

Exciting new research development in the treatment of obesity

Obesity is a major problem in the United States. In fact, it is a worldwide epidemic. One third of the US population is overweight. Another third is Obese. The definition of obesity is a Body Mass Index (BMI) of greater than 30. There are many complications of obesity, including, Metabolic Syndrome, Diabetes, Heart Disease, Fatty liver, cancer and arthritis. The cause of obesity includes a genetic component, but the most important factor is that we eat more calories than we burn off with physical activity. As we gain weight, we can develop the metabolic syndrome (Metabolic syndrome is not a disease in itself. It's a group of risk factors; inflammation, high blood pressure, high blood sugar, unhealthy cholesterol levels, and abdominal fat). You have all seen people with very large waist circumferences due to excess abdominal fat (called the apple shape).

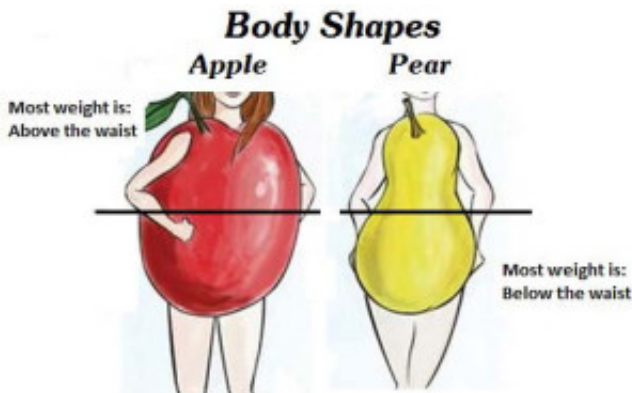


Fig. 1. The difference between the apple shape and the pear shape in obesity. The apple shape results from fat deposition more above the waist and the pear shape more below the waist. The apple shape involves visceral (belly) fat, a deeper more serious form of obesity and associated with more vascular diseases like strokes and heart attacks. Fat below the waist involves more superficial fat and is a less serious form of obesity.

These people may have high blood pressure, elevated cholesterol and triglycerides and even elevated blood sugar. Some people have more subcutaneous fat (called the pear shape). See Fig. 1. This is a more healthy form of fat. People who have a huge belly are the most at risk for the development of severe vascular disease that includes strokes, heart attacks and peripheral vascular disease. This excess fat can also be stored in the liver causing a condition called fatty liver. It can be so severe that it can cause inflammation of the liver that can result in cirrhosis. This excess abdominal fat creates inflammation with the release of inflammatory products that create the onset of vascular disease. This excess fat is what leads to abnormal fasting blood sugars, high blood pressure and an abnormal lipid profile. The Metabolic Syndrome is very common in developed countries.

Obesity and the Metabolic Syndrome have been treated with diet exercise and medication. An ideal medication for weight loss will produce a weight loss of approximately 11-12%. The only drug on the market that produced that kind of weight loss was pulled from the market because of heart valve problems. Some people have tried Bariatric surgery. These procedures include a Lap Band around the stomach or the more extensive intestinal bypass surgery.

Recent attention has focused on animals fed antibiotics to increase their weight. The antibiotics change the intestinal bacterial flora and the animals get fatter. What happens to us when we eat the animals that have been fed antibiotics? That is right, we get fatter. That is why there is a big push to stop eating animals fed antibiotics and to stop giving antibiotics to humans unless it is really necessary.

We go to weight watchers, or intake of lean diets and other commercial pre-cooked without success. A group of scientists led by the authors decided to take this medical problem into the laboratory to solve it. This is called Translational Medicine. They went into the lab and focused on the Heme Oxygenase system. This system is the body's first line of defense against the inflammatory attack created by that big wad of belly fat. They found that upregulating (increasing) this system counteracts the inflammation caused by obesity and the metabolic syndrome by increasing our antioxidants levels to prevent free radical and oxidativestress on the body. If they downregulated (decreased) the system the inflammation and inflammatory vascular diseases such as hypertension, stroke, diabetes worsened. They set out to find drugs that acted directly on this system and increases our body antioxidants levels to prevent free radical formation in our body. They showed that increasing this system decreased weight, improved blood sugar, cholesterol and triglycerides and improved hypertension. This is a whole new area of research that could create the "magic bullet" for the scourge of obesity in the United States. This happens even without exercise. Can you imagine if this were combined with exercise? Exercise and activity remains important because once you break a sweat you release growth Hormone. The release of Growth Hormone will insure that your weight loss occurs around the hips and the buttocks, not from the face and neck. Drugs that increases 'The Heme Oxygenase System'? Sounds like we all need to learn more about this !!

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Publication

[Translational Significance of Heme Oxygenase in Obesity and Metabolic Syndrome.](#)

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