Risk factors for Type 2 Diabetes Mellitus

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There are different factors which are related to early onset of type 2 diabetes mellitus. The factors related to life style are preventable. The knowledge /information about risk factors may be beneficial regarding decrease in onset/occurrence of type 2 diabetes mellitus. The risk factors can be discussed under following headings:

(A) **Age:** The risk of type 2 diabetes (T2DM) rises with increase in age. There are different studies which show that age at diagnosis has decreased. In younger age group diagnosis of diabetes reveal a population trend of earlier start of T2DM (1). In Asians the occurrence of diabetes is increased in above 45 years of age group (2). Now the risk of diabetes has increased due to, mainly, life style in young age group so it is advisable that South Asians after 25 years of age should keep an eye on diabetes signs and symptoms. Pakistani girls have an increased risk of being obese, Indian and Pakistani boys have an increased risk of being overweight than the general population. In younger age group the risk has increased (3).

(B) **Diet:** It has role and diet with a high sugar and low cereal fiber content increases risk of diabetes in women. Grains refine form has also its importance. The grains should be consumed in a minimally refined form (4) or alternatively whole-for-refined grain diet/products should be used to decrease the risk of diabetes mellitus (5). In daily life using up of cereal rich in fiber and magnesium may also lessen diabetes risk (6). In women when their age in increased and physical activity is decreased, there is a shielding/protective role of grains (particularly whole grains), cereal fiber, and dietary magnesium in the early development of diabetes (7).

(C) **Increase in body weight:** In adults increase is body weight is considered the most important risk factors for T2DM. In early age weight gain is important as increase in body weight, in early

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adulthood, is related to a higher risk and earlier start of type 2 diabetes. Weight gain in early adulthood is more important than weight gain between 40 and 55 y of age (8). There is always great risk of diseases in persons with overweight and increasing tendency of it.

(D) **Obesity:** Obesity has very important role in early development of diabetes. In children presence of obesity is alarming sign for future threats to health. There is connection with central fat distribution and risk of diabetes (9). Obesity is main cause for diabetes development so small decrease even 5% in body weight is linked to prevent the most obese persons from diabetes (10).

There is relation between abdominal fat and the risk of diabetes. For early development of diabetes there is relation between increase in blood glucose levels, body fat distribution and obesity (11). We can predict early development of diabetes by early age obesity, weight gain throughout adulthood, and increased waist circumference. Increase in body mass index (BMI) is important and dominant risk factor for diabetes onset (12).

Now different studies have mentioned importance of fat presence in certain areas of the body. Fat localization is more important than degree of obesity for development of diabetes (13). It is suggested that the distribution of body fat, especially abdominal localization, is more important than the total amount of body fat for the development of diabetes (14).

It is hypothesized that in Whites the superficial subcutaneous adipose tissue section is larger than South Asians. If we consider this then it shows that as obesity develops South Asians drain superficial subcutaneous adipose tissue compartment before whites do. So they develop more metabolic complications of upper body obesity than white people (15).

Type 2 diabetes is increasing, in childhood, in the United Kingdom in South Asians and among girls especially. Risk has been increased in South Asian adolescents having more body fat for development of diabetes (16). There is presence of an insulin resistance syndrome
which is common in South Asian populations and is associated with a marked tendency to central obesity (17).

(E) **Increased Body Mass Index (BMI):** There is relation between body mass index (BMI) and occurrence of diabetes mellitus, hypertension and dyslipidaemia. Increased BMI is linked with increased occurrence of diabetes mellitus, hypertension and dyslipidaemia (18). BMI and risk of diabetes is also linked with ethnicity. With same BMI South Asians have more risk of diabetes than Whites.

(F) **Physical activity:** Physical activity is important in maintaining good health and control of different chronic diseases. Persons engage in physical activity keep their body and mind healthy. It has important and stronger link with the early development of diabetes in women (19) and is also related with prevention of diabetes in older women (20). Physical activity during leisure in middle age has an independent association with metabolic syndrome (21).

(G) **Smoking:** It is related to different diseases and T2DM has also association to it. There are different studies which revealed link of type 2 diabetes early onset and smoking. There is also direct effect of smoking on body fat distribution (22) and cigarette smoking is an independent and modifiable and preventable risk factor of type 2 diabetes mellitus (23). Current smokers have an increased risk of diabetes. There is a significant higher risk among heavier smokers, and in women cigarette smoking is also an independent, modifiable risk factor for diabetes development (24).

(H) **Alcohol:** It is also related with risk of diabetes and moderate alcohol intake does not increase the risk (25). While binge drinking and high alcohol consumption increase the risk of type 2 diabetes (26). Intake of alcohol quantity is important. Healthy men who use light to moderate alcohol consumption have a decreased risk of diabetes (27) and high alcohol intake among middle-aged men increase risk of diabetes (28). Light to moderate alcohol consumption is related with a lower risk of diabetes among elderly people. The beverage consumed can be of any type (29).
In relation of age, women aged 25 to 42 years consuming light to moderate alcoholic beverage have lower risk of diabetes (30). Light to moderate drinking (up to 30 g/d) is not linked with weight gain in women but heavier drinking increase body weight (31). In severely obese persons light to moderate alcohol consumption should not be discouraged as it is associated with a lower occurrence of diabetes and beneficial (32).

(I) **Hypertension (HTN):** Diabetes and hypertension are indirectly related to each other through the effects of obesity. In obese persons the chances of hypertension and diabetes are increased. The longer a person remains obese or severely obese, there is more risk to develop diabetes, hypertension, or both (33).

(J) **Depression and stress:** Diabetes is related with depression. In old age the depression increases and it is overlooked in aged population so there is increased chance of diabetes (34). In women psychological stress is important than men as women usually take stress in normal life and during work also. They need emotional support also. Work stress and low emotional support increase the risk of type 2 diabetes in women but not in men (35).

**ADVICE**

**Remember**

- With increase in age, risk of diabetes is increased so keep an eye on risk factors
- Preventable risk factors can minimise the risk of diabetes—only needed determination
- Quick decision and determination about better health can increase life expectancy and chronic diseases

**Decide today —NOW---- how to control PREVENTABLE RISK FACTORS**

**HEALTH IS THE BEST WEALTH**
References


