

# Dietary fiber assessment of patients with irritable bowel syndrome from northern India

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**Background:** Data on the absolute fiber intake and the source of dietary fiber intake in patients with irritable bowel syndrome (IBS) have been lacking in northern Indians. **Objective:** To find out the absolute fiber intake from different sources of food items in patients with IBS and healthy subjects from northern India. **Methods:** Using the 72-hour recall method, dietary intake of macronutrients and fiber was determined in 33 consecutive adult patients with IBS and 33 age- and gender-matched healthy controls. **Results:** The patients consumed lower amounts of macronutrients (protein 60.4 g vs 79.3 g, fat 47.7 g vs 65.7 g, and carbohydrates 294.6 g vs 339.8 g) and dietary fiber (8.1 g vs 15.7 g) than the control subjects. Though the patients consumed similar amount of pulses as the controls (46.6 [25.0] vs 46 [19.6] g/day), their fiber intake from pulses was lower (0.8 [0.7] vs 1.4 [0.9] g/day). The intake of fiber from vegetables and fruits was also significantly lower in patients (2.1 and 0.5 g/day, respectively) than in control subjects (5.8 and 3.9 g/day, respectively;  $p < 0.001$  each). **Conclusion:** Total dietary fiber intake and intake of fiber from vegetables, fruits and pulses are lower in patients with IBS from northern India than in control subjects. [*Indian J Gastroenterol* 2004;24:217-218]

**Key words:** Functional bowel disorder

Epidemiological evidence suggests that low dietary fiber intake may predispose to irritable bowel syndrome (IBS).<sup>1,2</sup> Administration of dietary fiber supplements in these patients leads to an improvement in colonic motility.<sup>3</sup> In a controlled trial,<sup>3</sup> intake of extra fiber led to significant decrease in pain, and improvement in bowel habits and colon motility.

Despite the widespread use of fiber in the management of IBS, only Fielding and Melvin<sup>4</sup> estimated the baseline fiber intake by these patients. A few studies have shown that both the level of intake and the type of fiber are important in determining physiological events.<sup>5</sup> We therefore assessed the baseline dietary fiber intake and source of fiber taken by patients with IBS from northern India.

## Methods

Thirty-three consecutive northern Indian adult patients (age 21-67 years, mean 38.5; 19 men) with constipation- or diarrhea-predominant IBS presenting to the Gastroenterology Clinic of our hospital were studied. The diagnosis of IBS was based on the Rome II criteria.<sup>6</sup> All patients had symptoms for at least 3 months. All other known illnesses were excluded by investigations, including complete hemogram, urine and stool examination, liver and renal function tests, chest X-ray and sigmoidoscopy.

Thirty-three apparently healthy and asymptomatic volunteers (age 18-65 years, mean 36.9; 16 men), matched for economic status, age and gender with the patients, were studied as controls. They were attendants of patients attending our hospital and staff members of our institution.

Neither the patients nor controls had previously received any dietetic advice. Only four patients and three controls were non-vegetarian.

For all study subjects, height and weight were measured, and intake of macronutrients and dietary fiber was determined using the 72-hour dietary recall method.<sup>7,8</sup> The interview was conducted by a person who was not aware whether the interviewee was a patient or not. A dietician calculated the intake of various nutrients and fiber using published values.<sup>9</sup>

The two groups were compared using Student's *t* test.

## Results

The intake of all the macronutrients and of dietary fiber, and the mean body mass index were lower in patients

**Table 1: Mean (SD) body weight and intake of energy and nutrients in patients with IBS and healthy control subjects**

	Patients with IBS (n=33)	Healthy controls (n=33)
BMI (Kg/m <sup>2</sup> )	21.3 (4.7)*	23.7 (3.1)
Energy intake (Kcal)	1793.8 (366.1)**	2323.0 (453.6)
Protein (g)	60.4 (20.1)**	79.3 (24.9)
Fat (g)	47.7 (15.1)**	65.7 (15.2)
Carbohydrate (g)	294.6 (96.6)*	339.8 (71.4)
Fiber (g)	8.1 (2.4)**	15.7 (4.5)

$p < 0.05$ , \*\* $p < 0.001$  as compared to control group

**Table 2: Mean (SD) consumption of, and fiber intake (g) from, vegetables, fruits, cereals and pulses among IBS and control groups**

Food item	IBS (n=33)		Control (n=33)	
	Total consumption	Fiber intake	Total consumption	Fiber intake
Vegetables	295.6 (148.5) <sup>#</sup>	2.1 (1.1) <sup>#</sup>	418.1 (141.8)	5.8 (2.8)
Fruits	89.0 (98.1) <sup>#</sup>	0.5 (0.6) <sup>#</sup>	198.4 (151.8)	3.9 (4.0)
Cereals	273.9 (82.2)	4.6 (1.4)	269.0 (102.5)	4.6 (2.1)
Pulses	46.6 (25.0)	0.8 (0.7)*	46.3 (19.6)	1.4 (0.9)

p\* $<0.01$ , <sup>#</sup> $<0.001$  as compared to control group

than in the controls (Table 1). This difference remained when men and women were compared separately.

The consumption of vegetables and fruits, and the intake of fiber from these were lower in patients than in control subjects (Table 2). Although the consumption of pulses was not different between the two groups, fiber intake from pulses was lower in patients than in controls; this difference was related to differences in the proportion of husked and dehusked pulses in the two groups.

### Discussion

In the present study, we found a reduced intake of all the macronutrients and of total fiber in patients with IBS than in healthy subjects.

Patients with IBS frequently feel that they develop symptoms on consuming fat, certain vegetables and fruits. This may have led to a modification of their diet, and may explain the lower intake of fat and fiber in our patients with IBS. The patients also consumed smaller amounts of vegetables and fruits, but not of cereals and pulses.

The lower intake of fiber by patients with IBS may justify the need for isaphgula husk in them.<sup>7</sup> Kumar *et al*<sup>10</sup> recommended optimum dose of the husk in relation to symptom relief for these patients.

In conclusion, our study shows that the intake of fiber from vegetables and fruits (which are a rich source of soluble fiber) is reduced in patients with IBS from northern India as compared to healthy subjects. The

usefulness of fruits and vegetables in the management of these patients should be studied further.

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