RSSDI Indian Diabetes EDUCATOR JOURNAL



Theme of the Month

Diabetes and Culture

To keep Members Diabetes Care team abreast about DSME /DSMS - (Diabetes Self management Education / Support) Concepts



In collaboration with





RSSDI Indian Diabetes



To keep the members of diabetes care team abreast with DSME and DSMS concepts

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RSSDI Indian Diabetes Educator Journal



1 st time in India To keep the members of diabetes care team abreast with DSME and DSMS concepts

FOREWORD

Research Society for the Study of Diabetes in India (RSSDI) founded by Prof MMS Ahuja in the year 1972 is the biggest scientific association of healthcare professionals involved in promoting diabetes education and research in India. RSSDI is happy to collaborate with USV to support their endeavour to make India the 'Diabetes care capital of the world'. Through this collaboration, RSSDI would like to strengthen the cadre of diabetes educators by empowering them with recent updates in diabetes management helping bridge the gap between the physician and the patient. Today, the rule of 50% is prevailing in terms of awareness, detection, treatment and control in T2DM.Our aspiration is to achieve 90-90-90-90 i.e.90% of people with diabetes should be made aware, 90% should be detected, 90% of those detected should be treated, and 90% of those treated should reach their goals.

Indian Diabetes Educator Journal (IDEJ) is the first of its kind in India, and the longest running monthly diabetes educator journal since April 2015 & continues its endeavour to spread awareness, knowledge and enable healthcare teams to manage individuals with diabetes and empower them for self-care. RSSDI IDEJ will continue to keep the members of diabetes care team abreast with concepts of Diabetes Self-Management Education/Support (DSME/S) with a reach of 44000 doctors and diabetes educators digitally.

India is considered as one of the oldest civilizations with a rich and diverse culture. Traditional, cultural, and dietary practices have a holistic approach toward health and wellbeing. This month's IDEJ aims to propagate information on some Indian cultural, religious, and traditional practices which benefit people with diabetes for good glycemic control. We hope this journal will empower diabetes educators to spread awareness of the ancient wisdom that holds good even today in diabetes management.

We sincerely thank our contributors for making this issue delightful reading for our readers. We dedicate this journal to all the healthcare professionals who are working relentlessly towards making "India–The Diabetes Care Capital of the World."

Sincere Regards,

Edwal.

Dr. Sanjay Agarwal RSSDI Secretary

Disclaimer: This Journal provides news, opinions, information and tips for effective counselling of people with diabetes. This Journal intends to empower your clinic support staffs for basic counselling of people with diabetes. This journal has been made in good faith with the literature available on this subject. The views and opinions expressed in this journal of selected sections are solely those of the original contributors. Every effort is made to ensure the accuracy of information but Hansa Medcell or USV Private Limited will not be held responsible for any inadvertent error(s). Professional are requested to use and apply their own professional judgement, experience and training and should not

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Cover Story: Traditional Indian Dietary Practices and Their Impact on Glycemic Index of Foods



Dr. S K Bakshi

MBBS, MD, F. I. A. M. S., F.G.S.I. Senior Consultant Internal Medicine & Diabetologist, Delhi India is one of the oldest existing civilizations, with a variety of religions, cultures, customs, socioeconomic strata, and agricultural practices coexisting peacefully for ages. An important part of Indian tradition is the holistic approach to health and culinary practices, which is focused at overall wellness, centuries before health was defined as a

"state of total physical, mental and social well-being and not only the absence of disease or infirmity."

Balanced nutrition is essential for people with diabetes to keep their glycemic levels under control. Excessive restrictions lead to dietary deficits and poor meal plan adherence. The widespread availability of economical, highly processed, and appealing low fiber, high refined carbohydrate food is further damaging. Majority of people struggle to understand how to make their meals, nutrient-dense with low glycemic index (Gl). It is increasingly acknowledged that Gl food-based intervention is a key strategy in the



management and prevention of Type 2 diabetes mellitus (T2DM) as the global pandemic of T2DM worsens, particularly in emerging nations.

Indian traditional meals



Traditional meals were predominantly plant-based and included grains (cereals, millets), pulses, a variety of spices (such as pepper, cumin, coriander, and ginger), local seasonal fruits and vegetables, as well as milk-based products (curd, buttermilk, and cottage cheese) to satisfy the body's need for energy, fiber, macronutrients, and antioxidants. Non-vegetarians included eggs, poultry, fish, and meat in their meals, but in moderation. Cooking was done with clarified butter (ghee) made from milk, and cold-pressed oils, primarily groundnut, sesame, mustard, or coconut, to provide energy and enhance the flavour and absorption of fat-soluble nutrients. The meals were not only balanced nutritionally but also in terms of flavour and texture. As

refrigeration wasn't available, a variety of food processing techniques were used in addition to freshly cooked food for storage and preservation. Daily meals consisted of fresh, home-cooked food, while special occasions were saved for consumption of high fat or sugary foods and that too in moderation. The abundance of functional foods provided all of the essential nutrients (antioxidants, polyphenols, fibers, natural prebiotics and probiotics, and other bioactive compounds). Processing methods including sprouting, malting, and fermentation which improved the nutritional content, aided in better digestion and assimilation, and provided additional health advantages. Every meal was consumed on the ground with family eating together and this practice of eating on the ground was believed to improve digestion and improve family relationships. In India today, many of these traditional ways are still practiced. Traditional Indian thalis provided a balance of proteins, complex carbohydrates, dietary fiber, fats, along with a lot of phytochemicals.

