes in youth is shown through the marked increase in the prevalence of type 2 diabetes in Pima Indian youth over the last 20 years. Before the 1990s, almost no younger children and less than 1% of older children in the Pima Indian community had type 2 diabetes. By the mid-90s, 2.2% of 10 to 14 year-olds and 5% of those 15 to 19 years old had type 2 diabetes.³ As a result of diabetes, many young adults who developed the disease as adolescents are now suffering prematurely from the long-term complications of this devastating disease.

² Liese AD, D'Agostino RB, Jr., Hamman RF, Kilgo PD, Lawrence JM, Liu LL, Loots B, Linder B, Marcovina S, Rodriguez B, Standiford D, Williams DE: The burden of diabetes mellitus among US youth: prevalence estimates from the SEARCH for Diabetes in Youth Study. *Pediatrics* 118:1510-1518, 2006

³ Dabelea D, Hanson RL, Bennett PH, Roumain J, Knowler WC, Pettitt DJ: Increasing prevalence of Type II diabetes in American Indian children. *Diabetologia* 41:904-910, 1998

Of further concern, the significant rise in obesity in children has been accompanied by an increase in the severity of obesity, and there are differences in the degree of obesity among racial groups. The prevalence of severe obesity (BMI >30 kg/m²) in female adolescents was approximately 10% in non-Hispanic whites, 20% in non-Hispanic blacks and 16% in Mexican Americans.

In one of the NIH studies of which I am the chair, called the HEALTHY middle-school trial, we have found that low-income, minority middle school students in 7 cities across the country have high rates of pre-diabetes associated with overweight and obesity. Pre-diabetes is a condition that is diagnosed when someone has a higher than normal fasting blood sugar level or a higher than normal value after a glucose tolerance test, but not one in the diabetes range. An estimated 57 million Americans have prediabetes today.⁴ In adult studies the conversion rate is about 10% per year. In this particular study we found that 39% of 8th graders and 14% of 6th graders, these are 13 and 11 year old children, respectively, had pre-diabetes, with the highest rates found in Hispanic and American Indian youth. Not only did these 13 year old students have abnormal blood glucose levels, but 15% had high blood pressure, half had abnormal lipid levels, and 8% had fatty liver disease. Fatty liver disease is also a new phenomenon in youth, and there is an indication that this might lead to early liver failure, which if not treated with a liver transplant will result in death. Fatty liver disease is more common in obese boys than in obese girls, and differs significantly by race/ethnicity. In obese children ages 2-19, 65% of Hispanics, 35% of whites and 10% of blacks had fatty liver disease.⁵

On a personal level, I have seen heart-breaking examples of the childhood obesity epidemic in my medical practice. I remember one of the first children I saw with type 2 diabetes just as this epidemic was beginning. It was in the middle of spring in 1995. She was a 13 year old girl with a blood sugar level of 427 mg/dl, at least five times higher than normal for a young teen. She weighed 267 pounds. She came to my office with her mother and grandmother, they each weighed about 250 pounds. She had been drinking a

⁴ Centers for Disease Control and Prevention, 2007 National Diabetes Fact Sheet.

⁵ Schwimmer JB, Deutsch R, Kahen T, Lavine JE, Stanley C, Behling C: Prevalence of fatty liver in children and adolescents. *Pediatrics* 118:1388-1393, 2006

lot of juice and soda throughout her life. Her diet consisted of fried foods, candy bars, and meals from fast food restaurants. She did not have access to meaningful physical education courses in her school curricula and there was nowhere safe to play in her neighborhood. She watched 5 hours or more of TV a day.

Her grandmother had type 2 diabetes and had never controlled her blood sugar levels. Five years earlier she had suffered from a stroke and an amputation. My patient's mother had been diagnosed with pre-diabetes. Despite her strong family history of diabetes, no one believed that this 13 year old girl had this disease – because she was just too young.

Her mother told me she watched diabetes destroy her own mother, and she did not want to see that happen to her child. To control her high blood sugar level, her high blood pressure, and her high cholesterol, this young girl left my office taking five medications. Even still, she remained at high risk and it would be hard to control her disease and all its attendant problems. I knew that at least 15 years would be peeled off this young woman's life.

That day I felt as if I had been in a battle, but I am really in a war. A war we have yet to win. For my patient to do well, the world in which she lived would have to change. Her neighborhood, her school, the healthcare system that focuses more on treatment than prevention - our country - would have to transform so that it promotes and supports healthy lifestyle habits and make the healthy choices the easy choices – the accessible and affordable choices. My patient would need to make changes too, but without a supportive environment, those changes, - eating well, getting active and losing weight – might be impossible for her to make. In my office in 1995, I knew that a world of battles would have to be fought for my patient, and for too long that war has been going on. As I stand before you today, I am hopeful the time has come for the war to be won.

Today, there is no doubt that obesity in youth, along with its associated medical conditions, is the major health challenge of this century. Although attention has been paid to this problem by government and public health officials, researchers, and health

care providers, the number of overweight and obese youth continues to increase. More needs to be done to combat the ever growing epidemics of obesity and diabetes.

Again, thank you for the opportunity to speak before you today. I look forward to the opportunity to answer any of your questions.