



## WHY MOST OF DIABETES TYPE 2 CASES ARE APPEAR IN MIDDLE AGED (30-50 YEARS) PEOPLE

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**ABSTRACT** In the last 20 years, the number of diabetes patients has increased significantly also, it has been seen that this disease is more vulnerable to middle-aged people. Although young people are also vulnerable to it, but its percentage is very less compared to middle age people. Most diabetes cases fall in this age range (30-50 years), there can be many reasons for this such as modern lifestyles, improper eating, physical inactivity, alcohol addiction, Insomnia, etc. At middle stage of age, people get very busy in their working life and health is left behind. Generally, it is seen in people that during work, people avoid breakfast, reduce physical activity, take lot of stress, etc. avoiding breakfast possess risk of both insulin resistance and obesity, whereas physical inactivity leads directly to obesity and obesity leads to insulin resistance.

**KEYWORDS :** Diabetes, Insulin Resistance, middle aged, obesity

### INTRODUCTION

Diabetes has become a worldwide disease. According to WHO, more than 69 million people in India suffer from this disease. It is estimated that the number of people suffering from this disease will be 85 million in the coming few years. Diabetes brings many diseases like BP Heart Disease, Kidney Disease etc., thus it becomes fatal for the sufferer.

It is a metabolic syndrome that is increasing day by day. Eating disturbances, modern lifestyle is the major cause of this disease. This is why it makes it easier for middle-aged people to get caught up in it, because people are usually working at this age and give more importance to his work than health. For this reason, most people avoid exercise, breakfast, jogging, balanced diet and other essential things from their daily life.

I also surveyed 146 diabetic people and found that 60% of people are between 40-60 years of age and the percentage of diabetes onset is also highest in this age range.

Author Jhon E. Hall says, in most cases, the onset of type 2 diabetes occurs after age 30, often between the ages of 50 and 60 years, and the disease develops gradually.

### Study

Type 2 Diabetes affected mostly middle aged people and the attack of this disease is also highest in this age range (30-50 Years), main reasons may be:

### Working adults are avoiding breakfast

Breakfast is most important for our body, to avoid morning breakfast, we don't only invite disease like type 2 diabetes rather also invite the disease like acidity, obesity, stomach related disease etc. As well as the liver and brain don't work well in the absence of breakfast.

The breakfast provides energy and capacity of doing work for whole day. When we avoid breakfast in morning then the liver tries to obtain glucose from muscle protein to compensate the lack of its fuel, so in order to conserve muscle protein it is necessary for us to get some amount of glucose in the body in morning, so that the liver and our brain can work smoothly. When people miss breakfast, the problem of overeating becomes common in such people at lunch. Overeating causes increase in blood glucose level much higher than the normal, to balance the glucose level in the blood, the amount of insulin also increases rapidly. If such a condition persists for a long time then it causes insulin resistance.

It is ironic that, a large population of India postpones their breakfast due to their busy life. This is found most among the people of 30-50 years. This is one of the major reasons why diabetes is more common in people with this age range.

### Obesity

Increasing mechanization, involvement of modern and fast food in life, causing obesity constantly in people. Increasing obesity make people vulnerable to many deadly disease. Till certain age (nearly

25years) body consumes extra calories which we take via food, after this these calories start accumulating in our body as a fat. 80% of world obese people suffer from diabetes. In my own survey of 146 diabetic people, I found that 100 people were overweight or obese.

Belly fat plays a part in developing chronic, or long-lasting, inflammation in the body. Chronic inflammation can damage the body over time, without any signs or symptoms. Scientists have found that complex interactions in fat tissue draw immune cells to the area and trigger low-level chronic inflammation. This inflammation can contribute to the development of insulin resistance, type 2 Diabetes, and CVD. Some experts believe obesity, especially excess fat around the waist, is a primary cause of insulin resistance.

Diabetes (Type-2) that develops slowly with increase in mass of body fat. The adipocytes produce leptin, resistance and cytokinin. Tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ), a cytokinin, possess paracrine effect on adipocytes- activating lipase, which generate free fatty acid (FFA). FFA leads to synthesis of very low density lipoprotein (VLDL), rich in triglycerol with simultaneous decreases in HDL (high density lipoprotein). This causes dyslipidemia leading to cardiovascular diseases.

