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COMMENTARY

# What are the Common Risk Factors of Obesity in Children?

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## Introduction

Today, obesity is a prevalent problem in the United States not only in adults but unfortunately, also affecting our children. Obesity is a disease involving an excessive amount of body fat. Obesity increases the risk of other diseases that could be more dangerous for example heart diseases, diabetes, high blood pressure, and certain cancers. Many children, regrettably, get these diseases at a very young age.

According to the CDC, “obesity among children and adolescents is still too high” [1]. In a study done from 2017-2020, about 14 million children from ages 9-12 suffered from obesity in the United States. Childhood obesity in the United States mostly affects Hispanic and African American children more than any other ethnic group. Hispanic children have a higher percentage of obesity than African American children with 26.2% and African American being 24.8%. We will look at the risk factors, diseases and possible management of this growing problem with our children and look at possible solutions [1].

## Risk Factors

### *Diet*

Fast foods are foods that are usually prepared quickly in restaurants or at home. With a busy society, quick meals sometimes are a choice for many American families. Fast foods may come full in saturated fat, sodium, preservatives and calories. Children love to consume fast food because of all these things they have available. Children don't know what they are consuming, what they know is the food is very tasteful. The percentage of children with obesity increased. In a survey organized by CSE, 13,274 children reported that 93% ate packaged food and 68% consumed packaged sweetened beverages more than once a week, 53% ate these products once a day [2]. Children consume food with high levels of sugar, salt, and fat from fast foods more than once a week.

Obesity has more than doubled in children since 2017 [2]. Doctors saw that fast food intake was categorized as more than 4 times per week. Ever since COVID19 started, the percentages in obesity not just

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for children but for everyone else increased. COVID-19 had an impact on obesity when children started to consume fast food due to the compromise of immunity in the individuals and further exacerbating organ damage [2]. Since COVID-19 was really scary, people wouldn't go out as much to buy groceries [2]. Fast food was an accessible option most of the time. In the Hispanic culture, when we find food at the house or anywhere, we end up eating it. Especially children, there could be candies, chips, chocolates, sweet stuff, etc., and kids will eat it. Obesity changed once the percentages raised due to fast foods.

### *Effect of school diet on obesity*

The benefits of school food are various. It offers beneficial nutrients. However, children don't eat it because they don't like the way it tastes or looks. Students start eating junk food they buy either at school or at the shop if they don't eat the school lunch. Obesity is a national epidemic in which 1 in 3 children are at risk for preventable diseases like diabetes and heart disease due to obesity. School meals are trying to help children learn how to have a healthy lifestyle [3].

The healthy, hunger free kids act of 2010 are in charge of the changes for the school meals [3]. The new school meals are deliberately high in nutrients and low on calories. These meals have to be consistent with nutrition science, the new portion sizes and calorie ranges reflect the latest scientific recommendations. Based on their age, students are getting recommended portions. Schools are providing more vegetables and fruits [3]. School food may not be causing obesity, but it is the reason why children choose junk food over the food from lunch which leads to obesity. Students skip their meals and eat junk food sold in vending machines or at school. One way we can avoid this is to research what students from different backgrounds like and take out vending machines from schools.

### *Portion control*

Children can maintain a healthy weight by learning healthy eating habits from their parents, guardians, and teachers. According to research, when presented with larger servings, consumers unintentionally consume more calories. Reduce the availability of salty, high-fat, and high-sugar snacks for your kids to help them establish healthy eating habits [4].

Utilizing calorie counters can help you lose, maintain, or gain weight. The right number of calories should be consumed along with a well-balanced diet. Food labels should be properly read and understood to ensure that calories are consumed along with unsaturated fats, complex carbs, low salt, vitamins, and proteins. When cutting calories to lose weight, you need to be cautious. Lack of nutrients could arise from drastically reducing calories. A person must burn off 3500 calories in order to shed one pound (lb) of weight [18]. By increasing physical activity and lowering daily caloric intake, this can be achieved. Losing more than 2 pounds (lb) of weight per week is not advised in order to maintain a sufficient intake of nutrients [5]. For more information: (How to Avoid Portion Size Pitfalls

Additionally, it's essential to drink enough water each day for your health. Dehydration can be averted by drinking water. When water is exchanged for beverages with calories, body weight can be controlled, and calorie intake can be decreased.

Added sugars provide calories but no important nutrients to your diet. As a result, they cannot be utilized to increase muscle mass, give vitamins, encourage a feeling of fullness, or offer any other nutritional advantages.

## Diseases

### *Diabetes Type 2*

A diet that contains too much sugar can cause type 2 diabetes, heart disease, weight gain, and obesity 4]. Type 2 diabetes affects 90–95% of patients with diabetes [6]. Your body struggles to properly utilize insulin in type 2 diabetes, making it difficult to maintain normal blood sugar levels [6].

