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The Obesity Epidemic

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Introduction

The obesity epidemic here in America is a frightening thing. It seems as if Americans just keep getting bigger and bigger, with no end in sight. From as recent as August, 2017, adult obesity rates in five states now exceed 35%, 24 states now exceed 30%, and 46 out of 50 states exceed 25% adult obesity ("Adult Obesity in the United States," n.d.). There are only three states, and Washington D.C. whose obesity rates were under 25%. However, the data they provided supports trends that show obesity rates are leveling out. It is not only adults that are obese. Childhood obesity is on the rise, with three in ten kids being overweight or obese ("Three in 10 U.S. Kids," n.d.). Unless something is done to change this, these numbers will continue to rise and Americans, young and old, will just keep getting bigger.

Within this research paper there will be several headings that will be looked into further, discussing everything there is to know about obesity, including:

- Childhood obesity
- Obesity in America
- What obesity can do to a person
- Obesity prevention

This research paper has to deal with a very current, up-to-date issue that many Americans are currently facing. The health of current and future

Americans is essential to continue our country. It is very important to teach the children and adults how to make healthy food choices that benefit them, and are good for their minds and bodies. It is also important to enforce exercising, and getting enough physical activity each day. This can be done a variety of ways. Some people who are older and have joint issues may enjoy swimming; middle-aged people may enjoy tennis or golf; and kids may enjoy more of a team sport such as soccer or basketball. However, all of these are doable by each age group. It doesn't matter what someone chooses to do to get their physical activity in, just as long as they do it. If an individual finds something they enjoy that allows them to exercise at the same time, they are much more likely to do it every day. It is essential to teach the benefits of healthy eating and exercising, along with teaching the consequences of unhealthy eating and not exercising.

Review of Literature

- Childhood obesity
- Obesity in America
- What obesity can do to a person
- Obesity Prevention

Childhood Obesity

Childhood obesity is where the obesity epidemic stems from. Nearly 40% of overweight children will endure weight problems through adolescence, while 75% to 80% of obese adolescents will become obese adults (Lifshitz, 2008).

This is why it is crucial to teach healthy ways of life at a young age. If children are taught good eating and exercising habits starting early, they are less likely to become obese as a child or adult. So, why have American children gotten to be so obese in the last 30 to 40 years? According to Dr. Lenna Liu, a pediatrician at the Odessa Brown Children's Clinic and the medical head of the obesity program at Seattle Children's Hospital, the change of the American culture in the last few decades has had a major impact on childhood obesity. She says, "Our portions are bigger, we're eating more processed and calorically dense foods, and we lead a more sedentary lifestyle. This combination has created a perfect storm (Burnett, 2012). She also mentions that children are spending much more time glued to televisions, iPads, phones, and computers instead of getting up and being active. Another thing she believes has led us down this road are the constant reports of alarming news from our news channels. It has made parents hesitant about allowing their children to play outside. She makes it clear that her opinion on the matter has to do more with how our culture as a whole models what is acceptable, and that it is not necessarily personal parenting choices. She says, "People talk about obesity like it's a personal choice, but right now you have to be deliberate to make healthy choices. It's actually easier to find less healthy food and be less active. That needs to change." It is true that eating healthy costs more than eating unhealthy. According to research by the Harvard School of Public Health, it costs about $1.50 more to eat healthy foods versus their unhealthy counterparts ("Eating Healthy vs. Unhealthy," 2014). We will

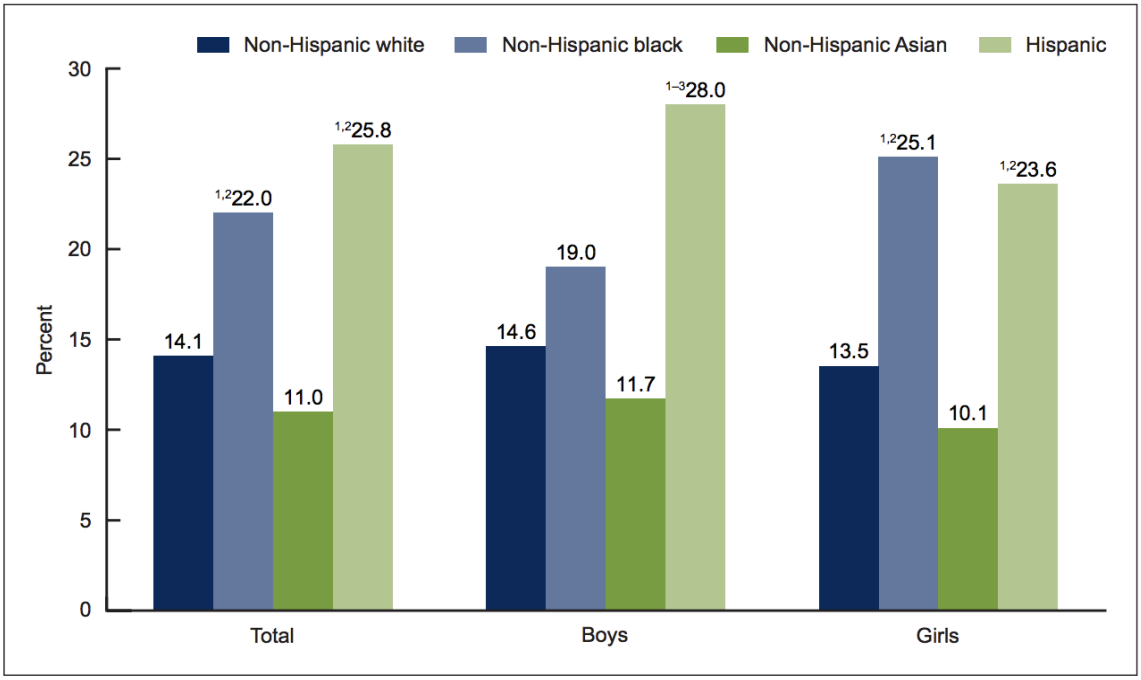
discuss this more later when looking further into the correlation between obesity and low income.

Another reason Dr. Liu believes our children are obese is because of our neighborhoods and communities. She believes our increase in motor vehicle use instead of walking or bicycling to close destinations has really increased. She says the way our communities are planned out, without safe walking routes to parks or other community centers has been really harmful to our children's health. Even if the news didn't scare parents into keeping their children inside, with the lack of sidewalks, it wouldn't even be safe to allow children to walk anywhere without sidewalks (Burnett, 2012). Dr. Liu notes that "even in urban communities with the physical infrastructure to support walking, a lack of access to healthy foods and safe outdoor spaces contribute to the high rates of childhood obesity." Poorer areas don't have the easy availability of fruits and vegetables compared to suburban areas. Also, even though the urban areas are physically built for people to walk, children may not be able to play outside as much as one would think due to safety concerns (Burnett, 2012). "One study found that the odds of a child being obese or overweight increases by 20 percent to 60 percent if he or she lives in a neighborhood with unfavorable conditions such as poor housing, unsafe surroundings and/or limited access to sidewalks, parks and recreation centers" ("The State of Childhood Obesity," n.d.).

Socioeconomic factors are heavily related to childhood obesity. "In fact, one recent study found that family income plays a larger role than race or

ethnicity in predicting childhood obesity, and that the relationship between Black and Latino children and obesity disappeared after controlling for income" ("The State of Childhood Obesity," n.d.). Also, unhealthy foods are strongly pushed on children through ads, with Black adolescents being exposed to a higher amount of unhealthy food marketing than White adolescents ("The State of Childhood Obesity," n.d.). The graph below has divided children aged 2-19 by sex and race, showing the prevalence of obesity.

