

A NON-GLYCAEMIC SNACK FOR DIABETICS

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The use of soya bean (*Glycine max merr*) has been dated to as far as 4000 years in China and since then it has been widely used in various forms. It is a rich source of proteins (43.8%) and fibre (8%). It has been seen as well that soya fibre has a tendency to bring down the blood glucose¹. There are also several studies to indicate that diabetic subjects require less insulin or can completely withdraw oral hypoglycaemic drugs when fibre content in the diet is increased^{2,3}. A thorough mixing of fibre with carbohydrate seems important for its effectivity.⁴ In natural foods like beans, fibre is mixed thoroughly with absorbable carbohydrates and hence is ideally suited for the diabetics⁵.

Regarding use of simple sugars for diabetics, some recent studies indicate that 10% of total percent of carbohydrates can be consumed as sugars⁶. This is controversial as the risk of corresponding and immediate increase in blood glucose can not be ruled out with this.

There is thus need to find an equillence nutritive item in the diet of diabetics that is less calorogenic and moreover bears sweatness that diabetics can relish.

The Objectives of present study were :

1. To make available a commonly acceptable snack for the diabetics.
2. The composition of the snack should provide adequate nourishment but have least glycaemic effect.

Materials and Methods

25 maturity onset non-insulin dependent diabetics, both male and female between the age group of 35-55 years, were selected.

These subjects were administered on two consecutive occasions :

- a) 100 G. glucose and blood glucose values taken at fasting and 2 hours following glucose.
- b) 100 G. special formulaxae soya snack and blood glucose values taken at fasting and 2 hours following the snack.

The composition of the snack with dietary constituents was as follows :

	Amount G	Carbohydrates G	Proteins G	Fat G	Fibre G
Soya nuggets	60.0	15.0	30.0	1.0	3.0
Jaggery (gur)	55.0	52.0	-	-	-
Wheat bran	12.0	1.0	-	-	10.0
		68.0	30.0	1.0	13.0

Total calories : 400.

Blood glucose estimation was done by Nelson & Somogyi method.

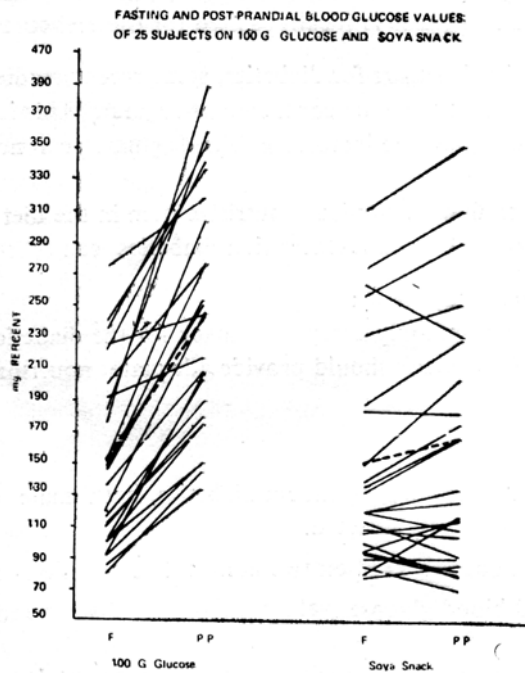
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Results

In all the 25 patients with 100 G. glucose there was mean increase in blood glucose to 68%, whereas with soya snack 15 patients had 19% rise in their blood glucose after 2 hours, 8 patients had 14% fall in their blood glucose after 2 hours, and 2 patients had no change in their blood glucose values with soya snack. In 25 patients the mean increase in the blood glucose value was 7% after the soya snack administration.

Figure I shows the individual values of blood glucose as well as mean values of rise of blood glucose in the two groups.



Discussion

Snack is "in between" item of meal that should be acceptable as per taste, readily accessible, practical to prepare and should provide certain amount of calorific energy. The conventional snacks available in our country are sandwich, vada, matari, chowra, etc. and each item has approximately 300-400 calories per helping. The carbohydrate content is 40-45 %, fat content 50-55 % and usually there is lack of fibre (< 1 G) in such items. Most of these snacks are unsuitable for diabetics, either because of high carbohydrate or high fat content.

The snack under study had 55% carbohydrate, 30% protein, 2% fat and 13 g fibre. Jaggery being used for sweet taste was caramelized and this reduced the calories, restricting availability as mono-saccharides.

In format the snack was equivalent to a chikki/chocolate bar and was acceptable to patients from the taste point of view. It has a long shelf life and can be easily stored for 4 weeks or so in any home conditions. Present study has revealed that there is no significant rise of blood glucose following the consumption of the snack and hence the term non-glycaemic snack has been used. This effect may be attributed to the high fibre content. There is scope to work out further local recipes for diabetics so that their living experiences with food are not only denials.

Summary

In the present study a high protein and high fibre snack has been tried on 25 NIDDM patients. The results reveal a mean average rise of 7% in blood glucose values after 2 hours of administration of the snack as compared to 68% rise in blood glucose after administering 100 G glucose in the 25 patients studied. The low rise of blood glucose after the snack can be attributed to the high fibre content and as well to caramelization of Jaggery, while nutritive value is around 400 C.

References

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