Nuts Can Prevent Diabetes Mellitus

Introduction

Diabetes mellitus is primarily the metabolic and endocrine disorder in the entire globe and India is the capital of it.[1] On the one hand, it is still a disease that is preventable following a disciplined lifestyle at prediabetes stage, and on the other hand, its ill effects can still be controlled by modifying diet and lifestyle. Therefore, if diabetes is at bay, one should not go nuts rather may consider going for nuts. Yes this editorial, we will discuss some interesting facts regarding nuts and how it would be useful in a planning a balanced diet.

As part of a balanced diet, one has to include carbohydrate, protein, and fat in the diet while taking care that total calorie is optimum from each food source. Hence, while choosing fat in the diet plan, one has to ensure that there is adequate good fat in the diet. A good fat in food can be described as low in saturated fat and almost nil in trans fatty acid, simply because both are associated with the incidence of bad (low-density lipoprotein [LDL]) cholesterol.[2] This tips the balance toward inclusion of unsaturated fatty acid in diet. Unsaturated fatty acid comes in two forms: monounsaturated fatty acid and polyunsaturated fatty acid. Inclusion of both forms decreases cholesterol level and boosts good cholesterol (high-density lipoprotein-cholesterol) in general.

Although a basal level of low-grade inflammation in the body is useful for fighting infection and immunological reactions, accelerated rate of inflammation provides the platform for diabetes, metabolic syndrome, heart diseases, etc., Therefore, while including unsaturated fatty acid in diet, food sources rich in omega-3 fatty acid should be made a higher proportion of fat in diet as omega-3 fatty acids are anti-inflammatory. The most beneficial forms of omega 3 fatty acids are eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), and alpha-linoleic acid (ALA). Fish is a good source of EPA and DHA. However, a sizable population in India is vegetarians and also the nonvegetarians, to lower cholesterol usually avoid animal foods. Therefore, the other beneficial form of omega-3 fatty acids is ALA which is richly found in nuts, and seeds are a good alternative. Some examples are flaxseed, walnut, rapeseed, etc.

However, nuts should not be taken as a vegetarian alternative for omega-3 fatty acids because they offer lot more to our health when consumed daily in moderate quantity.

a. They provide both mono- and polyunsaturated fatty acids. Nuts such as walnut, almond, and pistachio are healthy portable sources of unsaturated fatty acids
b. They are enriched with antioxidants such as polyphenols, polysterols, Vitamin W, and selenium. Therefore, they lower inflammation,[3] oxidative stress,[4] and cholesterol.[5] In an interesting study done by Hudthagosol *et al*. in 2012, it was observed that walnuts have a large antioxidant capacity compared to fish[6]
c. Nuts decrease the risk of heart attack and stroke. The PREDIMED trial showed that diet supplemented with nuts reduces waist circumference and reduction in LDL cholesterol[7]
d. Nuts are rich in magnesium, which is essential for metabolism as well as blood glucose regulation. Furthermore, higher content of fatty acids helps in the reduction of hyperglycemia[8]
e. Although they are packed source of calorie, nuts are also a good source of fiber. Fibers in diet aid in slow gastric emptying which in turn leads to slow release of glucose into blood which is desired for type 2 diabetes patients
f. Although fiber is indigestible, it is digested by gut bacteria leading to the production of beneficial short-chain fatty acids which are associated with a decrease in the risk factor for obesity and metabolic syndrome.[9] Nuts such as almonds and peanuts are rich in fibers that control blood glucose absorption from intestine

Below is given a comparative chart for nuts with the highest fiber content per 1 (28-h) serving:

a. Almonds: 3.5 g
b. Pistachios: 2.9 g
c. Hazelnuts: 2.9 g
d. Pecans: 2.9 g
e. Peanuts: 2.6 g
f. Macadamias: 2.4 g
g. Brazil nuts: 2.1 g.
h. Reduction in postprandial hyperglycemia, combined effect of healthy fatty acid, and fibers all together indirectly aid in weight loss. Several studies have shown an association of moderate amount of nut consumption with weight loss.[10] In an Iranian study by Abazarfard *et al*. done in overweight women,[10] it was noted that women regularly consuming almonds lost around three times of their body weight. They also had a greater decrease in waist size compared to the control group.

Health Benefits of Commonly Ingested Nuts

Below is given a description of various commonly available nuts and their nutritional values.

i. Almond: The ratio of carbohydrate: fat: protein in almond is 21:50:21 (g per 100 g nut). It is a good source of Vitamin E (25 mg/100 g nut). Almond is gluten free, so beneficial for those who are on lookout of gluten-free snack. It also has a good amount of minerals such as calcium, iron, magnesium, manganese, zinc, and selenium. Almond is known to reduce blood glucose level

ii. Walnut: The ratio of carbohydrate: fat: protein in walnut is 13:65:15 (g per 100 g nut). It is rich source of phytochemicals, Vitamin E, and MUFA. Walnuts improve insulin sensitivity
iii. Cashew nut: The ratio of carbohydrate: fat: protein in cashew nut is 30:44:18 (g per 100 g nut). It is a good source of minerals such as manganese, iron, copper, magnesium, zinc, selenium, and potassium
iv. Peanut: The ratio of carbohydrate: fat: protein in peanut is 16:49:25 (g per 100 g nut). It contains a high amount of polyphenols, B complex vitamins, and minerals such as copper, manganese, zinc, selenium, and magnesium. Peanuts decrease insulin resistance.

Nuts are unquestionably tasty and satisfying. They can be taken raw or roasted, salted or unsalted, seasoned, or plain. They can be stored at room temperature, which makes them ideal for easy snacks during traveling. Nuts have been reported to decrease blood glucose and improve insulin sensitivity. Therefore, for both healthy as well as insulin resistant-participants, they qualify as a very good satisfying and healthful option in a diet plan. Intake of moderate quantity of nuts regularly may likely to prevent the development of diabetes.

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Quick Response Code:

Website: www.ijcep.org

DOI: 10.4103/ijcep.ijcep_13_18

How to cite this article: Pal GK, Nanda N. Nuts can prevent diabetes mellitus. Int J Clin Exp Physiol 2018;5:1-2.