WAIST MANAGEMENT

A Guide For Reversing Abdominal Obesity and Metabolic Syndrome

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AUTHOR'S ADVICE

This diet can make a dramatic change in your health, but it must be supervised by your physician who is familiar with your medical problems and the medications that you are taking. Please consult with your physician before starting this program.

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Introduction

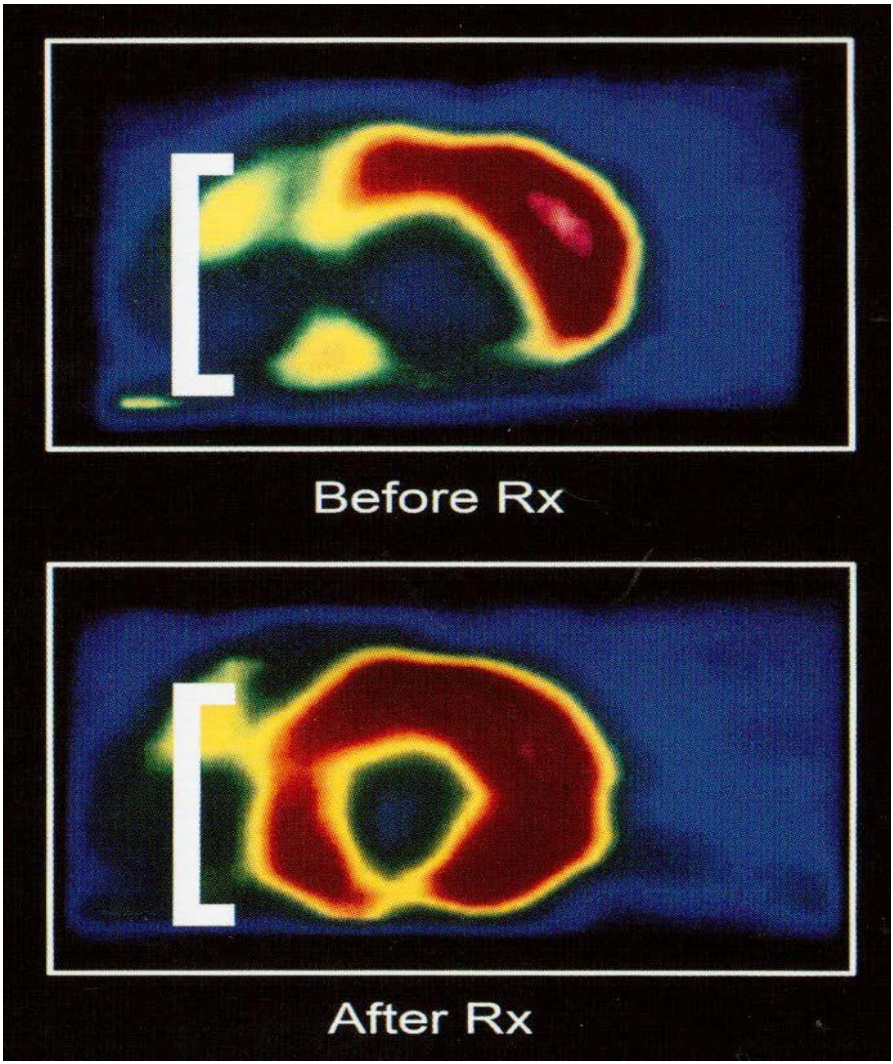
This story started with twenty-three men and women who came to see Dr. Esselstyn at Cleveland Clinic hoping for a miracle. They had been told by Cleveland Clinic (ranked number one heart center in the world) that they could have no further cardiac procedures and their days were numbered. It is always hard for the patient and physician when all medications and procedures have failed. The patients had been given a death sentence with no hope for cure or prolonged survival.

The patients were sent to Dr. Esselstyn because traditional methods of treatment had failed. Many of the patients had multiple stents and repeat bypass surgery. They were on numerous pills without any quality of life. Most had chest pain at rest and with minimal activity. They were popping nitroglycerin like candy to relieve their chest pains. Some could not even walk across a room without chest pain or shortness of breath. Most of the men were unable to have sexual relations with their wives. All were depressed and had little will to live. They had become cardiac cripples.

They came to try Dr. Esselstyn's program, to start a diet program that could improve their symptoms, possibly prolong their lives and even reverse their severe heart disease. They were instructed that their chance of survival depended upon their willingness to follow his instructions. They would have to give up deep-fried fast foods, oils, meats and rich dairy products. This diet change of consuming a low-fat, plant based nutrition could change their death sentence to renewed hope for survival.

As Dr. Esselstyn has been preaching, you can change your fate. His study showed that if you follow a low-fat, plant based diet to reduce your total cholesterol level to below 150 mg/dl and the LDL level to less than 80 mg/dl, you can stop the deposition of cholesterol and fat into your arteries. Although some patients need cholesterol medications to help lower their cholesterol, the majority of patients can lower their cholesterol levels dramatically with diet alone. The patients in his study

had remarkable results. The top picture reveals deceased blood flow to the anterior wall of the left ventricle. The bottom picture shows improved blood flow after diet therapy.

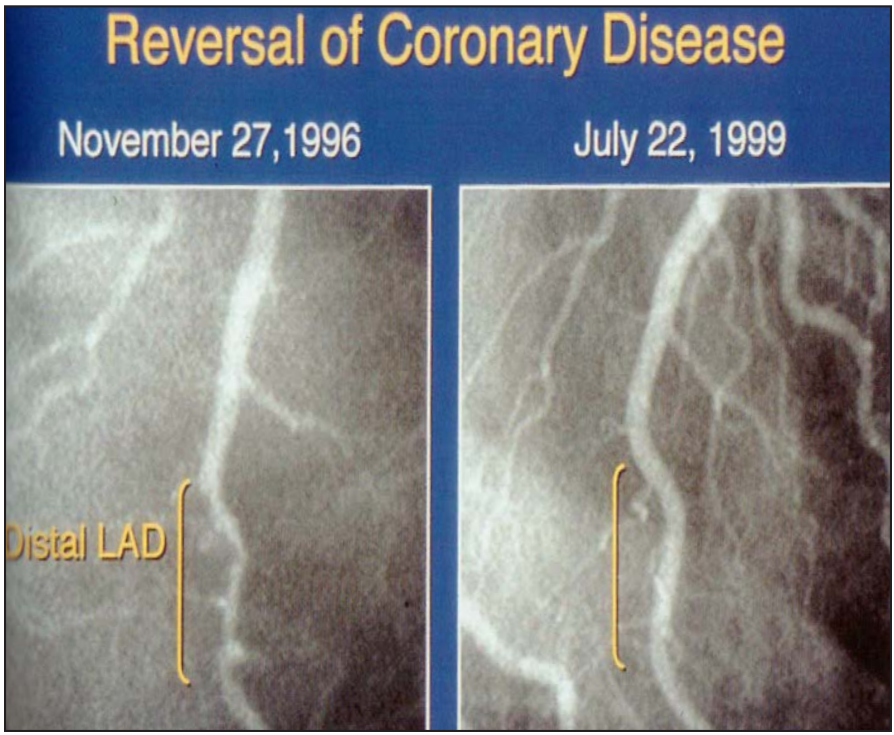


Source: Esselstyn, CB (2007). *Prevent and Reverse Heart Disease.*

The patients in this study experienced the following improvements:

- Chest pain and shortness of breath were markedly improved.
- Many patients no longer required nitroglycerin for chest pain.
- The majority of patients were able to discontinue their Viagra.

• All patients received total arrest of clinical progression of their coronary artery disease.
• Abnormal stress tests returned to normal in a few weeks in some patients.
• Many patients received significant reversal of their coronary artery disease (see picture below).
• These results occurred without an additional exercise program. The results were based upon diet alone.
• After 20 years, only one patient died of an arrhythmia. So far, none of the patients have died of a heart attack.



The left picture shows severe stenosis of the distal LAD which reversed after diet therapy (right picture).
Source: Esselstyn, CB (2007). *Prevent and Reverse Heart Disease.*

Dr. Esselstyn's results have been astounding. Is this really new information that we did not know about? Has this information been described before? Yes, God has given us a plan in the Bible to have the perfect diet. What Dr. Esselstyn has proven in his study has already been described by Daniel.

Daniel's diet is found in the Bible in the book of Daniel, chapter 1:8-14. Daniel and his friends were taken captive by the Babylonian army when Judah was seized. They were chosen to serve in the king's palace and were requested to eat a diet of meat and wine. This was against their tradition and they requested to eat a diet of vegetables and water. Daniel informed the guard to do a 10 day test to answer the question of which diet was the best. Daniel was really the first nutritional scientist. He requested the first double blind study to decide which diet is better. He wanted to compare the king's diet to vegetables and water over a 10 day period. After 10 days of dietary competition, Daniel and his friends looked healthier and stronger than the servants of the king. This proved that a plant based diet was better than the king's diet of protein and wine.

Daniel's diet is now being used by former President Bill Clinton who was in trouble with blocked arteries from a poor nutritional plan. Bill Clinton adopted Daniel's diet when he suddenly realized he might not live long enough to enjoy being a grandfather. One morning in February 2010 he was looking pale and feeling very weak. His cardiologists quickly brought him into a New York hospital, where he underwent emergency coronary angioplasty to insert two stents. One of his veins from his previous bypass surgery had collapsed. At a press conference, Clinton's doctors reassured the public that he was not near death and this procedure is fairly normal for patients with coronary artery disease. This statement infuriated Dean Ornish who is a renowned cardiologist and diet expert. He sent an email to Clinton and stated "Yeah it's normal, because fools like you don't eat like you should." Clinton realized he was at high risk for future cardiac events and pulled off a 180-degree turnaround. He gave up barbecued pork and fried catfish that he loved while growing up in Arkansas. He stopped completely the ingestion of oils, dairy, meat and fish. He now loves Daniel's diet.

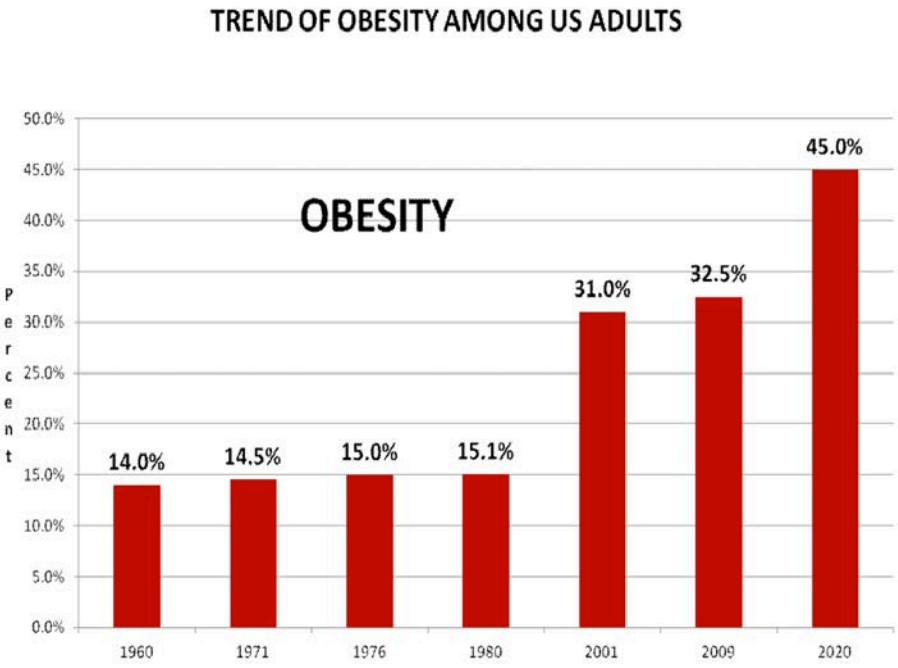
Diets are among the greatest failures in medicine. Their success rate is worse than the most dreaded cancer. Our technological advances in medicine have been beyond imagination, but we have not been able to control our rising incidence of abdom-

inal obesity which doubles our risk of sudden death. The Bible outlined the perfect diet in Daniel chapter one, but few people believe that vegetables, grains, legumes and fruits are the answer to health and fitness. Americans love the western diet which is mainly composed of meats, dairy and oils. This eating plan is the main reason for abdominal obesity and chronic diseases such as diabetes, hypertension, hyperlipidemia, coronary artery disease, sleep apnea, osteoarthritis, and cancer. If you are tired of beginning another diet, I have a solution that can stop your spiraling downhill course. If you have severe coronary artery disease, we have described the diet that has benn recommended by Dr. Esselstyn at Cleveland Clinic for reversal of coronary artery disease. This diet is similar to Daniel's diet in the Bible which emphasized the avoidance of animal protein. We also have outlined a diet for patients without heart disease called preventive maintenance. This diet is followed by the authors in this book and has resulted in a marked reduction in our cholesterol, blood pressure, and waistline with reversal of our metabolic syndrome. It's time for you to take action and not become another statistic in our obesity epidemic. Just do it and live.

Jerry Williams, MD. FACC, FACP

Obesity Epidemic in America

Just how bad is our obesity epidemic in America? Today, more than 33% of Americans are obese and 66% of Americans are overweight. A look at the graph below will show that our obesity rate went from 15% in 1980 to over 30% today. The obesity rates are increasing at epidemic proportions. At this rate, it is expected that 45% (almost half of Americans) will be obese by 2020.



Source: Modified from Centers for Disease Control and Prevention

This trend in obesity has become an epidemic and a curse. How did we get this fat, so fast. How did we go from 15% obesity in 1980 to greater than 30% obesity now? How did we go from wellness to being really sick? What exposure could account for this epidemic of obesity?

A perfect storm was started that created our obesity epidemic:

1. We changed our food and our environment. Fast food became readily available everywhere and at any time. Fast food is fast preparing, fast eating and fast causing disease. Also fast food is cheap, portable, no depreciation (very long shelf life) and tastes incredible and we always come back for more.
2. Restricted activity (no physical exercise in schools)
3. Changes in our dietary standard in 1970s going from a recommended fat percentage of 40% to 30%. This has resulted in the food industry increasing the sugar in our foods to improve the taste after decreasing the fat percentage.
4. Increased intake of refined carbohydrates and sugar
5. Introduction of high fructose corn syrup in the late 1970s.

The diseases of obesity are heart disease, lipid problems, hypertension and type 2 diabetes mellitus. These are the classic four that make up the metabolic syndrome. Now we know that other diseases are part of the metabolic syndrome which includes non alcoholic fatty liver disease (1/3 of Americans), polycystic ovarian syndrome (10% of women), cancer and dementia.

Common belief is that the above diseases are caused by obesity. People do not die of obesity, but they die of diseases that destroy their organs. Obesity is a marker of chronic metabolic disease, known as metabolic syndrome. Obesity and metabolic syndrome overlap, but they are different. Obesity doesn't kill. Metabolic Syndrome kills.

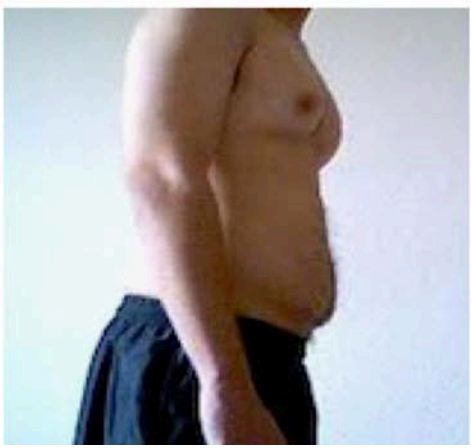
It may surprise many of people that 20% of obese people have a normal metabolic profile and will live a normal life span. 80% of the obese have metabolic syndrome which can be life threatening. If you are obese it is important that you see your doctor to determine whether you have metabolic syndrome, so you can take steps to prolong your life.

Etiology of Metabolic Syndrome

Many investigators have spent numerous hours of research trying to find a genetic cause of metabolic syndrome. It has been stated that only 10% of metabolic syndrome can be explained by genetics. This leaves approximately 90 percent to changes in our environment. The environmental changes are related to the quantity and quality of our food intake and how these foods promote liver insulin resistance.

Diseases of Obesity (Metabolic Syndrome)

- 20% of obese are healthy without disease. Suma wrestlers are metabolically healthy while they are training (Top right picture)
- 60% of obese have metabolic syndrome and disease
- 60% of thin people are healthy without disease
- 40% of thin people have metabolic syndrome and disease (Bottom right picture), These individuals usually have chest size < abdominal size).
- No one dies of obesity alone. Obesity is a marker of risk.
- You only die of obesity if you have metabolic syndrome.
- Since metabolic syndrome will kill us, we must understand the criteria for diagnosis of metabolic syndrome.