Figure 4. Prevalence of obesity among youth aged 2–19 years, by sex and race and Hispanic origin: United States, 2015–2016

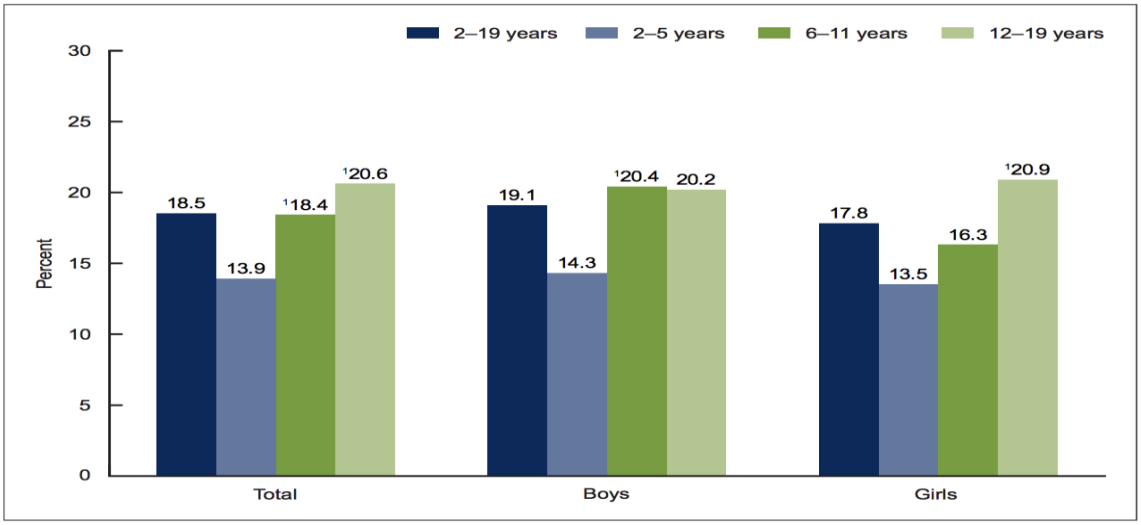


[1]Significantly different from non-Hispanic Asian persons.
[2]Significantly different from non-Hispanic white persons.
[3]Significantly different from non-Hispanic black persons.
NOTE: Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#4.
SOURCE: NCHS, National Health and Nutrition Examination Survey, 2015–2016.

It is clear in the graph that Hispanic youth and non-Hispanic black youth are at a much higher level of childhood obesity than their white and Asian counterparts. All the factors combined that cause childhood obesity contribute to this, including the safe areas to play outside, to socioeconomic factors, to their parents being able to afford healthy food choices.

According to The Annie E. Casey Foundation (2018), from 2015 to 2016, 31% of children ages 10 to 17 were classified as overweight or obese. They actually narrow the statistic down even farther to conclude that 33% of boys and 29% of girls are those affected. Due to these outrageous numbers, it is necessary that we think of ways to prevent more children from becoming obese. There have been numerous researches and studies on what to do, but it is time to start implementing the suggestions so we can put an end to this epidemic. The graph below shows the percent of obese children divided up by age groups, along with gender. It shows there is a compelling increase in the obesity rates from 2-19.

Figure 3. Prevalence of obesity among youth aged 2–19 years, by sex and age: United States, 2015–2016



¹Significantly different from those aged 2–5 years.
NOTE: Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#3.
SOURCE: NCHS, National Health and Nutrition Examination Survey, 2015–2016.

The most important thing when starting to teach your child about maintaining a healthy lifestyle is balance. Children have to learn to balance their calories from what they eat with how many calories they are burning through physical activity ("Preventing Childhood Obesity," 2015). The American Heart Association (2015) suggests six ideas to help lead your child toward a healthy

lifestyle. Their first suggestion is “Encourage healthy eating habits. Small changes can lead to a recipe for success!” It is important to offer all the foods on the food pyramid. Give children the opportunity to see what fruits and vegetables they like and will eat. Another way to encourage healthy eating habits is to give reasonably sized portions. It is important to show and teach children what a healthy amount of food is, along with what an appropriate amount of dessert is as well. Another idea is to not keep sugary drinks such as sweet tea, soft drinks, and juices in your house, and instead encourage children to drink water. The second suggestion given is to “Make favorite dishes healthier.” Many recipes can be made healthier with smart substitutions. For example, instead of butter, use soft margarine, or instead of heavy cream, use evaporated skim milk. They list many more substitutions that will help cut down on sodium, sugar, and fats. The third idea given to guide your child toward a healthy lifestyle is “Remove calorie-rich temptations.” It is acceptable to have treats every now and then, but instead of keeping a pantry full of Little Debbie’s best treats, keep more fruits and vegetables. Fourth, they suggest, “Help your kids understand the benefits of being physically active.” Not only does being physically active simply burn calories, it also strengthens bone, reduces stress and anxiety, and increases self-esteem. Next, they advise, “Help kids stay active.” Children and teens should have some sort of physical activity for at least one hour every day. Parents can have a great effect on whether or not their children get it. Parents can get more involved by going outside and interacting with their children. They could go for a walk, play basketball, swim, or just simply turning on the music and

dancing inside. Lastly, they recommend, “Reduce sedentary time.” It is important to encourage your children to get up and find fun activities and hobbies they enjoy. Spending some time in front of a screen is fine, but is it imperative children do not come home from school and spend all their time staring at a screen. These six suggestions should hopefully help guides parents guide their children to make the right decisions to prevent them from becoming obese.

There are many health complications that can arise from childhood obesity, some immediate and some long term. According to the Childhood Obesity Foundation (n.d.), “As a result of obesity it is possible that for the first time in history our children may have a shorter lifespan than their parents.” The medical problems that come with being obese as a child are those that have been almost only found in adults, until now, but due to obesity have made their way to the children (“What are the Complications,” n.d.). The health complications listed are: type 2 diabetes, high blood pressure, liver disease, bone and joint problems, respiratory problems, earlier than normal puberty or menstruation, eating disorders, skin infections, and fatigue.

Type 2 diabetes is a condition where the body does not properly process blood sugar. It used to be considered an adult-only disease. However, it is becoming increasingly common in children. According to Holland and Watson (2016), “Until 10 years ago, type 2 diabetes accounted for less than 3% of all newly diagnosed diabetes cases in adolescents; it now comprises 45% of all

such cases." That is an astronomical 15 time increase in the past ten years. Some symptoms of type 2 diabetes are excessive fatigue, excessive thirst, frequent urination, increased hunger, slow-healing sores, and darkened skin (Holland and Watson, 2016).

Unlike type 2 diabetes, there aren't really any symptoms for high blood pressure in children, and a lot of times the exact cause is unknown. High blood pressure means there is higher than normal pressure on your heart and blood vessels, which over time can lead to more serious problems, such as heart attack, store, or heart and kidney diseases ("What is High," n.d.). Since the ideal blood pressure number differs with a child's age, there is not just one specific target reading doctors and nurses are looking for. Depending upon a child's age, high blood pressure would be considered a reading that is in the 95th percentile or higher than those of the same age. High blood pressure in children is typically related to another health issue, such as heart defects, kidney disease, or genetic conditions, along with obesity being a main factor (Mayo Clinic Staff, 2017).

The particular liver disease in children that is caused by obesity is known as non-alcoholic fatty liver disease. It is simply when there is too much fat being stored in the liver, which over time can cause swelling and scar tissue (Temple, Cordero, Li, Nguyen, & Oben 2015). This then leads to another problem: cirrhosis – which can lead to liver failure or loss of liver function. Some symptoms are pain in the right upper part of the stomach, fatigue, and increased

levels of liver enzymes in the blood. The level of normal liver enzymes in the blood will depend on the child's age ("Nonalcoholic Fatty Liver Disease, 2017).

A child's bones and joints can be severely impacted by excess fat on their growing body. Bones are growing and developing in size and strength during adolescence. According to the American Academy of Orthopaedic Surgeons (2014), "Excess weight can damage the growth plate – the area of developing cartilage tissue at the end of the body's arm, leg and other long bones. Growth plates regulate and help determine the length and shape of a bone at full growth or maturity." When a child is obese it is extremely hard on their bones, leading to early arthritis, being more susceptible to broken bones, or other serious issues, such as slipped capital femoral epiphysis and Blount's disease ("The Impact of Childhood Obesity, 2014).

