

## Metabolic Syndrome and Obesity

Marker:	Your Value:	Score:
<b>Glucose</b> 100-126		
<b>Abdominal Circumference</b> >35 for women, > 40 for men		
<b>Blood Pressure</b> >130/85		
<b>Triglycerides</b> >150		
<b>HDL</b> <50 for women, <40 for men		
<b>TOTAL:</b>		

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If your total is 3 or greater, you have Metabolic Syndrome.

### Metabolic Syndrome

In recent years, we are finally starting to understand the relationship between obesity and diabetes. Over the years, this was originally referred to as “Syndrome X,” but more recently, the terms “Insulin Resistance Syndrome” and “Metabolic Syndrome” are being used more frequently. But what does all this mean?

People do not generally develop type II diabetes from one day to the next. For most people this process takes years, if not decades. Early-on in the process, as a person becomes more overweight, their bodies gradually respond more poorly to insulin, a process known as “insulin resistance.” Insulin is secreted by the pancreas as a storage hormone, primarily helping us store what we eat. As a person becomes more and more insulin resistant, their pancreas puts out more and more insulin to overcome the resistance. Only at the point where the pancreas can no longer put out enough insulin to overcome this insulin resistance does a person develop type II diabetes.

Have you ever wondered why some people can eat very unhealthy diets, not exercise, and never become obese? These people are lucky in that they do not have the genetic predisposition to metabolic syndrome. The genetic basis for this is just now beginning to be better understood. But for a person with high insulin levels, they absorb every calorie they eat, very efficiently storing it as fat. Even at the same calorie level and same activity level as some people without this metabolic problem, people with metabolic syndrome can continue to gain weight. I know it’s not fair, but if we can all understand that obesity and metabolic syndrome are a disease process, we can develop better approaches to treatment.

Metabolic syndrome is not only a risk factor for development of diabetes. It is also associated with high blood pressure, high cholesterol, and most importantly, heart disease.

The above are signs we can see before the development of diabetes. By identifying and treating metabolic syndrome, my hope is to prevent diabetes. But how do we reverse this process?

- 1) **Weight Loss:** This is critical! Even a 5% reduction in weight has been shown to lower the risk of developing diabetes by 50%.
- 2) **Exercise:** 60 Minutes of moderate exertion resensitizes the body to the effects of insulin. This effect lasts 24 hours. Thus, exercise needs to become part of our

lives every day of the week.

3) **Medications:** Many patients can correct metabolic syndrome with weight loss and exercise. However, if a person hits a plateau in their weight loss that they can't break through, or if they are unable to normalize their HDL, LDL, Triglycerides, Glucose, and Blood Pressure through diet and exercise, certain medications can be helpful.

4) **Stop Smoking:** If you are a smoker and have metabolic syndrome, your risk for the development of coronary heart disease is magnified to extreme levels. Quitting smoking is critical! It can also help raise HDL cholesterol.

As you lose weight and develop an exercise plan, I recommend keeping an eye on all of the metabolic syndrome parameters. With weight loss and exercise, we can often: stop blood pressure and cholesterol medications, avoid diabetes type medications, feel better, keep weight off, and live healthier and longer lives.

But this requires lifelong change. Going back to the old habits will result in going back to the old weight. It is critical to incorporate a healthy eating plan and exercise every day. But by sticking with it, you can reduce your health risks dramatically.

Any abnormal labwork should be repeated periodically. If your numbers don't normalize, we should use appropriate medications. These include:

- 1) **High LDL** (bad cholesterol): consider a statin-type cholesterol medication (potent lowerer of LDL)
- 2) **High Glucose:** consider Metformin (helps sensitize the body to insulin)
- 3) **Low HDL / High Triglycerides** (HDL is the 'good' cholesterol): consider niacin. Chromium has also been reported to be beneficial.
- 4) **High blood pressure:** consider an ACE-inhibitor (best choice for diabetics)
- 5) **Poor weight loss:** consider Metformin
- 6) Consider an Omega-3 supplement

In addition, for some people, there are other tests that can be useful:

- 1) **Borderline elevated cholesterol (LDL 101-130):** Consider a VAP test. This test breaks down LDL to a low risk / high risk pattern, and also fractionates other types of cholesterol to help us see if your cholesterol puts you at high risk or not. For some people, a VAP cholesterol test will help us decide whether or not to start cholesterol medication.
- 2) **Hemoglobin A1c:** This test gives a 3 month average of blood sugar, and is a better test than using just a fasting glucose for identifying diabetes, and for tracking diabetes treatment.