



PATIENT RESOURCES

Cardiovascular Disease and Type 2 Diabetes

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Cardiovascular disease and type 2 **diabetes** are chronic metabolic conditions that are caused by a combination of genetic, environmental, and lifestyle factors. Modifiable risks associated with lifestyle include tobacco use and intake of high-calorie and nutrient-poor food consumption, along with sedentary behavior. Other

risk factors for type 2 diabetes are not modifiable, such as age, ethnic origin, family history of diabetes, and some genetic tendency.

► **Terms You Should Know**

High Metabolic Risk: a state of heightened risk for heart disease and stroke that occurs as a result of certain genetic factors, poor lifestyle behaviors, and inadequately controlled medical conditions like high blood pressure.

Cardiovascular Disease: also known as heart disease, is caused by narrowing or blockages in the arteries (ie blood vessels carrying oxygen to the heart). The term is also used to describe similar problems in the arteries of the brain and legs.

Prediabetes: occurs when blood glucose levels are higher than normal, but not high enough to make a diagnosis of diabetes.

Metabolic Syndrome: refers to a cluster of risk factors, which include excess body fat, high blood pressure, elevated triglycerides (a type of harmful cholesterol), low High-Density Lipoprotein-cholesterol (ie HDL ; the "good" cholesterol"), and abnormal elevation of blood sugar.

Hypertension: refers to high blood pressure. This condition often has no symptoms and is the leading cause of Cardiovascular disease, especially when poorly controlled.

High-Density Lipoprotein (HDL): is also known as "good cholesterol"

because it helps to remove harmful types of cholesterol from the blood stream.

Low-Density Lipoprotein (LDL): is also known as “bad cholesterol”, and makes up the majority of our body’s cholesterol. High levels of LDL increase the risk for Heart disease and Stroke.

► **Diagnosis and Prevention**

Type 2 diabetes is diagnosed by measuring the levels of sugar (glucose) in your blood, or some blood markers (hemoglobin A1c) reflecting the average levels of glucose in circulation.

Cardiovascular disease can be diagnosed based on symptoms such as chest pain called angina, leg pain while walking, and weakness or neurological symptoms typical of stroke. These symptoms are caused by narrowing or blockage of arteries in your heart, in your brain, or elsewhere in your body. Your doctor can also detect or screen for these blockages by specific scans & tests such as angiography & CT scan.

► **Symptoms and Risk Factors**

You can reduce your risk of getting heart disease and diabetes by making healthy food choices and exercising. Your doctor can help identify your risk by checking your waist circumference, blood pressure, cholesterol profile, and blood glucose. Despite lifestyle modifications, If you are unable to reach appropriate targets, medications can be added for improvement of these risk factors.

Very high blood sugars can lead to excessive thirst, increase in urination, and unintentional weight loss. High blood sugars can also cause narrowing or blockage of arteries in your heart which in turn can lead to chest pain ('angina'), or myocardial infarction ('heart attack'). Blockage of arteries in your brain is called stroke and can result in weakness or tingling in parts of your body, difficulty speaking, and other neurological symptoms. Narrowing of arteries in your legs can lead to leg pain when you walk, and if the blockage is severe, it may even require a limb amputation.

Common Metabolic and Diabetes risk factors include:

- › Elevated Triglycerides (TGLs)
- › Reduced levels of high-density lipoprotein-cholesterol (HDL)
- › Increased blood glucose levels
- › High blood pressure
- › Enlarged waist circumference due to excess body fat around the belly area
- › A Pro-Thrombotic state (increased risk of blood clots in the blood vessels)
- › A Pro-Inflammatory state (increased risk of Inflammation)

People who have been identified as having prediabetes should be tested annually for type 2 diabetes. For someone with high metabolic risk, especially prediabetes, the best way to lower the risk of progressing towards type 2 diabetes is to adopt lifestyle changes.

Risk factors that increase the risk of developing type 2 diabetes include: excess weight (especially around the waist), food intake rich in calories and

simple sugars, low level of physical activity, high amount of sedentary time (sitting or lying down), tobacco use, and some medications. Other markers can also indicate higher risk of developing diabetes such as different types of blood cholesterol levels (high triglycerides and low HDL) and high blood pressure.

► **Treatment and Therapies**

For those at high metabolic risk, the first line of therapy is lifestyle changes. Most successful lifestyle interventions are comprehensive programs led by trained health professionals which support the maintenance of healthy lifestyles, including diet and physical activity, aiming for moderate but sustained weight loss.

Individuals with excess weight, must aim to achieve weight loss of at least 5% of initial body weight.

All such individuals should adopt a cardiovascular-healthy diet that includes high amount of vegetables, fruits, whole grains, nuts, legumes, unsaturated oils, low-fat dairy, poultry, and fish; and low amount of sodium, red and processed meat, high-fat dairy, and sugar-sweetened foods and drinks. Caloric reduction is often part of weight loss programs.

Another goal is to limit the amount of sedentary time and to be physical active daily. Walking is a great way to be active and is safe for most people. Structured activity programs may be appropriate for some individuals.

Lifestyle interventions should also address factors such as stopping