Misconceptions about Type 2 diabetes

There are two major prevailing misconceptions about diabetes. These two misconceptions are:

1. Type 2 diabetes is a genetic disease, and when there is a family history, there is no escape.

2. Type 2 diabetes, once diagnosed cannot be prevented, reversed or controlled. “Once a person has diabetes, he/she will always have diabetes.” This statement is true for a Type1 diabetic. It does not apply to a Type 2 diabetic because it is a food and lifestyle disease.

Misconception #1: Type 2 Diabetes is a genetic (Familial) disease, when there is family history, there is no escape

Truth – Type 2 diabetes is primarily a food and lifestyle disease with a genetic predisposition. That means that diabetes is not your destiny, even when there is a family history. However, the populations have been led to believe, that Type 2 diabetes is a genetic disease, and if a family member has it, there is no escape. While Type 1 diabetes (Childhood-onset), has a genetic association there is no such association in Type 2 diabetes. The families, however, tend to have similar food and lifestyle patterns. Therefore, the same food and lifestyle risk factors are running in the families. The following facts support that genetics or family history alone, does not account for Type 2 diabetes:

- Type 2 diabetes incidence has exploded to epidemic proportions amongst the city dwellers in the past 40 years. Over these years, the number of Type 2 diabetes cases has increased 5 – 7 fold in the world. As one can imagine, many of these new patients, indeed, did not have a family history of Type 2 diabetes.

- Type 2 diabetes has affected the urban city dwellers many times more than the rural population. The prevalence of Type 2 diabetes in rural areas is one quarter that of urban areas. As the affluence and unhealthy food abundance penetrate the rural areas, the incidence of Type 2 diabetes is expected to rise. Logically, it is the urban way of unhealthy eating and living which causes Type 2 diabetes.

- Genes take hundreds of years to change. The genetics alone, therefore, does not explain the ever-growing epidemic of diabetes in the affluent and immobile city dwellers. What has changed drastically in the past 40 years is the food and lifestyle of eating sugary, synthetic meals extending into late hours of the night. Recent scientific research suggests that genes can change fast when there is a severe environmental insult to the body. The rapid change in the gene structure (the chromosome protein structure) is called epigenetics. So it seems that Type 2 diabetes is most likely an epigenetic phenomenon secondary to drastic food and lifestyle changes that have occurred past 40 – 50 years.

- The average age for onset of Type 2 diabetes in India is getting younger every few years. According to the World Health Organization (WHO) figures, the average age of onset of diabetes in the Indian population in 2012 was 42 years, and currently, it is 38 – 40 years. As the rate of childhood obesity increases, the age of onset of diabetes will get even younger. The young adults are eating out more, eating more western style, sugary fast foods and drinking sugary beverages. The lifestyle is sedentary with minimal activity, mobility, and exercise. These create glucose and insulin excess in the body with the development of disease-producing insulin resistance.

To prevent Type 2 diabetes, be aware of the risk factors:

"Knowledge gives an individual power to conquer the problem."

It is essential that individuals, who have a family history of Type 2 diabetes, get to know their risk factors. If these are present, they must modify their food and Lifestyle early on, to save themselves from obesity as well as Type 2 diabetes (Diabesity). The parents have the critical responsibility to protect their children from adopting disease-producing food and lifestyles.

Risk factors for Type 2 diabetes

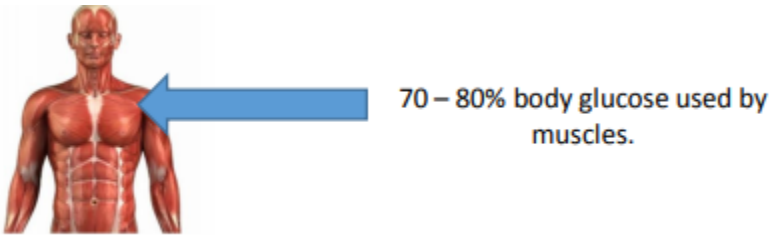
a) History of Type 2 diabetes in the immediate family.

b) A lifestyle of eating sugar-dense foods, refined milled wheat flour products, and sugary beverages.

- Sweets, ice creams, baked goods – Bread, cakes, pastries, pasta, pizzas, etc.
- Sweet beverages – Sodas/ colas including diet drinks, sports drinks and fruit juices with no fiber.
- High consumption of milk and milk-based sweets which are rich in lactose sugar and refined sugars.

c) A lifestyle of eating frequent meals going late into night hours, with feeding period longer than fasting period in a 24-hour day cycle.

d) Sedentary Lifestyle – Desk jobs, automation, and automobile have decreased human activity, mobility, and exercise. That means glucose is not going to be utilized by the muscles. The muscle activity can use up as much as 70 – 80% of glucose absorbed from food.



e) Being overweight or obese – Obesity is a significant risk factor for Type 2 diabetes. Merely gaining 10 – 12 kg will double the risk of Type 2 diabetes. Larger waistline increases the risk of metabolic syndrome, which is a pre-diabetic condition. Metabolic syndrome is present when an individual has fatty liver, high blood pressure, diabetes, and heart disease even if weight is not excessive. Between the weight and the waistline, the waistline is more reliable, when it comes to the risk of Type 2 diabetes, high blood pressure, and heart disease.