Respiratory problems are issues that are brought forth that make the simple act of breathing harder on the body. Both asthma and sleep-disordered breathing are more common in obese children (Fiorino & Brooks, 2009). There is a wide range of symptoms of respiratory diseases: shortness of breath, wheezing sound when exhaling, chest pain, chest congestion, frequent loud snoring, gasping, unexplained bedwetting (Xanthopouls & Tapia, 2017). Unfortunately, the results of the treatments of these diseases tend to be better in non-obese children compared to their overweight counterparts (Xanthopouls & Tapia, 2017).

Early puberty is defined by starting before age 8 in girls, and age 9 in boys (Griffin, n.d.). Paul Kaplowitz, MD, PhD (n.d.), chief of the division of endocrinology at Children's National Medical Center in Washington, D.C. said, "A number of studies have shown that girls who are overweight are more likely to have puberty early, and that girls who are underweight – and especially anorexic – undergo puberty later." Researchers believe that there is a link between obese girls and early puberty, however, not obese boys and early puberty. According to Jami Josefson (n.d.), MD, a pediatric endocrinologist at Children's Memorial Hospital in Chicago, "Boys who are obese actually tend to hit puberty later than average." The increasing rates of obesity and early puberty seem to be parallel. According to WebMD, "In 1965, about 5% of kids age 6-11 were obese. In 2008, it was almost 20% (Griffin, n.d.).

Eating disorders, obesity, and other weight problems may overlap with each other as the child moves around from one problem to the other. According to the National Eating Disorder Information Centre (2015),

> Body dissatisfaction and unhealthy dieting practices are linked to the development of eating disorders, obesity, and other problems. High numbers of adolescent girls are reporting that they are dissatisfied with their bodies and are trying to lose weight in unhealthy ways, including skipping meals, fasting, and using tobacco.

These behaviors are extremely harmful and could result in a wide number of even bigger health problems. Obese children may choose to binge eat, which means eating a very large amount of food at one time. More than one-third of obese individuals in weight-loss treatment programs report difficulties with binge eating" ("Eating Disorders and Obesity," 2015). Even though sometimes not visible to outsiders, those with eating disorders need to seek professional help because these can turn into serious medical issues.

There are so many internal health issues that come from obesity that sometimes it seems like our biggest organ, skin, is forgotten about. Skin infections and obesity are related because when moisture gets trapped in skin folds, it is the perfect breeding place for bacteria. Obesity changes the skin barrier, can activate skin manifestations, and worsen existing conditions such as psoriasis (Lau & Hoger, 2013). Obesity can also be linked to stretch marks and skin tags (Lau & Hoger, 2013). Obesity is also associated with acne, male and female pattern baldness, male-pattern hair growth on a woman's face, chest, and back, and also excessive male hormones in females (Lau & Hoger, 2013).

Fatigue, which can be described as feeling weak or tired all the time, is yet another health issue related to childhood obesity. From Parenting.com (2014),

> In a review of studies in the journal Archives of Disease in Childhood, researchers found that kids who sleep less than the recommended amount of about 13 hours a day at age 2 are more likely to be obese at

age 7. One reason: Fatigue alters the levels of appetite-regulating hormones, which can cause children to eat more.

Being overweight as a child cannot only affect a child's physical health, but also their mental, emotional, and social health. Humans are social creatures, and when a child feels that they don't fit in well with their peers, it can have a major effect on them, carrying on even through their adult lives. Some psychological factors that are associated with obesity are depression, anxiety, low self-esteem, body dissatisfaction, and emotional problems (Russell-Mayhew, McVey, Bardick, & Ireland, 2012). These are all serious mental issues that can affect the daily life of a child. For example, they may have low self-esteem and be embarrassed about it around around their peers, which causes them to keep to themselves and not talking to anyone, which leads to not making many friends, which is a whole other issue with children.

According to studies, the link between depression and obesity it not unidirectional; depression may be both a cause and a consequence of obesity (Russell et al., 2012). Someone might be depressed because they are obese, but then you might have someone who is depressed so they overeat and become obese. The link goes both ways. Research has shown that the relationship between low self-esteem and obesity in children is mixed. Some studies have found that children who are obese have lower self-esteem, while others have not (Russell et al., 2012). Girls are much more likely to be

dissatisfied with their bodies than boys. In our culture, we are pushed to believe that thinness is what makes a female beautiful, while males are encouraged to be thin, but also built and muscular (Russell et al., 2012). According to research, being female, younger, and obese seemed to make emotional problems more frequent (Russell et al., 2012).

"Weight-based stigmatization is defined as "negative weight-related attitudes and beliefs that are manifested through stereotypes, bias, rejection, and prejudice toward children and adolescents because they are overweight or obese" (Russell et al., 2012). Some think that because of the increase in childhood obesity, the stigma associated with it would have decreased over the years. To their surprise, negative feelings toward obese children have actually increased in the last 40 years (Russell et al., 2012). Since obesity is not something you can hide, along with it being something that most people believe can be controlled (eat less and exercise more), people have a bias toward it. "Obesity is considered to be one of the "most stigmatizing and least socially acceptable conditions in childhood"" (Russell et al., 2012). As mentioned earlier, the effects of obesity can be seen into adulthood. "Childhood obesity is related to fewer years of education, lower family income, higher poverty rates, and lower marriage rates in later young adulthood" (Russell et al., 2012). According to another study, children link obesity with many unwanted traits and prefer not to associate with obese peers (Russell et al., 2012).

Obesity in America

Are you at a normal weight? Are you just overweight? Are you obese? Are you extremely obese? How can you tell? Let's discuss the many ways to determine obesity. The most popular methods for determining body fat are: body mass index (BMI), waist circumference, waist-to-hip ratio, skinfold thickness, bioelectric impedance (BIA), underwater weighing, air-displacement plethysmography, dilution method, dual-energy x-ray absorptiometry (DEXA), and computerized tomography (CT) and magnetic resonance imaging (MRI) ("Measuring Obesity," 2016). Each of these has their strengths and limitations, which make certain choices better for certain people.

Body mass index is simply a ratio of weight to height. The BMI calculator takes your weight in kilograms and divides it by the square of your height in meters. A couple strengths of BMI is that it is simple and quick to measure, along with being cheap, or free if you do it yourself at home. Once the BMI calculations are done and a person knows their BMI, they can figure out what category they fall in. A BMI of 18.5-24.9 is normal weight; a BMI of 25.0-29.9 is overweight; a BMI of 30.0 is obese ("Measuring Obesity," 2016). Another strength is that BMI predicts higher risk of chronic disease and early death ("Measuring Obesity," 2016). It also has very reliable, accurate results when compared against the most accurate methods. However, BMI also has some

limitations. One is that it is not as accurate in elderly people as it is in younger and middle-aged adults. Another limitation that BMI faces is that the measurements are “indirect and imperfect,” since it does not differentiate between body fat and lean body mass.

Next, there is weight circumference. According to the Harvard School of Public Health (2016), “Waist circumference is the simplest and most common way to measure “abdominal obesity”--- the extra fat found around the middle that is an important factor in health, even independent of BMI.” Waist circumference is just the circumference of the abdomen. There are three places it can be measured: between the lowest rib and the top of the hipbone, the belly button, or at the narrowest point of the midsection (“Measuring Obesity,” 2016). Some strengths of this method are that it is extremely easy to measure, cheap, and studies show that waist circumference is a good predictor of development of disease and death. Also, just like BMI, when compared to the measurements of the most accurate methods, the results are similar. A couple of limitations of weight circumference are that it has not been standardized and it doesn’t have reference data for children. It could also be very difficult to measure and less accurate in people that have a BMI of 35 or higher (“Measuring Obesity,” 2016).

