Childhood Overweight: What Practitioners Should Know About Antecedents and Effective Interventions

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Presenters: Daniel Preud'homme, Robert M. Siegel, Elizabeth W Edmundson

- **Childhood Obesity**
  Daniel Preud'homme

- **Low Carbohydrate Dieting in Children**
  Robert M. Siegel

- **Overweight and Obesity in Children: The Emerging Epidemic**
  Elizabeth W. Edmundson

Preud'homme: In 1971, 40 years ago, there was already significant concern about childhood obesity. Even though there has been an increasing amount of substantive research around obesity, things are getting worse. The majority of children under 4 years of life are overweight. Forty seven percent of them are considered obese.

Weight is gained if people take in more calories they expend; however there are still unknowns about weight such as how food is regulated and why some people gain weight more easily others. The food infrastructure permeates all aspects of lifestyle from the child and neighborhood up to decisions made at the national and international level.

The medical complications of obesity are significant. Heart disease and stroke happen as young as 17 years old. There are problems such as diabetes, hypertension, and lipid disorder. Obstructive sleep apnea is probably more prevalent than thought. Fatty liver disease and osteoarthritis are issues that children are facing, not to mention depression and low self-esteem. Severe headaches are increasingly a problem where children have actually increased pressure around the brain. For females there was also a very significant complication such as cancer and infertility.

The treatment involved is not very complicated. Diets need to change and exercise needs to increase. Severe obesity may be different depending on whether a child in the pre-puberty stage versus the post-puberty stage, but obesity is not a new issue.

Discrimination against obese children is an issue too. Seventy-five percent of nurses had a negative view of those obese children with 24.5% agreeing with the statement "caring for an obese patient usually repulse me". Sixty percent of physicians believe that obese patients lack self-control and all registered dieticians had negative attitudes towards obese patients. Children themselves view their counterparts as lazy and dirty if they have a weight problem.

Recognition of the issue by third party payer is also important. In the state of Ohio people are covered if they have type two diabetes, hypertension, or coronary vascular disease. However if they are obese then even diet is not covered.

Body mass index identifies that there is a problem, but it is still not being plotted everywhere. Identification allows clinicians and parents to talk about it. When parents are shown the BMI in a non-judgmental and caring way, they understand that the physician is concerned about the health of the child.

A person can lose a pound every 12 days by cutting 200 calories a day and increasing activities by expending 200 calories a day. This is difficult in face of the challenges of the media, society, parent control all play a factor. Schools provide 50% of the meals so they must have 50% of the responsibility. There are many examples of schools that are not providing healthy meals. Pepsi logos are on student ID's. Fast food portions have increased. For mothers with a limited budget buying Ramen Noodles makes more sense than buying frozen vegetables. Exercise is a major issue that is affected by geography, income, and lifestyle.

Prevention is important. Because children are smaller than adults they have to do more activity to burn off the same amount of food. The more children watch TV, the more they weigh, however if TV watching is decreased no weight is lost. Weight is just not gained as much.

In all that has been written, the impact of a single point intervention remains to be seen. There are no studies longer than six months examining general aspects to changes in behavior. Single point interventions in a single entity are effective in the short term, but the question is if this child has changed behaviors for the long term.

Siegel: Since Cro-Magnon man, humans have been on a low glycemic or relatively low carbohydrate diet. The foundation of all of the Low Glycemic Index Diets is food that does not trigger much insulin. If there are carbohydrates, they are complex, difficult to break down, and slowly absorbed. These diets include: the Traffic Light diet, The Zone diet, the Paleolithic diet, and the new USDA guidelines.

These diets basically work the same way. With a diet high in sugar, there is a brisk insulin response after a sharp peak in blood glucose. This sharp peak is quickly absorbed then drops, as a person gets hungry. The low glycemic index diet is much slower to absorb, much lower peak in blood glucose, and causes less brisk insulin response. What does happen is a relatively higher fasting glucose, but less indigenous insulin is produced so the individual gets less hungry.

To see if a low glycemic index diets works, a research Ph.D. dietician in Cincinnati did a randomized trial of a low carbohydrate diet. She took 53 obese females with a BMI of 30 to 35 and put them on a traditional low fat diet with the other half on a low carbohydrate diet. They were given Atkins for Life and instructed on what to do. At six months both groups, according to self-report, dropped 450 calories: the Atkins people or low carbohydrate people passively, the low fatters by watching carefully what they ate. Weight loss was about twice as much in the Atkins group.

As it turns out, the low fat people were supposed to be very careful about what they ate, and were told that they were bad if you did not follow the diet. Therefore, they lied about what they put in their logs. On the other hand, the Atkins people happily wrote down every steak that they ate. After carefully looking at it, the calories actually add up to be the same. The difference was that with a low carbohydrate diet, people satiate more easily and tend to eat less. A study out of Stony Brook followed children 12 to 18 years of age for 12 weeks with the help of dietician. They found twice as much weight loss in the low carbohydrate group as the low fat group.

