**CAUSES OF DIABETES**

Diabetes is a chronic health condition that occurs when the blood glucose (also called blood sugar) is too high. Glucose is the body's main source of energy. Insulin is a hormone that is produced in the pancreas which regulates blood glucose and so when the pancreas does not produce enough of it or when the body cannot effectively use the insulin then the body suffers from the disease ‘diabetes’. Hyperglycaemia (also called raised blood glucose or raised blood sugar)Is a common effect of uncontrolled diabetes and over time leads to serious damage too many of body’s systems, especially the nerves and blood vessels.

There are four types of diabetes but two are most common. The type 1 and type 2 diabetes are the most common types of diabetes while prediabetes and gestational diabetes are not that common.

The type 1 diabetes (also known as insulin dependent ,juvenile or childhood onset) is characterised by deficient insulin production and requires daily administration of insulin. Statistics show that there are about 9 million people with type 1 diabetes worldwide whereby majority of them live in high income countries. Scientists think type 1 diabetes is caused by genes and environmental factors such as viruses. In type 1 diabetes certain genes may make you more likely to develop the type 2 diabetes. The disease tends to run in families. It occurs more often in these racial /ethnic groups:

* African American
* Alaska Natives
* American Indians
* Latinos
* Native Hawaiians
* Pacific Islanders

The type 1diabetes also occurs when the immune system which is the body's system for fighting infection attacks and destroys the insulin producing beta cells of the pancreas. When the insulin is destroyed then the blood sugar can’t get into the cells therefore it builds up in the bloodstream. High blood sugar is damaging to the body and causes many of the symptoms and complication of diabetes. However,diet and lifestyle habits don't cause type 1 diabetes.

Type 2 diabetes also called ***diabetes*** ***mellitus*** affects how your body uses sugar for energy. It stops the body from using insulin properly which can lead to high levels of blood sugar if not treated. It can also increase your risk of getting serious problems with your eyes, heart and nerves. It is caused by problems with a chemical in the body ***insulin***. Type 2 diabetes is often linked to being overweight or inactive or having a family history of type 2 diabetes.

It is estimated over 620 million people worldwide suffer from type 2 diabetes. Scientists say type 2 diabetes affects men and women at about the same rate and it is common in middle-aged groups. It used to be called ***adult-onset*** diabetes but it also affects kids and teens mainly because of childhood obesity.

Usually a combination of things can cause type 2 diabetes. They include:

* Genes
* Weight
* Metabolic syndrome
* Too much sugar from your liver
* Bad communication between cells
* Broken beta cells

In addition there are some minor things that can cause type 2 diabetes. These are things that have to do with once daily habits and lifestyle. They include: getting little or no exercise, smoking , stress and sleeping too little or too much.

Genes provide the instructions for making proteins within the cell. If a gene has a change or mutation, the protein may not function properly. Genetic mutations that cause diabetes affect proteins that play a role in the ability of the body to provide insulin or in the ability of insulin to lower blood glucose. This condition can be passed on to children when only one parent carries or has the disease gene. With dominant mutations , a parent who carries the gene has a 50% chance of having an affected child with monogenic diabetes.

Having extra weight or obesity can cause insulin resistance. Being overweight or being affected by obesity or morbid obesity greatly increases your risk of developing type 2 diabetes. The accumulation of an excessive amount of body fat and the risk of type 2 diabetes increases linearly with an increase in body mass index. Accordingly , the worldwide increase in the prevalence of obesity has led to a concomitant increase in the prevalence of type 2 diabetes. The cellular and physiological mechanisms responsible for the link between obesity and type 2 diabetes are complex and involve adiposity-induced alterations in beta cells function ,adipose-tissue biology and multi- organ insulin resistance which are often ameliorated and can never be normalised with adequate weight loss. Therefore, the more excess weight you have, the more the resistant your muscle and tissue cells become to your own insulin hormone thereby the development of Type 2 diabetes.

Excessive intake of sugar leads to increased fat storage in the body. The excess sugar that is not used for energy is stored as fats. This leads to weight gain and further insulin resistance. The increased food storage especially inside the liver and around internal organs leads to the body resisting insulin action. The pancreas then needs to produce more insulin to maintain the blood glucose levels at a normal range. If this process is increased, blood sugar continues, the pancreas eventually is unable to keep up with the increasing insulin production leading to the development of type 2 diabetes.

Metabolic syndrome is defined as a cluster of glucose intolerance ,hypertension ,excess body fat around the waist and abnormal triglyceride levels. People who have metabolic syndrome typically have pear- shaped bodies meaning they have larger waists and carry a lot of weight around their abdomens. It is thought that having a pear- shaped body that is, carrying more of your weight around your hips and having a narrower waist doesn’t increase your risk of diabetes and other complications of metabolic syndrome. Having just one of these condition doesn’t mean you have metabolic syndrome but it does mean you are at greater risk of serious disease and if you develop more of these conditions , the risk of complications such as type 2 diabetes is likely to occur.

With beta cell dysfunction ,insulin secretion is impaired whereas with insulin resistance insulin may still be secreted but insulin insensitivity manifest in target tissues. As beta cells dysfunction and insulin resistance exacerbate, hyperglycaemia amplifies leading to the progression to type 2 diabetes. Unfortunately , preventing beta cells dysfunction in at risk individual has proven challenging.

Pregnancy is also another cause of diabetes. This type of diabetes is called gestational diabetes. Some pregnant women who experience high blood sugar are at higher risk of developing type 2 diabetes later in life. Researchers don’t yet know why some women develop gestational diabetes while others don’t. Excess weight before pregnancy, not being physically active or maybe may have had gestational diabetes during a previous pregnancy often plays a role in the development of gestational diabetes. Usually ,various hormones work to keep blood sugar levels in check but during pregnancy hormone levels change making it harder for the body to process sugar efficiently thus leading to rise in blood sugar.

Prediabetes is a condition where a person suffers from a higher than normal blood sugar level. The blood sugar level is usually not high enough to be considered type 2 diabetes yet , but without lifestyle changes, adults and children with prediabetes are at high risk to develop type 2 diabetes. If you have prediabetes then its long term damage is that your heart blood vessels and kidneys may also be affected and damaged over time. However, the progression from prediabetes to type 2 diabetes isn't inevitable.