Ideal Body Weight in Kg

Height in cm - 100 in males

Height in cm - 105 in females

Measure Waist At Narrowest Point

Ideal waistline

Half the Height in inches minus 2 inches

OR

Half the Height in Centimeters (cm) minus 5 Cm

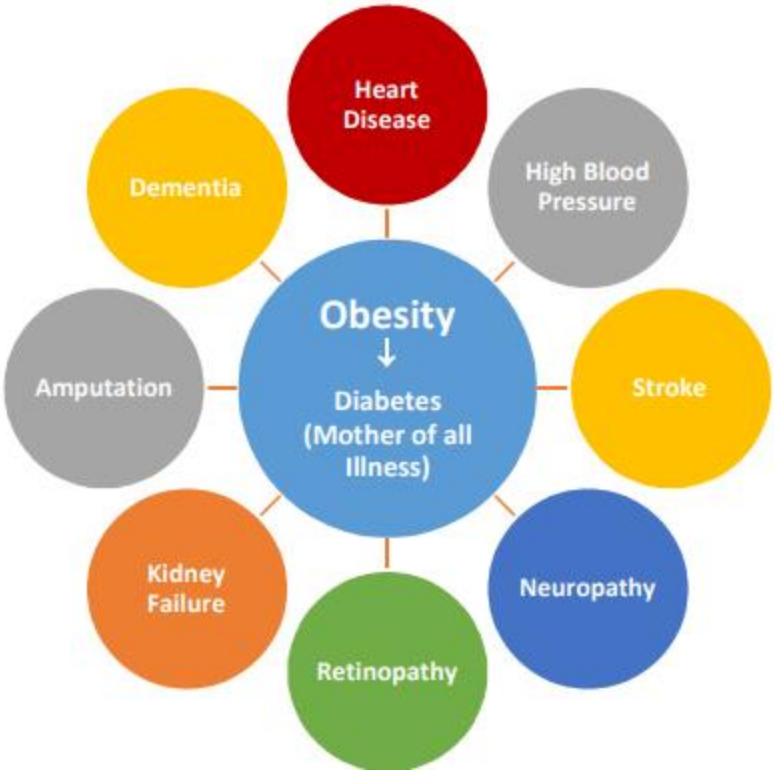
f) Asian factor – Genetically Asians and South Asians (Indians) have a higher risk for Type 2 diabetes compared to white race. That is because of 2 biological differences:

- Genetically smaller muscle mass at birth. Muscles are the biggest consumers of glucose. Less muscle activity means less glucose consumption and more glucose left over in blood to for conversion to fat energy reserve.

- Genetically lower number of Insulin-producing beta cells in the Pancreas gland. That means the lower capacity to handle excess sugar intake in the food.

Conclusion – The above information supports that Type 2 diabetes, is primarily a food and Lifestyle disorder. However, it tends to run in families, because families share a similar food and lifestyle culture. If there is a family history of Type 2 diabetes, the unaffected members must get regular checkups to see if they are developing prediabetes condition. To prevent the disease, they must adopt holistic foods, balanced lifestyle (with appropriate fasting periods between meals) and live an active lifestyle.

Misconception #2: Type 2 diabetes cannot be prevented or reversed, once a diabetic always a diabetic.



Truth – Type 2 diabetes can be prevented and reversed in its early stage by proper screening and by adopting healthy foods and lifestyle.

Even when Type 2 diabetes has advanced to the stage of requiring daily insulin injections, it still can be reversed or controlled effectively to prevent serious complications. That can be done again by rigorous food and lifestyle modifications. These reduce insulin demand in the body. Most of the complications seen in advanced Type 2 diabetes are the result of excessive insulin dose. The focus should be on modifying food and lifestyle to minimize insulin dose.

Screening for the early stage of Type 2 diabetes (Prediabetes)

To effectively prevent or reverse Type 2 diabetes in its early stage, the individuals who meet any of the following clinical signs and symptoms should have screening done:

i. Age greater than 40 years (especially when there is family history).
ii. Overweight or obese individuals with a larger waistline (abdominal obesity)
iii. Fatty liver on the abdominal ultrasound – Fatty liver occurs 10 – 12 years before Type 2 diabetes gets diagnosed clinically. In regular alcohol consumers, this period will be shorter. Alcohol by itself promotes fatty infiltration of the liver. Alcohol used to be the most common cause of fatty liver disease. Currently, the most common cause of the fatty liver disease is high refined sugar consumption. Fortunately, fatty liver can be reversed within a few months by food and lifestyle modification. Reversal of fatty liver prevents and reverses Type 2 diabetes, as

well as obesity. Fatty liver is a dominant factor in disease-producing insulin resistance.

iv. HDL cholesterol level in blood lower than 35mg/dl (0.9mmol/L). That indicates the individual is inactive and immobile.

v. High levels of harmful blood cholesterol – LDL and Triglycerides.

vi. Metabolic syndrome – It is a pre-diabetic condition which has become an epidemic amongst the population including young adults. Metabolic syndrome is a risk factor not just for Type 2 diabetes but also for heart attack.

vii. Polycystic ovarian syndrome (PCOS) in young females. The PCOS is a prediabetic condition similar to the metabolic syndrome. PCOS is a major cause of infertility in young women. It is becoming an epidemic amongst the young girls in India.

viii. History of giving birth to large babies or diabetes during pregnancy. Prediabetes is present if the following criteria are present:
   a. Ultrasound of the abdomen showing fatty liver
   b. Fasting Plasma Glucose level of 100-125 mg/dl

Prediabetes is present if the following criteria are present:

i. Ultrasound of the abdomen showing fatty liver
ii. Fasting Plasma Glucose level of 100-125 mg/dl
iii. High fasting insulin levels
iv. Hemoglobin A1C (Glycated hemoglobin) levels 5.7 to 6.4

Medical tests for confirming Type 2 Diabetes – The prediabetes has advanced to Type 2 diabetes if the following criteria are positive:

a. Hemoglobin A1C level of 6.5% or higher
b. An 8-hour fasting Plasma glucose level of higher than 125mg/dl (7mmol/ L)
c. A random plasma glucose level of higher than 200mg/dl (11.1mmol/L)