

GMHC'S Nutrition & Wellness Program

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.

Revised 12/09

