

## Fasting practices in Tamil Nadu and their importance for patients with diabetes

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### ABSTRACT

Religious practices and cultural customs related to eating habits have a significant impact on lifestyle and health of the community. The Ramadan fasting in Muslims and its influence on various metabolic parameters such as diabetes have been reasonably studied. However, literature related to Hindu religious customs related to fasting and food patterns during various festivals and its effect on diabetes are scarce. This article is an attempt to describe the Hindu religious customs related to fasting and food practices from the State of Tamil Nadu (South India) and to raise the awareness among physicians about its relationship with diabetes which may help in managing their diabetic patients in a better way.

**Key words:** Diabetes, fasting, festivals, South India, Tamil Nadu

### INTRODUCTION

Religious and cultural traditions are an integral part of humanity. These practices have a significant impact on lifestyle and health of the community. Fasting is a ubiquitous religio-cultural practice that is found, in varying forms, across the world. The month-long Ramadan and the Christian Lent fasts are examples of religious practices of Islam and Christianity, respectively.

Religions with their origin in India also advocate ritual fasting as part of the expression of their faith. The impact of these fasts on diabetes and its management strategies have been discussed elsewhere.<sup>[1,2]</sup> Tamil Nadu celebrates

a large number of the festivals that the country celebrates with a regional flavor and food. It also has festivals and observances that are unique to this region. Tamil Nadu also has one of the largest prevalence of diabetes in the country.<sup>[3]</sup> This article is an attempt to highlight the fasting practices in Tamil Nadu and their impact on the ever-increasing number of patients with diabetes in the state.

### IMPACT OF INTERMITTENT FASTING ON GLYCEMIC CONTROL

Caloric restriction (CR) and intermittent fasting (IF) have shown to improve glucose homeostasis and insulin resistance in humans.<sup>[4-6]</sup> IF and alternate day fasting appear to be equally as effective as CR for weight loss and cardioprotection. A greater decrease in body weight is seen

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in CR, with comparable reductions in visceral fat mass, fasting insulin, and insulin resistance by both methods. In animal studies, CR and IF are both associated with a modulation of lipid droplet protein composition and reduction of intracellular diacylglycerol thus improving insulin sensitivity and modulates visceral fat and adipokine profile thus conferring cardiovascular protection.<sup>[5,6]</sup> Their impact on intermediary metabolism in humans is unknown.

Cyclical CR and intermittent access to sugar solutions may result in opioid-like forebrain neural alterations and dependency in rodents.<sup>[7]</sup> This postfast binge eating particularly on high glycemic index foods may result in deterioration of glycemic control and possibly negate the beneficial effects of IF and explain the lack of weight loss seen with studies done on Ramadan fasting.<sup>[8]</sup>

## FASTING AND FEASTING IN HINDUISM

The honourable Supreme Court of India has defined Hinduism as not a religion but a way of life.<sup>[9]</sup> In general, the term “Hindu” would apply to a group of people who believe in the supremacy of the Vedas and follow certain prescribed paths for a living. The Vedas are called “sruti” and the texts that translate their import into a way of living (sanatana dharma – the old way) are called smritis. The “smritis” sanctify fasting as a way of life. The “smritis” also state the need for “yata sakthi” for fasting, implying that the rigorous forms of fasting are for the able bodied, and those who are infirm/ill need not fast or only do symbolic observances. Married (unwidowed) women are generally forbidden to do total fasts. Ascetics however are prescribed more stringent fasting requirements.

Fasting can thus be “nirahara” – without food; “phalahara” – where fruit and milk are allowed and “alpahara” – when broken rice and the likes are allowed. An alternation of fasting and feasting exemplify the spirit of Hindu observances, and the calendar (called panchanga) is filled with myriad observances few of which are rigorously followed. Many observances have been diluted to suit modern living while some are extinct. The health effects of IF in this context have not been studied.

For the purpose of discussion, we will divide the fasting practices in Tamil Nadu as:

- Periodic fasting (fasting during the week)
- Fasting and feasting during festivals.

### Periodic fasting

The periodic fasting that has the most sanctity in the smritis is the Ekadashi. It is observed by both vaishnavites (followers of Vishnu) and “smarthas” (who follow Adishankaras’

advaitic philosophy). It calls for a 36 h fast starting after sundown on the 10<sup>th</sup> day with a breaking of the fast on the 12<sup>th</sup> day morning by rice, greens (“agathi keerai”), gooseberry (amla), and gravy with turkey berry (sundaikai) as a part of the morning food. The infirm, children, and pregnant women are exempt from this fasting. Ascetics are required to observe a complete fast and not speak for the duration of the fast.