Our genes have developed over thousands of years to favor fat storage because food was never guaranteed. People had to be able to survive food shortages. Our bodies became very efficient at putting on fat. Even during periods of starvation, the loss of body protein affects the function of important organs, and death results, even if there are still fat reserves left unused.

We no longer have food shortages. We have plenty of food, especially processed, packaged and "fast food" foods that are high in calories, fat and

sugar. Previously we had a very active lifestyle of physical work and lots of movement. Today we spend most of our waking hours at work, in the car, watching TV and at the computer.

Not All Fat Is Created Equal In The Metabolic Syndrome

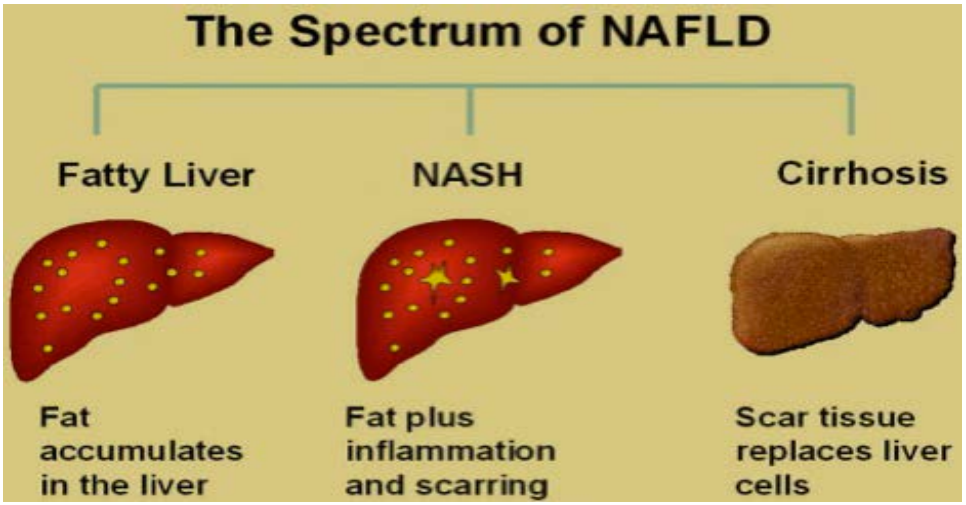
An excess of visceral fat in metabolic syndrome is know as central obesity or "belly fat". Visceral fat (abdominal fat) should be suspected when you have a waist size > 40 inches for men or > 35 inches for women. Also, if you have a high triglyceride or low HDL, you are more likely to have visceral obesity. Excess visceral fat is linked to chronic diseases such as diabetes, hypertension, dyslipidemia and heart disease. An increased waist circumference measurement identifies individuals who have tendancy to store their body fat in their belly. This simple measurement can identify patients who will more likely develop chronic diseases in the future.

A waist size greater than 40 inches is associated with a greater chance of having visceral obesity which is associated with chronic diseases such as diabetes, hypertension, hyperlipidemia and heart disease.

Metabolic Syndrome: What Does It Mean?

1. You are twice as likely to have a heart attack or stroke
2. Your lifespan will be shortened

Metabolic syndrome attacks your liver first. The liver takes up the fat and develops what is called a fatty liver. Initially, a fatty liver causes no symptoms. The only way you know you have this disease is by doing an ultrasound or CT scan of your liver. Also, an elevation of your liver enzymes (ALT) may suggest the possibility of a fatty liver. Later on inflammation develops and the fatty liver becomes NASH (non alcoholic steatohepatitis). NASH is fat plus inflammation and scarring. NASH can also be asymptomatic and can only be diagnosed with a liver biopsy. NASH can turn into cirrhosis, which occurs when the liver cells are replaced by scar tissue and this leads to a non functioning liver with ascites, bleeding and failure to thrive.



Metabolic Syndrome Attacks Your Liver First

Subcutaneous Fat Verses Visceral Fat

Body fat is called adipose tissue. In humans, adipose tissue is located beneath the skin (subcutaneous fat) and around internal organs (visceral fat). Subcutaneous fat storage is not associated with the development of metabolic syndrome. Women normally have more body fat to cover the demands for being a mother and nursing a child. Body fat is stored as fuel to be used in times of need. Women in general have a greater capacity than men to

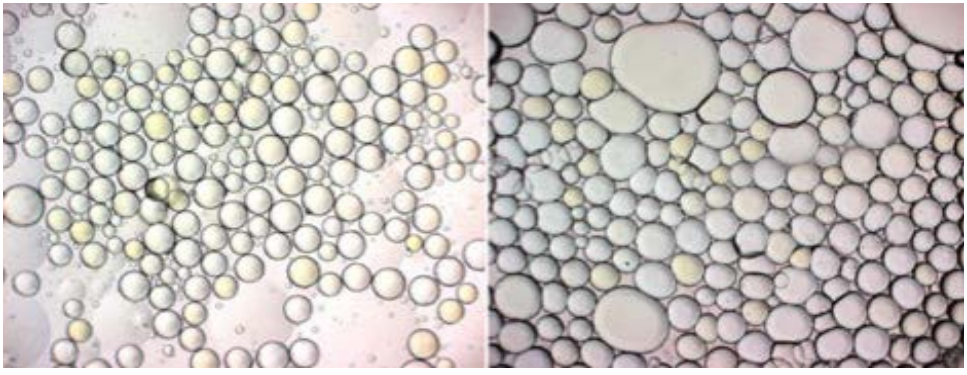
expand the subcutaneous adipose tissue department. Estrogen in women causes the fat to be stored in the buttocks, hips and thighs creating a pear appearance. There is more weight below their waist. When women reach menopause and estrogen declines, fat migrates from the buttocks, hips and thighs to the waist to create belly fat. Men tend to have an apple appearance and tend to store fat above the waist.

Fat Cells

Fat cells or adipocytes are like fuel tanks that store energy for later use. Some individuals are genetically predisposed to have more fat cells and women have more fat cells than men. Fat cells can increase during puberty, pregnancy and with morbid obesity. An infant normally has 5-6 billion fat cells. This number increases during early childhood and puberty, and a healthy adult can have around 75 billion fat cells. In cases of severe obesity, fat cells can increase to as high as 250 to 300 billion.

Body fat is a reserve source of energy and fat cells are like the storage tanks. Unlike a gas tank in your car which is fixed in size, fat cells can expand or shrink in size depending on how "filled" they are. They start out as empty fat storage tanks (when you are lean) and when food intake exceeds your needs, your fat cells "fill up" and stretch out like a balloon being blown up with air filled with jelly.

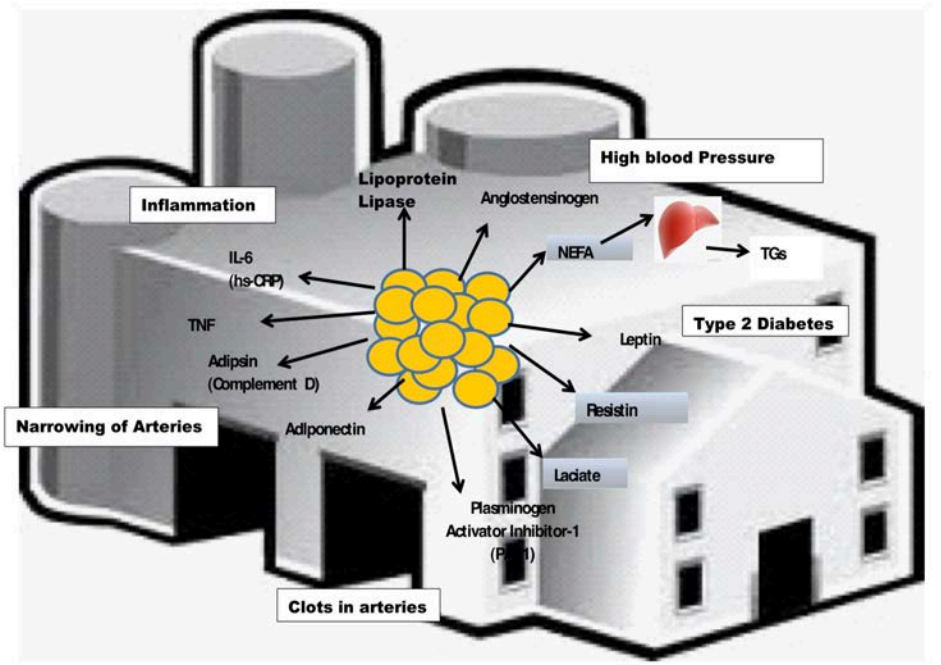
If a person develops severe obesity, the fat cells can increase in size and number as shown in the diagram below. If someone loses abdominal fat the cells can shrink in size.



The fat cells of an obese person who is metabolically healthy (left) are much smaller than the engorged cells of an obese person with metabolic health problems (right).

This increase in size of the cells with fat gain prevents you from having a six-pack abs. When you lose body fat the fat cell does not disappear, it just shrinks in size. This is the reason why you cannot see muscle "definition" when your body fat is high. Many patients tell me how they have tried numerous diets but they continue to gain more weight. By going from overweight to lean to overweight again, you are creating new fat cells with each yo-yo cycle. This increase in fat cells creates more hormones that make us fatter and sicker.

The picture below shows the numerous hormones produced by the adipose tissue. These hormones directly cause high blood pressure, inflammation, diabetes, blood clots and obesity.



HORMONE FACTORY

Now you can see that when you develop severe obesity with an increase and enlargement of your fat cells, it will take a lot of hard work with diet and exercise to shrink your fat cells. You have to face an uphill battle with more fat cells producing bad hormones that will make you have chronic diseases. God made your body to burn fat last as a survival mechanism. As explained in the picture on the following page, our bodies will metabolize our own organs prior to burning all of your fat stores.

In nature, we are taught about the survival of the fittest, in that the strong survive and the weak die. However, with the starvation response, fat is usually burned last. Our body will metabolize it's own organs before it will burn fat. Therefore, if 2 men were stranded on an island as shown in the picture above, the guy with the bigger belly would have a better chance of survival due to his higher fat percentage.

Statistics About Fat

Statistics will tell you that the fatter you are, the quicker you die. A person with a BMI of 45 can lose twenty years of life. It has been stated by Charles Barkley that he wanted to lose weight because the fat die young. This does not have to be, because your fat is not your fate.

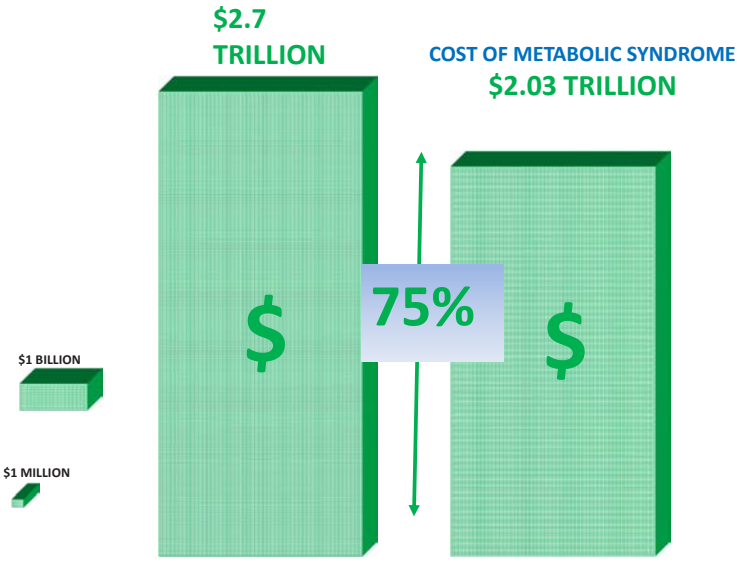
Metabolic syndrome is diagnosed by your doctor if 3 of the 5 following factors are present:

- Fasting glucose ≥100 mg/dL (or receiving drug therapy for hyperglycemia)
- Blood pressure ≥130/85 mm Hg (or receiving drug therapy for hypertension)
- Triglycerides ≥150 mg/dL (or receiving drug therapy for hypertriglyceridemia)
- HDL-C < 40 mg/dL in men or < 50 mg/dL in women (or receiving drug
therapy for reduced HDL-C)
- Waist circumference ≥ (40 in) in men or ≥ (35 in) in women

Medical Costs Of Metabolic Syndrome

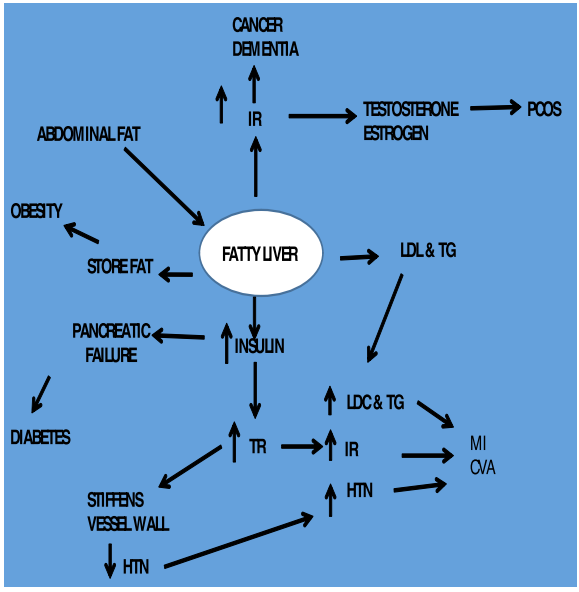
When you add up the medical costs of these 8 diseases that make up metabolic syndrome, they account for 75% of global health care costs (2 Trillion dollars in 2011). This is not only in America, but all over the world. This is so true that the United Nations announced that non-communicable diseases (type 2 diabetes mellitus, heart disease, cancer, and dementia) now pose a greater threat to the developing world than acute infectious disease such as cholera and HIV. It is mind boggling that the developing world is now dealing with the dreaded curse of obesity and metabolic syndrome.

If obesity is not the cause of metabolic syndrome, what is? It is felt that the main cause of metabolic syndrome is insulin resistance. The insulin resistance leads to metabolic dysfunction that can damage every organ in the body. Metabolic syndrome starts as your body starts storing fat in your liver. This causes your pancreas to start producing more insulin (hyperinsulinemia) which increases fat storage causing weight gain resulting in obesity. Increased fat production in the liver causes elevation of triglycerides which increase the risk for heart disease. The high insulin acts on your blood vessels and causes increased stiffness which leads to hypertension. The combination of insulin resistance, lipid problems and high blood pressure leads to



NATIONAL HEALTH EXPENDITURES 2011
(Source: Centers for Disease Control and Prevention)

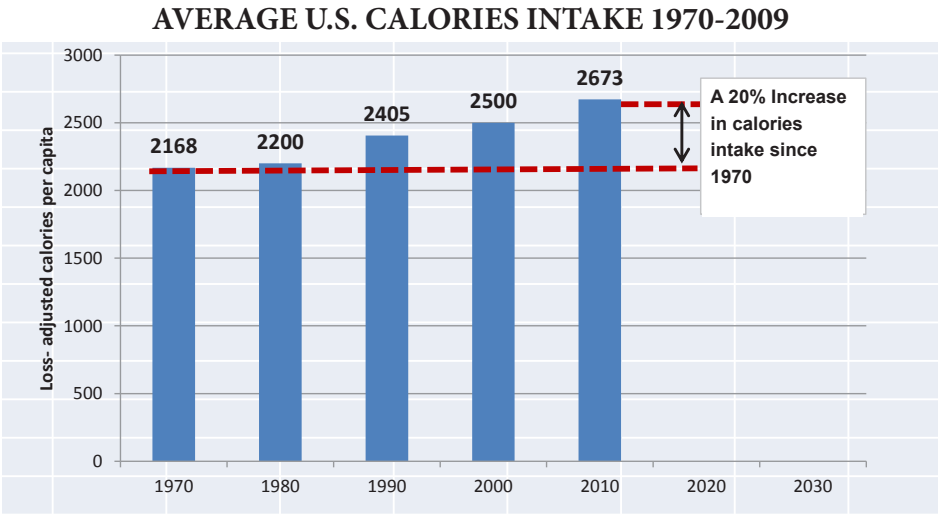
cardiovascular disease, which can result in heart attack and stroke. The fatty liver can increase inflammation leading to scarring and cirrhosis. Insulin resistance in women can result in the ovary producing testosterone and reducing estrogen which can lead to infertility and hirsutism (excess facial hair growth).



High insulin levels leads to lnsulin resistance which causes obesity, fatty liver, hypertension, diabetes, hyperlipidemia, and PCOS. Insulin resistance with hypertension and hyperlipidemia eventually leads to heart attack and stroke.