So, in more ways than one, there have been certain practices in our culture which can benefit people with diabetes. Some of these practices do help in lowering GI of foods and are mentioned in the table below:

| | Traditional ways to lower glycemic index and improve the nutritive value of foods: |
|------------------|---|
| Rice | Use hand-pounded rice: brown/red/black rice Use parboiled rice instead of polished white rice. Use old (i.e., stored and aged) rice Use cooked rice that has been cooled overnight Combine rice with protein sources like pulses, yogurt, cottage cheese, egg, fish, poultry, or meat Add ghee or nuts and seeds in moderate amounts Combine rice with a variety of vegetables as a part of a mixed meal Squeeze lemon or add tamarind to rice meals |
| Wheat | Use whole wheat flour and Khapli (Emmer) wheat Use broken wheat and larger grit semolina Mix bran and pulse flours like gram flour, soya flour, or millet flour with whole wheat flour Add grated or pureed vegetables, green leafy vegetables, herbs, and spices to whole wheat flour Knead whole wheat flour with yogurt, whey, milk, leftover pulse curry, or vegetable curries. Stuff the chapati/paratha made from whole wheat flour with protein sources such as egg, minced meat, cottage cheese, pulses, and vegetables Add fat in moderate amounts |
| Pulses | Use whole pulses or pulses with skin Use sprouted pulses (raw/steamed/ground/pureed) Add pulses (and/or its flour) like soybean to grains like wheat, rice, and millets in meals and snacks Add pulses to vegetables Substitute cereals with pulses in snacks and meals e.g., in pancakes use roasted gram flour Consume pulse-based spiced pastes (chutneys) with meals |
| Overall Meals | Process grains to the minimum and use unpolished, coarse, long grain, and aged grains Use slow-digesting carbohydrates with higher amylose and soluble fiber content such as pulses and barley Add protein, fiber, and healthy fat to meals Use resistant-starch-rich foods and methods which enhance resistant starch content Use an acidic medium such as lemon, vinegar, or tamarind Use slightly unripe fruits, since the Gl increases as fruit ripen |

Different meal preparation techniques and combinations increase nutrient absorption and reduce GI, making them advantageous for individuals with diabetes. Including these cuisine ideas, pairings, and preparation methods in the daily meals can help to enhance glycemic control and quality of life.

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Frequently Asked Questions

1. I am a 60-year-old individual with diabetes, I have been advised to restrict rice, as it causes spikes in my blood glucose levels. However, at home, we wash the rice thoroughly and while doing so all the starch from the rice gets washed away. So, isn't rice safe for me to eat, since it has no starch in it now?

Ans: Washing raw rice with water before cooking is a very common precooking procedure, followed by most Indian households. This process was originally started to clean the unprocessed grains covered in dirt and remaining hull or bran during the rice milling process. Over time, this process has been mistaken for "leeching the starch" out of rice.



The starch in rice is present deep in the endosperm of the rice, and is not easily "leeched out by washing." However, this pre-cooking procedure can lead to losses of essential micronutrients, such as B vitamins, iron, and zinc, thereby causing a lower nutritional quality, when washed for long periods of time. Thus, washing rice can be done just to clean it and you do not need to do it in excess to remove any starch. You can have rice in moderate amounts and combine it with vegetables and some protein like paneer or egg or chicken to lower its glycemic index. Alternatively, brown rice or other lower Gl varieties of rice can be consumed in moderation in consultation with your nutritionist or physician.

2. I am a 22-year-old boy, recently detected with type 2 diabetes. My grandparents keep telling me to eat certain spices, seeds, and herbs saying that they are good and will help with regulating my blood glucose levels. Will eating only spices and herbs help in treating diabetes?



Ans: Yes, certain Indian spices such as fenugreek (methi) seeds, cinnamon (dalchini), basil (tulsi), ginger, fennel seeds, etc. along with bitter gourd (karela) are specific foods our ancestors observed that help in diabetes management. And rightly so, the latest research has also proved that these foods have anti-diabetic properties and aid in lowering blood glucose levels. However, these foods are only adjuncts and need to be supported with a balanced diet, exercise, and medications for blood glucose management in consultation with your doctor. In case you want to start using them, you should keep your doctor informed. He may need to regulate your medication accordingly.

3. I am a 40-year-old male diagnosed with diabetes 15 years ago without any family history. I have migrated from my hometown to a city for my work, which is at a bank. I follow a typical Indian diet, similar to that of my parents and grandparents back home. Despite following a healthy diet I am struggling to maintain my blood glucose levels. Why is it so?

Ans: A typical traditional Indian diet is the perfect balance of complex carbohydrates, good quality proteins, healthy fats, and fiber, which is important in managing diabetes. However, it isn't always "what you eat" but also "how much you eat." You may need to reduce your portion sizes of the food consumed especially if you are leading a sedentary lifestyle. In today's



urban lifestyle, everyone is glued to their screens with little to no physical activity. This leads to an increase in obesity, insulin resistance, and high blood glucose levels. While our ancestors ate a hearty meal, they did a greater amount of physical activity for the same. From working in the fields to various manual labor activities, they put in a great amount of physical work, which kept their weight and blood glucose levels stable. Thus, simply eating healthy is not enough. You need to have an overall active lifestyle and portion control to manage diabetes better.