Fasting for other gods has grown into the tradition and hence a multitude of fast for a favorite deity has evolved over time. For example, devotees of Lord Shiva tend to fast on Mondays and on the 13<sup>th</sup> day of the lunar cycle (pradosham), whereas devotees of Lord Vishnu tend to fast on Saturday. Fasting on Tuesday is common in Southern India and dedicated to Mariamman (a manifestation of Shakthi). Ritual fasting may also be done for the manes as exemplified by the new moon day and the mane fortnight (pitru paksh in the North and maalaya paksha in the South). Periodic observances are seen also during the week before the Skanda Shasti, which is celebrated with fervor in Tamil Nadu since Skanda or Muruga is hailed the Tamil God. Many of these fasts are not total fasts and extend dawn to dusk with allowances for liquids fruit and milk (called in Tamil as oru pozhudu – one meal). On such days, the dinner is usually made of broken grain as rice is a taboo.

Jains in Tamil Nadu fast on full moon days, Chaturdasi (14<sup>th</sup> day of the fortnight), and Ashtami (8<sup>th</sup> day of the fortnight).

### Fasting and feasting during festivals

The fasting practices during the months of Navarathri and the practice of Karva Chauth have been discussed in detail by Kalra *et al.*<sup>[10]</sup> The Diwali – The “festival of lights” is celebrated in Tamil Nadu a day before the rest of the country (naraka chaturdashi). The Diwali day is marked by feasting of sweets and savories prepared from roasted bengal gram flour, rice flour, jaggery, sugar, ghee, and coconut. Considering this high-calorie snack consumption, a traditional medicine termed as “Deepavali Marundhu” (in Tamil) is prepared to balance the ill effects of the high carbohydrate and fat load. The list of ingredients for preparing the marundhu includes omam (dried oregano), milagu (black pepper corns), jeeragam (cumin seeds), sukku (dried ginger), sitharathai (poudre – similar to *Alpinia galanga*, but smaller in size), arisi-thippili (long pepper), and kanda-thippili (*Piper retrofractum*).

The “Thiruvathirai” festival is celebrated in the month of maargazhi (mid-December to mid-January – dhanur maasa). The festivities begin 5 days before “Thiruvathirai”

when breakfast would only include tender coconut and bananas offered at the temple. On makeeram, the day before Thiruvathirai, mothers observe ritual fasting for the well-being of their children. During this day, dish called “Ettangadi,” is prepared as an offering to the goddess. Eight different kinds of root vegetables and plantains are fire roasted to prepare this dish. Thiruvathirai is a day of ritual fasting for women and girls. They observe this for the well-being of their husbands and would-be husbands. They consume only dishes prepared with grains such as chama (millets) and wheat and vegetables, bananas, and coconut. The special food offering at this festival is called “kali” a sweet dish prepared with fried rice powder (mashed flour) and jaggery, famously known as the “Thiruvathirai kali.”

Pongal is probably the most important festival of Tamil Nadu and marks the commencement of the harvest season or the Sun’s northward movement. Marking the onset of the new season, the Pongal festival is a great way of ushering in the new by wiping out old clutter and welcoming the year with new crops. The literal translation of the word “Pongal” means “boiling over” or “spilling over” in Tamil, which in Indian tradition is a way of denoting abundance and prosperity. In this festival, milk is boiled over as a sign of plenty. The part most looked forward to during the Pongal festival is the preparation of the Pongal dish called “Venpongal” and “Chakkarapongal.” It is made in

both salt and sweet versions, respectively, predominantly constituting rice, moong dhal, ghee, cashew nuts, raisins, jaggery, and spices. A summary of feasts and fasts in the calendar year in the Hindu religion observed in Tamil Nadu is given in Table 1.

## PREFAST OR FEAST COUNSELING

Patients must be encouraged to visit the doctor and dietitian before major feasts and fasts and discuss goals and strategies. Planning for feasts or fasts in consultation with physicians allows patients to set realistic expectations, prepare for eventualities and find fulfillment in their undertaking.