Waist-to-hip ratio is used to measure abdominal obesity. It is calculated by measuring the waist and the hips, and then dividing the waist measurement by the hip measurement (“Measuring Obesity,” 2016). It is important that the hip

measurement is at the widest point around. Similar to waist circumference, waist-to-hip ratio is low-cost, has good results when compared to the most accurate methods, and helps predict the development of disease and death in adults (“Measuring Obesity,” 2016). Some limitations of this method are that it is more likely to have a measurement error since there are two measurements, it is harder to measure hips than the waist, and it may be hard to get measurements in people with a BMI of 35 or higher.

The next method is skinfold thickness. In order to measure body fat with this method, “researchers use a special caliper to measure the thickness of a “pinch” of skin and the fat beneath it in specific areas of the body (the trunk, the thighs, front and back of the upper arm, and under the shoulder blade)” (“Measuring Obesity,” 2016). Based on these measurements, researchers are able to use equations to predict body fat measurements. The pros of this method are that it is convenient, safe, cheap, portable, and fast and easy, with the exception of individuals with a BMI of 35 or higher (“Measuring Obesity,” 2016). The cons to this method are that it is not as accurate as other methods, it is not as likely to get the same measurement twice, and it is extremely hard to measure in people with a BMI of 35 or higher (“Measuring Obesity,” 2016).

Another method used to measure body fat is bioelectric impedance (BIA). There is special equipment for BIA, which sends a small, indistinguishable, safe electric current through the body, which measures the resistance (“Measuring

Obesity," 2016). How does it actually measure the body fat, though? The current faces more resistance going through body fat than it does going through lean body mass and water, so based on how much resistance the current goes through, equations can be used to estimate body fat percentage and fat-free mass ("Measuring Obesity," 2016). Some positives of this type of measurement are that it is convenient, portable, safe, cheap, and fast and easy ("Measuring Obesity," 2016). Some negatives are that it is hard to calibrate and the ratio of body water to fat could change due to illnesses, dehydration, or weight loss, which decreases accuracy ("Measuring Obesity," 2016). Also, as similar to many other kinds of the methods, it is not as accurate in individuals with a BMI of 35 or higher.

Underwater weighing, or densitometry, is where "individuals are weighed in air and while submerged in a tank ("Measuring Obesity," 2016). This method, which is typically only used by researchers in a research setting, works because "researchers use formulas to estimate body volume, body density, and body fat percentage" ("Measuring Obesity," 2016). Due to fat being more buoyant than water, someone with higher body fat will have a lower body density than someone with low body fat ("Measuring Obesity," 2016). This method has more limitations than it does strengths, due to its unusual manner. It is very time consuming, requires individuals to be submerged in water, and it is limited as to who it is a good choice for ("Measuring Obesity," 2016). Since the individual must be submerged, it is typically not a good choice for kids, the elderly, or

people with a BMI of 40 or higher (BMI). However, on a positive note, it is a very accurate method.

Air-displacement plethysmography is similar to the underwater weighing, but can actually be done in air ("Measuring Obesity," 2016). During this method, individuals will be in their bathing suits sitting in a small chamber. All the individual has to do is sit and breathe; the machine will do all the work. This expensive method uses a machine to "estimate body volume based on air pressure differences between the empty chamber and the occupied chamber" (Harvard). The only limitation to this method is that it is costly. The strengths are that it is accurate, safe, and relatively quick and comfortable ("Measuring Obesity," 2016). Also, since it is so simple and easy, it is a good choice for kids, pregnant women, elderly, and even individuals with a BMI of 40 or higher ("Measuring Obesity," 2016).

Dilution method, or hydrometry, is a simple to do method. All individuals have to do is drink isotope-labeled water and give body fluid samples ("Measuring Obesity," 2016). The body fluids provided are then used by the researchers to study the isotope levels. The findings can then be "used to calculate total body water, fat-free body mass, and in turn, body fat mass" ("Measuring Obesity," 2016). This method is accurate, safe, relatively inexpensive, and can be used in individuals with a BMI of 40 or higher, children, and pregnant women. However, due to illnesses, dehydration, or weight loss,

the ratio of body water to fat-free mass could fluctuate, which decreases the accuracy of this method (“Measuring Obesity,” 2016).

Another way to measure body fat is dual energy x-ray absorptiometry (DEXA). This method, which is typically only used for research purposes, is unlike any of the previous methods. According to the Harvard School of Public Health (2016), “X-ray beams pass through different body tissues at different rates. So DEXA uses two low-level X-ray beams to develop estimates of fat-free mass, fat mass, and bone mineral density.” This method is accurate in it’s measurements, but it cannot accurately tell the difference between types of fat, which could lead to a misreading. Also, the equipment is expensive and not portable. It also has limitations as to who can use this method; pregnant women cannot be exposed to radiation, and individuals with a BMI of 35 or higher will not receive an accurate reading (“Measuring Obesity,” 2016).

Computerized tomography (CT) and Magnetic Resonance Imaging (MRI) are now considered to be the most reliable, accurate methods “for measuring tissue, organ, and whole-body fat mass as well as lean muscle mass and bone mass” (“Measuring Obesity,” 2016). However, they are generally only used for research purposes. These two imaging techniques are very accurate, and even grant the possibility the measure specific body fat compartments (“Measuring Obesity,” 2016). On the negative side, the equipment is very expensive and cannot be transported. They can also not be used on pregnant women or

children, and may not be able to accommodate individuals with a BMI of 35 or higher (“Measuring Obesity,” 2016).

One thing all of these measurements have in common is that they all are related to BMI, by either being a good choice for people with a higher BMI, or not being a good choice for people with a higher BMI. Many charts are made to help people easily know their BMI. Shown below is a chart that shows Body Mass Index measurements and their ideal height to weight ratio.

So, if an individual is 5’6”, or 66 inches according to the chart, and they weigh 120 pounds, their BMI is between 19 and 20, and they are at a normal, optimal

weight. However, if an individual is 5'6" and they weigh 170 pounds, their BMI is between 27 and 28, and they are considered overweight. Being considered obese at 5'6", starts at 186 pounds and gives an individual a BMI of 30. To be considered in the extreme obesity category at 66 inches, their weight needs to be 247 pounds.

Now that we have discussed how to actually measure body fat and tell if an individual is at a normal weight, overweight, obese, or extremely obese, let's look at why America in general, adults and children included, are so fat. There are no specific, definite answers or reasons; there are a multitude of reasons. There has many been many studies and research done on why America is so big, and although there are a lot of different answers, evidence tells us what most of us already know: we are eating too much and not exercising enough.

According to PublicHealth (2017), these three reasons are the leading causes: bigger portions, confusing "diet" for "nutrition," and inactivity being the new normal. As reported by the U.S. Department of Agriculture, the average American ate 20% more calories in the year 2000 than they did in 1983. They claim the reasoning for this is because of a major surge in meat consumption. In present day, Americans devour an average of 195 pounds of meat every year, compared to just 138 pounds in the 1950's ("Why are Americans Obese," 2017). Also, over the same period, 45% more grains were eaten since the 1970's, and

consumption of added fats jumped up by about two thirds (“Why are Americans Obese,” 2017).

Americans are so into “dieting” and what is the quickest way to lose weight, that they forget that it is more about nutrition and what they eat and how much, instead of just losing weight quickly, and then ending up putting it right back on. It seems everyone gets really into all the new diet fads and schemes, and instead of being focused on what will help them be healthier long term, they are focused on what can make them skinniest as fast as possible. The less they have to do, the better. It appears Americans are more worried about being “skinny,” because that is what is socially acceptable, instead of being healthy by eating nutritiously and exercising regularly. That’s why so many people try the newest diets all the time, buy the diet books, the pills, and even go to extreme measures of having lap-band surgery or liposuction (“Why are Americans Obese,” 2017). It also doesn’t help that a lot of the latest diet trends, after time, eventually come out as not healthy at all. For example, during the 1990s, everything went to low fat or fat-free, because everyone was afraid the fat in foods was what were making people so obese (“Why are Americans Obese,” 2017). Everyone was in on this latest trend, eating anything they wanted, because it’s “fat-free.” However, if it sounds too good to be true, it probably is.