In Utah, Paul Young intervened just by handing children and adults' instructions on the Traffic Light Diet. They were able to show when they follow children for 12 weeks that BMI dropped.

A group of about 25 practices in Cincinnati enrolled 71 healthy children, 12 to 18 years of age with a BMI greater than 95% of normal, 19 practitioners participated. The children had to be healthy, and they were put on an Atkins type diet without induction (the cutting of carbohydrate to below 20 for the first part of the diet). Children were counseled on activity and given pedometers, free Atkins books, which include a carbohydrate counter, a pocket Atkins version, an Atkins for Life, as well as having a fairly intensive first session with their Registered Dietician. The dietician is crucial. She met with them at regular intervals for 6 months. The practitioner met with patients at 0, 2, 4, 6 months, and a year, extending this study for a total of 3 years.

Early data analysis showed that 54 patients completed at least one month, with an average age 14.4. There were significantly more girls interested than boys, and 18 dropouts. Average weight at entry was 207 pounds last weight with an average weight loss of 11 pounds in 4 ½ months.

The average amount of daily calories reported by parents and self at intake was 2,000 calories. They dropped down to an amazing 1,000 calories by their last visit. Needless to say there was a bit of exaggeration, however the preliminary results suggest that this diet can be effective short-term and we hope to settle the issue by following them for three years.

Edmundson: In a strict epidemiological definition, an epidemic simply means an increase in the incidence or prevalence of a disease that's greater than what would normally be expected. Childhood obesity is an epidemic.

Looking at adults, the definition of obesity for adults is a BMI value at or above 25 and less than 30 for overweight categories. If an adult were obese then their BMI values would be considered at 30 or above. The criteria for children are different primarily because children are growing. For pediatricians, it is important not to diagnose them as being overweight too soon.

Children are defined as at-risk for overweight if they are between the 85th and 95th percentile for height and weight. They are considered overweight if their BMI value is above the 95th

percentile. BMI is not a perfect measure when we're looking at adiposity or fatness; however, it is the most consistent measure.

Overweight and obesity have doubled from 15% in the 1970s to nearly 30% today. The percentage of children who are considered obese has tripled since the 1970s from 5% to nearly 15%. Interestingly the rates for boys and girls are about the same. There are dramatic racial and ethnic differences particularly among minorities, African Americans, and Hispanics, and those in the low SES category. Each of those three groups has higher obesity and overweight rates.

This is some of the data that has been supplied by the National Center for Health Statistics and some Texas data published in 2005 The particular data are based on true measurements which are important because many other measures are based on self report. Researchers went out in the field and took a stratified random sampling of 15,000 children. In Texas, fourth grade children and Hispanic boys have the highest obesity rates at almost 40%. The lowest is among white girls while African American rates are highest.

There has been a change in BMI distribution. Before 1995, the children that were obese were just tipping into the obese category. By 2002 not only was there a larger share of children obese, but also those who were obese were much heavier than the obese children in the past. In the 1970s only about one out of every ten children was obese. Now three out of ten children are considered obese.

Although social norms are changing, larger children are still picked on. There is still a bias, especially with health professionals and teachers towards overweight children. They are seen as slow and lazy.

The effects of chronic disease in children accumulate over time. Children that experience diabetes at the age of 15 or 16 are going to die earlier. A huge percentage of these children are not going to live as long as their parents did and their quality of life will not be what their parents' were.

As with most epidemics the factors that contribute to the epidemic are both social and environmental. If the social environmental changes can contribute to the problem, then that is a place to make changes to stop the problem.

Children who are overweight are going to be overweight as adults. It is very difficult to lose weight. And it's even harder to keep it off. It is devastating for children's self-esteem to take this weight off and then watch it come right back on.

Finkelstein states that the spending on overweight and obesity together, just for medical care, accounts for about 9% of total medical spending in the United States. Researchers estimate that hospital costs for treating children for obesity and related conditions went from 35 million to 127 million from the early 1980s to the late 1990s.

An obese child does not necessarily mean an obese adult, however the percentage of obese children who go on to become obese adults becomes more consistent after they go through puberty.

From a psychological and a population-based approach, the primary problems go back to energy imbalance. There have been dramatic changes in portion size and a huge increase in the consumption of sugar sweetened beverages. Everyday routine activity has decreased. There is less walking. Many places do not have sidewalks anymore. Even physical education often has been cut out of schools. Almost 50% of African American females do not get nearly enough physical activity, 20 minutes at least three days a week. Girls in general are not getting enough physical activity.

Watching at least three hours of TV is a risk factor. The ethnic group that is at the highest risk is African Americans, with close to 70% watching more than three hours of TV. The relationship between the number of commercials that they see and rates of obesity is becoming stronger in the literature.

To change there needs to be social and environmental changes and an understanding of what works. It is impossible to make these kinds of changes without commitments from the school and from the community, from the physician community, as well as our local neighborhoods. Parents play a pivotal role, but they cannot do it on their own. We need laws, we need policies, and we need a plan.