Carbohydrates, lipids and proteins break down into glucose which serve as a primary source of energy in our bodies releasing it into our bloodstream [6]. Our bodies require energy in the form of ATP for a variety of processes, such as metabolism, respiration, excretion, and exercise. Our systems control the surplus glucose by storing it as glycogen in the liver, releasing the hormone insulin from the pancreas to control blood sugar levels, and cleansing the blood of extra waste materials, including glucose, through the kidney.

Diabetes is brought on by an overabundance of glucose in the liver, which harms the pancreas'

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declining ability to secrete insulin. Kidneys are then challenged to remove waste from blood.

Skin conditions like Acanthosis Nigrican can cause black patches to develop in body crevices like your neck, armpits, groin, hands, elbows, or knees. This may be a symptom of insulin resistance and could indicate type 2 diabetes.

### *Heart Disease*

According to statistics from 1976 to 1980, 6.5 percent of children aged 6 to 11 were obese; by 1980, the number had risen to 17 percent [7]. Nearly 9,000 kids and teenagers ages 3 to 19 who were overweight or obese participated in this study "Cardiometabolic Risks and Severity of Obesity in Children and Young Adults". Doctors checked these young people for diabetes, high blood pressure, high cholesterol, and other critical heart disease risk factors. Type 2 diabetes, high blood pressure, and high cholesterol are just a few of the heart disease risk factors that are brought on by childhood obesity and were originally believed to be "adult" health issues. The earlier heart disease and stroke develop, the earlier childhood obesity manifests itself. You can lose more weight if you exercise, eat a balanced diet high in protein but low in fat, and estimate your servings so that they are appropriate.

### *Hyperlipidemia in Obese Children*

Hyperlipidemia has become a common condition amongst obese children [8]. This condition conveys there are abnormal levels of lipids, or fats circulating in the blood. Since high cholesterol has no symptoms, many people are unaware that their cholesterol levels are unhealthy. However, a quick blood test can detect high cholesterol. Hyperlipidemia can be caused by consumption of food or genetics in which cholesterol is produced in your body naturally. One of the main risk factors is a person's diet which can lead to obesity and later on to hyperlipidemia, narrowing the arteries and blocking the flow of blood. Processed foods and foods high in saturated and trans fats are the main causes of obesity in children, being overweight or obese raises the chances of developing hyperlipidemia because there is a higher likelihood to have increased levels of fat tissue.

Seven percent of U.S children and adolescents ages 6 to19 have high cholesterol (hyperlipidemia) [8]. Children are more obese today than in previous times due to the high consumption of fats. Thus, obesity in childhood is considered one of the major critical public health problems. Based on a study conducted on body size and other factors the prevalence of obesity and the association between obesity and hyperlipidemia amongst the children was demonstrated [9].

### *Peripheral Artery Disease*

A composition of saturated fats may cause peripheral artery disease, narrowing arteries including blood flow to arms and legs[10]. Arteries narrow due to accumulation of fatty deposits in aleurites caltheos (crosis) reducing blood flow. Peripheral nerves are very fragile and easy to damage. A nerve injury can cause loss of communication with muscles and organs. The treatment for peripheral artery disease includes maintaining a healthy lifestyle, with a healthy diet, exercise, and sometimes even medications. Medications may be needed to reduce cholesterol, high blood pressure, regulate glucose, prevent colds, and pain medication.

## Management

### *Prevention among children*

The overweight and obesity epidemic among children and adolescents in the United States has worsened over the years. There are many ways that parents can help children. For example, take your children to get a BMI, or a body mass index measure, to get an idea as to what you can start doing to prevent obesity or other diseases. BMI is determined by a person's weight status. "It is calculated by dividing a person's weight in kilograms by the square of height in meters" [11]. In children, BMI is age and gender specific.

"Children who spend more time indoors using social media, playing videos games, or watching television all day are most likely to become obese and later develop diabetes" [12]. On the internet, children come across advertisements of fast-food restaurants or junk food and as a result children cave to their cravings with whatever food they find. It is crucial to reduce your child's screen time for 1 or 2 hours daily [13]. Make sure your child gets 60 minutes of physical activities daily [14]. Many children at night get up and eat food they are not supposed to therefore making them gain weight. Sleeping adequately is important for children because it helps the child's immune system and reduces the risk of obesity. They should at least be sleeping for 9 to 12 hours daily.