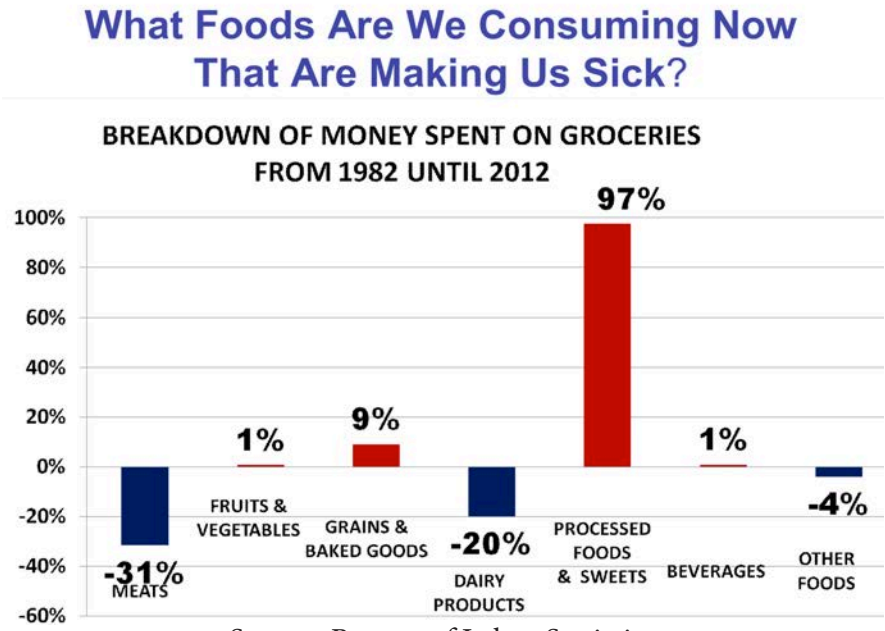
When the pancreas has to produce excess insulin over a prolonged period, the pancreatic beta cells eventually fail and type 2 diabetes occurs. Hyperinsulinemia can increase the division of cancer cells which can result in the development and growth of various forms of cancer. Hyperinsulinemia may also be responsible for dementia which is overcrowding our nursing homes.

The obesity epidemic has been associated with an increase in calories as shown in the graph below:

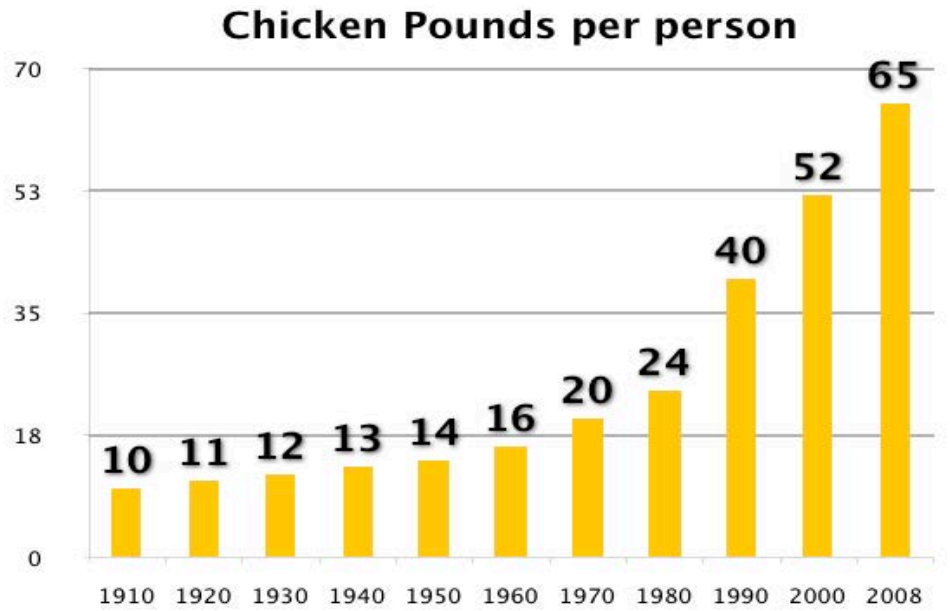


Source: Centers for Disease Control and Prevention

Data from the Bureau of Labor Statistics in the graph below shows how we spend our grocery dollars. The consumption of processed foods and sweets has doubled since 1982. Overall the consumption of meats has decreased, but this is mainly in red meat. The consumption of chicken has increased as shown in graph of chicken pounds per person from 1910 to 2008.



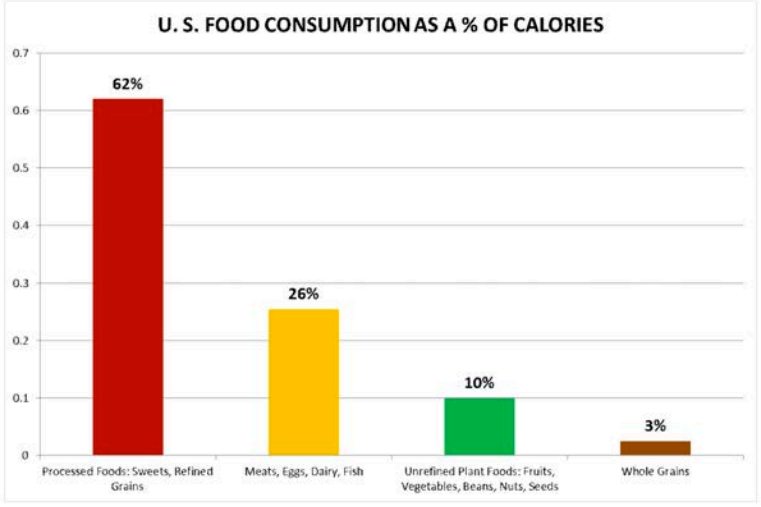
Source: Bureau of Labor Statistics



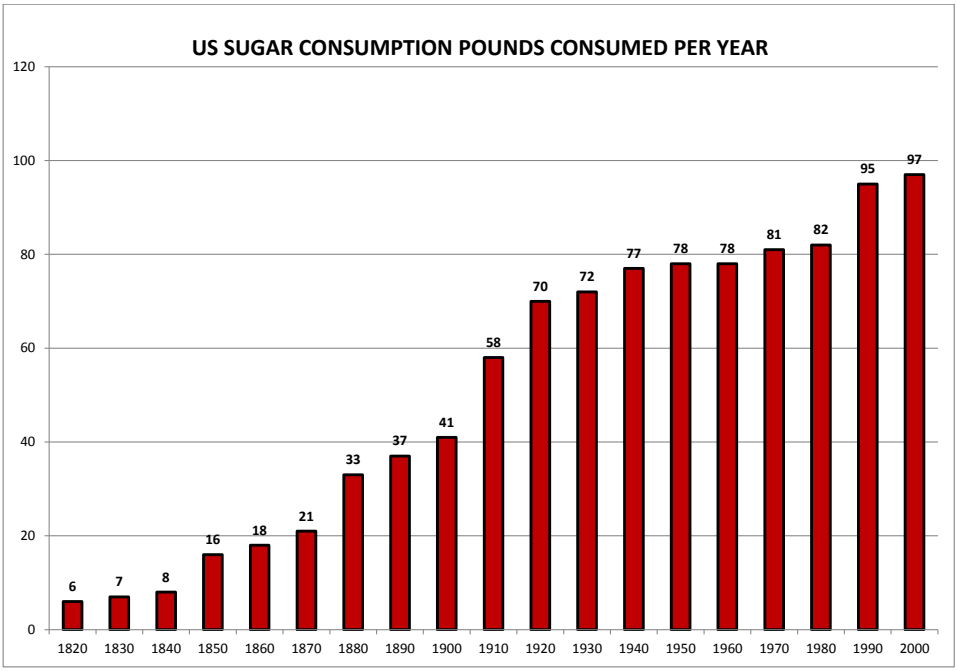
Source: USDA Economic Research Service. Modified

Americans have been eating less red meat and a lot more chicken (See above graph). Turkey consumption has been on a slow and steady upward path, while pork has remained at a consistent steady rate. The decline in red meat consumption was felt to be due to public concern about red meat consumption and heart disease.

Processed foods comprise 62% of the foods that we eat. It consists of added fats and oils, sugars, high fructose corn syrup and refined grains. Plant foods such as vegetables, fruits, legumes, nuts, seeds and whole grains comprise of 12% of our total calories.



Sugar consumption has increased dramatically as shown in the graph below. This increase is mainly due to refined sugars which are engineered to taste delicious. In 1822, the average American consumed an estimated 6 pounds of added sugar per year. Today, the average American consumes over 100 pounds per year.



Source: United States Department of Agriculture

Hormones and Obesity

Insulin

Insulin is the hormone that plays a strong role in maintaining your obesity. It is your energy storage hormone and moves sugar from your blood stream into the cells of your body. Normally, insulin attaches to receptors on the cell's surface and signals the cell membrane to allow glucose to enter. Insulin is the key that unlocks the door to your fat cell allowing nutrients inside. If for some reason you are not making insulin, the result is rising blood sugar levels. Rising blood sugar leads to insulin resistance. If glucose is not able to enter your cells, they are deprived of their basic fuel, so you lose your energy. This is the reason you feel fatigued. If your muscles do not have glucose they need for power, you tire easily and you feel like you are running out of gas.

Meanwhile, the glucose that cannot get into your cells builds up in your bloodstream. Eventually the blood sugar passes through your kidneys and ends up in your urine. As glucose goes into your kidneys, it carries water along with it. This makes you go to the bathroom frequently and you start getting dehydrated and feeling thirsty. So fatigue, frequent urination, and thirst are symptoms of glucose having trouble getting into your cells. At the same time, you are losing weight.

This is not a good thing in this situation. You lose weight because your cells are in essence starving. Nutrients cannot enter your cells, so your body is malnourished. Even though you are eating plenty of food, nutrients and fuel are unable to be stored in your cells.

Finally, you go to see your doctor due to fatigue, frequent urination, thirst and sometimes unexplained weight loss. Your doctor does a blood sample and diagnoses you with diabetes mellitus. Most patients with diabetes are type 2. The people with type 2 diabetes still produce insulin; the problem is their cells resist it. Insulin tries to bring glucose into your cells, but the cells respond like a door with a malfunctioning lock. In response to these sluggish cells, your body produces more and more insulin, trying to overcome this resistance.

Excess fatty acids or blood lipids are shuttled to fat cells where they are turned into greasy triglycerides. Therefore, insulin makes fat and the more insulin you have the greater the amount of fat in your body. As long as your insulin levels are high, you will continue to store fat. Insulin drives weight gain. You will not burn fat unless you insulin levels decrease. This decrease in insulin will allow you to break down the triglycerides causing the fat cells to shrink in size. This breakdown of triglycerides results in fatty acids that reenter the bloodstream and travel back to the liver to be burned up by the organs. This process of burning the fat results in weight loss.

If insulin resistance is unchecked this drives the production of obesity, hypertension, uncontrolled diabetes mellitus, heart disease, nonalcoholic fatty liver disease, abnormal lipids, polycystic ovarian syndrome and cancer. This creates the metabolic syndrome which doubles your chance of dying.

How Brain Regulates Energy Balance Using Leptin

Normally, the fat cells produce leptin which sends hormonal informa-

tion to the hypothalamus of the brain. Leptin tells the brain if you are full or hungry. If the signal to the brain is that you are full, your sympathetic nervous system is activated and you will burn fat and at the same time your vagus nerve (parasympathetic nervous system) is turned off which is responsible for appetite and weight gain. If the signal to your brain is that you are hungry, your vagus nerve is activated causing you to store fat and at the same time your sympathetic nervous system is inhibited which burns fat. This creates a delicate balance between you hypothalamus and the autonomic nervous system (sympathetic and parasympathetic nervous system).

In obesity, leptin resistance is felt to be the key to the obesity epidemic. Obese people have too much leptin. The more fat cells the greater the amount of leptin. This tells us that obese patient have leptin resistance. The brain does not detect the leptin signal, so it makes the person feel they are starving.

This will result in in increased fat storage and conservation of energy. It is felt in obesity that insulin blocks the leptin signaling in the brain resulting in fat storage. Today the majority of Americans release double the insulin levels that we did 30 years ago. If insulin is the evil hormone and the majority of Americans are hyperinsulinemic as never before, what can we do to combat the excess insulin levels? How can we reverse the excess insulin levels and regain control of the biochemical reactions in our brain?

Sugar

Source: AHA Guidelines for Sugar Consumption

Recommended sugar intake refers to added sugar. Sugar intake can be healthy if it comes from fruits which have added fiber. The problem with sugar occurs when it is added to packaged and processed foods. These foods include soft drinks, fruit drinks, candy, cookies, cakes, ice cream, and grain products. One gram of sugar has about four calories. One teaspoon equals 4 grams of sugar. The American Heart Association recommends strictly limiting your added sugar intake. Women should consume no more than 100 calories, or about 25 grams, or 6 teaspoons of added sugar per day. Men should consume no more than 150 calories, or about 36 grams, or 9 teaspoons, of added sugar per day.

White Powder Addiction

The dangerous white powders consist of sugar, flour, heroin and cocaine. Unfortunately, I am addicted to sugar and I find myself dreaming of Krispy Kreme doughnuts in my sleep. A sugar lover loves the rush when those bad carbohydrates hit the bloodstream, which results in pleasure and a sudden flow of energy. The only problem is that these wonderful sensations last only a short time. So the craver requires another injection of sugar to reach the same intense and wonderful level. A sugar addiction is like a crack cocaine addict who needs higher doses at more frequent intervals. This will result in obesity, coronary artery disease, hypertension, diabetes and premature death.

Sugar triggers the release of natural heroin-like compounds in the pleasure centers of the brain. These compounds are the famous endorphins that cause the "runner's high".

Endorphins are chemically related to morphine and heroin and they activate the pleasure centers in the brain. Just the taste of sugar will set off pleasure responses like the injection of cocaine or morphine. Also, serotonin, the contentment neurotransmitter, increases and makes you happy. Therefore, sugar causes three effects that can take you on the high of your life: blood sugar skyrockets, endorphins spike higher, and serotonin increases.

The four dangerous white powders are heroin, cocaine, sugar, and flour. Opiate like effects increases serotonin (happy hormone). It creates desire like a crack cocaine addict for more white powder at more frequent intervals.

Sugar is by far the most successful food additive known to man. It dramatically increases the food palatability and we always want to buy more. When the food industry combined sugar with fat it was nearly irresistible.

Glucose and Fructose

All carbohydrates are not created the same. Glucose is metabolized differently than Fructose and Alcohol. Sucrose (sugar) is made up of half glucose and half fructose. It's the fructose that makes it sweet and creates that strong desire that we want. The fructose is the evil one that causes chronic metabolic disease.

Glucose

Glucose is the energy of life and is used by every cell in your body. If you don't have glucose, your body makes it because all of your cells run on it. 80% of your glucose is turned into glycogen which is stored for energy use. Only 20% of glucose is metabolized by the liver. Glycogen is good for you and is not toxic to your body. Glucose in excess can be bad for you if you consume too much. Glucose can only make you sick if you develop visceral obesity. This is in contrast to ethanol and fructose which are completely metabolized by the liver and result in fatty liver and insulin resistance.

Fructose

Our current fructose consumption has doubled in the last 30 years. High fructose corn syrup (HFCS) is the major source of fructose that is used for sweetening most soft drinks and processed foods in the United States. The number one source of calories in the US is HFCS. High fructose corn syrup also consists of glucose and fructose, not in a 50-50 ratio, but a 55-45 fructose to glucose ratio. Fructose is sweeter than glucose and is cheaper for the companies to produce. It is cheaper due to government farm bill corn subsidies. This cost savings made HFCS more desirable than cane sugar. Also, HFCS prolongs the shelf life of products which increases the profit margins for the beverage and food companies.

HFCS is often not used overseas by the beverage companies due to higher standards in place by the food agencies. Foreign countries opt out in using HFCS because it is derived from corn that has been genetically engineered

to withstand increasing doses of synthetic chemicals and concerns over the health hazards listed below:

1. HFCS drives the Maillard reaction (browning reaction) and this is the reason that bananas turn brown. HFCS causes the Maillard Reaction to occur at a faster rate. This can cause the cells in your body to age faster, driving degenerative processes such as aging, cancer and mental decline.
2. HFCS is a major player in causing Metabolic Syndrome. Unlike glucose which can be metabolized by all organs, HFCS can only be metabolized by the liver. This leads to fatty liver and insulin resistance and chronic disease.
3. HFCS is absorbed rapidily and goes to the liver and triggers lipogenesis (the production of fat and triglycerides) which can promote heart disease.
4. HFCS causes insulin resistance which results in obesity due to increased storage of energy in fat cells. This can lead to visceral fat and chronic disease.
5. HFCS may contribute to breakdown of the intestinal barrier which could lead to inflammation and reactive oxygen species. This will worsen insulin resistance.
6. HFCS can drive division of cells and development of cancer.
7. HFCS requires triple the energy from ATP to be metabolized. This depletion of ATP can generate waste products such as uric acid that can cause gout and hypertension.
8. Consumption of HFCS does not stimulate an insulin response, so leptin does not increase to tell our brain that we are full. Therefore, we keep on eating.
9. Ghrelin (hunger hormone) does not decrease with ingestion of HFCS, so calorie intake is not suppressed.

