

## HEALTH EDUCATION LIBRARY FOR PEOPLE



World's largest FREE health Education library for people..

We help patients to become better We can help you understand !patients your health and medical problems better so you can get better care in partnership .with your Doctor

### OUR VISION

patients are the largest untapped We think healthcare resource and that Information ! therapy is the most Powerful Medicine

### OUR GOALS

1. Encouraging health insurance companies to invest in patient .education
2. .Advocating information therapy
3. rk of Setting up a national netwo .patient education centers
4. Developing patient educational materials in Indian Languages for .the web

For more information on this subject:  
Ask the Librarian : Free Answers to any Health Questions !!

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Health Education Library For People

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## Diabetes and Insulin



**LET'S HELP  
ERADICATE  
IGNORANCE**

**Understanding Diabetes  
And Insulin – Causes, Signs  
& Symptoms**

## Diabetes and Insulin

Insulin resistance is a silent condition that increases the chances of developing diabetes and heart disease. Learning about insulin resistance is the first step you can take toward making lifestyle changes that will help you prevent diabetes and other health problems.

After you eat, the food is broken down into glucose, the simple sugar that is the main source of energy for the body's cells. But your cells cannot use glucose without insulin, a hormone produced by the pancreas. Insulin helps the cells take in glucose and convert it to energy. When the pancreas does not make enough insulin or the body is unable to use the insulin that is present, the cells cannot use glucose. Excess glucose builds up in the bloodstream, setting the stage for diabetes.

Being obese or overweight affects the way insulin works in your body. Extra fat tissue can make your body resistant to the action of insulin, but exercise helps insulin work well.

### Causes

Because insulin resistance tends to run in families, we know that genes are partly responsible. Excess weight also contributes to insulin resistance because too much fat interferes with muscles' ability to use insulin. Lack



of exercise further reduces muscles' ability to use insulin.

Many people with insulin resistance and high blood glucose have excess weight around the waist, high LDL (bad) blood cholesterol levels, low



HDL (good) cholesterol levels, high levels of triglycerides (another fat in the blood), and high blood pressure, all conditions that also put the heart at risk. This combination of problems is referred to as the metabolic syndrome, or the insulin resistance syndrome (formerly called Syndrome X).

### Metabolic Syndrome

Metabolic syndrome is defined as the presence of any three of the following conditions:

- excess weight around the waist (waist measurement of more than 40 inches for men and more than 35 inches for women)
- high levels of triglycerides (150 mg/dL or higher)
- low levels of HDL, or "good," cholesterol (below 40 mg/dL for men and below 50 mg/dL for women)
- high blood pressure (130/85 mm Hg or higher)
- high fasting blood glucose levels (110 mg/dL or higher)

## Signs and Symptoms



Insulin resistance and pre-diabetes usually have no symptoms. You may have one or both conditions for several years without noticing anything. If you have a severe form of insulin resistance, you may get dark patches of skin, usually on the back of your neck. Sometimes people get a dark ring around their neck. Other possible sites for these dark patches include elbows, knees, knuckles, and armpits. This condition is called acanthosis nigricans.

If you have a mild or moderate form of insulin resistance, blood tests may show normal or high blood glucose and high levels of insulin at the same time.



