



Effect of Dietary Intake for the Individual with Diabetes

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DESCRIPTION

Food demand is anticipated to expand in tandem with the increase in world population. At the same time, diabetes and other chronic metabolic illnesses are becoming more prevalent. Every element of civilization, including the food sector has changed significantly since the discovery of insulin exactly one hundred years ago. To improve food production for human consumption, hormones and insecticides have been introduced continuously. Additionally, changes in agricultural biodiversity may have selectively included some crops and omitted others from diets, leading to the production of food that is higher in calories but lower in important nutrients. These might have had an impact on physiological systems and aided in the emergence of chronic metabolic illnesses. Furthermore, genetic and epigenetic influences on disease susceptibility have put the protective mechanisms built into the human genome during evolution.

The main objective of managing diabetes is to have postprandial and fasting blood glucose as close to normal regulation as possible. The main factor affecting glycemic response is the overall amount of Carbohydrates (CHO) ingested. However, it is uncertain how much carbohydrate is best to consume. Most Americans who have type 1 or type 2 diabetes consuming moderate quantities of carbohydrates (around 45% of total calorie intake).

The American Diabetes Association (ADA) has made a significant change to their 2019 position statement by adding that low carbohydrate eating plans may result in improved glycemia and may allow those with type 2 diabetes to need less antihyperglycemic drugs. Additionally, low-CHO diets are not recommended for individuals with renal disease or eating disorders or those who are pregnant or nursing. Due to the possibility of developing ketoacidosis the ADA advises caution in those using sodium-glucose cotransporter 2 (SGLT2) inhibitors.

Nutritive sweeteners

Sucrose, sometimes referred to as table sugar is a disaccharide with a caloric content of 4 kcal/mg and is made up of one glucose

and one fructose molecule. Similar caloric quantities of starch and sugar have the same impact on glycemia. It's crucial to remember that too many calories from nutritive sweeteners or meals and drinks with high nutritive sweetener content should be avoided because they supply empty calories and can cause weight gain.

A typical naturally occurring monosaccharide, fructose can be found in honey, various vegetables and fruits. High fructose corn syrup is a cheap substitute for sucrose in processed goods since it contains a lot of fructose that has been processed. In contrast to isocaloric intake of sucrose or starch, fructose taken in as free fructose or naturally occurring in foods like fruit may lead to better glycemic control. Free fructose is also unlikely to have negative effects on triglycerides as long as intake is not excessive (12% energy).

To lower risk of weight gain and worsening of cardio metabolic risk, people with diabetes should limit or avoid consumption of sugar-sweetened drinks.

Fiber

People with Diabetes should consume 20 g to 35 g of fiber per day from unprocessed grains and raw vegetables. In previous years fiber's definition and comprehension have changed. The carbohydrate and lignin found in plants that are neither digested by the stomach nor absorbed in the Gastrointestinal (GI) tract are referred to as dietary fiber. The section of fiber known to have positive physiological effects on people is known as functional fiber. Dietary and functional fiber together makes up total fiber. Although it was often believed that a fiber's solubility would determine its physiological function more recent research indicates that viscosity or fermentability may actually be more significant fiber characteristics.

Consumption of dietary fiber is linked to a reduction in all-cause mortality among diabetics. A meal high in fiber is broken down more gradually, which encourages satiety. It may also be lower in calories and added sugars, which can help fight obesity and reduce the risk of heart disease, type 2 diabetes and colon cancer. The FDA recommends 25 g of dietary fiber for every 2,000 calories

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ingested. The most recent National Health and Nutrition Examination Survey (NHANES) show that Americans consumed an average of 16 grams of dietary fiber per day.

Although bulk laxatives and fiber supplements are widely utilized as extra dietary fiber sources the best recommendation is to ingest meals that are high in fiber because few fiber supplements have been evaluated for physiological effectiveness. Consuming whole grains may have additional advantages, such as lowering systemic inflammation, but it has not been proven to significantly improve glucose control in those with type 2 diabetes.

At least half of the grains consumed by diabetics should be whole grains. Legumes, whole grain breads and cereals, whole fruits and vegetables and other types of carbohydrates high in fiber should all be consumed regularly. For some people, increasing their daily fiber intake may be challenging because excessive fiber can have unpleasant GI consequences including bloating and gas. If the person is not used to eating more fiber, it should be introduced gradually.