Alcohol

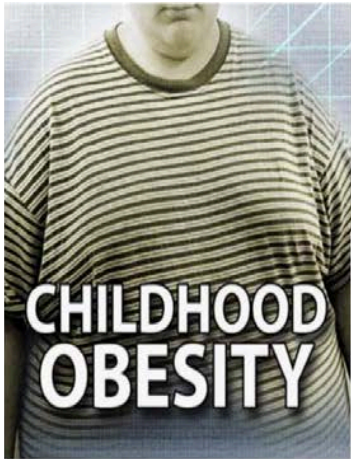
Alcohol is produced by fermentation, which is the byproduct of carbohydrate metabolism. Alcohol is like HFCS in that most ends up in the liver for metabolism to occur. A small amount ends up in the brain and cause alcohol's intoxicating effects. The harmful effects of alcohol are listed below:

1. In high doses, alcohol can create reactive oxygens species formation and cell damage.
2. In contrast to glucose which produces a lot of glycogen, any excess

alcohol is converted to fat by lipogenesis. This can lead to fatty liver, inflammation, and insulin resistance.
3. The lipid can also enter skeletal muscle and cause insulin resistance.
4. Alcohol can also act on the brain's reward pathway and result in addiction.

OBESE TEENAGER

- **Soda Belly-The curse on our Children.**



Our kids have a soda belly. A soda and beer have the same amount of calories. A soda is alcohol without the buzz. High fructose corn syrup is common in soft drinks, sport drinks and fruit juices. Parents will usually not give a child a beer, but a soda is OK.

Fiber - God's Antidote For Insulin

Fiber is the antidote for insulin which could help solve our obesity epidemic. An average person needs 30 grams of fiber per day. The average American only takes in 10-15 grams per day (1/3 to 1/2 of what we need). Dietary fiber is found in fruits, vegetables, whole grains and legumes. The human gut is unable to digest fiber and it just passes into the toilet. There are two types of fiber: soluble fiber, which dissolves in water, and insoluble which does not dissolve in water.

Soluble Fiber (Heart Healthy Fiber)

1. Soluble fiber consists of oatmeal, oat cereal, lentils, apples, oranges, pears, oat bran, strawberries, nuts, flaxseeds, beans, dried peas, blueberries, psyllium, cucumber and carrots.
2. Soluble fiber attracts water and forms a gel, which forms a barrier between the food and intestinal wall and slows down digestion and absorption. This causes an attenuated rise in glucose and insulin secretion is decreased. When type 2 diabetics eat a high fiber diet it will decrease blood sugar by one-third.
3. It is fermented by the bacteria in your colon, which creates gases that are embarrassing. Gas is produced when bacteria ferment carbohydrates that don't get digested in the small intestine.
4. Slower stomach emptying will decrease the glucose level, which also will decrease the fat storing hormone insulin.
5. It improves insulin sensitivity which improves glucose control (Stabilizes blood sugar).
6. Soluble fiber can help lower cholesterol by interfering with the absorption of dietary cholesterol (decreases LDL, TG and TC). Cholesterol produces bile acids which help absorb fats in the intestine. So, if you get rid of bile acids you can lower your cholesterol. Because soluble fiber binds to bile acids, it can lower bad cholesterol (LDL). It acts like a sponge and soaks up the cholesterol and takes it out of our body when we go to the bathroom. This decreases cardiac risks.
7. Helps prevent cancer.
8. Fiber content of our diet alters the bacterial content in the gut, allowing for the growth of beneficial bacteria, while at the same time decreasing the "obesogenic" bacteria that contribute to obesity and chronic disease.
9. Limits total food intake which results in weight loss. High fiber foods tend to be less energy dense. You are consuming fewer calories for the same quantity of food.
10. Souble fiber can bind water and cause gastric distension, which increases feelings of fullness and decreases appetite.

Soluble Fiber Improves Hyperlipidemia By:

1. Decreasing gastric emptying.
2. Increased excretion of bile acids. Normally bile acids are required to

absorb fat in the intestine. So if you get rid of bile acids, you lower your cholesterol.
3. Decreased hepatic cholesterol synthesis.

Insoluble Fiber (Gut Healthy Fiber)

1. Insoluble Fiber is mainly found in whole grains and vegetables. Sources of insoluble fiber include whole wheat, whole grains, wheat bran, corn bran, barley, brown rice, bulgur, zucchini, celery, broccoli, cabbage, onions, tomatoes, carrots, cucumbers, green beans, and dark leafy vegetables.
2. These foods are considered gut-healthy because they have a laxative effect and add bulk to the diet, helping prevent constipation, hemorrhoids, and diverticulosis.
3. They are not digested at all and do not form gels since they are not dissolved in water.
4. Because they do not dissolve in water, they have a laxative effect and speed up the passage of food and waste through your gut.
5. Helps prevent cancer.
6. Decreases inflammation.
7. They increase the food transit time which activates peptide YY sooner, which is the satiety signal in the small intestine that makes you feel full.

Health Benefits For Fiber

1. Cardiovascular disease. Lowers risk of coronary heart disease by lowering LDL. Studies showing an intake of 5 to 15 grams of fiber per day produced a reduction in LDL of 5 to 13%.
2. Harvard study in 1986 showed that a high total fiber intake resulted in 40% lower risk of coronary artery disease.
3. Fiber and Diabetes. Fiber slows absorption of carbohydrates and leads to less increase in blood sugar. Insulin levels are lower which results in less fat storage. Satiety (fullness) is better which results in less weight gain. One study showed patients on high fiber diet lowered blood sugar by 13 mg/dl.
4. Fiber and Diabetes Prevention. A 1997 JAMA study reported a 30% lower risk of diabetes mellitus in patients who ate the most fiber from grains (8 grams/day) compared to those who ate only 3 grams per day.
5. Fiber improves gut health by reducing diverticulosis, constipation, hemorrhoids and colon cancer.

6. Fiber and Weight Control. Fiber promotes satiety (fullness) by absorbing water and causing swelling of stomach. It helps to delay hunger which reduces food intake. Fiber rich foods are low in fat and added sugar. People who consume 3 or more whole grain servings per day have lower abdominal fat over time.

Where Is Fiber Found?

1. Fruits
2. Vegetables
3. Whole grains
4. Legumes
5. Nuts
6. Seeds

Where Is Fiber Not Found?

1. Meat
2. Cheese
3. Dairy
4. Eggs
5. Oils
6. Fats
7. Refined grain products
8. Most beverages

The food industry has now introduced isolated fiber (fake fiber) into products that normally do not have fiber. Examples are high fiber yogurt, ice cream and sandwich bars. Since they are adding fiber to product they have to add more sugar to make the product taste better. This added fiber is also called functional, added or nondigestible fiber. They have been no studies to show that added fiber in this situation is healthy. It is not natural fiber like you get from fruit which can improve your overall health and fitness. The following are examples of commonly used isolated fiber (fake fiber):

1. Maltodextrin
2. Inulin
3. Polydextrose
4. Oat fiber
5. Resistant starch
6. Pectin
7. Gum

Tips For Starting A High Fiber Diet:

1. Go slow. Do not take in too much when you begin on a high fiber diet.
2. Drink plenty of water to flush fiber out of colon.
3. Eat your fruits. Don't drink your fruits.
4. Eat only whole grain

Whole Grain Health Claim

Trick To Recognize A True Whole Grain

< 10:1 Carbohydrate to Fiber Ratio Identifies True Whole Grain Products.

Harvard researchers found that the < 10:1 carbohydrate ratio identifies true whole grain products better than any other criteria. This finding greatly simplifies the evaluation of a product's carb quality. Too many breads, cereals, and pastas and other products labeled "whole grain" or "multigrain" simply aren't whole grain because the whole grain ingredient isn't listed first.

If you have trouble doing ratios, divide the grams of carbohydrate by 10. If the grams of fiber is larger than the carbohydrates this represents a true whole grain. For example, a whole grain roll has 23 grams of carbohydrate. Divide that by 10 and that equals 2.3. The roll has 5 grams of fiber which is larger that 2.3. This signals a healthful whole grain food.

Criteria For Whole Grain Food

- Has FDA Whole grain health claim
- Whole grain is first ingredient
- < 10:1 Carbohydrate to Fiber ratio

Juicing

"Juicing" discards the most important part: the fiber. Juice is devoid of the insoluble fiber found in whole vegetables and fruits. Fructose without fiber will deliver havoc on your body and subsequent development of the metabolic syndrome. Fiber reduces the flux of fructose to the liver and forms an intestinal barrier that decreases absorption of fructose.

Eat your fruit - don't drink it! The fructose in fruit doesn't cause problems because it is balanced by fiber. If you consume them together as God intended it is very healthy.

Exercise - Is It Good For Weight Loss?

Exercise is one of the healthiest things you can do to prevent aging and chronic disease. The problem is that exercise alone does not cause significant weight loss. How could this be? We have all been told that calories in equals calories out. If we take in one calorie we should be able to burn one calorie. This is a gross oversimplification which is completely wrong. A calorie from a refined carbohydrate is not the same as a whole grain food with a lot of fiber. The other theory that exercise burns calories would make you think that exercise should cause weight loss. Everyone thinks that exercise will burn a ton of calories and the pounds will melt off of your body.

Does Exercise Burn A Lot Of Calories?

For one thing, you don't burn a lot of calories during exercise, unless you are Michael Phelps who is swimming for over 6 hours a day or Lance Armstrong racing in the Tour De France. If you eat one plain glazed doughnut, you will take in 200 calories. This will require you to do crunches for one hour to burn this 200 calories. From a practical perspective, exercise alone is never going to be an effective method of losing weight, unless you are an Olympic athlete. If you wanted to lose a pound of body fat, you would have to walk 35 miles.

I Work Out So I Can Eat

A lot of people only work out thinking this allows them to eat more. The problem is that exercise creates hunger which can increase your calorie con-

sumption. I tell a lot of my patients that, "you cannot out-train a bad diet". Sweating hard on a stair climber does not make up for french-fries and a double cheese burger. If you think that an hour aerobics class will allow you to go to all-you-can-eat Chinese restaurant, you will be very disappointed with your fitness and health.

Weight Loss Requires Eating Right and Exercising Right

As you have already learned, exercise alone for weight loss is nearly impossible. A good diet is critical to your success. Anyone can lose their weight if they have a controlled environment. I have known people who joined the armed forces and they lost a lot of weight. This situation has a drill sergeant pushing your exercise capacity beyond your normal limits with a controlled diet. The Biggest Loser has a personal trainer and chef to control their environment. Unfortunately, most people cannot live in a bubble of control and they must return home. Once home they resume their old ways and the obesity cycle never ends.

Energy Expenditure

Metabolism describes the burning of calories necessary to supply the body with the energy it needs to function. There are three major ways we burn calories during the day:

1. Basal metabolic rate (BMR). This is the number of calories burned to maintain our respiration and bodily functions at rest. This accounts for 60-70% of our daily energy requirements. This accounts for 1200 calories of the average 2,000 calorie diet (60% of 2,000 = 1200 calories per day).
2. Thermic effect of Food (TEF). The TEF is the amount of energy used in digestion. This accounts for 10% of our daily energy requirements and is about 200 calories per day on average 2,000 calorie diet. Fat does not have to broken down and it is easily absorbed into your adipose tissue without burning many calories. Protein and carbohydrates have to be converted to fat which requires more calorie burning. This is the reason a low fat diet is recommended for weight loss to decrease the absorption of fat into your adipose tissue.
3. Physical activity expenditure(PAE). PAE accounts for the remainder of you daily expenditure resulting from physical activity. We all think that the majority of our daily energy expenditure comes from exercise.

Physical activity accounts for a minority of energy expenditure, accounting for anywhere from 5% (the coach potato, about 100 calories) to 35% (competitive athlete, at about 700 calories). Since the BMR accounts for the majority of calories burned, it can have a major effect on our ability to lose weight. This is the reason a lot of obese patients tell me, "I am not eating anything and I am gaining weight". Restricting calories for the purpose of losing weight can lower BMR by 6-20%. This is why it is harder to lose weight as you go lower. Your body has a protective starvation mechanism that is built in to fight against your weight loss. Lean body mass (body mass other than fat) is one of the biggest factors that influence your BMR. If you increase your muscle mass, your BMR will increase and you will be burning calories at rest. Tall people have more surface area to lose heat from so their metabolism tends to be higher. BMR decreases with age due to loss of muscle mass. There is a 3-5% decline per decade after age 30. This is mainly due to lack of physical activity.

Factors That Increase BMR
- Higher lean body mass
- Greater height (more surface area)
- Younger age
- Elevated levels of thyroid hormone
- Stress, fever, illness

- Male gender
- Pregnancy and lactation
- Smoking, caffeine and stimulants

Factors That Decrease BMR

- Lower lean body mass
- Lower height
- Older age
- Hypothroidism
- Starvation
- Fasting
- Female gender

Men have a higher metabolism than women.

Tall individuals have a higher Basic Metabolic Rate

The thermic effect of food accounts for 10% of calories burned during digestion (See graph on page 30). Studies have shown that eating breakfast can boost your metabolism by as much as 10%. It helps to jumpstart your metabolism first thing in the morning to burn the most calories possible throughout the day. Also, not eating breakfast means the stomach hormone ghrelin, which conveys the signal for hunger, is not suppressed throughout the morning. People who skip breakfast tend to overeat at lunch, dinner and prior to bedtime. Physical activity can vary from being a coach potato to a Tour De France bicyclist like Lance Armstrong. Michael Phelps takes in 12,000 calories per day during his training. His training is very intense, but he does not burn 12,000 calories during his physical active training. How

does he stay so fit without burning all of those calories? His intense exercise training has increased his muscle mass and the number of mitochondria. Mitochondria are fat burning cells in our bodies that burn calories even when we are resting. Michael Phelps is burning up those extra calories when he is resting and not swimming.

HIIT (High Intensity Interval Training)

HIIT is a way to burn more calories, lose more fat and improve your cardiovascular fitness while spending less time in the gym. It is an enhanced form of interval training, an exercise strategy alternating periods of short intense anaerobic exercise with less intense recovery periods. The HIIT sessions vary from 4 to 30 minutes. A common formula involves a 2:1 ratio of work to recovery periods. For example walking at a fast pace for 20 seconds followed bv a slow pace for 10 seconds. The entire HIIT session may last between four and thirty minutes, meaning that it can be considered to be an excellent way to maximize a workout that is limited in time. By incorporating intense periods of work with short recovery segments, intervals allow you to keep the workout intensity high. It offers you several advantages that traditional steady-state exercise can't provide:

1. HIIT trains and conditions both your anaerobic and aerobic energy systems. You train your anaerobic with brief, all-out efforts like when you sprint the last few yards of distance race. By pushing your heart rate high during exercise, you will increase your aerobic capacity which improves cardiovascular fitness. It takes your fat-burning to a new level.
2. HIIT allows you to keep burning fat even after you leave the gym. In short, your body isn't able to bring enough oxygen during periods of hard work. Therefore, you accumulate a debt of oxygen that must be repaid post workout in order to get back to normal. The result is your

metabolism is revived for hours after leaving the gym. This is referred to as excess post oxygen consumption (EPOC).
3. HIIT increases the amount of calories you burn during exercise session, because it increases the length of time it takes your body to recover from each exercise session.
4. HIIT causes you to burn more fat as fuel. It has been previously stated that aerobic workouts for at least 30 minutes are the best way to burn fat. It has been proven that HIIT can burn fat more effectively than 30 minutes or more of aerobic activity. This may be due to an increase in BMR or resting metabolic rate.
5. HIIT lowers insulin resistance and improves skeletal muscle fat oxidation and glucose tolerance. HIIT may help to prevent diabetes mellitus. Studies in young women have shown significant reductions in total body fat, subcutaneous leg and trunk fat, and insulin resistance.
6. HIIT increases your muscle mass by stimulating muscle-building hormones like growth hormone and IGF-1. It also limits muscle loss that can occur with weight loss, when compared to traditional steady-state cardio exercise of longer duration.
7. HIIT increases BMR (resting metabolic rate) which helps burn calories at rest after completion of your workout.
8. HIIT can improve athletic performance even in well trained athletes.