4. I am a 32-year-old woman recently diagnosed with diabetes. I am a Gujarati, and we often add sugar to our dals and vegetables. Becasuse of my diabetes, my mother-in-law has suggested to replace the sugar with organic jaggery. Can we really do that?

Ans: Sugar, jaggery, and honey are all sources of simple sugar having similar impact on blood glucose levels. Jaggery contains about 65 to 85% sucrose. Sugar and jaggery both have high Gl. Only their manufacturing procedure is different but they are similar in calories with similar glycemic index causing similar blood glucose spikes. Hence, jaggery cannot replace sugar in the same amounts for better blood glucose control.



Indian Spices and Their Benefits for Diabetes Management



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MBBS, MD, C. Diab, Fellowship in Diabetes, PG Cert. Diabetic Foot Surgery Assistant Professor of Diabetology & Consultant - Diabetes & Diabetic Foot, Dept. of Endocrinology, SDM College of Medical Sciences & Hospital, Dharwad Indian cuisine uses a vast variety of spices (called masalas) that are both flavorful and functional. In addition to adding flavor, aromatic leaves like curry, mint, and dill, as well as superfoods like moringa, and gooseberry have antibacterial, antioxidant, and anti-inflammatory properties. The glucose and lipid profile has been proven to be improved by adding

spices, herbs, and condiments to meals. The following are some typical Indian spices used in daily cooking and their health benefits.

Turmeric (Curcuma longa)



Turmeric is cultivated in South-East Asia and is characterized by orange tuberous rhizomes. Commonly known as Indian saffron, yellow root, the golden spice, it was traditionally added to milk as a common practice to boost immunity and improve sleep quality and is now well-known worldwide as Golden Milk or Turmeric Latte. Turmeric has a bioactive component called Curcumin, which imparts specific health benefits. People with type 2 diabetes (T2DM) who received curcuminoids were revealed to have improved insulin resistance, low blood glucose and insulin levels, enhanced adiponectin production, and lower levels of leptin, resistin, interleukin (IL)-6, IL-1, and tumor necrosis factor. Some studies have also shown that curcuminoid

supplements result in improved lipid profiles and an increase in the total antioxidant capacity of people with T2DM.

Cumin (Cuminum cyminum L.)

Used for its distinctive flavour and aroma, cumin is a flowering plant used as a spice. Cumin seeds (Jeera) have been a staple element in many Indian dishes for thousands of years, including kormas and soups. They are also a component of many other spice blends. Cuminaldehyde, cymene, and terpenoids are the principal volatile components of cumin. In a study by Karnick CR, when 80 patients with T2DM were orally administered cumin seed containing formulation for 24 weeks, post-meal and fasting blood glucose levels decreased significantly. Cuminaldehyde has a considerable inhibitory effect on the enzymes aldose reductase and, α -glucosidase, which makes cumin a powerful anti-diabetic agent.



Mustard seeds (Brassica juncea)

Indian mustard seeds (Rai) are also commonly called as brown mustard, Chinese mustard, and oriental mustard. While the powder can be used in sauces, curries, and salad dressings due to its potent flavour, whole seeds are crucial components of pickles, curries, or other vegetable preparations. Findings from many studies suggest that mustard seeds can help reverse insulin resistance seen in pre-diabetes. Although the seed has a limited antihyperglycemic effect in severe hyperglycemic conditions, it is best used as an adjunct in pre-diabetes along with a strict exercise and nutrition plan. The seeds have also been shown to prevent the rise in creatinine levels, which prevents complications like diabetic nephropathy.



Green cardamom *(Elettaria cardamomum)*



Known as "Queen of spice," green cardamom is a member of ginger family (Zingiberaceae). Green cardamom is often known as elaichi in Hindi, Marathi, and Urdu and in Tamil and Telugu as elam and elakkaya, respectively. Studies have shown that daily cardamom consumption significantly reduces triglycerides and LDL cholesterol and therefore it has shown to have cardioprotective effect. In addition to that its antioxidant, anti-inflammatory and hypolipidemic property makes it beneficial for people with diabetes. Some studies have shown that daily supplementation of cardamom showed significant effect in reduction of HOMA-IR and HbA1C.

Cinnamon (Cinnamomum zeylanicum)

The spice is made primarily from cinnamon bark and its leaves are composed of a basic compound called Cinnamon aldehyde. The leaf oil and the root bark oil contain mainly eugenol and a compound called camphor, respectively. Thus, Cinnamon comprises of many compounds which are biologically active. Research has proven that these bioactive compounds reduce plasma glucose levels more effectively than metformin while its antioxidant property has the ability to protect against pre-diabetes. Bioactive compounds like Benzoic acid, (E)-cinnamaldehyde, trans-cinnamic acid, eugenol, and o-methoxycinnamaldehyde identified in the aqueous extract of *Cinnamonum zeylanicum* synthesized under high pressure and decoction method showed



considerable potential to inhibit α -glucosidase and regulate hyperglycemia. Thus cinnamon has a promising health benefits for people having diabetes.

