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## **Diet for Diabetics**

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Diabetics (both Type-1 and Type-2) face unique challenges in terms of blood sugar fluctuations. Some of them are as follows:

- 1. The speed of digestion<sup>1</sup>
- 2. Carbohydrate content of food<sup>2</sup>
- 3. Glycaemic Index of food<sup>3</sup>
- 4. Insulin Resistance4
- 5. Insulin Production<sup>5</sup>
- 6. Other factors



Much of the glucose of a normal non-diabetic is replaced by fructose rich foods (eg. Apple, pear, etc) as the fructose is equally efficiently metabolized by body cells to produce energy for meeting the requirement of the body functions and consuming fructose does not have any adverse effect of the "diabetes metabolism".

The fat is also kept within moderate levels as the burning of excess fat will produce ketones and the accumulation of ketones in diabetics is the leading cause of the most significant complication in diabetics – diabetic ketoacidosis – which has to be avoided at all costs.

Protein consumption in normal amounts is good for diabetics.

Education plays a significant role in diet counselling of diabetics and their families as they make many mistakes due to mis-information.

For example, pulses are a good source of carbohydrates. Pulses do contain more protein (upto 25%) as compared to other vegetarian foods (upto 5-7%), however, they do contain a much higher proportion of carbohydrates (40-60%). Hence when diabetics take two carbohydrates together (for example, pusles with rice or with chapatti), a potent combination of two carbohydrates spikes the blood sugar even more.

Another common example is sugar free biscuits. Sugar free is not carbohydrate free and invariable the biscuit is made of carbohydrate and gets metabolized into sugar inside the body.

### Sample Diet Plan Rationale

Breakfast – one portion of glucose good

Lunch – one portion of glucose food

Dinner – no glucose food (to give rest to beta cells to rejuvenate)

#### **Breakfast**

- 1. Start the breakfast with a fructose rich fruit (eg apple, pear, etc)
- 2. Vegetable omelette
- 3. Chia Seeds pudding (with apple)
- 4. Almond milk smoothie (with strawberries)
- 5. Almond Bread Vegetable Sandwich
- 6. Vegetable Paratha made from specific keto flours
- 7. Can have half banana or half mango (if no other glucose based food is there)

Note – All keto flours (especially high fat keto flours) are not good for diabetics.

#### Mid-meal

- 1. Almonds, Walnuts
- 2. Large plate of green salad cucumber/tomato (avoid sprouts as chana and pulses are good carbs)
- 3. Keto cookies

#### Lunch

- 1. Rice with gravy vegetable
- 2. Keto chapatti with pulses and vegetables
- 3. Keto chapatti with vegetables
- 4. Keto dosa with sambhar

#### Mid Meal

- 1. Green Tea with keto snacks
- 2. Cardamom Tea with keto snacks
- 3. Chicken / vegetable soup
- 4. Low calorie smoothie
- 5. Fructose rich fruit Apple, pear, etc

#### Dinner

- 1. Chicken (grilled is better than fried)
- 2. Vegetables with keto chapattis

Note: - Avoid rice and pulses in dinner.

The above chart is just a sample chart. A wide variety of low-calorie commercial products and deserts are available.

#### **CONCLUSION**

The ideal diet for diabetics is a low-glucose, mild-to-moderate-fat and normal protein diet. Diabetics can have moderate carbohydrates in breakfast and lunch, but must be on no/low carbohydrates in dinner. This allows the natural rejuvenation of the insulin producing beta cells of the pancreas.



#### **End Notes**

- 1. Rate of digestion of foods and postprandial glycaemia in normal and diabetic subjects by D J Jenkins, T M Wolever, R H Taylor, H Ghafari, A L Jenkins, H Barker, and M J Jenkins
- 2. Dietary Carbohydrate (Amount and Type) in the Prevention and Management of Diabetes: A Statement by The American Diabetes Association
- 3. The Effect of Dietary Glycaemic Index on Glycaemia in Patients with Type 2 Diabetes: A Systematic Review and Meta-Analysis of Randomized Controlled Trials by Omorogieva Ojo, Osarhumwese Osaretin Ojo, Fajemisin Adebowale, and Xiao-Hua Wang
- 4. Insulin Resistance and Type 2 Diabetes by Roy Taylor
- 5. Q&A: insulin secretion and type 2 diabetes: why do β-cells fail? By James Cantley and Frances M. Ashcroft
- 6. Dr. Bernstein's Diabetes Solution: The Complete Guide to Achieving Normal Blood Sugars by Richard K. Bernstein

## **About the Author**

Saguna Puri Singh is mother and caregiver of a Type-1 Diabetic child and a Senior Assistant Professor of History in Ramjas College, University of Delhi. She has researched experimented and developed innumerable lowcarbohydrate recipes of foods, beverages and deserts for both type-1 and type-2 diabetics.