Biochemistry Effects of Exercise

Exercise, like fiber, is one of the antidotes for reversing metabolic syndrome. Biochemically, exercises is responsible for 3 things:

1. Exercise directly activates your sympathetic nervous system to make more mitochondria that can burn fat. This leads to improvement in insulin sensitivity.
2. Exercise can be your stress reducer by releasing endorphins that make you feel better. Exercise will decrease cortisol that increases your blood sugar and blood pressure.
3. Exercise increases your fat burning in your mitochondria. Four things can speed up your fat burning in your mitochondria: cold, high altitude, thyroid hormone and exercise. Cold and altitude are a potent anti-obesity combination. This is one explanation for the lower obesity rate in Colorado compared to Alabama.

Over Exercising Can Be Bad

Exercise can be overdone in some situations. Exercise releases endorphins (opiate like effect) which causes the hypothalamus to decrease production of LH and FSH, which reduces estrogen production by the ovaries. Over time this can stop menses and lead to osteoporosis.

Loss of Exercise Effect

Exercise is one of the best things to decrease metabolic syndrome. The metabolic effects of exercise are short lived. Mitochondrial effects of exercise will start to decrease after missing one day of exercise and insulin sensitivity returns to baseline in 15 days. Therefore, exercise must be consistent and frequent to maintain those healthy effects from exercise.

Which Is Better? Fat and Fit or Thin and Unfit

Who do you think will be healthier? The fat person who exercises or the thin one who is a coach potato. Some studies have shown that fitness removes the bad effects of obesity on visceral fat. If an obese person stays fit, they are likely to live longer than a thin unfit model who does no exercise. This illustrates why overweight people with BMIs between 25 and 30 live longer than thin people with BMIs of less than 19.

The Sweetness of Sugar

God made sugar hard to get in nature. Man made it easy to get. Over the past 30 years, the total caloric intake has increased by an average of 150 to 300 calories per day. Approximately 50% of this increase comes from liquid calories (sugar sweetened beverages).

The primary function of sugar in food products is to provide sweetness. Our sense of taste can identify four basic tastes: sweet, sour, salty and bitter. The first taste that we encounter is breast milk, which has a sweet taste and we interpret sugar as a positive experience. Also, our desire for sweetness may be explained by the fact that, in nature, poisons have a bitter taste. Therefore, we are programmed to want to eat something that tastes sweet in order to survive.

Sugar can cover up the taste of salt (peanuts), sour (acidity in tomato sauce, and lemonade), and bitter (milk chocolate). The food industry adds sugar to make foods irresistible. Sugar turns things that taste bad into very tasty foods. This is how we have become hooked on our sugar addiction.

Sugar and Maillard Reaction (Browning Reaction)

The interaction between sugar and protein is called the browning reaction. It gives color and aroma to the foods we eat. All foods brown better with sugar. The color and aroma to French-fries is due to browning reaction. While the browning reaction is appealing to our eyes and taste, it is not so good for our health.

Advanced glycation endproducts (AGEs) are formed when sugars are cooked with proteins or fats. AGEs are contributors to inflammation and disease states. Foods with high AGEs include donuts, barbecued meats, cakes and dark colored soda beverages. AGEs are implicated in many age related chronic diseases such as:

1. Cardiovascular diseases (endothelium is damaged)
2. Alzheimer's disease (amyloid proteins are side products of AGEs)
3. Cancer (acrylamide is carcinogenic and is derived from AGEs)
4. Neuropathy (myelin is attacked)
5. Hypertension (AGEs cause stiffening of the blood vessels)
6. Strokes (Weakening of collagen in blood vessel walls)

Sugar and Texture

Texture is the sensation of food in your mouth. Sugar affects this by providing volume and consistency to food. If you make a cake with Splenda, it won't puff up. Sugar's ability to gel when combined with pectin provides the consistency for making jelly. Sugar provides viscosity (thickness) to foods such as candy corn. Sugar lowers a foods freezing point which makes ice-cream have a creamy consistency. Also, sugar raises food's boiling point, which makes caramels have a chewy consistency.

Sugar and Shelf Life

Sugar can prolong the shelf life of food by inhibiting the growth of bacteria. Bacteria need water to grow. If the concentration of sugar in food is

raised to a certain level, all water is bound by the sugar. This inhibits the growth of bacteria. This is illustrated with a loaf of bread which has a shelf life of 2-3 weeks. The majority of breads use high fructose corn syrup for browning and holding onto water which increases the shelf life. Also, the fiber is removed which increases the shelf life.

Fast Food and Fiber

Fiber is a menace for the food industry because fiber limits shelf life. Commercial bread is going to last a long time due to removal of fiber. Bread purchased from fresh local market has a short shelf life since fiber is not removed. The removal of fiber means more money for the food companies.

Fiberless food can be frozen and still maintain its texture. This allows the food companies to ship frozen food globally which can be cooked quickly. The elimination of fiber has reduced satiety and has contributed to hyperinsulinemia, obesity and metabolic syndrome.

Adding Sugar and Removing Fiber
1. Good for taste
2. Good for pocketbook
3. Good for food industry
4. Bad for your health

Sweetness has a greater appeal when fat is added to sugar. A teaspoon of sugar does not taste as good as a doughnut.

Problems With Nutrition Label And Sugar

The nutrition label only allows for the declaration of "total sugars" as a whole. It does not tell you about the added sugars. The food companies told the FDA that if they listed their added sugars on the nutrition label, it would allow competitors to duplicate their recipes. The FDA agreed with this argument. The only problem with this is that you do not know the true ingredients. This means you are putting your health in the hands of the food companies.

Is Fruit Juice And Canned Fruit Healthy?

Fruit has natural sugar (fructose), but it also has fiber. If you consume natural sugar and fiber together as God intended, you will remain healthy.

All natural fruit juice may not contain added sugar, but the fiber has been removed. This natural fruit juice with the fiber removed has become a sugar sweetened beverage. Canned fruit is not ideal, because water is not added to the fruit. Water cannot be added, because the sugar in the fruit would leach out. They instead add sugar syrup in high concentration, to keep the fruit sweet and soft to prevent spoilage. High fructose corn syrup is commonly added for better taste and shelf life.

Hidden Sugars

The food industry has multiple names used for sugar. If any form of sugar is in the first three ingredients, it is a dessert. The following are names for sugars added to processed foods:

Agave nectar, barley malt, buttered syrup, cane sugar, cane juice crystals, Confectioner's sugar, corn syrup, caramel, carob syrup, castor sugar, date sugar, diastatic malt, diatase, dextran, dextrose, evaporated cane juice, ethyl maltol, fruit juice concentrate, fructose, florida crystals, grape sugar, galactose, golden syrup, glucose, high fructose corn syrup, icing syrup, honey, lactose, maltodextrin, muscovado sugar, molasses, malt syrup, maple syrup, organic raw sugar, panocha, raw sugar, sorghum syrup, turbinado sugar, treacle, yellow sugar.

Healthy Breakfast Cereals

Healthy breakfast cereals have fiber and are low in sugar. Avoid any cereal where sugar is present in the first three ingredients. Try to find a cereal where the sugar content is less than 5 grams per serving. If the low sugar cereal doesn't seem flavorful enough, you can jazz up your bowl with some naturally sweet fresh fruit. The cereals below are low in sugar (< 5 grams) and have fiber (3 grams or more):

1. Cheerios - 1 gram of sugar and 3 grams of fiber
2. Fiber One - 0 grams of sugar and 14 grams of fiber
3. Kix - 3 grams of sugar and 3 grams of fiber
4. Wheaties - 4 grams of sugar and 3 grams of fiber
5. Kashi (whole wheat) - 3 grams of sugar and 7 grams of fiber
6. Shredded Wheat - (1 gram of sugar and 7 grams of fiber)

Altering Your Hormones That Cause Obesity

You have to change your hormones to have a chance with the epidemic of obesity and metabolic syndrome. Our goal is to reverse the following hormonal dysfunction:

1. Insulin has to be decreased to decrease fat storage and improve leptin resistance
2. Ghrelin has to decrease to reduce hunger
3. You need to increase peptide YY to have satiety (feeling of being full)
4. Cortisol must decrease to reduce stress, hunger and fat deposition.

Reducing Insulin - Eat fiber, decrease your sugar intake and you must exercise.

Reducing insulin is a must to succeed with preventing metabolic syndrome and chronic disease. If insulin is decreased there will be less fat storage, lower appetite and improved leptin sensitivity. The best way to reduce insulin is to reduce insulin release or improve insulin sensitivity.

Decreasing glucose will have a dramatic effect on lowering insulin levels. This means decreasing refined carbohydrates in your diet. Another way to lower insulin is to eat more fiber, which reduces flux to the liver and the insulin response. You will need to decrease your insulin sensitivity in the liver and muscles. Improving hepatic sensitivity means decreasing liver fat, by decreasing your consumption of fat and refined carbohydrates. Muscle sensitivity is improved by doing exercise which will burn the fat off of the muscles.

Reducing Ghrelin - Eat breakfast and sleep more.

Eating breakfast will lower ghrelin levels which will prevent people from overeating later in the day. If people skip breakfast, the ghrelin levels will continue to rise and you will overeat at lunch and dinner. Some people even eat at night (nightime bingeing). This leads to poor sleeping habits that can affect your weight loss.

Increase Your Peptide YY levels - Eat more fiber and wait 20 minutes for second portions. Peptide YY is a satiety (fullness) hormone that is activated

when your food moves through your intestine. Fiber helps move food faster through your intestine, which makes you feel full faster. Another good suggestion is to wait 20 minutes before you get a second portion of food. This will allow your hormones to work in you favor to help prevent overeating.

Decrease Your Cortisol Level - Solution is exercise. Keeping cortisol low, means your are keeping stress down. Excess cortisol increases visceral fat production, insulin resistance and increased food intake. Cortisol will increase with exercise, but it will decrease for the rest of the day. Exercise is the best way to lower your cortisol levels. It will burn fat in your muscles to improve muscle insulin sensitivity and in your liver to improve hepatic insulin sensitivity.

Saturated Fats

This type of fat comes mainly from animal sources of foods. Saturated fat raises total blood cholesterol and low-density lipoproteins (LDL), which can increase your risk of cardiovascular disease. Also, be aware that many foods high in saturated fats are also high in cholesterol, which raises your blood cholesterol even higher. Most fats that have a high percentage of saturated fat or trans fat are solid at room temperature. Because of this, they're typically referred to as solid fats. The top food sources for saturated fat in the US are listed below in descending order of percentage fat intake:

1. Regular cheese - 8.5%
2. Pizza - 5.9%
3. Grain based desserts - 5.8%
4. Dairy desserts - 5.6%
5. Chicken and Chicken mixed dishes - 5.5%
6. Sausage, franks, bacon and ribs - 4.9%
7. Burgers - 4.4%
8. Mexican dishes - 4.1%
9. Beef and Beef mixed dishes - 4.1%
10. Reduced fat milk - 3.9%
11. Pasta and Pasta dishes - 3.7%
12. Whole milk - 3.4%
13. Eggs and egg mixed dishes - 3.2%
14. Candy - 3.1%
15. Butter - 2.9%
16. Potato chips - 2.4%

17.Nuts and nut/seed mixed dishes
18.Fried white potatoes

Pizza and cheese are the biggest sources of saturated fat in our diet. We don't think about a slice of cheese having 5 grams of saturated fat. Fast food makes up the top portion of our list (pizza, refined grain desserts, chicken, hot dogs, ribs, burgers and Mexican fast food). Steak consumption is in the middle of the group and is lower than our consumption of chicken. As a general rule, it is better to keep your intake of saturated fat as low as possible.

As recommended by the AHA, we need to keep saturated fat less than 20 grams per day. It is recommended to have 3 ounces of meat, which is equal in size to a deck of cards. The leg, wing or thigh of a chicken has just as much saturated fat as a steak. The smallest steak at a restaurant is usually 8 ounces and petit fillet is 6 ounces which is a lot bigger than the recommended serving size of 3 ounces. The greatest fat percentage on a chicken is in descending order; thigh > wing > leg > breast. Grass fed meat is healthier and has less saturated fat.

Milk can be an unsuspected source of saturated fat. Whole milk (2%) has 8 grams of total fat and 5 grams of saturated fat. More than half of the fat in milk is coming from saturated fat. 1% milk (low fat) has 2 grams of saturated fat. Non fat milk (skim milk) has no saturated fat, but it has 12 grams of sugar with no fiber.

In British Journal of Nutrition in 2005, they stated that both skim and whole milk can raise insulin levels. It turned out that the insulin index of skim and full-fat milk is just as high as that of white bread. Researchers feel that the high insulin levels in milk may be due to the proteins found in the milk from casein or whey, which stimulate production of insulin from the pancreas. This suggests that other protein containing dairy like yogurt, cheese, or dairy based beverages could raise your insulin levels.

Eggs have mainly cholesterol only in the yolk. One medium egg has 186 mg of cholesterol. The AHA recommends less than 200 mg of cholesterol per day. Eating one egg would be your limit for cholesterol for the entire day. If you have high cholesterol, you probable need to avoid eggs. Egg beaters could be considered since they have no cholesterol or saturated fat.

Trans Fats

Trans fats are created by heating liquid vegetable oils in the presence of hydrogen gas. This produces partially hydrogenated oils which are more stable and less likely to spoil. Partially hydrogenated oils can withstand repeated heating without breaking down, making them perfect for frying fast foods. Hydrogenation of vegetable oil creates a fat that acts like a saturated fat. It's no surprise that partially hydrogenated oils have become popular in restaurants and the food industry, for deep fat frying, producing baked goods, and for making snack foods and margarines. This engineered trans fat can increase your LDL and lower your HDL cholesterol. It is the most dangerous fat and can increase your risk of a heart attack.

Trans-Fatty Acids: The Man Made Heart Attack. Trans-fats can still be in a product even when it says "0 trans-fats." You will need to scan ingredients list and look for partially hydrogenated oils. Food labeling laws allow food makers to have .5 grams of trans-fats and still be labeled as "0."

Insulin levels and Meats

People who promote high-protein diets feel that meats do not raise insulin levels. They feel only carbohydrates raise insulin levels. A study in 1997 from Sydney, Australia found this to not be true. The study found that, when

compared with rises in glucose levels, beef raised insulin levels 27 times higher than brown rice did.

Another study showed that a high complex carbohydrate diet lowered insulin levels. In 1992, Dr. James Barnard from UCLA showed a 30% reduction in insulin levels in diabetics and in patients with insulin resistance after only 3 weeks of diet therapy. Also, there was a reduction in triglycerides of 26%, a reduction in cholesterol of 22%, and a weight reduction of 4%.

2 Types of Unsaturated Fats

1. Monounsaturated fats (Omega - 3 fats) are found in olive, peanut and canola oils; avocados; nuts such as almonds, pecans and seeds such as pumpkin and sesame seeds. An excellent source of omega-3 fats is eating fish two or three times a week. Plant sources of omega-3 include flax seeds and walnuts.
2. Polyunsaturated fats (Omega - 6 fats) are found in high concentration in vegetable oils such as sunflower, corn, safflower and soybean.

In the past, diets were abundant in seafood and sources of omega-3 fatty acids (EPA and DHA), but relatively low in omega-6 fatty acids. Our ancestors consumed omega-6 and omega-3 in equal proportions (1:1 ratio) and were free of the modern inflammatory diseases, like heart disease, cancer and diabetes. Today, we have a big shift with increased consumption of omega-6 compared to omega-3. The ratio today in some individuals is greater than 20:1. An elevated omega-6 to omega-3 ratio is associated with a lot of inflammatory diseases which are listed below:

- Heart disease
- type 2 diabetes mellitus
- metabolic syndrome
- inflammatory bowel disease
- obesity
- cancer
- rheumatoid arthritis
- cancer
- autoimmune diseases

Due to the anti-inflammatory effects of omega-3, it should be the preferred unsaturated fat. It is still important to remember that olive oil and

canola oil contain saturated fat, which can cause abdominal obesity and other chronic diseases. Omega-6 levels are increased in grain fed meats and should be eaten in limited amounts. Grass feed meats have lower Omega-6 levels and are healthier.