Besides exhibiting anti-diabetic properties these spices due to their active compounds are also known for their antimicrobial, anti-inflammatory, antioxidant, anti-proliferative, and chemo-preventive roles. Thus, all that is there inside a spice case (masala dabba) in an Indian kitchen consists of enormous health benefits thus making the kitchen a 'natural pharmacy.'

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Did You Know?

Rice comes in various varieties and preparation, and storage can affect its Glycemic Index (GI)

Rice is an important cereal commonly consumed in India with thousands of varieties grown across the country. It is a good choice for people with celiac disease as it is gluten-free. It is necessary to evaluate how rice is prepared and preserved as this has a significant impact on its glycemic index (GI). Parboiling is a traditional method for preparing rice – a hydrothermal process that comprises soaking the paddy in water, heating it, allowing it to dry, and then milling. This causes the starch to gelatinize into compact structures, which gives rise to kernels that appear harder and glassier with a significantly lower GI. The rice mill's whitening procedure removes the endosperm and micronutrients (vitamins and minerals) from the bran, but the parboiling procedure keeps them intact. In the past, aged (i.e., stored and aged) rice was favored over newly harvested rice because the peak viscosity of rice rises with age, increasing the granules' resistance to swelling and rupture during cooking thus lowering the GI. Another method of preparation that reduces the GI of rice is the cooking and cooling method. Cooked rice when kept in the refrigerator for 24 hrs causes it to develop more resistant starch. This rice when consumed the next day after reheating at low temperature has a much lower GI than freshly cooked rice. The GI is affected by the grain structure of the rice; unpolished rice with bran, long-grain basmati rice, parboiled rice, and brown rice has lower GI hence making them an excellent choice for people with diabetes for better glycemic control than short-grain, milled, or polished white rice.



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Facts and Figures

1. Prior to wheat, barley was listed in the Rigveda (4000–8000 years ago) as the main meal. It has a low GI of 25, a high concentration of β -glucan (a soluble fiber that lowers post-prandial blood glucose levels and blood cholesterol), protein, and vitamin B. Adding barley to whole wheat flour lowers the chapati's GI.





- 2. Native to the Himalayas, buckwheat has a higher fiber content than other cereals (27.4%), making it more similar to vegetables than other grains. Additionally, it has a significant amount of protein with a well-balanced amino acid composition and resistant starch (33.5–37.8%). It is a great food for controlling diabetes because it has a GI of around 50.
- 3. Yoga the age-old practice which has its origin in India is also beneficial for people living with diabetes. Yoga techniques such asanas, pranayama, mudras, bandhas, meditation, mindfulness, and relaxation have been shown to significantly improve therapeutic outcomes by lowering blood glucose levels and managing comorbid diseases linked with diabetes.



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What's Trending? Religious Practices in India Which Have Beneficial Effects on Diabetes Management



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Some religious practices in India which have beneficial effects on diabetes management are as follows:

Ratri Bhojan Tyag in Jainism

Fasting embraces the main principle of Jain philosophy, that is to absolve oneself of desire. *Ratri Bhojan Tyag* is often observed by Jains where they abstain from eating anything after sunset. Some individuals do not drink water during this time as well. Obesity is the main contributing factor to diseases like type 2 diabetes mellitus, hypertension, and heart diseases. Having early dinner and/or increasing the duration of fasting between dinner and following morning's breakfast has shown to reduce obesity. Individuals with diabetes practicing *Ratri Bhojan Tyag*, require modification of medication/insulin dosage. Individuals who wish to fast from dusk to dawn, the evening dose mostly would be avoided, or taken in half dose depending on individual's current glycemic profile and food intake.



Salah (Namaz) in Islam



Salah *(namaz)* is the ritual prayer obligatory for Muslims and should be performed five times a day. It forms one of the five pillars of Islam. Salah is carried out in a specific way which involves reciting verses of the holy "Quran" and a well-defined physical act expressing the spirit. Ablution is mandatory, washing of hands, face, and feet in a specific order before performing *Salah*. Ablution not only maintains a high level of physical cleanliness but puts the mind to rest from worldly distractions as well as stress. Ablution conditions the psyche to focus singularly on the act of obedience and submission to god. Ablution has scientifically been noted to relax mind and reduce stress levels as spirituality overtakes any worldly concern. Positive outcomes on anxiety,

depression, and mental health has also been observed with the application of prayers, suggesting psychological benefits. Salah is

also associated with physiological benefits as most of the body muscles are exercised. Good mental health and muscle health, both are important for individuals with diabetes as these influence blood glucose control. Another aspect where *Salah* is advantageous is as a form of exercise. *Salah* is spread throughout the day (five times a day) and studies have shown small bouts of exercise spaced in the day help improve blood glucose control.

Prasad in Hinduism

In Hinduism, *Prasad* is an offering made to the deity during Puja (prayer), which is usually edible food items and thereafter is distributed to the devotees as the deity's blessings. Eating of *Prasad* after offering it to God is considered a holy and divine gift seen as a blessing and something that one must not refuse. One aspect of scientific and spiritual significance while giving *Prasad* is, only a very small quantity of Prasad is supposed to be given and eaten. The rationale is, the little consumed will remain in the body rather than being excreted, helping to purify the whole system. It in a way inculcates the concept of portion control. Many times the prasad offered is something sweet, but is consumed is small portions which is the practice advised to people



having diabetes as well to maintain portion control. Thus, this source of blessing is also a source of learning to eat everything in moderation to stay healthy and avoid high glucose levels.

