INSULIN RESISTANCE

WHAT IS INSULIN RESISTANCE?

Every time you ingest food your blood glucose (sugar) level rises. In response, the pancreas releases a hormone called insulin. Insulin helps take glucose out of the blood and brings it into the body's cells where it is used for energy.

*Insulin resistance* happens when the body does not respond to the insulin it is producing. As a result, glucose cannot enter the cells and instead remains in the blood. Over time, the amount of glucose in the blood builds up, which can lead to *diabetes*. Additionally, your pancreas works even harder to pump out more insulin. This creates high levels of insulin in the blood, called *hyperinsulinemia*.

Insulin resistance is often associated with *elevated triglycerides, high blood pressure, and obesity*. Separately, these characteristics are risk factors for *heart disease*. Combined, these characteristics increase your risk for heart disease even more. *Syndrome X, Metabolic Syndrome,* and *Insulin Resistance Syndrome* are the terms used for the condition of having several of the risk factors mentioned above.

POSSIBLE CAUSES OF INSULIN RESISTANCE

- Testosterone deficiency
- Some medications
- Family History/Genetics
- Obesity/overweight
- Depleted glutathione

HOW DO I KNOW IF I AM INSULIN RESISTANT?

It is best to have your blood test taken on an empty stomach.

Ranges for fasting blood glucose levels:

- Normal: ≤ 99 mg/dl
- Pre-diabetic: 100-125 mg/dl
- Diabetic: ≥ 126 mg/dl

WHAT CAN I DO TO LOWER MY BLOOD SUGAR LEVELS?

Making changes in your diet and lifestyle can lower your blood sugar back to normal levels.

- Exercise regularly. Exercise improves the body’s sensitivity to insulin.
- Consume moderate portion sizes. Eating too much at a single meal causes blood glucose levels to rise too high.
- Eat balanced meals consisting of whole grains, lean protein, healthy fats, and vegetables or fruit.
- Consume high fiber foods such as *whole grains* (whole wheat bread, brown rice, bran cereals, etc.) and *vegetables* to slow down the rate of glucose entering the blood.
- Increase consumption of *colorful fruits* and *vegetables* for their protective vitamins, antioxidants, and phytochemicals.
• **Reduce consumption of simple sugars** (sodas, sweets, etc) and **refined starches** (white bread, pasta, bagels, white rice, etc.) to prevent blood glucose levels from rising too rapidly.

• **Reduce saturated fat** intake. Insulin resistance may be influenced by high levels of circulating fats. Consume mostly healthy unsaturated fats like olive and canola oil and omega-3 fatty acids from cold water fish like salmon, sardines, and mackerel.

• Include **lean protein** from chicken, lean beef, fish nuts, low-fat cottage cheese, beans and whey protein shakes to help build and maintain lean body mass and to manufacture antibodies to fight disease.

• **Limit alcohol** consumption. Alcohol may interfere with the liver’s ability to breakdown glucose.

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