Again, according to PublicHealth (2017),

> As it turns out, most food companies were just swapping hydrogenated oils and sugar in for the animal fats they removed from low-fat products. Hydrogenated oils are restructured vegetable oils that carry high levels of trans-fats, an amazingly evil type of fat that can raise your bad cholesterol, lower your good cholesterol and increase your risks of developing heart disease, stroke, and diabetes.

Not surprisingly, this confusing swap was not good for people's health. It took Americans decades to realize this was not a good alternative to healthy eating.

Lastly, Americans have become very sedentary in their lifestyles, at work and at home. The change in job environments has contributed to the lack of movement, considering most Americans are sitting at their jobs for most of the day. According to one study, 50% of jobs in 1960 required moderate physical activity, and that number has declined to 20% today ("Why are Americans Obese," 2017). More research concludes that Americans burn 120 to 140 fewer calories a day than they did 50 years ago; figure that in with bigger portions and unhealthier food choices, and it is the perfect recipe to gain weight ("Why are Americans Obese," 2017). Adding onto less moving at the workplace, Americans also walk less than people in any other industrialized country, preferring to drive cars ("Why are Americans Obese," 2017). According to the CDC, a staggering amount of 80% of Americans don't get enough exercise.

Along with the preceding causes, there are also a number of other things that are thought to play a part in the obesity epidemic, some which can begin while a child is still in utero. For example, smoking ("Why are Americans Obese," 2017). That means that if a woman smokes while she is pregnant, she is raising her *child's* chances of becoming obese once out of the womb. Although we hope that women do not smoke while pregnant, 10% of women reported smoking during their last trimester ("Reproductive Health," 2017). Unfortunately, this gives those children a disadvantage to their health before they are even born.

There are other factors that can contribute to a child having a disadvantage before even coming out of the womb: excessive weight gain in pregnant mothers, poor sleep, and stress ("Why are Americans Obese," 2017). If a woman gains too much weight during her pregnancy, she raises her child's chances of being overweight ("Why are Americans Obese," 2017). Not just being born overweight, but being overweight as a child. Also, if a pregnant woman doesn't get good sleep, it can lead to this outcome, along with being stressed out during pregnancy. It is interesting that how a woman handles pregnancy and the factors surrounding her pregnancy can affect their unborn baby even throughout childhood.

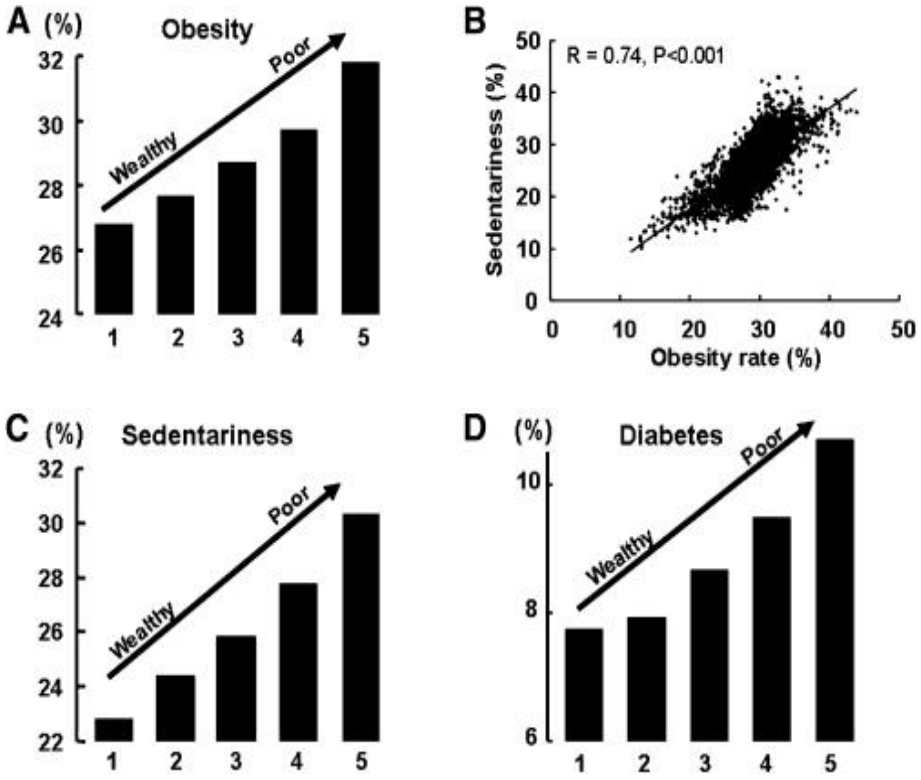
Since discussing pregnant woman, another factor contributing to the obesity epidemic is women gaining an unhealthy amount of weight during pregnancy. Compared to other ages, American women aged 35 to 44 have

taken claim to the greatest increase in obesity prevalence in the last 45 years (Gunderson, 2009). Add that along to that the fact that 45% of women begin pregnancy already overweight or obese, which is up from 24% in 1983, it is not a good recipe for healthiness (Gunderson, 2009). Also, gestational weight gain is higher than ever before, with 43% of pregnant women gaining more than is suggested (Gunderson, 2009). It is very hard to lose that weight, especially when having a newborn who needs care 24/7, and possibly other children that also need care and attention. Most new mothers do not have a surplus of time, and if they do, exercising is most likely not a priority. As mentioned earlier, gaining too much weight before, during, or even after pregnancy, can affect the pregnancy, the pregnant woman herself, but also the unborn child throughout their childhood.

Who is most likely to be overweight or obese? Does it matter if someone is rich or poor? Does it matter if they are African American, Caucasian, or Asian? Does it matter if they are male or female? Do race, social economic status, and gender affect the likelihood of someone being overweight or obese? According to research, yes.

In America, the people who live in the most impoverished areas are those most likely to be obese (Levine, 2011). In one study, 3,139 U.S. counties were reviewed, with results showing that counties with poverty rates greater than 35% have obesity rates 145% greater than wealthy counties (Levine, 2011). Below

there are four graphs that show the data from the 3,139 counties that were studied.



From the study:

> Data from 3,139 counties in the U.S. Quintiles are cohorts of counties ranked by the percentage of people living with poverty. Quintile 1, the wealthiest quintiles, includes 630 U.S. counties with a mean county poverty rate of 8.2% (median household income, $56,259). Quintile 5, the poorest quintile, includes 629 counties with a mean poverty rate of 25% (median household income, $32,679). *A*: County age-adjusted obesity rates by poverty quintile. *B*: County obesity rates vs. county leisure-time sedentary rates (sedentary adults are those who report no physical activity

or exercise other than at their regular job). *C*: County sedentary rates. *D*: Age-adjusted diabetes rate by poverty quintile.

As mentioned earlier, lower-income areas don't have as much access to healthy food choices. They are sometimes called "food deserts" due to the lack of being able to obtain fresh food (Levine, 2011). Of the households with incomes below the poverty line, which is $21,756, 43% of them are food insecure, or "uncertain of having, or unable to acquire, sufficient food" (Levine, 2011). Along with that, 14% of U.S. counties have more than 1 in 5 individuals that use the Supplemental Nutrition Assistance Program (Levine, 2011). This program gives people the funds to afford healthy food, however, they are not able to access it due to their location (Levine, 2011). There are likely many other reasons as to why poverty and obesity seem to be correlated.

People located in poorer areas tend to be more sedentary than those in wealthier areas. There are many reasons why this could be. For one, violence seems to move parallel to poverty, hindering people from being outside. Poor counties also don't have the same opportunity when it comes to parks or sports facilities (Levine, 2011). Along with not being able to get exercise outside, individuals in poverty are less likely to have money to spend on gym memberships, gym clothing, or exercise equipment (Levine, 2011). Those that are able to afford exercise equipment or gym memberships have a much higher ability to stay fit and have a healthier lifestyle. This is the same for those that are

in a better area that have more opportunities to buy healthy, fresh foods for themselves and their families.