Hence, above religious practices may not only bring spiritual benefits, it also plays a role in maintaining good health in the literal sense of physical, mental, and social wellbeing.

Resources:

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12

Indian Thali and the Healthy Plate Method



Dr. Arun Jacob W

MBBS, MD Internal Medicine, PG Cardiology (John's Hopkins), PGD Clinical Endocrinology and Diabetes, RCP Consulting Diabetologist, Mother Hospital, Thrissur **'Thali'** is the plate method that has been in Indian culture for centuries. The belief regarding Thali is to provide nutritionally balanced meals in a variety of flavors and textures along with portion control using small katoris (bowls) for each food. Foods from all food groups, including whole grains, vegetables, pulses or non-vegetarian items, and a dairy product form part of our Indian *Thali*.

Typical Indian Thali

Thali consists of whole wheat chapati, rice, lentil curry, green or any vegetable, salad, lemon wedge, pickle, papad, buttermilk with herbs is often served on a banana leaf. Figure 1 is representative of a regular, homemade Indian Thali.

The emphasis in ancient times was on using local and seasonal ingredients. Dominance of vegetarian food items was common, even amongst nonvegetarians, though coastal and riverine areas did use fish and other seafood liberally. Traditional Indian Thalis provided a balance of all essential nutrients such as complex carbohydrates, proteins, fats, fiber, and a plethora of phytochemicals by incorporating a variety of foods with different colors.





A well-balanced meal comprising of adequate protein, fiber, and moderate amount of carbohydrates has shown to improve blood glucose levels and overall wellbeing. The latest healthy plate method recommended for individuals with diabetes, is shown in figure 2. It suggests that half of the plate should consists of fiber coming from salad, veggies, ¼ plate protein sources (dals/pulses/lean meat), ¼ plate complex carbohydrates (whole grains), a portion of low fat dairy product, and a fruit. If we compare this recommendation, it is very close to the Indian Thali system. Hence, our traditional Indian food is very balanced in accordance to the nutrition principles required for blood glucose control in individuals with diabetes.

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Cultural Practices: A Form of Physical Activity



Dr. Aashish Kumar Jangir

M.B.B.S, MD Internal Medicine, DNB Endocrinology Consulting Endocrinologist, Shalby Hospital, Jaipur India is home to various cultures and religions, all of which celebrate several festivals and observe many traditions. Different festivals have very different eating and physical activity patterns depending on social and cultural factors.

In the past few years, the prevalence of noncommunicable diseases linked to sedentary

lifestyles has increased tremendously. Being physically inactive is widely known to be detrimental to one's health. Physical activity is an important part of lifestyle therapy for the management of diabetes. It encompasses various types of exercise, such as aerobic activities like walking, swimming, cycling, or strength training activities like gym, planks, squats, lunges, etc.

Meeting the recommended levels of physical activity, which include 150 minutes per week of moderate-to-vigorous aerobic activity and two to three sessions of resistance training, is linked to a 40% reduction in cardiovascular mortality and a stronger impact on all-cause mortality.

The various festivals or cultural practices in India also involve physical activity which balances out the feasting that is usually seen during festivities and enhances overall health. Here are some examples:

Garba and Dandiya-Raas

Navratri is an important festival and is celebrated all over India. The well-known Garba and Dandiya-Raas dances performed during Navratri are a form of physical activity and are a good aerobic and cardio workout that requires the repetitive movement of large and small skeletal muscle groups in the legs, trunk, and arms. Dance has also been shown to reduce blood pressure, improve insulin sensitivity and glucose control, and optimize the lipoprotein profile, all of which are independent risk factors for the onset of type 2 diabetes.



Taraweeh

During Ramadan, there are night prayers referred to as Taraweeh, which are associated with moderate-intensity physical activity at night. These prayers involve repeated standing, kneeling, and prostration while combining aerobic and resistance exercise, providing moderate-intensity physical activity for an average of 40 minutes. Taraweeh prayers help to increase muscle glucose uptake, reduce postprandial hyperglycemia excursions, and improve insulin sensitivity.



Bhangra dance



Bhangra is one of the most well-known traditional dances in Punjab. Men execute the dance mostly, to the fast drum and music beats. It is originally performed during the Baisakhi festival. The Bhangra dance is an integral element of Punjabi heritage and culture. It is an aerobic exercise that is beneficial for cardiovascular health and enhances insulin sensitivity. It also strengthens bones, lowers blood pressure, and aids with weight management.

Mangalagaur

Mangalagaur is a ritual that includes singing, dancing, and entertaining games. It is a festival for ladies that is celebrated at home during the first five years following a wedding in the month of Sharavan. Over 50 different types of short, brisk mangalagaur dances exist. They are frequently performed without any background music and to rhyming couplets, however, sometimes tabla or harmonium is used to give the pace of the lyrics. Some games, like phugdi, are played. Mangalagaur games are well-known for being healthy physical activities. The games increase flexibility in the muscles and strengthen the joints in the body. They also help in the management of diabetes and improve insulin sensitivity, vascular health, and the efficiency of immune function.