Increase in FFA in blood is responsible for insulin resistance in both muscle and liver. FFAs activate protein kinase C- $\alpha$  (PKC- $\alpha$ ), which interfere with activation with insulin receptor substrate-1 and 2 (IRS-1 and IRS-2), which in turn interfere with signaling pathway of phosphoinositide-3-kinase (PI3K)- protein kinase B (PKB), required for transfer of Glucose transporters-2 (GLUT-2) in liver and GLUT-4 in muscle from cytosol to membrane. End effect is decline in GLUTs in the membrane leading to decline in glucose transfer to cytosol, inhibiting glucose utilization. This causes increase in blood glucose level (hyperglycemia: diabetes mellitus type-2). Inhibition of signaling pathway in hepatocytes also promotes gluconeogenesis and inhibits glycolysis. These two effects add to hyperglycemia.

### Failed in proper food selection

In modern times, along with modern lifestyle, modernity has also come in food. People have forgotten coarse grain like Millet, Maize, etc. Fast food has become more popular among people as well as refined, dalda, soya bean oil, artificial colours preservatives etc. are being used indiscriminately in modern food items. These types of food give open invitation to diabetes and many other diseases. Such foods quickly cause obesity and it maintains insulin resistance. At the same time they obstruct the function of pancreas and liver. Often in this stage of age, we do not pay attention to food due to involvement in daily busy routine. The result is that we fail to choose the right carbohydrates in our food. Simple carbohydrates are quickly digested in the body and increase blood sugar level rapidly and because of this the pancreas releases lot of insulin into the blood. This situation creates insulin imbalance. In contrast; complex carbohydrates are digested late and do not allow glucose to rise rapidly in the blood. The glycemic index of such carbohydrates is low, so we should include such carbohydrates in our diet.

**Lots of stress at this age**

Normally most of stress in human life is seen in this stage of age which is fatal and its fatal consequences are also seen here. Normally stress of job, family stress or relationship, stress of child's future etc. are the main stress at this age (30-50 year).

All reasons (mentioned above paragraph) are enough to invite disease like diabetes. If such stress persists for a long time, it imbalances the hormone level in the body. Excess stress activates hypothalamic-pituitary adrenal axis and sympathetic nervous system which causes hormonal changes in the body such as cortisol level rises significantly. Higher cortisol level imbalance the level of insulin hormone and accelerate the process of gluconeogenesis in the body. Prolonged secretion of such hormone cause suppresses the activity of the beta cell, which increases the risk of diabetes in such peoples more than normal peoples. Cortisol increases the enzymes required to convert amino acids into glucose in the liver cells. This results from the effect of the glucocorticoids to activate DNA transcription in the liver cell nuclei in the same way that aldosterone functions in the renal tubular cells, with formation of messenger RNAs that in turn lead to the array of enzymes required for gluconeogenesis. Cortisol also causes a moderate decrease in the rate of glucose utilization by most cells in the body. Both the increased rate of gluconeogenesis and the moderate reduction in the rate of glucose utilization by the cells cause the blood glucose concentrations to rise. The rise in blood glucose in turn stimulates secretion of insulin. The increased plasma levels of insulin, however, are not as effective in maintaining plasma glucose as they are under normal conditions. The increase in blood glucose concentration is occasionally great enough (50 percent or more above normal) that the condition is called adrenal diabetes.

**Addiction of alcohol**

It has also been observed that many people resort to alcohol due to stress. Taking alcohol for long time causes severe damage to liver and pancreas. This is true that the most common cause of chronic pancreatitis is drinking many years of heavy alcohol. This cause different types of complications. Chronic pancreatitis not only damages the pancreas cells but also cause a lot of damage to the beta cells, this increase risk of diabetes. People whose parent have suffered from diabetes; risk of diabetes to much increase in such people.

**People getting inactive**

Generally, people at this age are reduce physical activity ( walking jogging etc.) due to being busy in their work. It is also a major cause of diabetes in middle age.

Many studies have shown that physical inactivity is associated with insulin resistance, often leading to type 2 Diabetes. In the body, more glucose is used by muscle than other tissues. Normally, active muscles burn their stored glucose for energy and refill their reserves with glucose taken from the bloodstream, keeping blood glucose levels in balance. Studies show that after exercising, muscles become more sensitive to insulin, reversing insulin resistance and lowering blood glucose levels. Exercise also helps muscles absorb more glucose without the need for insulin. The more muscle a body has, the more glucose it can burn to control blood glucose levels.

**Sleep also matter**

People who are night workers or overtime workers or work till late in the night due to working pressure, in such people Insomnia persists. The untreated sleep problems can increase the risk of obesity, insulin resistance, and type-2 diabetes.

**CONCLUSION**

We can say that, obesity, physical inactivity, high stress, eating habit, etc. are the main factors in maintaining type 2 Diabetes and insulin resistance. All these factors are mostly common in middle aged people. This may the reason why people of this age (30-50 Years) are the most prone to diabetes.

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