Recommendations For Fat Intake

1. Eliminate foods that have trans fats. Remember that trans fat can be still in a product even when the food label says "0". You will need to scan the ingredient list to make sure that it does not contain partially hydrogenated oils (food labeling laws allow food makers to have up to 0.5 grams of trans fat in a product but still list "0" on the food label for trans fat.
2. Limit intake of saturated fat to 20 grams daily. Try replacing meats with beans and nuts. Consider switching from milk with saturated fat to almond milk. Do not replace meats with refined carbohydrates.
3. Used limited amounts of cooking oil such as olive and canola oil especially if you have metabolic syndrome or heart disease
4. Eat one or more sources of omega-3 fats every day such as fish, walnuts, or ground flax seeds.

What Makes Us Fat? Carbohydrates, Proteins, Or Fats

Carbohydrates are the body's main source of fuel. They are found as glucose in the blood and are stored as glycogen in the muscles and liver. The body is not designed to store carbohydrates, since 30% of calories are burned off when trying to store carbohydrates. The body cannot store proteins and any excess is excreted from the body or is stored as fat. The body is designed to store fat in a very efficient manner. Only 2% of fat calories are burned up when fat is stored. Therefore, the intake of fat calories will have a greater effect of making you obese. This is why the fat you eat is the fat you wear around your waistline.

Most people think that whole wheat pasta should not be consumed frequently, because it will make them fat. These same people believe that meats will make you muscular without any accumulation of fat. The reality is that natural unprocessed carbohydrates are healthy and are not the culprit for weight gain in most diets. Natural unprocessed carbohydrates like whole wheat pasta, whole grain oatmeal, corn, beans, whole grain breads, brown

rice, sweet potatoes, whole grain cereals and fruits are high octane fuel for our bodies. Natural unprocessed carbohydrates are loaded with fiber, vitamins, minerals and micronutrients.

Countries that have a high consumption of naturally unprocessed carbohydrates have low rates of hypertension, diabetes, heart disease, hyperlipidemia, arthritis, gall bladder disease, indigestion, constipation, multiple sclerosis, and cancers of the breast, prostate and colon. These people are the most trim and fit without abdominal obesity.

The human body is inefficient at converting carbohydrates to fat. Our bodies do not do this under normal conditions and the cost for this conversion burns as much as 30% of the carbohydrates consumed. Therefore, eating more natural non-processed carbohydrates will result in less weight gain. Dr. Barnard published in the American Journal of Medicine of weight loss in 64 women who were eating natural non processed carbohydrates who lost about one pound per week. They were eating whole wheat pancakes, vegetables, beans and fruit while avoiding meats and oils. This study illustrates that you will lose weight eating good natural non-processed carbohydrates while avoiding animal fats. There were no calorie limits, carbohydrate restrictions, or exercise in this study.

The participants were allowed to eat until they were full. It is hard for most people to believe that they can eat until they are full and not gain weight. Therefore, enjoy good natural non processed carbohydrates and do not worry about gaining weight.

So what is causing us to get abdominal obesity which doubles our risk of dying? It has been said, "The fat you eat is the fat you wear." Natural non processed carbohydrates have little fat compared to meat, cheese, oils, dairy and high fat desserts and contribute little to abdominal fat. Most animal based foods contain between 20-60% fat, whereas most plant-based foods contain less than 10% fat. Therefore, abdominal obesity is a disease related to the ingestion of animal fats which can blow up your waistline like a balloon. The body is very efficient at storing fat in the adipose tissue of your body. It hardly expends any energy when it is packing pounds on your belly. If you want to avoid the curse of abdominal obesity and multiple chronic diseases, stay on Daniel's diet.

What is difference of refined (processed) verses natural non processed carbohydrates?

Refined processed carbohydrates include sugar, honey, molasses, alcohol, white bread, white pasta, white rice, fried potato chips, sugary non whole grain cereals and fruit juices. Most simple carbohydrates have been processed to death and they have lost their fiber, minerals and vitamins. The loss of fiber causes you to want to continuously eat like a bear before it goes into hibernation. The ingestion of simple carbohydrates causes a spike in blood sugar which causes your insulin levels to fluctuate up and down.

This causes you to have swings up and down like a pendulum causing you to have fatigue, hunger spells and a strong craving for more simple carbohydrates. Simple sugars should be kept to a minimum and it is better to stick with God-given natural non processed carbohydrates that will keep your body running like a race car engine.

Are Carbohydrates More Likely to Make You Diabetic?

Type 2 diabetes is related to abdominal obesity. The populations with the lowest rate of diabetes are the ones that eat the most natural non processed carbohydrates. Type 2 diabetes is rare in Africa, rural Asia, Mexico and Peru where a high-carbohydrate diet is the norm. The greatest amount of abdominal obesity and diabetes is found among native Americans, Hispanics, Polynesians, and African descent living in the United States. This is because they have adopted a Western diet of high fat and high protein. To avoid diabetes stay on Daniel's diet for ultimate health.

Will eating more protein make you into a bodybuilding Champion?

A misguided theory is that eating more protein will create larger stronger muscles. This is not true since the body cannot store protein. Any excess protein will be excreted in urine or feces or stored as fat. Larger and stronger muscles are created by adequate calories and a good resistance program that will build larger muscles. It is does not occur due to intake of large amounts of protein. Excess calories are always stored as fat.

The Epidemic of Coronary Artery Disease

Coronary artery disease is the leading killer of men and women in the United States. Approximately every 25 seconds, someone will suffer a heart attack and approximately every minute someone will die of a heart attack. In the course of a lifetime, 50% of men and one-third of women will have some form of cardiovascular disease.

The cost of this epidemic is unsustainable and the United States spends more than $250 billion a year on heart disease. Actions need to be taken immediately to concentrate on prevention of disease, before it gets completely out of control. Daniel's diet can make a major intervention to prevent coronary artery disease and in some patients result in reversal of disease.

Cholesterol Is Required For Life

Cholesterol is a waxy, fat like or lipid substance made by the liver. It performs three major functions:

- It makes the outer lining of cells
- It makes up bile acids which are used to digest food in the intestine.
- It allows the body to make Vitamin D and hormones, such as estrogen in women and testosterone in men. Without cholesterol none of these functions would take place. Without these functions human beings cannot survive. Cholesterol travels through your bloodstream and must be packaged into protein covered particles called lipoproteins that mix easily with blood.

Normally, lipids are oil-based and blood is water-based and they do not mix together. If cholesterol was dumped into your bloodstream without this protein covering, it would form clumps in your bloodstream and not be able to travel throughout your body. The fat in these lipoproteins is made up of cholesterol and triglycerides and a third material called phospholipids, which helps the lipoprotein particle to stick together. Triglycerides are a fat composed of three fatty acids attached to an alcohol called glycerol.

Triglycerides compose about 90% of the fat in the food you eat. The body needs triglycerides for energy, but as with cholesterol, too much is bad and will lead to hardening of your arteries (atherosclerosis).

What is Low-Density Lipoproteins (LDL) and High-Density Lipoproteins (HDL)?

LDL and HDL are two lipoproteins that are important in understanding heart disease. Though the names sound similar, they are completely different and have opposite effects in your body. The LDL particle carries 60-70% of the cholesterol in your body. LDL acts like a truck carrying cholesterol to the parts of the body that need it at any given time. If you have too much LDL in the bloodstream, it deposits the cholesterol into the arteries, which can cause blockages and lead to heart attacks. That's why LDL is referred to as the "bad" cholesterol. The amount of LDL in your blood-stream is related to the amount of saturated fat and cholesterol you eat. So, most people can decrease their LDL if they follow a reduced-fat diet. HDL is right opposite of LDL. Instead of having a lot of fat, HDL has a lot of protein. HDL acts like a vacuum cleaner sucking up as much excess cholesterol as it can.

It picks up extra cholesterol from the cells and tissues and takes it back to the liver, which takes the cholesterol out of the particle and either uses it to make bile or recycles it. As total blood cholesterol rises, you need more HDL to protect you against heart disease. Since HDL protects against heart disease, it is called the "good" cholesterol.

Does My Body Make Cholesterol

Cholesterol is so important to the body that it makes it itself. So even if you ate a completely cholesterol-free diet, your body would make approximately 1000 mg it needs to function properly. Your cholesterol level is determined by the sum of how much cholesterol your body makes and how much you take in from food, minus how much your body uses or excretes. High cholesterol can result from a problem with any of the variables in the above equation:

- Your body produces more cholesterol due to genetic predisposition
- Too much cholesterol from your diet
- You may not excrete cholesterol in your bile efficiently

Most evidence suggests that our high cholesterol levels are due to our high-fat, high-cholesterol diet. If we stick to Daniel's diet we can avoid the dreaded curse of abdominal obesity and heart disease.

Elevated Cholesterol And Heart Attack

The body requires a certain amount of cholesterol to function properly and produce the necessary hormones. However, if there is too much cholesterol in the blood it sticks in the inner walls of the blood vessels. This causes hardening of the arteries or what is called atherosclerosis. If the arteries are partially blocked leading to insufficient supply of oxygen to the heart it leads to severe pain in the chest called angina. When the artery supplying the heart is blocked completely, a heart attack occurs.

Will Stents And Bypass Surgery Prevent Further Heart Attacks?

During a heart attack stents can be lifesaving by restoring flow in an artery that is completely blocked. The will prevent the heart muscle from dying by restoring flow to the cardiac muscle. Balloon and stents are suitable for reducing symptoms but do not prevent heart attacks or prolong life in patients who are not having heart attacks. This is because most heart attacks occur in vessels that have only mild to moderate blockage. This brings home the point that there is residual risk for repeat heart attacks in vessels that have mild to moderate blockages that have not been treated with stents or bypass surgery. Utilizing Daniel's diet can reduce risk in vessels that do not have severe blockages.

What Is Ideal Cholesterol Level To Prevent Or Reverse Heart Disease?

Our present cholesterol guidelines recommend a cholesterol level less than 200. So far this has not been effective since we have an epidemic of heart disease with rising health care costs. In parts of the world where coronary artery disease is nearly nonexistent, the total cholesterol levels are usually below 150 mg/dl. In rural China, according to Dr. Colin Campbell's historic study of 20 years, there was rarely any coronary artery disease and the total cholesterol level was between 90 and 150 mg/dl.

Also, Dr. William Castelli (former director of Framingham Study) stated: Keep your total cholesterol below 150 mg/dl and you will not have a heart attack. Dr. Caldwell Esselstyn in his study at Cleveland Clinic of patients with

severe end stage coronary artery disease used a goal of total cholesterol less than 150 and LDL less than 80. He halted progression of coronary artery disease and even showed reversal of coronary artery disease. Therefore, lower is better to save lives in patients with heart disease.

Am I At Risk Even If My LDL Is Less Than 80?

Multiple statin trials have revealed residual risk even when LDL is lowered below 70 mg/dl. Some people believe that all they need to do is take their cholesterol pill and they can consume all of the high-fat, high cholesterol foods they want without any detriment to their body. Dr. Esselstyn in his plant based nutritional program stated that residual risk still remains and is evident by an increase in CRP that was evident in the "Prove It" trial which compared intensive cholesterol drug treatment verses moderate cholesterol drug treatment for coronary artery disease. He states that with his plant based nutrition program his patients normalized their CRP levels in 3-4 weeks of nutritional therapy. Therefore, patients with coronary artery disease need aggressive lipid treatment and plant based dietary therapy for the best results that can prevent progression and possibly reverse coronary artery disease.

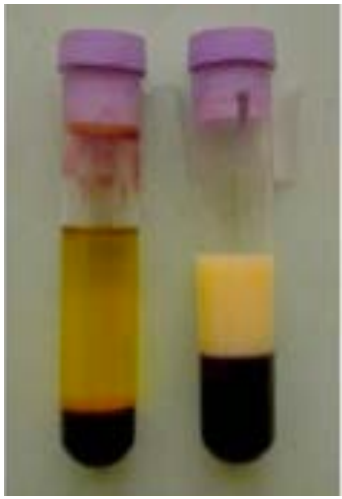
How Does Plant Based Nutritional Therapy Help My Arteries?

Plant based nutrition helps produce nitrous oxide which is good for the arteries of our heart. Nitrous oxide is produced from L-arginine which is found in plant foods such as beans, soy and nuts. Nitrous oxide has the following effects on our arteries:

- It dilates blood vessels and increases blood flow to various organs
- It prevents white blood cells and platelets from sticking to the endothelium (inhibits platelet aggregation) which can lead to plaque formation.
- Inhibits smooth muscle cell proliferation.

Consuming a Western diet of oil, dairy and meat will decrease the production of nitrous oxide and cause endothelial dysfunction and eventually result in atherosclerosis.

What Is Effect Of Fatty Meal On My Arteries?



When your doctor orders blood work on you, the lab will be able to see lipid in your serum if you have eaten a high-fat meal prior to having your blood drawn. The lipid looks milky white because of its high fat content. This is the reason your doctor will tell you to have your blood drawn after an eight hour fast. This is important to think about what you are putting into your body. The foods you are eating are running through the vessels in your body and fuel your body throughout the day. Consuming a high-cholesterol, high-fat diet can damage your vessels. Note the picture to the right. Normal serum is present in the left tube and lipemia in the right tube. Lipemia or fat is milky white in color.

Food High In Fat Causes Artery Damage

In 1999, Dr. Robert Vogel, from the University of Maryland School of Medicine in Baltimore, showed that eating just one fatty meal could damage the artery walls. He used the brachial artery tourniquet test (BART) to show the damage to the endothelium of the artery. Initially the diameter of the brachial artery of the subject tested is measured. Then he inflated blood pressure cuffs on the students' arms, stopping the flow of blood to their forearms for 5 minutes. After deflating the cuff, ultrasound was again used to determine how fast the artery springs back to its normal condition. Dr. Vogel fed one group a fast-food breakfast that contained 900 calories and 50 grams of fat. A second group ate 900 calories breakfast containing no fat at all. After they ate, Dr. Vogel measured the responsiveness of their arteries once again. The results showed a dramatic difference. The arteries of the no-fat breakfast group bounced back to normal just as they had when measured before the meal. But, the arteries of the high-fat breakfast took far longer to respond. Dr. Vogel felt the reason for the pronounced difference was due to the drop in endothelial function which occurred two hours after eating. The decrease in endothelial function was due to loss of nitrous oxide. It took nearly 6 hours for the endothelial function to return to normal. If a single high-fat meal can have a devastating impact on the health of your arteries,

imagine what happens if you eat a high-fat, high-cholesterol diet three times per day.

Is Olive Oil Healthy?

A lot of support for olive oil is based upon the Mediterranean diet and the Lyon Diet Heart Study. This study compared the results of the Mediterranean diet with the typical American Heart Association diet in patients that had suffered a myocardial infarction. In the Mediterranean diet the following foods were included:

- High in fruits, vegetables, bread, potatoes, beans, nuts and seeds
- Olive oil as source of monounsaturated fat
- Dairy products, fish and poultry consumed in low to moderate amounts, and little red meat. Eggs consumed zero to four times weekly.
- Wine consumed in low to moderate amounts

The Mediterranean diet had 30% of daily calories from fat and the American Heart Association diet had 34% of calories from fat. The results of the study were impressive in that the people on the Mediterranean diet were 50-70% less likely to have angina, stroke, heart failure, heart attacks or even death. This is the reason the media has referred to these oils as "heart healthy."

Olive oil is not as healthy as it may seem, based upon the Lyon Diet Heart Study. It is 100% fat and 14% is saturated fat. One tablespoon has 125 calories. Saturated fat is the dangerous fat associated with heart disease. In the Lyon Heart Study it did slow the progression of heart disease and decreased events compared to the typical American Heart Association diet. As Dr. Esselstyn stated, we can do better than this with even a reversal of heart disease as shown with his study from the Cleveland Clinic. Also, as Dr. Esselstyn pointed out: After four years of the Lyon Heart Diet Study, 25% of the subjects on the Mediterranean diet either died or experienced a new cardiac event. In Dr. Esselstyn's study after 20 years of follow up, 94% of his patients were still alive.

Dr. Esselstyn has been saying: Olive oil and other polyunsaturated vegetable oils should be avoided, especially if you have coronary artery disease and you want to see reversal of your disease. Similarly, Dr. Rudel of Wake Forest University ran a 5 year study feeding monounsaturated fat (similar to olive oil) and saturated fat to African Green monkeys. African Green monkeys are unique in that they metabolize fat similar to humans. At autopsy

there was no difference in the amount of coronary artery disease. Mono-unsaturated fat or olive oil did not result in regression of coronary artery disease. Dr. Vogel did a study using the brachial artery tourniquet test and he had 10 subjects ingest 50 grams of fat, in the form of olive oil and bread, canola oil and bread, and salmon. He measured their arterial blood flow before and after each meal. Vogel could detect whether or not a meal was causing damage to the endothelial lining of the brachial artery, based upon how the blood was flowing through the artery after the meal was eaten. The results were surprising.

