

## Insulin Resistance

### A Stone Age Human In A Carbohydrate World

As this heading suggests, we live in a culture that is constantly throwing carbohydrate laden foods at us but our physiology is simply not designed to properly metabolize these large amounts of carbohydrates. The result of this carbohydrate over load is a wide variety of disorders that can be viewed as the diseases of the modern, civilized world. These modern diseases seem to be a reflection of persistent elevated insulin levels, a condition referred to as Insulin Resistance or hyperinsulinemia.

Insulin is a hormone. It helps your body move sugar from the blood stream into the muscles and the liver where the sugar is used as fuel or converted into fatty acids that are later moved into the fat cells and are stored as energy there.

In some people, a condition of abnormal metabolism develops that causes muscle and liver cells to not respond as readily to insulin and the body has to create higher and higher levels of insulin to maintain a normal blood sugar. Doctors refer the metabolic abnormality that causes escalating levels of insulin as Insulin Resistance.

### Insulin Resistance and the Development of Disease

Insulin resistance increases the risk of medical conditions such as:

- An increase in intra-abdominal fat
- Damage to the autonomic nervous system causing heart burn, fatigue, lightheadedness and urinary frequency.
- Inflammation and narrowing of the blood vessels leading to strokes and heart attacks.
- Elevated blood sugar leading to Type II Diabetes Mellitus and a greatly increased risk of strokes, heart attacks, blindness, kidney failure, neurological damage and occasional amputation.
- Low HDL cholesterol levels (the “good” cholesterol)
- Elevated Triglycerides
- High blood pressure leading to Hypertension and an increase risk of strokes and heart attacks.
- Sleep Apnea
- Fatty Infiltration of the Liver
- Gout
- Acne
- Breast, Colon and Prostate Cancers
- Polycystic Ovarian Disease
- Skin Tags

## **Why is Insulin Resistance Important?**

Insulin resistance increases the risk of medical conditions such as:

1. An increase in a dangerous form of fat that builds up in our abdomen below the muscles.
2. Inflammation and damage of the blood vessels (Atherosclerosis)
3. Elevated blood sugar (Type II Diabetes Mellitus)
4. Low HDL cholesterol levels (the good or healthy cholesterol)
5. Elevated triglycerides
6. High blood pressure (Hypertension)
7. Heart Attacks and Stroke

When many of these problems occur together, doctors refer to it as Metabolic Syndrome.

## **What Causes Insulin Resistance?**

Many different things may contribute to Insulin Resistance:

1. Aging
2. Our genetic make-up
3. Weighing too much.
4. Eating too many carbohydrates (sugars and starches)
5. Not enough exercise
6. Some unusual medications.

Of all of these, the most important are felt to be increased body weight, excessive carbohydrate intake and decreased exercise.

## **What Causes Insulin Resistance?**

Although excessive carbohydrate intake is felt to be the major factor in the development of Insulin resistance, other factors may also contribute to Insulin Resistance such as:

- Eating too many carbohydrates (sugars and starches)
- Aging
- Our genetic make-up
- Weighing too much
- Not enough exercise

## **How do I know if I have Insulin Resistance?**

Insulin resistance is difficult to measure by a simple blood test so doctors depend on a combination of other simple lab tests and medical conditions in order to make the diagnosis. If one or more of the following is true for you, you may very likely have Insulin Resistance:

1. Body Mass Index is equal to or greater than 29.
2. Fasting blood sugar level that is higher than normal (>100).
3. Fasting triglycerides are higher than 150.
4. HDL Cholesterol is less than 50 for women or 40 for men.
5. You have an excessive amount of fat around your waist (> 40 inches for Men & > 35 inches for Women; measure a relaxed abdomen at the midpoint between the top of the pelvis and the lowest rib of your flank)
6. One (or more) of your brothers, sisters or parents has been diagnosed with diabetes.
7. A history of Diabetes during pregnancy.
8. Have been diagnosed with Sleep Apnea.
9. Have been diagnosed with Polycystic Ovary Syndrome.
10. Have been diagnosed with Fatty Infiltration of the Liver.
11. You have a skin condition known as Acanthosis Nigricans.