Socioeconomic status and obesity have long said to be related, and this paper has discussed why. Now we are going to cover some more facts about the relationship between the two. According to The State Of Obesity (n.d.), almost 33% of people who were high school dropouts were obese, compared with the 21.5% of those who graduated from college. Also, more than 33% of individuals who earn less than $15,000 per year are obese, compared to the 24.6% of those who make a minimum of $50,000 a year ("Socioeconomics and Obesity," n.d.).

The socioeconomic standard of an adult relates to obesity, but since children go to school five days a week, and potentially have two meals there, does it relate to kids too? The short answer is yes. According to the National Survey of Children's Health (2007):

- Children of parents with less than 12 years of education had an obesity rate 3.1 times higher (30.4 percent) than those whose parents have a college degree (9.5 percent).
- Children living below the federal household poverty level have an obesity rate 2.7 times higher (27.4 percent) than children living in households exceeding 400 percent of the federal poverty level.

- Children living in low-income neighborhoods are 20 percent to 60 percent more likely to be obese or overweight than children living in high socioeconomic status neighborhoods and healthier built environments.
- Girls (ages 10 to 17) living in neighborhoods having lower socioeconomic characteristics are more likely to be obese (19.2 percent) and overweight (35.7 percent) than are girls living in neighborhoods having higher socioeconomic characteristics.

These facts are astounding. As mentioned earlier, what a woman does while pregnant can affect her unborn child in many ways, including making them more likely to be obese. However, children are also *very* affected by the socioeconomic status of their parents, making them, again, more likely to be obese. One may think due to having school Monday through Friday, and being at school for breakfast and lunch, children would not be as affected by this, but clearly not. Schools and their influence on children's health will be discussed later in the paper.

Next going to be discussed are the racial/ethnic disparities when it comes to obesity. In America, African Americans and Latinos have a considerably higher rate of obesity compared to Caucasians ((“The State of Obesity,” n.d.). This is true for both men and women. The next bit of information regarding racial disparities within obesity is provided by The State of Obesity (n.d.). This

research included adults aged 20 and up. According to this research, the percentage of adults that are obese is 34.9%. Another 33.6% fall into the category of "overweight," giving a total of 68.5% of all adults either being considered obese or overweight. Now, that is going to be broken down by race, including African Americans, Latinos, and Caucasians.

The percentage of black people who are obese is 47.8%. If being overweight is included in that, it is another 24.8%, giving a total of 76.2% of African Americans falling into the obese or overweight categories. The percentage of Latinos who are obese is 42.5%. The percentage of Latinos who are overweight is 35.4%. So the total for obese or overweight Latinos is 77.9%. Next, 32.6% of Caucasians are obese, and another 34.6% are overweight. This gives a total of 67.2% white people who are considered obese or overweight. With this research, it is clear that white people are about 10% less likely to be obese than black people or Latinos.

This can be broken down even further according to gender. Out of all male adults, 33.7% are considered obese, with another 37.9% being overweight, giving a total of 71.6%. When broken down even further, 37.1% of black males adults are obese, along with another 32.1% being overweight, for a total of 69.2%. As for the Latinos, 40.1% of male Latinos are obese, adding onto that is another 38.5% who are overweight, for a total of 78.6%. When it comes to white males, 32.4% are obese, and another 39% are overweight, giving a total of

71.4%. Differing from the results of the male and females combined, black men are actually least obese or overweight from the male category.

When it comes to women, 36.5% of all women are obese, and 30% are overweight. This gives a total of 66.5% of all adult women being obese or overweight. Now, broken down into subcategories, a whopping 56.6% of black women are obese, and another 25.4% are overweight. This makes for a total of 82% of adult black women being obese or overweight. To put that in a different perspective, about eight out of ten black adult women are carrying extra pounds on them. As for Latino women, 44.4% are obese, and 32.8% are overweight. This makes for a total of 77.2% adult Latino women that are obese or overweight. Lastly, with a much lower number than the other two for obese women, only 32.8% of white women are considered obese. Another 30.4% are overweight, making a total of 63.2% of white women being obese or overweight. Compared to the African American women, that is almost a 20% decrease; compared with the Latino women, it is almost a 15% decrease.

With the information provided from that study, it can be concluded that the Black and Latino communities have disparagingly large amount of obese and overweight individuals. However, when divided by gender the black males had the least amount of these individuals, but the black women, by a large margin, had the most. The Latino men had a much larger percentage than both the black men and white men, being the only group that had a higher number than when all

the men were combined. On the other hand, for women, the black women had a much higher number when compared to both Latino women and white women. Their percentage of 82% was 15.5% higher than when all the women were combined. White women were the only group to fall below the average, being under it by 3.2%. These numbers are alarming, considering that this many adults are considered overweight and obese is not healthy for them, or for the future of the United States.

Childhood obesity rates were discussed earlier in the paper; however, they were not broken up by race and gender. The coming information can be used to compare to the preceding information about adults. This information is also provided by The State of Obesity (n.d.). These are children aged 2-19 that live in America. For all children, black, Latino, and white included, 16.9% are obese, with another 14.9% overweight. This makes for a total of 31.8% of all children in the obese or overweight category. When broken up by race, 20.2% of black children are obese, and another 12.3% are overweight, totaling 32.5%. Next, 22.4% of Latino children are obese, along with another 16.5% being overweight. This brings the total of obese and overweight Latino children to 38.9%. Compared to the other two, white children have a low number of obese children: 14.3%. Add to that another 14.2% to account for the overweight children, resulting in a total of 28.5%. Therefore, from the research, it can be seen that Latinos have a higher number of obese and overweight children than

African Americans and Caucasians. As reported earlier, Latinos also have the highest number of obese and overweight adults, too.

When the information is divided by gender, boys have a slightly higher number of obese and overweight children, only topping the girls by 0.4%. The total of obese boys is 16.7%, with another 15.3% being overweight. This makes for a total of 32%. Now, when divided into race, 19.9% of African American boys, aged 2-19, are obese. Another 14.5% are overweight, making for a total of 34.4% that are either obese or overweight. Next, the Latino boys have a higher number of 24.1% being obese, and another 16.6% that are overweight. This totals out to 40.7%. That is approximately four out of ten Latino boys that are considered obese or overweight. Next, the Caucasian boys have the lowest number of obesity, with only 12.6% falling in that category. However, the number of overweight Caucasian boys falls right between the African American boys and Latino boys, with a percentage of 15.2%. Altogether, Caucasian boys have a total of 27.8% who are obese or overweight.

As mentioned earlier, the girls are only 0.4% away from the boys when considering all children who are obese are overweight. However, when broken down my race, both African American girls and Caucasian girls have a higher percentage than the boys. The percentage of all girls who are considered obese is 17.2%, with another 14.4% who are considered overweight, accumulating a total of 31.6%. Now, when separated by race, 20.5% of African American girls

are obese, and another 15.6% are overweight, totaling 36.1%. Latino girls are very close with African American girls, with 20.6% of them being obese. Adding to that is another 16.4% who are overweight, making a total of 37%. This differs from African American girls by only 0.9%, so they are in a very close range. Lastly, Caucasian girls have a much lower number compared to the other two. Only 15.6% of Caucasian girls are considered obese, with another 13.6% considered overweight. The total for this is 29.2%, which is quite a bit lower than both the African American girls and Latino girls.

From this information, it can be concluded that Latino boys are the most obese and overweight group of children. After Latino boys would come Latino girls, beating African American girls by a small margin. After African American girls are African American boys, having a lower percentage of obese and overweight children by 1.7%. Second from the bottom are Caucasian girls, then, of course, are Caucasian boys. The Caucasian children are the only ones whose percentages were in the 20's. And the Latino boys were the only ones who percentage was in the 40's. This large gap is not good for the future of America. Children's healthiness should be one of the top priorities. That is why it is important to discuss obesity prevention, which will be examined at a later point in this paper.