This shows that our culture too has physical activity ingrained in the festival celebrations and this helps to balance out the extra calories consumed during festivals.

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Diabetes-friendly Regional Foods

Dr. Sreenath R

MBBS, MD, DM Endocrinology Consultant Endocrinologist, Caritas Hospital, Kottayam The key to controlling diabetes and avoiding major complications is eating a well-balanced nutritious diet. Many foods are passed down generations, allowing people to connect to their ancestral cultures. Many foods which are traditionally a part of our culture and are staple to the regions where they are cultivated and consumed have shown some beneficial effects in diabetes management. Here are some of them:

North: Chickpeas

Chickpeas (*Cicer arietinum L.*), commonly known as Kabuli Chana, are an ancient world pulse (i.e., edible seed) in the legume family that has historically been used in a variety of preparations due to its nut-like flavor and unique taste. In comparison to other plant foods, pulses are distinctive because they have higher protein content (17-30% by dry weight). It is a low glycemic index legume suitable for people with diabetes. Chickpeas contain Lente carbohydrates which are slowly absorbed in the body as they contain high amounts of viscous fiber, thereby delaying gastric emptying and blunting the post-meal blood glucose response. Other sources of Lente carbohydrates consumed in the north are lentils, split grams, kidney beans, and green peas.



South: Millets



Millets, the small-seeded grass, which are grown as cereal crops have numerous health benefits. They are known as "nutritious millets" or "Nutri Cereals" as they are gluten-free, and loaded with protein, fiber, and antioxidants. They are abundant in iron, calcium, magnesium, and zinc, and help manage the body's blood glucose levels. Sorghum, finger millet, foxtail millet, little millet, pearl millet, and barnyard millet have all been used for a very long time in India. Millets have a low glycemic index (Gl) which means they raise the blood glucose slowly in the body. This makes them a good choice for people having diabetes. They may have beneficial impact on the risk of heart diseases due to the presence of fiber and antioxidants.

East: Fishes

In the eastern part of India, people regularly eat fish and other seafood. The average percentage of people who consume fish in the area is 88%. It is considered a healthy food for all. Fishes are sources of good quality protein. Fatty fish also provide Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA) which are omega-3 fats that are anti-inflammatory and heart-friendly. Increased levels of EPA and DHA in phospholipid cell membranes may improve insulin sensitivity. Along with EPA and DHA, fish also contains nutrients like selenium and vitamin D that are advantageous for people with diabetes. Increased fish consumption may lower the risk of type 2 diabetes in populations where obesity is highly prevalent. Fish has negligible carbohydrates and is abundant in protein



and so does not impact blood glucose levels as much and can be consumed in moderation by people having diabetes.

West: Horse Gram



Horse gram (*Macrotyloma uniflorum*) is commonly called Kulattha, Kulith Kollu, or Ullavallu. It is frequently consumed in India's western region. With protein (23%), carbohydrate (60–70%), fat (1%), minerals, and vitamins, it is said to be highly nutrient-dense. It contains bioactive compounds, such as fiber, proteinase inhibitors, phytic acid, and phenolic acid, which have important physiological and metabolic impacts. Myricetin, a key flavanol in the horse gram seed coat, is said to play an important role in glycemic control. The presence of resistant starch allows the slow release of glucose in the blood, thereby helping to manage blood glucose levels in people with diabetes. Local seasonal foods are always beneficial, and one must strive to

include these foods in the diet to ensure diet diversity and nutrient balance.

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Diabetes Educator Tip of the Month



Contributed by Name: Shefa Syed

Post Graduate Diploma in Clinical **Nutrition and Dietetics and Certified Diabetes Educator**

Healthy swap ideas for some traditional sweets

Festivals and feasting are an integral part of every Indian household. While some traditional foods may be beneficial for diabetes, there are sweet treats which may need to be modified a little to make them diabetes friendly. Here are a few healthy swap ideas:





Baked Date & Nuts Gujiya

Instead of refined flour, use whole wheat flour increasing fiber content and bake instead of frying. For stuffing, dates can be used instead of sugar for sweetness along with nuts. Proportion of coconut can be kept low.





Date & Nuts Modak

Replace sugar with dates, add some almonds and pistas along with coconut and control the portion size by making small modaks.

19



Calorie dense sugar laden shrikhand can be replaced with a parfait made of fruit giving natural sweetness, hung curd for protein and chia seeds giving healthy fats.



High calorie fudge loaded with huge amount of fat and sugar can be replaced with nuts providing healthy fats which can be coated with dark chocolate giving natural sweetness.

Superfood: Methi Seeds (Fenugreek seeds)

Fenugreek (Methi)- (*Trigonella foenum-graecum L.*) is an important spice used in the Indian kitchen since ancient times. The seeds are known for their medicinal properties and are used as a spice, whereas the leaves are used as a leafy vegetable in the diet. Methi seeds have multiple medicinal uses, such as wound healing, galactagogue, beneficial in the management of type 2 diabetes, improving lipid profile, etc.



