

High Fiber's Function and Significance in India's Fight Against Diabetes

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Abstract

Obesity, diabetes, and pre-diabetes are a triple threat in India. Type 2 Diabetes Mellitus (T2DM) has been associated with the initiation and development of unhealthy eating patterns and physical inactivity. Despite dietary advice, people frequently consume too little or the wrong kind of Dietary Fiber (DF), which needs to be corrected. An expert panel made an effort to examine, summarize, and report on the role and significance of high DF in the management of T2DM as well as provide helpful advice on include high fiber in a regular diet. To guarantee diversity among the members in terms of professional interest and cultural background, twelve diabetologists and two highly qualified dietitians from India were chosen.

Medical Nutrition Therapy (MNT) is a useful strategy and a crucial part of T2DM care, according to evidence. Studies have demonstrated the multi-systemic health advantages of Fiber-Rich Diabetes Nutrition (FDN), including improvements in glycemic control, decreased glucose spikes, decreased hyperinsulinemia, increased plasma lipid concentrations, and weight management in T2DM patients.

Keywords: Diabetes • India • High fiber's function

Introduction

India, which has the second-highest diabetes prevalence in the world, greatly contributes to the worldwide diabetes epidemic. By 2045, the prevalence is predicted to rise from 425 million to 629 million. Similar trends imply that pre-diabetes and obesity are becoming more prevalent in India. Consumption of sugar and other sweets is still widespread in India and is deeply ingrained in its customs. The prevalence of diabetes is rising quickly in India, which may be caused by significant genetic factors along with urbanization and lifestyle changes that increase insulin resistance. The "Asian Indian Phenotype"—characterized by greater rates of central obesity and more visceral fat—might be the main cause of insulin resistance. Rapid nutritional habits change and dietary patterns shift throughout the country.

The cornerstone of diabetes prevention and management is intensive lifestyle interventions. Prospective studies, including the Look Ahead trial, the Indian Diabetes Prevention Program, and the Diabetes Prevention Program, have demonstrated that adopting lifestyle modification techniques that involve altering eating habits or upping physical activity will delay the advancement of pre-diabetes to diabetes. Current T2DM clinical practice guidelines from the American Diabetic Association (ADA), Research Society

for the Study of Diabetes in India (RSSDI), and Indian Council of Medical Research (ICMR) emphasize the importance of MNT as a first-line therapy and offer consistent dietary advice for daily nutritional requirements.

For all persons with diabetes or prediabetes, the main objective of MNT is to achieve and maintain customized glycemic objectives, lipid and weight management goals, and postpone or avoid cardiovascular risk factors. DF is a crucial part of the overall plan to reach MNT objectives, and FDN is advised for efficient diabetes control.

This consensus aims to provide practical guidance for DF intake in India in T2DM & associated conditions by critically analyzing current recommendations, evidence, and requirements. Based on their knowledge of nutrition and diabetes, 12 prominent diabetologists/endocrinologists and two knowledgeable dietitians were selected from throughout India. To create this paper, these experts took part in the Decode Fiber consensus meeting. All prospective participants were given access to a pre-draft paper well in advance of the summit to provide feedback and recommendations. In the consensus meeting, information from current regulations and pertinent literatures was presented for discussion. Following the meeting, suggestions from the attendees were taken into consideration, and the draft manuscript was sent to the experts for review and any revisions required prior to publication.

Different countries have different definitions of DF. Others attempt to define fiber on the basis of physiological principles, while some definitions are based on analytical techniques for isolating fiber. Historically, dietary fiber has been defined as edible plant components or other carbohydrates that are difficult to digest and absorb in the small intestine. Additionally, fiber characteristics like viscosity and ferment ability may be more significant qualities in terms of physiological advantages.

Since a few years ago, dietary fiber supplementation has been shown to benefit cardiovascular health. Numerous dietary factors have been shown to be beneficially related to CVD risk factors. Dietary fiber is one such element. Oats, a cereal high in fiber, have also been discovered to help hypertensive patients control their blood pressure. A multicenter and population-based study called the SWAN trial discovered that consuming more dietary fiber from grains on a regular basis helped midlife women's risk of hypertension.

In individuals with T2DM and an established cardiovascular problem, the RSSDI advises eating a fiber-rich, cardio-protective diet. Patients with T2DM receiving MNT and anti-diabetic medications reported lower rates of micro-albuminuria (5.3% vs. 8.8%, p0.01), chronic heart failure (2.7% vs. 4.6%, p0.01), and intermittent claudication (3.3% vs. 5.3%, p0.01) than those receiving anti-diabetic medications alone. When 1430 participants received a median dose of 8.7 g fiber/day for more than 7 weeks, a systematic review and meta-analysis showed a slight but substantial reduction in both Systolic Blood Pressure (SBP) and Diastolic Blood Pressure (DBP).

A Registered Dietitian (RD) or other nutrition professional provides counseling and suggestions for food intake and nutrition objectives as part of MNT, an efficient strategy that helps T2DM patients get the most out of their care. It is a multifaceted process that involves adjusting diet plans based on the person's metabolic pathophysiology (prediabetes, early-onset T2DM, or T2DM with short- or long-term duration), in order to provide enough calories and nutrients while taking into account the person's eating habits and culinary preferences. It is advised that the diabetic person be advised to follow a diet that includes high DF (25 gm/day–40 gm/day) in addition to the necessary nutrients in order to reach and maintain a desirable

body weight. People with T2DM should be encouraged to choose FDN by increasing their intake of fiber-rich foods such high-fiber cereals, veggies, etc. or by using fiber supplements as necessary.

In our society, skipping breakfast, eating often, or snacking on high-calorie, low-fiber items between meals is becoming more and more popular. According to studies, the majority of diabetics do not receive official diabetes education or nutrition counseling. Therefore, despite the fact that there are numerous DF recommendations, people may not consume enough or the right kind of fiber. In the early stages of T2DM, reducing glycemic peaks may be a crucial goal to help slow the disease's ongoing loss of -cell function and enhance overall results. It is necessary to create individualized diet regimens with nutritious food options. These strategies can entail substituting one or two meals each day, or even all of them, with a nutritious.

Conclusion

There isn't a "one-size-fits-all" eating strategy (taking DF into account) for the management or prevention of diabetes. This is because each person with diabetes or prediabetes has a different cultural background, personal preferences, cooking habits, socioeconomic situation, and distinctive gut microbial profile. Standardization was so unsuccessful. This consensus document's main objective is to provide in-depth information about the role that high DF plays in the management of T2DM and related diseases. However, some questions remain unanswered as a result of insufficient evidence. For instance, suggestions for adding DF before, during, right after, or a few hours after a meal; modifications to food if DF is introduced during cooking.