<u>What obesity can do to a person</u>

There are so many health risks, mentally and physically, that come along with being obese. There were some mentioned earlier when discussing children, but there are even more when it comes to adults. It seems like everything can be related back to obesity. According to the Centers for Disease Control and Prevention (2015), people who are obese, compared to those at a healthy weight, are more likely to be affected by one, or many, of these serious health conditions:

- Morality
- High blood pressure
- High LDL cholesterol, low HDL cholesterol, or high levels of triglycerides
- Type 2 diabetes
- Coronary heart disease
- Stroke
- Gallbladder disease
- Osteoarthritis
- Sleep apnea and breathing problems
- Some cancers
- Low quality of life
- Mental illness such as clinic depression, anxiety, and other mental disorders
- Body pain and difficulty with physical functioning

Some of these were mentioned earlier when researching childhood obesity, however, there are some that only affect adults. These will be further discussed now.

Being obese or overweight raises adults chances of having high LDL cholesterol, low HDL cholesterol, or high levels of triglycerides. So, what exactly is cholesterol? A human's liver makes all the cholesterol that is needed. However, extra cholesterol comes from foods from animals, which are high in trans fat, and cause the liver to make more cholesterol than it normally would ("Cholesterol 101," n.d.). This can cause peoples' cholesterol levels to go from healthy to unhealthy. There are two kinds of cholesterol: LDL and HDL ("Cholesterol 101," n.d.). LDL is the bad cholesterol, and HDL is the good cholesterol. Too much LDL, or not enough HDL, can cause negative affects on the body. Cholesterol can combine with other substances and create a thick, hard deposit that can stick to the sides of the arteries, making them less flexible, possibly leading to a clot and resulting in a blocked artery, which can cause a heart attack or stroke ("Cholesterol 101," n.d.). When it comes to health, it seems everything is intertwined, and if something happens to one thing, in turn, it will result in something else happening.

Another negative affect of obesity is it raises the chances for coronary heart disease. Coronary heart disease is a disease where plaque sets up inside the coronary arteries, which are vital arteries that supply oxygen-rich blood to

your heart (“Coronary Heart Disease,” n.d.). Plaque building up in arteries is called atherosclerosis.

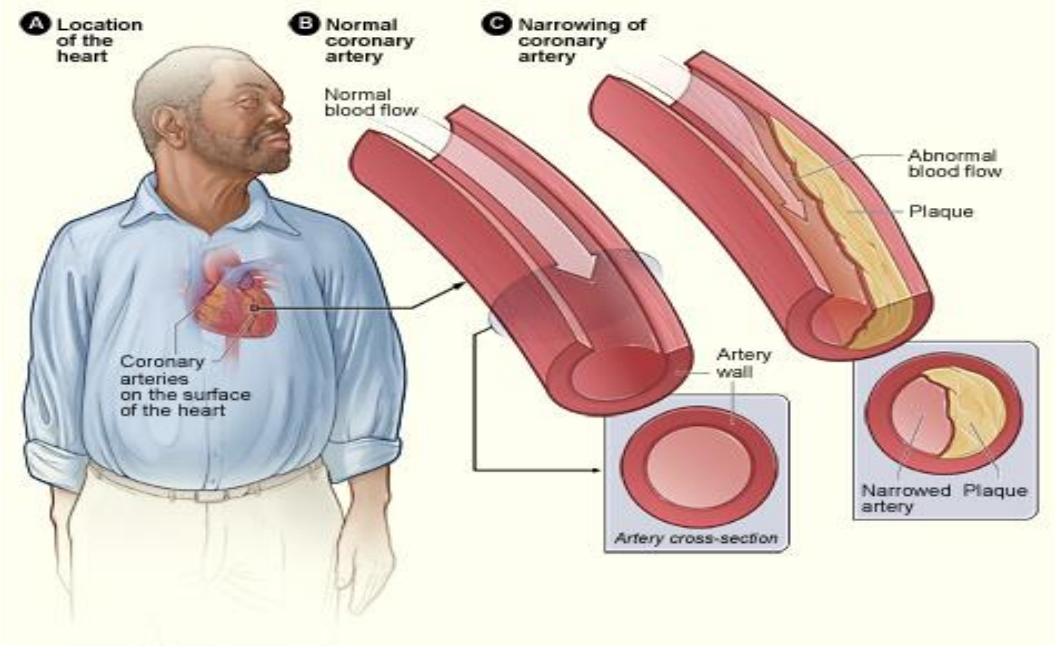


Figure A shows the location of the heart in the body. Figure B shows a normal coronary artery with normal blood flow. The inset image shows a cross-section of a normal coronary artery. Figure C shows a coronary artery narrowed by plaque. The buildup of plaque limits the flow of oxygen-rich blood through the artery. The inset image shows a cross-section of the plaque-narrowed artery.

(“Coronary Heart Disease,” n.d.)

Basically, if the oxygen-rich blood to the heart is reduced or blocked due to the plaque, it can lead to angina or a heart attack. Being obese obviously raises the chances of this occurring.

The possibility of having a stroke increases if an individual is obese or overweight. Basically, a stroke is a “brain attack” (“What is stroke,” 2016).

It can happen to anyone, but just as the many other diseases, there are risk factors that increase the chances or it happening to certain individuals. Strokes happen when blood flow to an area of the brain is cut off (“What is Stroke,” 2016). When this happens, brain cells do not receive the oxygen they need and begin to die off (“What is Stroke,” 2016). In turn to the brain cells dying, it causes the abilities controlled by that area of the brain, such as memory or muscle control, to be lost (“What is Stroke,” 2016). The other negative diseases that come with having too much body fat, such as high blood pressure, high cholesterol, or heart disease, all raise the chances of a stroke occurring.

Obesity is one of the two leading factors of developing gallbladder disease (“Obesity Action Coalition,” n.d.). Gallbladder disease is discovered by the presence of gallstones (“Obesity Action Coalition,” n.d.). The most common symptom for gallstones is “periodic pain that occurs when gallstones block the outlet of the gallbladder. This recurring pain represents the classic “gallbladder attack”” (“Obesity Action Coalition,” n.d.). Being obese really raises an individual’s chances of having gallbladder disease. However, people can live without their gallbladders, so if they start having gallstones, they may have surgery to have their gallbladders completely removed.

"The most significant impact of obesity on the musculoskeletal system is associated with osteoarthritis (OA), a disabling degenerative joint disorder characterized by pain, decreased mobility and negative impact on quality of life" (King, March, & Anandacoomarasamy, 2013). Obesity is the top "modifiable" risk factor for osteoarthritis (King, et al., 2013). Obviously, a person who is obese is carrying too much weight for their body to handle. This puts extreme pressure on the body's joints, making them ache and hurt in severe pain because they cannot comfortable handle the amount of pressure being put on them. This can cause people to have to undergo surgery, for example, hip replacement or knee replacement, because their own hips or knees could not support the weight any longer.

Almost all evidence that connects obesity and cancer comes from observational studies, which can be hard to read and cannot decisively say that obesity causes cancer, because obese or overweight people may differ from lean people in ways other than their body fat ("Obesity and Cancer," 2017). Therefore, it could be these other differences, and not the body fat, that increases the rick of cancer. Even though the results of the studies are difficult to say for sure what the link is, there is strong evidence that higher amounts of body fat are correlated to some types of cancers. The following list and information is courtesy of the National Cancer Institute (2017):

- **Endometrial cancer:** Obese and overweight women are two to about four times as likely as normal-weight women to develop endometrial

cancer (cancer of the lining of the uterus), and extremely obese women are about seven times as likely to develop the more common of the two main types of this cancer. The risk of endometrial cancer increases with increasing weight gain in adulthood, particularly among women who have never used menopausal hormone therapy.