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Changing the eating habits for the whole family is crucial because you are showing support to your child which will motivate them to change their diet. Encourage your child and the whole family to start eating enough fruits, vegetables, whole grains, and a low or fat free diary. Teach your child to only eat when they are hungry and to eat slowly. Don't use food as a reward or withhold food as a punishment. Instead of giving your child beverages like juices and sodas, give them water or drinks with no added sugars. It is very important to stock the pantries with healthy food. Education will help children overcome this obesity epidemic.

### *Education*

According to AAFP [15], obesity was not thoroughly examined until recent years. Children and adolescents need education about obesity since approximately 20% of American children are obese [1]. Everyone, from medical professionals to parents and health departments, should be providing health education.

Physicians should advise parents to feed their children better, healthier meals and to get them moving by taking them on walks, taking them to the park, getting them involved in sports, or even jogging. They should begin by eating a balanced diet and getting enough calories. Researchers have found that exercise is helpful for weight loss and maintaining weight loss. Exercise can increase the number of calories you burn in a day. It can also help you maintain and increase lean body mass, which also helps increase the number of calories you burn within your body [15].

Making healthy living choices should be a factor in learning, which involves introducing children to healthier foods early on and avoiding giving them drinks, sweets, or snacks as rewards [16]. This will help us avoid or lower the danger of diseases brought on by fat.

As for community leaders, they should outreach other communities to educate the public, as well as making systemic changes in our society [17].

### *Treatment Options*

Typically, advertisements for weight loss drugs target adults. It has not been established that diet supplements are safe for children due to lack of adequate research or testing. The alternative for children is diet and exercise [18].

Once an obese individual contracts an illness. The remainder of their lives may require them to take prescribed medication. To regulate glucose levels in conditions like diabetes, doctors may give metformin and insulin. Metformin reduces intestinal glucose absorption, hepatic glucose release, and increases insulin sensitivity [19] Insulin facilitates blood sugar uptake by cells in the body. When blood sugar enters cells, blood sugar levels fall, which tells insulin to do the same [19].

Lisinopril and benazepril are two examples of heart disease drugs that may be administered to treat or prevent heart attacks and cardiac arrest [20]. Lisinopril lessens high blood pressure to help prevent strokes, heart attacks, and kidney problems. Additionally, it helps patients survive longer after a heart attack and treats heart failure [20].

Benazepril is used to treat hypertension. The workload on the heart and arteries is increased by high blood pressure. The heart and arteries may not work correctly if it occurs for a long time [20].

The term "hyperlipidemia" denotes abnormally high quantities of lipids, or fats, in the blood. Hyperlipidemia can be treated with clofibrate. Blood triglyceride and cholesterol levels are reduced with the use of clofibrate. This may aid in preventing health issues brought on by such things clogging blood vessels [20].

Statins, a class of medications, are frequently used for peripheral artery disease. A class of medications known as statins has been shown to reduce blood levels of low-density lipoprotein cholesterol. Statins aid in lowering bad cholesterol and preventing the buildup of arterial plaque. The medications also reduce the risk of stroke and heart attacks [20].

### *Surgery*

From time to time, children come to the clinic with serious problems. At times, pediatricians and parents consider obesity surgery when children are in poor health. Bariatric surgery is surgery that helps you lose weight by reducing the size of your stomach and making other changes to your digestive system [21]. This surgery helps solve health problems such as diabetes and high blood pressure. If the young patient decides to go forward with the bariatric surgery, they

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should consume enough food and liquids beforehand. Children should not be untreated or poorly managed before or after surgery. Obesity surgery is generally well tolerated and minimizes the risk of serious perioperative complications. The most common mild complications were postoperative wound and urinary tract infections [21]. On the other hand, 95% showed remission of type 2 diabetes 3 years after surgery [21].

## Conclusion

An excessive quantity of body fat is a symptom of the disease known as obesity, which raises the chance of developing additional illnesses. Unfortunately, a lot of people develop these illnesses at a young age. Preventing childhood obesity is more cost-effective than treating it. Only a small number of medications are approved for use as treatments, and even then only under strict monitoring.

There may be medication available now to treat these disorders, but that does not guarantee a cure. Medication only controls the issues. It is up to us to aid in the eradication of diseases or stop it from beginning. It is important to acknowledge that obesity is a family disease affected by multiple factors, such as genetics, the environment, food intake, and physical activity. Many of the environmental factors that contribute to childhood obesity can be changed or corrected. Increased awareness and continued family support should be prioritized in order to change the person's behavior.

In actuality, adopting a far healthier lifestyle would be a superior option for avoiding all those hazards. Society should focus on education and reducing the stigma associated with obesity. Mental health is also an important factor in maintaining a healthy lifestyle. Having good health is significant since it refers to the state of being physically, mentally, and socially healthy.

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