Nutritional benefits

- High dietary fiber content, especially soluble fiber
- O Presence of phytochemicals namely quercetin, diosgenin, trigonelline, and free amino acids such as 4-hydroxyisoleucine
- O Prebiotic effect
- O Digestive properties

Health benefits

Diabetes Management: The soluble fiber – galactomannan present in fenugreek seeds is responsible for the anti-diabetic activity along with diosgenin, trigoneosides, and 4-hydroxyisoleucine. The glucose-lowering action is via a reduction in insulin resistance and aiding in insulin synthesis and release. Germination of the seeds enhances the anti-diabetic property by many folds.

Cholesterol Management: The seeds contain a large amount of fiber, galactose, and mannose, which are the main components that are responsible for the hypocholesterolemic effect.

Antioxidant Activity: The presence of flavonoids and phenolic compounds in fenugreek is responsible for the antioxidant property. Germinated fenugreek seeds show a significant antioxidant property.

Weight Management: Including fenugreek seeds in the diet aids in weight loss, as the seeds contain a high amount of soluble fiber which forms a gelatinous structure which in turn slows the digestion and rate of absorption of food, which gives a feeling of satiety and aids in weight loss.

Galactagogue: The presence of phytoestrogens and diosgenin in fenugreek is responsible for increased human milk production.

How to consume?

Methi seeds can be used for seasoning curries and vegetables. The roasted seed powder can be added to sambhar and rassam for a flavorful aroma. The seeds are added to the dosa batter to speed fermentation. Ladoos can be made from methi seed powder for lactating mothers. The seeds can be sprouted and incorporated into various recipes like salads, soups, curries, rice preparations, etc.

Seeds can be soaked overnight in water and consumed in the morning or pre meals.

Recommended intake

A dosage of 10 gm of fenugreek seeds per day, along with a proper diet and exercise can have a beneficial effect on fasting blood glucose and HbA1c levels

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Recipe: Sprouted Methi Pulao

Serves: 2

| Ingredients | Amounts |
|--|----------------|
| Rice | 1⁄4 cup |
| Cumin seeds | 1⁄4 tsp |
| Green chili | 1 no. |
| Green capsicum | 1 no. (medium) |
| Finely chopped onion | 1 no. |
| Ginger garlic paste | 1⁄4 tsp |
| Curry leaves | 4 nos. |
| Turmeric powder | 1⁄4 tsp |
| Chili powder | ½ tsp |
| Coriander cumin powder | 1⁄4 tsp |
| Diced tomato | 1 no. (medium) |
| Methi seeds | 1 tbsp |
| Finely chopped coriander leaves | For garnishing |
| Salt | To taste |
| Oil | 1 tsp |
| 1 cup: 250 ml; 1 tablespoon: 15ml; 1 teaspoon: 5ml | |



Method

- 1. Soak methi seeds in water overnight, drain the water, keep it covered and let it sprout.
- 2. Wash the rice and keep it aside.
- 3. In a large pan, heat oil and add cumin seeds. Once it splutters, add green chili, onions, ginger garlic paste, and curry leaves. Sauté for a minute.
- 4. Once the onion turns translucent, add turmeric powder, chili powder, coriander-cumin powder, and diced tomatoes, sauté till tomatoes are mushy, add capsicum and sprouted methi seeds and washed rice, mix well and sauté for a few seconds.
- 5. Pour 3 cups of water, add salt and bring it to a boil. Simmer it for about 15 minutes or till water is absorbed and pulao is cooked.
- 6. Garnish it with coriander leaves and serve hot with a cup of vegetable raita.

Dia-Games

Guess The Superfood



Patient Speaks

I am Vidya Narayan, a 42-year-old woman having diabetes since the last 5 years. My blood glucose levels are well maintained now with the advice from my doctor, dietitian, and diabetes educator. I am committed to following a healthy lifestyle which includes regular exercise and good eating habits.

When I was first diagnosed with diabetes, I was very confused and scared. Being a South Indian, I am a rice eater. But after being diagnosed with diabetes, I was constantly advised by friends and family members that I should no longer eat rice. I loved to eat the humble South Indian food, sambar rice with potato vegetables. However, because both potato and rice caused



spikes in blood glucose levels I had to stop eating them and this made me very unhappy as these were my comfort foods. I even tried swapping these with brown rice and cooking raw banana instead of potatoes, but I did not enjoy it.

When I went for one of my consultations with the DE, I mentioned to her about my love for these comfort foods since I grew up eating these as part of our traditional food. My DE was very understanding and she empathized with me. She then explained that I did not need to give up eating these foods just because I was diagnosed with diabetes. She explained that I could include these foods in controlled portions. She suggested having one bowl of vegetable sambar with a small portion of rice on one day and a small bowl of potato vegetable on another day. She suggested that I cook the rice and potatoes a day prior, refrigerate them overnight and reheat this at low temperatures the next day before eating. This way it had more resistant starch and would not spike my blood glucose levels. She advised me on adding protein and fiber to every meal to lower the glycemic index of the meal. She referred me to a dietitian and that further helped as I understood that I need not give up on any foods, but I need to know how much and when to have them.

The next time I went to my DE I was very proud and happy as my blood glucose monitoring log showed most readings in the target range despite continuing my traditional eating habits.

