

Diet Of Diabetes

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Abstract

A disease in which the body's ability to produce or respond to the hormone insulin is impaired, resulting in abnormal metabolism of carbohydrates and elevated levels of glucose in the blood. . Eating a variety of fruits and vegetables may aid with weight and blood pressure management. It is advisable to take at least 4-5 serving of fruits and vegetables in a day. un-processed total –grain foods include fiber that can assist lower the glucose as well as blood cholesterol. Old-style Indian diets are suggested, which cover complete grains, whole pulses like grammes, green leafy vegetables, and rare fruits. Papaya, guava, apples, pears, oranges, and mosambi can all be taken in moderation.All juices are to be avoided. The DASH diet plan, short form for Dietary Approaches to Stop Hypertension is recommended for diabetes management as well. It comprises mostly of plant-based foods like fruits and vegetables, with a limited allowance on lean protein, salt, sugar and fats.

Keywords

Diabetes, Protein, Fat, Insulin, Glucose

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Introduction

The ability of food items to raise the blood glucose is measured in terms of glycemic index or GI, measures how a carbohydrate containing food raises blood glucose. Meal planning with GI involves choosing food that have a low or medium GI.^[1] . Vegetables and fruits are high in vitamins, minerals, and fiber and they are low in calories. Eating in variety of fruits and vegetables may help in controlling of weight and blood pressure. At least 4-5 servings of fruits and vegetables

should be consumed each day. Fiber in unprocessed total-grain diets can help reduce blood glucose levels and LDL levels. ^[2] In diabetes insulin secreted by the pancreas is either insufficient or ineffective. This may be due to primary disorder of insulin secretion or due to insulin resistance because of receptor defect in target tissues.^[3] Glycogen and protein present in cells are associated with water and intercellular electrolytes. As they are catabolized, glucose, water and electrolytes are released into extracellular space and later excreted in the urine. ^[4]

Definition

Insulin resistance is a disorder in which the body's ability to generate or respond to the hormone insulin is reduced, resulting in improper carbohydrate metabolism and high blood glucose levels. ^[5] Non communicable diseases especially diabetes mellitus, cardiac vascular diseases, stroke and chronic pulmonary diseases are emerging as major health problems due to changes in behaviour, lifestyle and environmental factors.^[6]

Diabetes prevalence in India 2020

In 2020, according to the International Diabetes Federation (IDF), 463 million people have diabetes in the world and 88 million people in the Southeast Asia region. Of this 88 million people, 77 million belong to India. The prevalence of diabetes in the population is **8.9%**, according to the IDF. ^[8]

Importance of diabetic diet

- To develop health through most favorable nutrition
- To give energy for reasonable body weight , regular growth and development ^[7]
- To sustain glycemic control
- To attain optimal lipid levels in the blood
- To tailor the diet to the patient's specific problems and co-morbidities ^[13]

Recommendations for a healthy diet:

Energy:

Sufficient to achieve or maintain a healthy body weight in adults, appropriate growth and development in children and adolescents, and to satisfy the extra demands of pregnancy and nursing, as well as recovery from sickness. Physical activity and exercise

should be considered on a daily basis. (Height in cm – 100) * 0.9 = Ideal Body Weight (IBW). A moderately active diabetic patient can be given approximately 25 kcal/kg ideal body weight per day. The reduction in daily calorie intake should be gradual and not exceed 500 calories per day. ^[14]

Carbohydrates:

The evidence regarding an appropriate carbohydrate intake for adults with diabetes is ambiguous. As a result, shared goals for people with diabetes should be defined. The best guideline is to get 55-60% of your energy from carbohydrates. Carbohydrates should have a variety of properties. Although different carbs produce distinct glycemic responses, total carbohydrate management is crucial from a therapeutic standpoint. Carbohydrates from high-fiber foods, such as whole grains (unpolished cereals and millets), legumes, peas, beans, oats, barley, and some fruits, should be ingested since they have a low glycemic index and glycemic load. All diabetic patients should be urged to eat six modest meals each day. ^{9]}

Fibre:

The general population's fibre recommendation is 40 grammes per day (2000 Kcals). Traditional Indian diets are recommended, which contain full grains, entire pulses like grammes, soy, green leafy vegetables, and occasional fruits. Papaya, guava, apples, pears, oranges, and mosambi can all be consumed in moderation. Fruit juices should be avoided at all costs.

Proteins:

Proteins should account for 12-15 percent of total energy consumption in diabetics, which is similar to the general population's recommendations. Proteins from pulses, soy, grammes, and peas, as well as low-fat milk, low-fat curds, fish, and lean meats, are recommended. Foods like cereal and pulses (4:1 ratio) can be supplemented to boost protein content while also providing satiety. Idli, dosa, Missi roti, Khichdi, Dhokla, Khandvi, and so on.