- **Esophageal adenocarcinoma:** People who are overweight or obese are about twice as likely as normal-weight people to develop a type of esophageal cancer called esophageal adenocarcinoma, and people who are extremely obese are more than four times as likely.
- **Gastric cardia cancer:** People who are obese are nearly twice as likely as normal-weight people to develop cancer in the upper part of the stomach, that is, the part that is closest to the esophagus.
- **Liver cancer:** People who are overweight or obese are up to twice as likely as normal-weight people to develop liver cancer. The association between overweight/obesity and liver cancer is stronger in men than women.
- **Kidney cancer:** People who are overweight or obese are nearly twice as likely as normal-weight people to develop renal cell cancer, the most common form of kidney cancer. The association of renal cell cancer with obesity is independent of its association with high blood pressure, a known risk factor for kidney cancer.

- **Multiple myeloma:** Compared with normal-weight individuals, overweight and obese individuals have a slight (10% to 20%) increase in the risk of developing multiple myeloma.
- **Meningioma:** The risk of this slow-growing brain tumor that arises in the membranes surrounding the brain and the spinal cord is increased by about 50% in people who are obese and about 20% in people who are overweight.
- **Pancreatic cancer:** People who are overweight or obese are about 1.5 times as likely to develop pancreatic cancer as normal-weight people.
- **Colorectal cancer:** People who are obese are slightly (about 30%) more likely to develop colorectal cancer than normal-weight people.

A higher BMI is associated with increased risks of colon and rectal cancers in both men and in women, but the increases are higher in men than in women.

- **Gallbladder cancer:** Compared with normal-weight people, people who are overweight have a slight (about 20%) increase in risk of gallbladder cancer, and people who are obese have a 60% increase in risk of gallbladder cancer. The risk increase is greater in women than men.
- **Breast cancer:** Many studies have shown that,

in postmenopausal women, a higher BMI is associated with a modest increase in risk of breast cancer. For example, a 5-unit increase in BMI is associated with a 12% increase in risk. Among postmenopausal women,

those who are obese have a 20% to 40% increase in risk of developing breast cancer compared with normal-weight women. The higher risks are seen mainly in women who have never used menopausal hormone therapy and for tumors that express hormone receptors. Obesity is also a risk factor for breast cancer in men. In premenopausal women, by contrast, overweight and obesity have been found to be associated with a 20% decreased risk of breast tumors that express hormone receptors.

- **Ovarian cancer:** Higher BMI is associated with a slight increase in the risk of ovarian cancer, particularly in women who have never used menopausal hormone therapy. For example, a 5-unit increase in BMI is associated with a 10% increase in risk among women who have never used menopausal hormone therapy.
- **Thyroid cancer:** Higher BMI (specifically, a 5-unit increase in BMI) is associated with a slight (10%) increase in the risk of thyroid cancer.

Obesity is hard on the body physically, but it is almost hard mentally. There are quite a few *mental* health issues that come along with being obese or overweight. To begin with, most likely there is an emotional or mental reason as to why most people overeat, because if a person is not hungry, they should not be eating, but to become obese, unless there are underlying health issues, one simply is eating too much and not exercising enough. For obese people, who have allowed themselves to get so big, it seems that they cannot control their own willpower. They have become a slave to food. It is as if they cannot control

their mind and make themselves not eat, even once they are no longer physically hungry.

Obesity and depression can lean on and influence one another. Women are slightly more likely to have a higher BMI than men, but they are *much* more likely to be affected by depression (“Mind/Body Health: Obesity,” n.d.). In one study, women who were obese had a 37% increase in major depression (“Mind/Body Health: Obesity,” n.d.). Along with that, women with a high BMI are more likely to have frequent thoughts of suicide (“Mind/Body Health: Obesity,” n.d.)Mental health is just as important as physical health. Mental health can actually affect physical health. Depression may cause an individual to change their eating and physical activity habits, resulting in bad habits that will only leave them feeling more depressed, more overweight, and less healthy.

Obesity Prevention

What can be done to prevent obesity, or to change the upward trend that is being faced? There are many strategies in place to try to curb the obesity epidemic that America is currently facing. However, everyone has to be on board, from the government, to the schools, neighborhoods, and especially the

families. According to the Harvard School of Public Health (2016, April 12), these are a few things that will help with obesity prevention:

- Limiting unhealthy foods and beverages
- Increasing physical activity
- Limiting television time, screen time, and other “sit time”
- Improving sleep
- Reducing stress

As discussed throughout the paper, some of these options are limited to some groups of people, based on their locations, neighborhoods, and other factors; however, this is why there has to be change. Grocery stores in lower income areas *need* to offer fresh foods. Communities *need* to have safe, supervised areas for kids to go outside and play, if that is what it takes to get them outside and moving. There could also be many other community projects created that help teach children good food and exercise habits, or it could be implemented in the schools starting at an earlier age. Starting around five or six, children spend most of their days at school learning how to read, write, and do math. However, there are important life lessons that could, and should, be incorporated at schools. For example, during reading class, the teacher could have the children read about healthy food choices. Even though already hopefully introduced to the food pyramid, as the students get older, they could do arithmetic with the foods and their servings, calories, or other supplements. Health education in schools needs to be more prominent at an earlier age.

Stanford Health Care has given advice on how to prevent obesity at certain ages in life, ranging from infancy to adulthood. To prevent obesity in infants, they suggest to breastfeed as long as possible; mentioning that the longer babies drink breast milk, the less likely they are to become overweight as the grow up. Research suggests that breastfed babies are 15 to 25 percent less likely to become overweight; and for those that are breastfed for at least six months, that percentage jumps to 20 to 40 ("Obesity Prevention," n.d.).

As for children and adolescents, they suggest changing family eating and physical activity habits rather than concentrating on losing weight. They also recommend parents be a good role model. They set the example for their children every day. Next, they say to encourage physical activity; it is suggested that children have at least one hour of physical movement every day. They also encourage parents to lessen their children's screen time to less than two hours a day. Stanford Health Care also encourages parents to teach their children to eat only when they are hungry, and to eat slowly. It is also important for the parents to keep good, healthy snacks around for the kids. If there is no unhealthy food at the house, the child will pick something better for them. Just as if there are no sodas, juices, or unhealthy beverages, the child will be forced to drink water or milk, which is much better for them. They also recommend not using food as a reward or punishment ("Obesity Prevention," n.d.).

For adults they really encourage eating fresh fruits and vegetables daily. Make those the snack of choice instead of something high in sugar and fat. They also suggest choosing whole grain foods, such as brown rice and whole wheat bread. It is also recommended that you weigh yourself regularly. Another thing that would help is to weigh and measure food, and get an understanding of what is a healthy portion size. Restaurants in America give such large portion sizes that people grow used to eating that much, or putting that much on their plate, thinking it is a rational, healthy size when, in fact, it is not. Lastly, they suggest breaking a sweat for at least 30 minutes every day ("Obesity Prevention," n.d.). Again, these are all preventative suggestions that could potentially help lower the obesity rates in America. They are rather open ended, even though some are easier for some people to do than others. This is why there has to be change starting in the communities and at home.

The health of current and future Americans is essential to continue our country. It is very important to teach the children and adults how to make healthy food choices that benefit them, and are good for their minds and bodies, along with the consequences of unhealthy eating and lack of physical activity. It is imperative that children are taught these things at a young age so they can attempt to make healthy food choices whether they are at school, at a friend's house, or at home; they need to know what can happen to their bodies if they choose to not eat right and sit in front of a screen all day. It is also important that adults take care of themselves and take responsibility in measuring their BMI,

weighing themselves regularly, making sure they are getting enough physical activity, and any other thing that would help keep them at a healthy weight. Obesity can really mentally and physically affect people, and those around them. As discussed, there are so many health problems that are associated with obesity, starting at a young age, and continuing through adulthood. Obesity shortens peoples' lives every day. That is why it is so important to take preventative measures to be as healthy as possible. Although there will always be obese people, the huge number of obese people now could be much smaller if people would just eat less and exercise more.

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