There have been some really good programs implemented at the school level that have shown decreases in obesity. The Catch project in the early 1990s has physical education with a classroom curriculum that focuses on eating healthy, portion control.

Catch is the largest child intervention study that's been done at the schools in the United States, spending close to $50 million. It began with a 3-year intervention with children in the 3rd grade through 5th grade. They were then tracked through 12th grade. They have also done dissemination studies looking at diffusion of the program to determine the effectiveness.

These effects can be sustained over time, but it takes at least a three year commitment in the schools, food service programs, and, of course, the family.

Cotto-Moreno: One of the concerns about the problem with overweight children is that some of the Head Start policies such as celebrating parties, parent involvement, and having potluck dinners contributed to the problem. It is important to develop healthier policies because of the potential to create an impact; however it was important not to become the food police. Budget constraints and staff training plans were a focus. The problem was not only with children being overweight, but also with staff who need wellness policies as well.

The program was being involved in migrant Head Start services. There are challenges in any low-income communities that may be multiplied for migrants. In addition to bilingual barriers, there is the added risk that is associated with the constant moving of children and uprooting them.

In Migrant Head Start, there was a significant increase in the number of children who were overweight, even with adopting policies that were healthier than those of predecessors. In an attempt to maximize resources, nutrition services were not provided for children receiving WIC because that is what WIC does.

The PIR data from 2003 until 2005 show the number overweight people going down. While it is an improvement, there is still a big problem. South Texas has the worst obesity, overweight, diabetes, high blood pressure, and glucose intolerance than the rest of the nation. The 2003 data show that 37% of Texans are overweight with an additional 27% obese. Right now 35% of Texas school age children are overweight. Twenty-five percent of them have evidence of glucose intolerance, which is a precursor to type two diabetes. Lack of exercise is built into the environment. There are unsafe communities, fast food, increased portion sizes, and acculturation. Often Hispanic communities stop adopting the healthy behaviors of their culture and also pick up unhealthy behaviors in the US.

It is important to support the positive cultural habits of any culture, not just Hispanic culture. Research shows that adults influence physical activity. Because Head Start was working with migrant families, they emphasized things that they can do in their communities to try to adopt healthy behaviors, even though they were far from home.

The wellness policies developed do not allow any type of sweets with more than 15 carbohydrates per serving. Healthy foods are provided at parent trainings, which does not mean that there cannot be things such as soda, but there have to be fruit and vegetables included. Additionally, staff modeled healthy behavior. They walk with the parents and tracked the steps to see what country has gone the farthest. Understanding the stages of change model is important to track progress. Not everyone is at a point in their lives where they want to lose weight; some people just want to know why they should lose weight.

Other challenges are the environment, the community, and work schedules. For migrants that can be very difficult. Sometimes they work 16-hour days in a field. Having them come home to do physical activities is difficult. Find multiple resources; teachers get tired of using the same things over and over again. On the website there are strategies for different ethnic communities. It is important to understand of the cultural components before creating a more effective strategy. Parents need to know what they are doing right, not just what they doing wrong. There needs to be more evidence-based research. What works best and what is most effective is still not clear.

The State Obesity Task Force in Texas developed a plan for a range of activities around preventing obesity. These include incorporating daily classroom intentional structured exercise, involving parents, providing orientation to health providers so that they learn the importance of making sure that pediatricians record when obesity and overweight diagnosis to put that on their physicals and their exams so it can be addressed.

Pascoe asked if there was reason to be optimistic. Edmundson responded that from a school based perspective there is little reason to be optimistic. Texas has cut back P.E. and mandated a certain number of minutes of physical activity in every elementary school, but then they did not fund it.

Pascoe also asked about the schools that are taking the sweets out of the cafeteria. Cotto-Moreno pointed out that eliminating sweets also eliminates revenue from contracts with branded food. More innovative ways of bringing in funds to address physical activity and nutrition needs to be found.

Prued'homme reemphasized that these single point intervention programs are a lot of energy and he lacks confidence that they will end up working in the long term. He referred to a study of the American Indian population in Arizona where they spent millions to change or train the teachers to do exercise during the day, and to teach them about food and exercise. After 3 or 4 years, there were no alterations in the rate of weight gain or diabetes.

Prompted by an audience question, all three speakers addressed legislation around the issue of obesity. Preud'homme said that the low socioeconomic strata of children suffer more. From a legislative standpoint, strong choices will need to be made so that the life issues in which the government can affect people will be funded appropriately without being invasive or culturally inappropriate. Cotto-Moreno added she support current legislation around advertisement targeted to children, however she feels less certain about tax on junk food.

In the context of legislation, Edmundson compared the issues with obesity to smoking in that it is going to take decades and decades of research, as well as interventions. Prued'homme expressed opposition to taking choices from people just because they happen to be in a high-risk category. He did concur that advertising is excessive, but added that behavior change is the clue to understanding that their behavior means health for both themselves and their children.