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For Screening people with High & Moderate Risk of Diabetes

Indian Diabetes Risk Score

TO KNOW YOUR RISK OF DIABETES SCAN HERE

TO KNOW

YOUR RISK









Indian Diabetes Risk Score





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| NOTES |
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In T2DM Across Continum,

Start with vcomet[®]GP 1/2 Metformin Hydrochloride 500 mg SR + Glimepiride 1/2 mg NT2DM MANAGEMEN Across Co **Across Comorbidities** Across BMI **ASCVD & CHF Hypertension** CAD/ PAD **Underweight** Normal Overweight Ohese **Across Complications Across Ages Neuropathy**/ Young Elderly >90 Years Nephropathy **Retinopathy Diabetic Foot Across Stages** Newly Diagnosed **Early Stage** Long Duration

Source: 1. JAPI 2020 68,51.-55 2. Data on File, 3. Cureus 2020; 12(9): e10.7759/cureus.1070 4. Diabetes Technology & Therapeutics 2019,.2,79-84 5. Kalra, et al.: Sulfonylurea and combinations: International Task Force Indian J Endocr Metab 2018;22:132-57.

Priscribing information

Information: Metformin hydrochloride (as prolonged release) and glimepiride tablets. Glycomet-GP 0.5/Glycomet-GP 0.5 Forte/ Glycomet-GP 1/6Jycomet-GP 1/850/ Glycomet-GP 2/6JyComet-GP 2/850/ Glycomet-GP 3/850/ Glycomet-GP 3 Glycomet-GP 1 Forte/ Glycomet-GP 2 Forte/ Glycomet-GP 3 Forte/ Glycomet-GP 3 Forte/ Glycomet-GP 4 Forte Abridged Prescribing Information Composition: Glycomet GP 0.5mg. Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 500mg and glimepiride IP 0.5mg. Givcomet GP 0.5 Forte: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 1000mg and glimepiride IP 0.5 mg. Givcomet GP 1: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 500 mg and glimepiride IP 1 mg. • Glycomet GP 1/850: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 850 mg and glimepiride IP 1 mg. • Glycomet GP 2: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 500 mg and glimepiride IP 2 mg. • Glycomet GP 2/850: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 850 mg and glimepiride IP 2 mg. • Glycomet GP 3: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 500 mg and glimepiride IP 3 mg. • Glycomet GP 3/850: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 850 mg and glimepiride IP 3 mg. • Glycomet GP 4; Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 500 mg and glimepiride IP 4 mg. • Glycomet GP 4/850: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 850 mg and glimepiride IP 4 mg. • Glycomet GP 1 Forte: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 1000mg and glimepiride IP 1mg. • Glycomet GP 2 Forte: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 1000mg and glimepiride IP 2mg. • Glycomet GP 3 Forte: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 1000mg and glimepiride IP 3mg. • Glycomet GP 4 Forte: Each uncoated tablet contains metformin hydrochloride IP (as prolonged release form) 1000mg and glimepiride IP mg. Indications: Glycomet GP is indicated for the management of patients with type 2 diabetes mellitus (T2DM) when diet, exercise and single agent (metformin hydrochloride or olimepiride alone) do not result in adequate glycemic control. Dosage and Administration: Dosage of Glycomet GP should be individualized on the basis of effectiveness and tolerability while not exceeding the maximum recommended daily dose of glimepiride 8mg and metformin 2000 mg. Initial dose: 1 tablet of Glycomet GP should be administered once daily during breakfast or with the first main meal. Do not crush or chew the tablet. In several cases the tablet may remain intact during transit through the gastrointestinal (GI) tract and will be eliminated in feces as hydrated mass (ghost matrix). Patients should be advised that this is normal as all drug components have already been released during GI transit. Contraindications: In patients hydersensitive to glimepiride, other sulfonylureas, other sulfonamides, metformin or any of the excipients of Glycomet GP; pregnancy and lactation; diabetic ketoacidosis, diabetic pre-coma, in patients with eGFR<30 ml/min/ 1.73 m2, acute conditions with the potential to alter renal function (dehydration, severe infection, shock, intravascular administration of iodinated contrast agents), acute or chronic disease which may cause tissue hypoxia (myocardial infarction, shock, cardiac/resoiratory failure) hepatic insufficiency, acute alcohol intoxication, alcoholism, Warnings: Keep out of reach of children. Patient should be advised to report promotiv exceptional stress situations (e.g. trauma, surgery, febrile infections). Blood glucose regulation may deteriorate and a temporary change to insulin may be necessary to maintain good metabolic control. In case of lactic acidosis, patient should be hospitalized immediately. Precautions: In the initial weeks of treatment, the risk of hypoglycemia may be increased and necessitates especially careful monitoring. Serum creatinine levels should be determined before initiating treatment and regularly thereafter: at least annually in patients with normal regal function. Intravascular contrast studies with iodinated materials can lead to acute alteration of regal function. In patients in whom such study is planned. Glycomet GP should be temporarily discontinued at the time of or prior to the procedure, and withheld for 48 hours subsequent to the procedure and reinstituted only after renal function has been re-evaluated and found to be normal. Use of Glycomet GP should be discontinued 48 hours before any surgical procedure. Adverse reactions: For glimepiride - hypoglycaemia; temporary visual impairment; GI symptoms like nausea, vomiting, abdominal pain, diarrhoea may occur; increased liver enzymes, cholestasis and jaundice may occur; allergic reactions may occur occasionally. For metformin - GI symptoms like nausea, vomiting, abdominal pain or discomfort may occur

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