The olive oil constricted the blood flow 31% after the meal; the canola oil constricted it by 10%; and the salmon reduced it by only 2%. This is unlike walnuts, which have Omega-3's and have been shown to improve blood flow by 24% using the brachial artery tourniquet test.

Finally, Dr. Esselstyn tells a story in his book of Rev. William Valentine of North Carolina who had bypass surgery in 1990. After his surgery he followed a strict plant-based diet, dropping from 210 pounds to 156 pounds. For 14 years he maintained his weight and his diet. By 2004, he started experiencing angina with exercise. At that time he contacted Dr. Esselstyn, because he wanted no further bypass surgeries or interventions. He told Dr. Esselstyn that he ate only whole grains, grains, legumes, vegetables and fruits. This baffled Dr. Esselstyn since he was eating all of the right foods. Later on he remembered and informed Dr. Esselstyn that he forgot to mention that he was consuming olive oil at every lunch and dinner and in his salads. Immediately, Dr. Esselstyn advised him to give up olive oil. He did and within seven weeks, his angina had completely resolved. If you have coronary artery disease and desire to reverse your heart disease, forget about all oils as suggested by Dr. Esselstyn.

Dr. Esselstyn's Recommended Food Groups and Nutritional Plan To Reverse Heart Disease.

If you have heart disease or if you never want to develop it, then you have to avoid foods that have saturated fats and cholesterol. These are the rules recommended by Dr. Esselstyn:

1. Do not eat meats. This includes steak, chicken, fish and eggs. This even includes egg whites.
2. Do not eat dairy products. This includes milk and skim milk, nonfat yogurt, and cheese.

3. Do not eat fish.
4. Do not use any oil at all. This includes virgin olive oil and canola oil.
5. Use only whole grain products. Be sure the list of ingredients uses a phrase like "whole wheat" or "whole grain".
6. Nuts should be avoided if you have heart disease. Those without heart disease can consume nuts in moderation.
7. Eat the fruit and try to avoid the fruit juices
8. Do not eat avocados and this includes guacamole
9. Do not eat coconut
10.Eat soy products cautiously. Many are highly processed and high in fat. Use "light" tofu. Avoid soy cheese which usually contains oil and casein.
11.Do not eat healthy food, such as vegetables, soaked in butter and oils.

Recommended Foods To Eat

You are what you eat. Even Shakespeare understood this concept and stated: "The fault is not in our genes, but in ourselves and the way we eat." A strong family history does not have to be a death sentence. The foods listed below will make you strong and healthy:

1. Vegetables. All vegetables except for avocados which have a high fat percentage. These include baked potatoes (no sour cream or butter), sweet potatoes, yams, broccoli, kale, spinach, asparagus, artichokes, egg plants, radishes, celery, onions, carrots, Brussel sprouts, corn, cabbage, lettuces, peppers, turnips, squash, tomatoes, and cucumbers.
2. Legumes (Beans, peas and lentils).
3. Whole grains. Whole wheat, whole oats, whole rye, whole corn, wild rice, brown rice, popcorn, quinoa, amaranth, and millet, You can eat whole grain pasta, whole grain pancakes, and whole grain cereals that do not contain added oil. Be careful of added eggs in many of restaurant pastas.
4. Fruits. Eat the whole unprocessed fruit and avoid fruit juices.

Dr. Esselstyn recommends 4 dietary supplements for patients on a plant-based diet.

1. One multivitamin a day
2. Vitamin B-12. A 1000 micrograms daily

3. Calcium. People over 50 should take 1,000 milligrams a day. People over 60 should take 1,200 milligrams a day.
4. Those over 50 should take 1,000 international units of vitamin D per day.
5. Omega-3 fatty acids. Consume one tablespoon of flaxseed meal each day. Be sure to refrigerate ground flaxseed.

How Difficult Is It To Change To A Plant Based Diet?

I think it is very hard and only a small percentage will be successful. The difficulty lies in food preparation which is labor intensive and requires meal planning one day in advance. Also, parents with children have trouble getting children to adhere to a plant based diet. As with all things that are not easy, you must have discipline. Hebrews 12:11 states the pain of discipline brings joys thereafter. I feel the effort is worth the reward for the following reasons:

1. A plant based diet makes you stronger and healthier. I can do more pullups and pushups.
2. A plant based diet dramatically improved constipation and results in regular, larger bowel movements.
3. A plant based diet dramatically improved cholesterol levels, glucose levels and blood pressure.
4. A plant based diet makes you calmer compared to a high-protein, high-fat diet. 5. A plant based diet dramatically improves abdominal obesity which lowers your risk of sudden death.
6. A plant based diet lowers your risk of heart attack and can reverse heart disease.
7. A plant based diet lowers your risk of cancer.
8. A plant based diet can help you control your weight without the normal fluctuations up and down seen with most diets.
9. A plant based diet lowers your risk of diabetes, hypertension, osteoporosis, arthritis, gallstones and sleep apnea.

Can I Get Enough Protein and Fat on A Plant Based Diet?

The answer is yes. The plant based diet suggested by Dr. Esselstyn contains approximately 10% fat. This is a lot better than the 37% fat content of the typical Western diet. This provides the fat you need and does not give you the excess which leads to abdominal obesity and death. This diet does

not lead to protein deficiency. Dr. Esselstyn's diet provides approximately 50-70 grams of protein per day and is adequate for a healthy lifestyle.

Can Vegans Get Heart Disease?

Yes, and they can become fat and unhealthy. A vegan is a person who does not eat any food that comes from animals. Vegans sometimes fill their plates with meat equivalents created from highly processed soy protein bathed in vegetable oils. They replace butter with margarine spreads and swap ice cream for frozen soy desserts packed with sugar and fat. When they eat vegetables, they are smothered in olive oil. This results in a high fat intake which leads to obesity and poor health. They have given up meat products and have replaced them with fake foods that cause the same problems as consumption of animal products.

Calcium And Milk

The USDA recommends consuming 3 cups per day of fat-free or low-fat milk. Does this translate into strong bones and better health? The dairy industry believes that increased calcium intake will build strong bones and prevent osteoporosis. Osteoporosis is the weakening of bones caused by an imbalance between bone building and bone destruction. People typically lose bone as they age. Postmenopausal women account for 80% of all cases of osteoporosis because estrogen production declines rapidly at menopause. Men are also at risk for osteoporosis, but they tend to do so 5 to 10 years later than women, since testosterone levels do not fall abruptly the way estrogen does in women. It is estimated that osteoporosis will cause half of all women over age 50 to suffer a fracture of the hip, wrist or vertebra. There is strong debate surrounding milk and calcium, but there is no consensus on the appropriate amount of dietary calcium.

In some studies a high calcium intake doesn't actually lower a person's risk of osteoporosis. Also, the combined results of randomized trials that compared calcium supplements with placebo showed that calcium supplements did not protect against hip fractures. There is some suggestion that calcium intake without vitamin D might even increase the risk of hip fracture.

Additional evidence further supports the idea that American adults may not need as much calcium as is currently recommended. For example, in

countries like India, Peru and Japan where average daily calcium intake is as low as 300 mg per day (less than a third of the U.S. recommendation for adults, ages 19 to 50), the incidence of bone fractures is quite low.

Should You Get Calcium From Milk?

Many people, when searching for a source of calcium, they automatically think of milk. Milk is not the only source of calcium. Dark leafy green vegetables and some legumes are good sources of calcium. There are some important reasons why milk may not be the best source for calcium. These reasons are the following:

1. Excess protein and dairy can cause bone damage. The incidence of kidney stones and hip fractures increase with increasing calcium intake. Countries such as United States, New Zealand, Australia and Norway have the highest rate of osteoporosis, but they also have the highest intake of calcium. This is in contrast to rural Asia and Africa where the incidence of osteoporosis is the lowest. These rural areas have a low intake of animal fat and they consume a low calcium diet. Therefore, osteoporosis is the highest when there is an increased consumption of meat, poultry, dairy and seafood.

Osteoporosis results when we take in too much animal fat. This excess of protein will increase acids into the bloodstream, which the body neutralizes by drawing calcium from the bones. In the Nurses‘ Health Study, for example women who ate more than 95 grams of protein a day were 20% more likely to have a broken wrist over a 12-year period when compared to those who ate an average amount of protein (less than 68 grams a day).

2. Milk is high in saturated fat. Milk labeling is very deceptive. Whole milk, advertised as 3.5% fat, may indeed have 3.5% fat by weight, but in terms of calories, 50% comes from fat, which also includes the artery clogging saturated fat. Even milk labeled low-fat or 2% has 32% of it's calories from fat. We all love cheese, but it is the worst offender because 70% of its calories come from fat. The intake of dairy products is a major contributor to abdominal obesity.

3. Many people have some degree of lactose intolerance. For them, eating or drinking dairy products causes problems like cramping, bloating, gas and diarrhea. These symptoms can in some cases be severe.

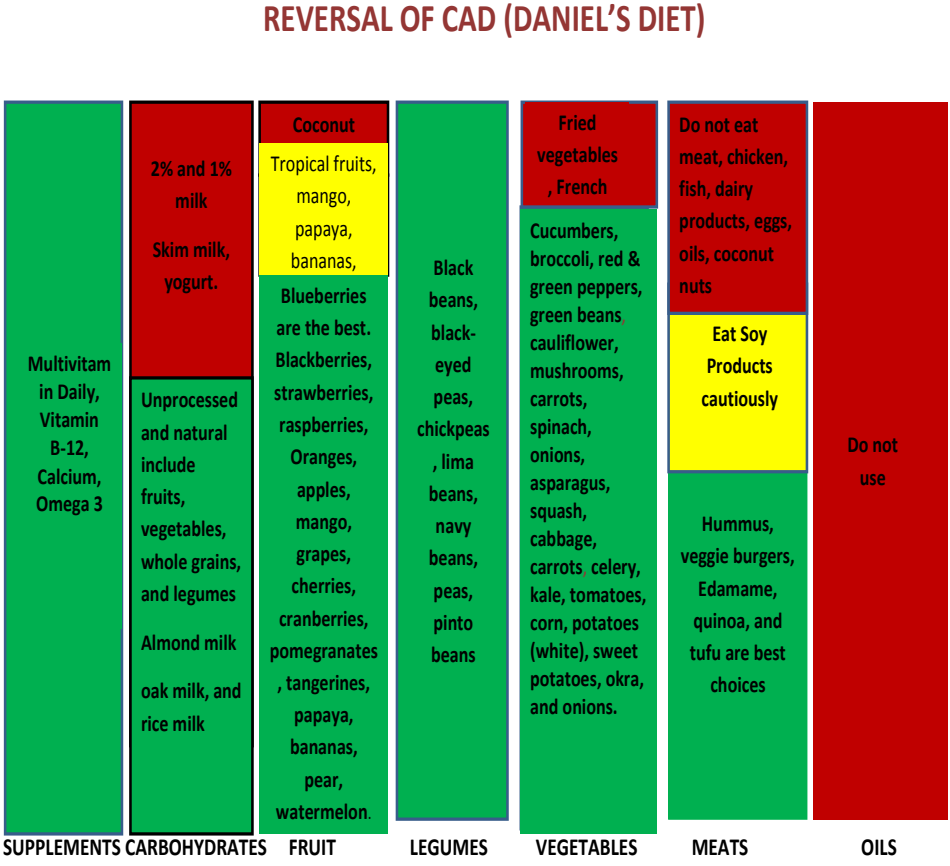
4. Cancer. The protein in milk increases growth hormones that can promote the growth of cancers such as breast, prostate, colon, brain and lung cancer.

5. Dairy proteins cause food allergies and autoimmune diseases such as rheumatoid arthritis, asthma and multiple sclerosis.

In summary, cow's milk is not our best source for calcium. Great sources of calcium include nuts, green leafy vegetables, oranges, whole grains, lentils, broccoli, kale, celery and Romaine lettuce. Stay on Daniel's diet and your bones will be stronger.

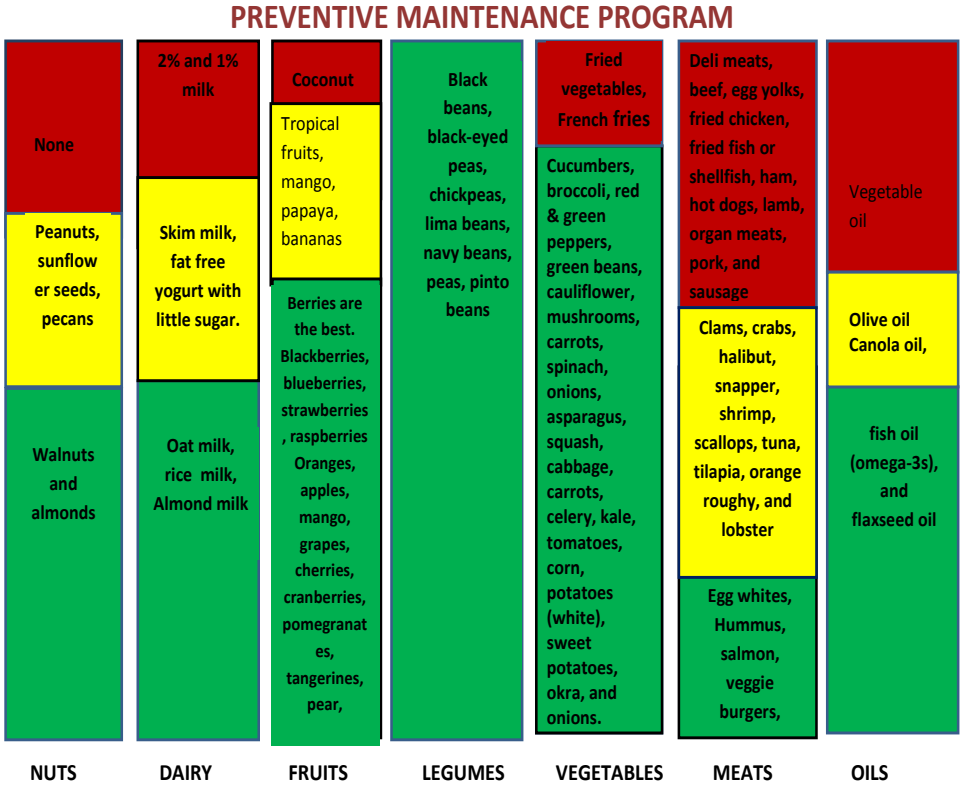
Food Choices For The Reversal Program And The Preventive Maintenance Program

The graph below describes Dr. Esselstyn's recommendations for reversal of coronary artery disease:



Preventive Maintenance Program

In learning to drive, we are all taught the colors of a signal light and how to react to the three colors. Green means go, yellow to proceed with caution, and red to stop. The road to preventing heart disease has signal lights along the way. However, these signal lights are ones you yourself have to install. We can only complete our journey by watching our signal lights. Our diet is important and what we eat will help us assure ourselves of preventing heart disease. We need to start off realizing we can proceed down the road of life by using the green light for those food items that we can enjoy and that will lead us to a better life style. However, not all foods are good for us, but sometimes it is all right to eat them sparingly. These are foods that fall in the yellow or caution light. We need to proceed with eating these foods with caution. Then there are foods we just need to avoid. These are the foods that are under the red light. Foods that we do not need to eat at all to enjoy the best of health.



Diabetes *Can* Be Reversed With Diet And Exercise

How did John Blackwell solve his problem with diabetes? The following section will discuss John's journey to cure his body of diabetes. This journey, like all other significant journeys, requires discipline and determination to arrive at the destination of combating this condition. Along this journey John was confronted with many obstacles and roadblocks. The obstacles were being 70 years old, overweight, out of shape, and having hypertension. The biggest obstacle was trying to combat 70 years of bad eating and exercising habits. All of this is enough to discourage a person. However, John was determined to improve his health in order to enjoy his life more and for a longer period of time. Many of his friends and acquaintances were suffering from the effects of being diabetic, overweight, and hypertension. Others were brought down by cancer because they were not in shape to deal with the effects of treatment. However, determination can prevail. Perhaps sharing this story will help you make up your mind to begin such a journey.

Just Exercise on the Days You Eat…

A 71-Year-Old Male's Journey in Beating Diabetes

By: John Blackwell

My story about beating diabetes began in the fall of 2011. That was when I found myself eating more desserts and other sugary and fatty items than I did normally. For example, coming home from church services and eating a bowl of ice cream had become common. My wife could not keep homemade cookies for the grandchildren, because I would eat six at a time.

There were many days during the fall and winter that I could not go outside to exercise but I kept active by doing yard work and other physical chores whenever possible.