Fats:

For persons with diabetes, fats should account for 20-30% of total energy consumption. Because there is no solid evidence for an appropriate quantity of total fat consumption for people with diabetes, goals should be tailored to the individual. The quality of fat is just

as essential as its quantity. Saturated fats (SFA) provide 10% of energy and 7% in people with high blood lipid levels.

Types of diet recommended for diabetes

1. Vegan diet or Plant-Based Diet:

One of the healthiest and most successful diets for diabetes treatment is the vegan diet. You can get all the proteins, carbs, and vital lipids from plants by cutting down on meat, dairy, and other animal products. These are low in cholesterol and saturated fat which can help in lowering blood sugar levels when combined with a physical exercise program.

2. Vegetarian Diet:

According to a study, eating a vegetarian diet rich in plant-based foods and low in animal-derived foods is the most effective way to manage and prevent diabetes. To some, Vegetarian is strictly plant-based or vegan, to the others, vegetables with eggs and dairy and to many of them, seafood and rare consumption of meat. It is known that people who followed a vegan diet and a vegetarian diet comprising of whole foods and low-fat dairy is best for controlling Diabetes.

3. DASH Diet:

The DASH diet plan, short form for Dietary Approaches to Stop Hypertension is recommended for diabetes management as well. It comprises mostly of plant-based foods like fruits and vegetables, with a limited allowance on lean protein, salt, sugar and fats. A study also shown that combining the DASH diet with a healthy lifestyle can reduce the risk of Type 2 Diabetes and increase insulin sensitivity. ^[10]

4. Mediterranean Diet:

Fresh fruits and vegetables, whole-grain bread and pasta, legumes, olive oil, oily fish, and lean fowl are all part of a Mediterranean diet. It covers all the essential nutrients required by the body like vitamins, minerals, healthy unsaturated fatty acids, proteins etc. which can be beneficial in managing diabetes.

5. Paleo Diet:

The Paleolithic diet, often known as the Caveman's diet, is based on the dietary habits of Humans from the Paleolithic era. This means saying no to all forms of processed foods, dairy etc. and sticking to whole foods

like vegetables, fruits, nuts, eggs, lean meat, herbs, seeds etc.^[12]

As this diet eliminates all the bad foods like sugars, dairy, fried foods etc., it can prove to be beneficial in managing diabetes.

FOOD TO BE AVOIDED

1. Refined grains

Refined carbohydrates, such as white bread, pasta, and rice, are high in carbs but poor in fibre, causing blood sugar levels to rise faster than whole grains.

2. Sugar-sweetened beverages

Sugar-sweetened beverages such as soda, sweet tea, and energy drinks are not only devoid of essential nutrients, but they also contain a concentrated amount of sugar in each serving, causing blood sugar levels to jump.

3. Fried foods

Fried meals are high in transfat, a form of fat associated to an increased risk of heart disease. What's more, fried foods like potato chips, French fries, and mozzarella sticks are also typically high in calories, which could contribute to weight gain.

4. Alcohol

It is typically recommended that people with diabetes reduce their alcohol consumption. This is because alcohol, especially when consumed on an empty stomach, might raise the risk of low blood sugar.

5. Breakfast cereal

Most varieties of breakfast cereal are very high in added sugar. Some brands pack as much sugar into a single serving as some desserts. When shopping for cereal, be sure to check the nutrition label carefully and select a variety that is low in sugar. Alternatively, opt for oatmeal and sweeten it naturally with a bit of fresh fruit.

6. Candy

Candy contains a high amount of sugar in each serving. It typically has a high glycemic index, meaning it's likely to cause spikes and crashes in blood sugar levels after you eat.^[15]

7. Processed meats

Processed meats like bacon, hot dogs, salami, and cold cuts are high in sodium, preservatives, and other

harmful compounds. Processed meats have also been linked to an increased risk of heart disease.

8. Fruit juice

Although 100% fruit juice can be enjoyed from time to time in moderation, it's best to stick to whole fruit whenever possible if you have diabetes. This is due to the fact that fruit juice contains all of the carbs and sugar present in fresh fruit, but it lacks the fibre needed to keep blood sugar levels stable.

Conclusion

Vitamins, minerals, and fibre are abundant in vegetables and fruits, which are also low in calories. Eating a variety of fruits and vegetables may aid with weight and blood pressure management. At least 4-5 servings of fruits and vegetables should be consumed each day. Fiber in unrefined whole-grain foods can help decrease blood sugar and cholesterol levels. The DASH diet plan, short form for Dietary Approaches to Stop Hypertension is recommended for diabetes management as well. It comprises mostly of plant-based foods like fruits and vegetables, with a limited allowance on lean protein, salt, sugar and fats. The glycemic index or GI, which evaluates how a carbohydrate-containing food raises blood glucose, is used to assess food's capacity to raise blood glucose. Meal planning with GI involves choosing food that have a low or medium GI. Low in cholesterol and saturated fat which can help in lowering blood sugar levels when combined with a physical exercise program.

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