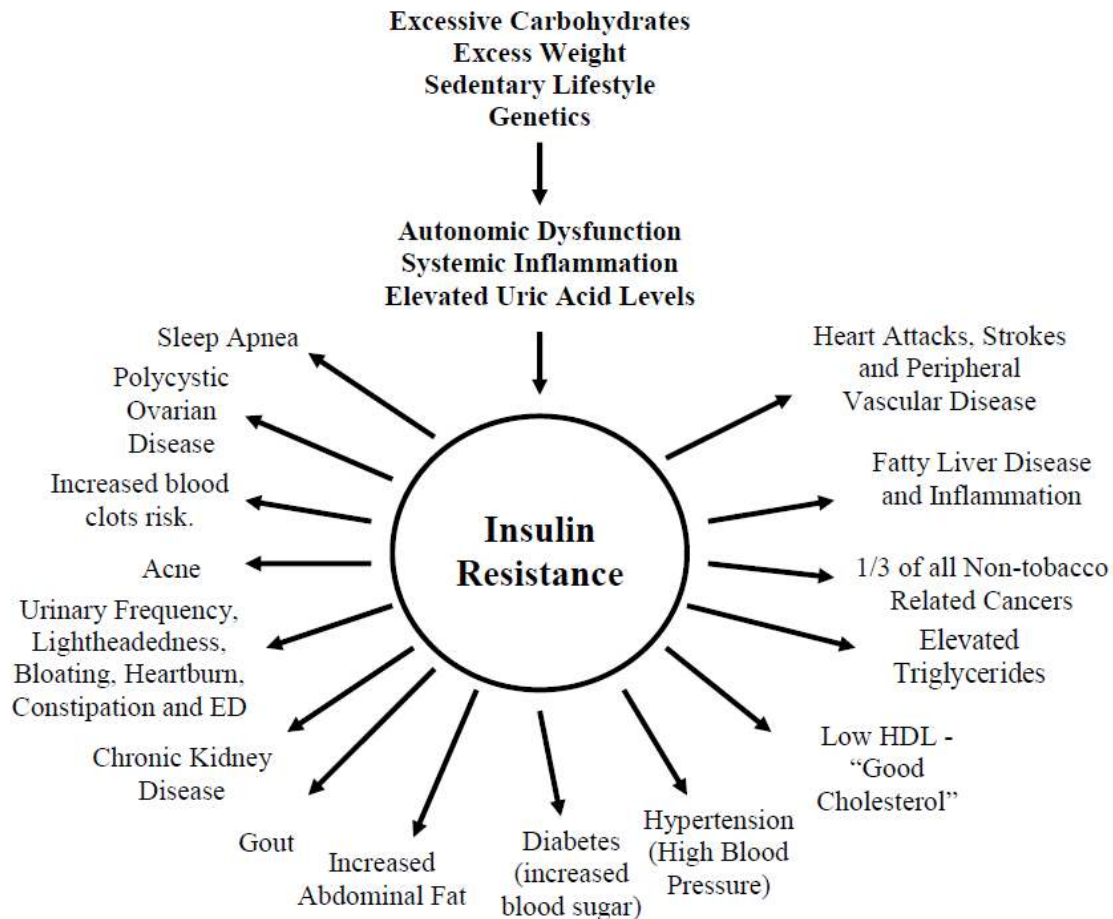
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## **What are the Symptoms of Insulin Resistance?**

Insulin Resistance usually has no symptoms. People may have Insulin Resistance for several years without noticing anything. In some individuals, Insulin Resistance can cause some changes in the functioning of your nervous system that results in some very common symptoms such as:

- Lightheadedness Upon Standing
- Rapid Heart Rate
- Sleep Disturbances
- Frequent Urination, Day or Night or Urinary Dribbling
- Abdominal Bloating
- Rapid Fullness with Meals or Frequent Nausea
- Excessive Sensitivity to Light
- Erectile Dysfunction
- Inability to Ejaculate
- Sweating after Meals
- Flushing of the Skin Constipation
- Heart Burn Dry Mouth

Fortunately, the majority of these problems will go away with a reduction in carbohydrate consumption and the reversal of Insulin Resistance.



## **Insulin Resistance Often Has No Symptoms**

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Sleep Disturbances  
Urinary Dribbling  
Rapid Fullness with Meals  
Excessive Sensitivity to Light  
Inability to Ejaculate  
Flushing of the Skin  
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Dry Mouth

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## **What Causes Insulin Resistance?**

The last 20 years has seen an epidemic rise in Obesity, Metabolic Syndrome and Diabetes Mellitus in the United States. Extensive research has helped us to understand that the combination of high carbohydrate diets, lack of exercise and increased portion sizes has lead to this problem.

Pre-historic humans were designed to consume approximately 1 cup of carbohydrates (starches and sugar) per year. The modern American consumes 1-2 cups per day! Simply put, we are not designed to consume the large amounts of carbohydrates we commonly do.

Additionally, our intake of high fructose corn syrup has risen from about 0.5 cups per person per year in 1970 to 90 cups per person per year in 2007! Recent research suggests that the increase in high fructose corn syrup may in fact be the single most important cause in the Diabetes epidemic in the United States!

Additionally, the increase in obesity has also been driven by the fact that we are a much more sedentary culture and have become somewhat accustomed to the “Super-Size” portions that the food industry has been serving up over the last 20 years.

## **Lessons Learned**

Many of the symptoms we experience, heart burn, frequent urination or occasional lightheadedness are not normal, they are simply common. They are often signs that your neurological system is not functioning properly because of excessive carbohydrate consumption.