I had restarted my home exercise program a time or two, but it never lasted. I noticed my pants were getting a little tight, but the spandex waistband and extra-large shirts hid most of it. I had missed my six-month cardiologist appointment in the fall of 2011. However, I kept my appointment with my general practitioner in April of 2012. After a blood-pressure measurement and a blood test, the doctor found my blood pressure a little elevated. My doctor got my attention when he told me my blood test showed I was a diabetic and had to start taking a diabetic drug.

I began my battle with diabetes on May 19, 2012. The first step was to begin an exercise program that consisted of an hour of exercise daily under the guidance of a certified trainer. I also began a 1,800-calorie diet. As my trainer and I approached the end of the first week, I asked about a day off from exercising. His response was that "You need to exercise only on the days you eat!" It didn't take me too long to think through that statement. As much as I enjoy eating this meant exercising every day. I began my exercise program using light weights to prevent injuries. By the end of August the weight loss had begun.

I soon realized that I needed to adjust my eating habits to reflect my exercise commitment. I had previously attended a class for diabetics and their diet and realized the relationships between carbohydrates, starches, and the production of sugars in your body. Therefore I knew that I needed to restrict my intake of sugars to only the sugars my body could produce. In addition, I began eating more vegetables and fruits.

I began my day with a good breakfast followed by a snack about 9:30 am and then a good lunch and followed again about 2:30 with a snack and then a light supper. Snacking throughout the day kept my appetite from consuming me. I also stopped all eating after 8:00 pm. However, I soon learned that

I needed to be very attentive to the size of my portions, even of the good plant based foods. My stomach had grown through the years because of my consumption of oils, meats and dairy products. I soon stopped all dairy products and now only use almond or soy milk. My meat and oil consumption has been greatly reduced.

My trainer suggested I needed to set a goal of having my waistline measure 10 inches less than my chest. By that time, my waist was less than my chest by six inches. I continued to follow my 1,800 calorie diet and my trainer encouraged me to attend a class of "Crossfit" each Sunday afternoon which was in addition to an hour of exercise that morning. This meant nearly two hours of exercise each Sunday.

My weight loss continued and the morning of my next doctor's appointment I was thrilled to see that I weighed 200.8 pounds on my home scales.

My doctor reviewed my blood work and said it was better than he had hoped and he was impressed with the amount of weight loss since my December visit. He said I could discontinue my diabetic medication but he wanted to see me again in six months. I was very happy to no longer be a diabetic and to remove one medication from my regimen.

My trainer was very happy to hear the news as well. While I am still on blood-pressure medication, I am working to continue my exercise program and diet. Perhaps with time this medication may be reduced or eliminated. By the way, my stomach is eight inches less than my chest — two inches to go!

My doctor told me I was in better shape than 95 percent of the folks in my age group. While I realize most people in my situation will choose not to do this same exercise program and diet, perhaps someone will be motivated by my experience. I proved it can be done in 11 months of exercising and diet. I was 72 in August. My family and friends have been astounded by my appearance. I am in the best shape of my life. My granddaughter called me a "hottie"!

-John Blackwell

RECIPES

Pizza

Buy whole wheat pizza dough and Barilla pasta sauce (I get it at Publix)
Put Barilla pasta sauce on dough
Put Hummus on dough
Add vegetables to dough: mushrooms, bell peppers, onions, spinach, tomatoes, zucchini, and banana peppers
Sprinkle with garlic powder
Top with dairy free cheese (Daiya)

Preheat oven to 400 degrees and cook for 20 minutes

Whole Wheat Oatmeal Pancakes

3/4 cup quick-cooking oats
1 1/2 cups plus 2 Tbs buttermilk divided (I use almond milk)
3/4 cup whole-wheat flour
1 1/2 tsp baking powder
3/4 tsp baking soda
1/2 tsp cinnamon
1/8 tsp nutmeg
1/2 tsp salt
1 large egg, lightly beaten (I use 1/4 cup silken tofu)
2 Tbs butter (I use apple sauce)
1 Tbs packed brown sugar

Soak oats in 3/4 cup milk 10 minutes.
Meanwhile, whisk together flour, baking powder, baking soda, cinnamon, nutmeg and salt in a large bowl.
Stir tofu, applesauce, brown sugar, remaining milk and oat mixture into dry ingredients until just combined.
Cook on heated griddle sprayed with cooking spray.

Veggie Burgers

1 can black beans, rinsed and drained
1 can tomatoes with zesty mild chilies, drained (Rotel)

1 garlic clove minced or 1 tsp garlic powder
1 tsp onion powder
2 green onions, chopped (I use regular onion to taste)
1 cup chopped carrots
1 cup parsley or cilantro
2 cups quick rolled oats

Preheat oven to 450. Process the first seven ingredients in a blender or food processor. Remove contents into a large bowl and stir in the oats. Form into patties, place on a sprayed baking sheet and bake for 8 minutes. Turn oven up to broil and cook for 2 more minutes until the tops are nicely browned. Toast the buns and pile on your favorite toppings.

Lentil Loaf

1 1/2 cups lentils, rinsed (I use brown but any color will do)
2 1/2 cups water
2 medium onions, chopped (1 1/2 cups)
6 mushrooms, chopped
2 cups packed fresh spinach, chopped
1 15 ounce can diced tomatoes
2 cups brown rice, cooked
1 tsp garlic powder
1 tsp dried sage
1 tsp Mrs. Dash's garlic and herb seasoning blend (didn't have this so I used some cajun seasoning)
1/4 to 1/2 cup ketchup or barbecue sauce (Jerry didn't want this on top so I didn't use it)

Preheat oven to 350 degrees
Cook lentils in 2 1/2 cups water until tender, then partially mash lentils in the cooking water
Stir-fry onions and mushrooms in broth or water in a nonstick pan. Add spinach and cook, covered, until spinach wilts.
Add onions and mushrooms, tomatoes, rice, garlic, sage,other seasonings to lentils.
Press into a 9 x 5 inch loaf pan and spread ketchup or barbeque sauce on top. Bake for 45-60 minutes.

Blueberry Cobbler

3/4 cup whole-wheat flour
1 1/2 tsp baking powder
3/4 cup soy or almond milk
4 Tbs maple syrup, sugar or honey (I used honey)
1 Tbs vanilla extract
2 cups blueberries (or combo of other fruit such as strawberries)
Preheat oven to 350 degrees
Combine flour and baking powder in a small bowl, combine milk, honey and vanilla and stir, then add to flour and mix until smooth. (Batter will be quite runny)
Pour batter into a nonstick 8 inch square pan. Sprinkle berries on top and bake for 45 minutes or until lightly browned.

Vegetarian Quinoa Chili

1/2 cup quinoa, rinsed
1 cup water
1 Tbs canola oil
1 small onion chopped
3 cloves garlic, minced
1 jalapeno pepper, diced
1 large carrot, peeled and chopped
2 celery stalks, chopped
1 green bell pepper chopped
1 red bell pepper chopped
1 med. zucchini, chopped
2 (15 oz) cans black beans, drained and rinsed
1 (15 oz) can red kidney beans, drained and rinsed
3 (15 oz) cans diced tomatoes
1 (15 oz) can tomato sauce
2-3 Tbs chili powder, depending on taste
1 Tbs ground cumin salt and pepper to taste

In a med. sauce pan, combine the quinoa and water. Cook over med heat until water is absorbed, about 15 min. Set aside
In a large pot, heat the olive oil over high heat. Add the onion and cook until tender, about 5 min. Stir in garlic, jalapeno, carrot, celery, peppers, and zucchini. Cook until vegetables are tender, about 10 min.

Add the black beans, kidney beans, tomatoes, and tomato sauce. Stir in the cooked quinoa. Season with chili powder, cumin, salt and pepper. Simmer chili on low for about 30 min.

Cream of Broccoli Soup

1 cup chopped onion
2 1/2 tbsp. whole wheat flour
1/2 tsp salt
1/4 tsp pepper
2 cups vegetable broth
10 oz package frozen chopped broccoli, thawed, drained (or can use fresh)
2 cups almond milk (or other milk sub)

Saute onion in Pam about 10 min. Add flour, salt, and pepper and stir constantly for two minutes. Add broth slowly. Add broccoli. Bring to a boil, stirring frequently. Cover and simmer until broccoli is tender. Puree in blender. Return to pan, add milk and let simmer.

Pumpkin Apple Walnut Harvest Rice

(vegan, makes 6 cups)

1 3/4 cups cooked brown rice
1 cup canned pumpkin
1 1/2 Tbsp apple cider vinegar
1 small honeycrisp apple, diced
1 small sweet onion, chopped
1 Tbsp parsley flakes
2 tbsp organic raisins (golden or purple)
1/2 cup walnuts, unsalted
1-3 Tbsp maple syrup (depending on how sweet you want it)
1/4 tsp cinnamon
1/4 tsp fine pepper
2 Tbsp olive oil
1/2 tsp salt (to taste)
optional: 1 cup warmed chickpeas over top

To Make:

1. Prepare brown rice - set aside in large mixing bowl.

2. In a small bowl, combine the pumpkin, maple syrup, cider vinegar, spices. Warm in microwave. Mix well. Add this mixture to the warm brown rice. Fold until well distributed.
3. Prep your apples and onions by dicing.
4. Fold into the rice mixture: raisins, apples, onions, walnuts, olive oil, parsley flakes and salt to taste. Top with optional warmed chickpeas.

Serve warm or keep in warm oven until ready to serve. But do not over-heat. You want the apples and onions to still have a crispness to them when you serve.

Other optional add-in's: nutritional yeast, truffle oil, cayenne, cubes of butternut squash or sweet potato..

Summary Of Recommendations For Your Health

Our book has two programs that allow you to choose the one that best fits your situation. If you have no coronary artery disease and you want to follow a healthy program we recommend you to follow the Preventive Maintenance Program. If you have severe coronary artery disease, we recommend that you follow the Reversal Program that has been described by Dr. Esselstyn at the Cleveland Clinic. This program is similar to the diet described in the Bible that resulted in Daniel and his men being healthier and stronger than the King's men.

Preventive Maintenance Program

This is the program that I follow on a daily basis. This program decreased my total cholesterol from 205 to 124 with a decrease in my LDL from 118 to 74. My triglycerides went from 218 to 60. This dramatic reduction occurred without any medications. This same program also reversed diabetes in John Blackwell, who is one of the authors on our book. His last blood work revealed a triglyceride of 31. Some people could not believe that this could be achieved with diet alone and no medications. John has proven that a good diet can be effective even at 72 years of age.

The choice of foods for this program is shown on the graph on page 56 entitled "Preventive Maintenance Program". This graph is color coded to resemble a traffic light to make it easy to pick the right foods to eat. The color green means go and you can eat all you want until you are full. The color yellow stands for caution and indicates that you can have this food choice occasionally, but not on a regular basis. The color red means to stop and avoid these foods completely.

This program is powerful in its ability to cause marked reduction in your cholesterol values, possibly reverse diabetes in some individuals, reduce or eliminate your blood pressure medications, and make you healthier with a better quality of life. This is all true, but it is not easy to follow this diet. It will require tremendous discipline for you to be successful. The Bible tells us in Hebrews 12:13, that the pain of discipline brings joy thereafter. The journey is hard but you will be rewarded if you stay the course. For you to be successful in the Preventive Maintenance Program you have to follow the following rules:

• Decrease your intake of animal fats (meat, dairy, eggs). Animal fats will markedly increase your cholesterol and cause you to have abdominal obesity. You should avoid fast foods such as hamburgers, cheeseburgers, roast beef sandwiches, pork sandwiches and fried chicken sandwiches. Occasionally you may have a grilled chicken sandwich. The best fast food sandwich is the black bean sandwich at Lenny's sandwich shop. If you have a fast food sandwich you must request whole wheat bread and avoid any condiments such as mayonnaise or fatty dressings. Steaks, fried chicken, pork chops, ribs, and other fried meats should be consumed rarely. Fish that is grilled or baked is a better choice since it does have Omega 3 fatty acids which has been reported to decrease inflammation and lower your risk of heart disease. Fish is our preferred animal fat due to it's cardiovascular benefits. However, if you have marked abdominal obesity and are overweight, a reduction in all fats including fish is very beneficial. Even salmon has some saturated fat.

• Decrease your intake of milk. Regular milk has saturated fat. If you must have milk, use only skim milk. Also another good choice is Almond milk which has no saturated fat. I like Silk Almond milk which has 30 calories per serving. Avoid most yogurts which are really a dessert with a lot of sugar. One good choice is plain Chobani greek yogurt which has no added sugar and has 15 grams of protein.

• Decrease your intake of Eggs. One egg has 186 mg of cholesterol in the egg yolk, which is nearly your entire recommended cholesterol intake for an entire day. Egg whites are a good alternative and they have no cholesterol. I like Egg Beaters produced by ConAgra which taste very good.

• Vegetable oils (Olive oil and Canola oil) must be kept to a minimum. Vegetable oils have saturated fat. Use sparingly and do not soak vegetables in these oils. Vegetarians have developed severe coronary artery disease by taking in too much saturated fat from vegetable oils. They tend to soak good vegetables in oil while cooking. We normally use just enough oil to prevent food from sticking in the pan while cooking.

• You may have fat-free salad dressings and other fat-free condiments if they do not have added sugar or high-fructose corn syrup. Be careful and check the ingredients to make sure the ketchup does not contain high fructose corn syrup. Balsamic vinaigrette is a good dressing which is low fat and is a good healthy choice. Honey mustard from Publix has no fat and only 1 gram of sugar. It is a good healthy choice.

• You can have coffee with a fat-free nondairy creamer. Avoid adding sugar.

• Beware of liquid calories. Avoid all regular soft drinks and sport drinks

which have sugar and high fructose corn syrup. Occasionally a diet soft drink can be consumed, but avoid excessive intake of diet drinks.

• Decrease your intake of fruit juices that contain added sugar. A good rule is to eat your fruit and not drink your fruit.

• Avoid intake of cheese and fast food pizzas. Cheese and pizza are the top causes of increased saturated fat intake in the United States. If you get a fast food pizza request vegetables and whole wheat crust. Tell them to leave off cheese and processed meat. We have an excellent pizza recipe in the recipe section of this book.

• Nuts such as almonds and walnuts are good snacks. Walnuts have Omega 3 fatty acids which have heart protective effects. Do not overeat if you are obese.

• Peanut butter (all natural) and almond butter can be used for snacks. I like to eat an apple with teaspoon of peanut butter as a snack. Almond butter is very good on low calorie rice cakes. Carrots with diet ranch dressing is a good snack.

• Only eat whole grain products. Whole wheat bread, whole wheat pasta, whole wheat spaghetti, brown rice and quinoa. Avoid non whole wheat breads. Try to eat whole wheat pasta and spaghetti with tomato based sauces. Avoid butter, cheese and creamy sauces such as Alfredo sauces.

• Eat a lot of legumes (beans, peas and lentils). Black beans have 15 grams of protein per serving.

• Eat a lot of vegetables that are power packed with a natural antioxidants and vitamins. Eat till you are full. Obesity does not occur from eating too many vegetables.

• Fruits are a must and are natural cancer fighters. Berries are the best fruits to eat (blueberries, strawberries, raspberries, and blackberries). They are lower in calories and have a lower glycemic index than the tropical fruits like bananas, mango, pineapple, and papayas. Avoid raisins which are processed grapes. Eat the grapes and avoid the raisins.

• Avoid adding sugar to your food. Maple syrup can be used sparingly with the whole wheat pancake recipe in our book. Maple syrup only has one ingredient which is maple syrup and is healthier than Aunt Jemima syrup which has high fructose corn syrup and multiple ingredients. Splenda can be used sparingly when you want to add sugar to a food choice.

• You can increase your metabolism by 30%, by eating 5-6 times per day. This is the reason I have three meals and at least two snacks per day.

For Reversal of Coronary artery disease follow the below recommendations of Dr. Esselstyn at Cleveland Clinic:

- Do not eat meat
- Do not eat chicken
- Do not eat fish
- Do not eat dairy products (milk, yogurt and cheese)
- Do not eat eggs
- Do not use oil of any type (olive oil or canola oil)
- Do not eat avocados (including guacamole) due to higher fat percentage
- Eat soy products cautiously (many are processed and high in fat)
- You can eat all vegetables except avocado
- You can eat all legumes (beans, peas and lentils)
- You can eat whole grain products such as pasta and bread as long as they do not contain added fat
- Fruits are a good choice. Avoid processed fruit juices that have added sugar
- Avoid sugar

Dr. Esselstyn has many good recipes in his book "Prevent and Reverse Heart Disease".

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