The “yata sakthi” concept allows the ill and the infirm to avoid fasting. Diabetic patients with poor glycemic control (HbA1c >9%), recent history of ketoacidosis, established microvascular and macrovascular complications, severe associated comorbidity, infections, the pregnant, and the elderly may be counseled against fasting. All patients should be counseled to partake in the spirit of the festival but not necessarily the caloric excess. Patients on insulin must be motivated to do self-monitoring blood glucose (SMBG) and use corrective insulin boluses. Type 1 diabetes mellitus (T1DM) patients must also be counseled on checking urine ketones. Education about symptoms of hypoglycemia, hyperglycemia, and osmotic symptoms is invaluable in preventing catastrophes during festivals.

**Table 1: Summary of festivals in Tamil Nadu highlighting the feasts and fasts**

Months	Festivals
January	The harvest season is celebrated for 3 days as Bhogi, Pongal, and Maattu Pongal, or Kaanum Pongal. The feast mainly consists of preparations made out of freshly harvested rice, jaggery, and latest seasonal vegetables
February	Maha Sivarathiri: People worship Lord Shiva fasting the whole day and not sleeping the whole night. Next day morning only they consume food. In some household sweet potato is cooked with jaggery and taken as food during the night
March	In Tamil Nadu, Karadaiyaan Nonbu is observed during this month. Fasting is done till the time of pooja and then rice cakes made with jaggery and chillies with black gram lentil is partaken with fair amount of butter. Telugu and Kannada New year celebrations also occur during this month. People fast only up to the time of poojas, then dishes like Obattu or Poli made out of maida, jaggery, and ghee forms an important item of the New Year celebration
April	The birth of Lord Rama is celebrated during April as Rama Navami. Aromatic jaggery water called panagam, butter milk and soaked moong dhal with coconut, cucumber and seasoning is partaken. The Tamil New year is also celebrated during this month. Here also Poli is an important ingredient. A dish made of raw mango pieces, neem flowers and jaggery representing different tastes of life is taken as a special dish on Tamil New Year’s day
August	Varalakshmi vratham is celebrated by female of the household. They fast till the time of Pooja and have food items such as idlis and dumplings and keers. They are not supposed to have rice. The birth of Lord Krishna is celebrated during this month. The poojas are done only in the late evenings. People fast the whole day and take food after the pooja. Preparations made out of oil and simple healthy preparations such as flattened rice (aval in Tamil) with jaggery and coconut, curd, milk are the main items taken during these festivals
September	Ganesh Chaturthi is celebrated during this month. Keers, sweet and kara (spicy) lentil dumplings (vada) are all part of the feast. The Chaturthi, 4 <sup>th</sup> day after the full moon of every month, is observed by many people. They fast the whole day. They take food after the pooja in the night. They avoid taking rice
October	Durga Pooja or Navarathri is celebrated during this month. Usually, people observe fast till the time of puja and then enjoy the food. Some people observe fast the whole day and take food only in the night avoiding rice
November	Deepavali is celebrated during this month. All kinds of sweets and savories are enjoyed on this day. A special herbal medicine made out of pepper, cumin seeds, ajwain, ginger, chithrathai, coriander seeds with jaggery and ghee is taken as an antidote for the oily food
December	Karthigai Deepam is celebrated during this month. Items made out of puffed rice with and happamsebrated du with rice flour) are made on this day. Thiruvadhurai or arudra darisanam, the festival worshipping Lord Nataraja at Chidambaram, falls during this month. “Uppuma” like preparation made out of rice and jaggery and a gravy with lentils, seven or nine seasonal vegetables are offered to God during the dawn of the day and eaten

## DIET AND LIFESTYLE RECOMMENDATIONS

Maintaining prescribed caloric intake is key ensuring adequate glycemic control during most festive events. Substitution of sucrose (table sugar) for complex carbohydrates up to 35% of total calories does not affect glycemia or lipid levels.<sup>[11,12]</sup> However, foods high in sucrose are also high in calories and hence pose significant issues. An educated patient may be able to take a small portion of high caloric food during such a festival while cutting down on other sources of calories. A diary of foods consumed is invaluable. Asking a family member to serve as a “warning beacon” on consumption of excess is useful. Partaking a meal with the family and avoiding the temptation to raid the larder when it is full is necessary. As far as possible, daily schedules should be maintained including exercise. SMBG if done should be reviewed by the physician for course corrections for the next year’s festival.<sup>[12]</sup>

The family as a whole can plan for the festival and decide to restrict the number of high caloric dishes. Sweets may be prepared or ordered for ceremonial use mainly to meet the needs of a single consumption or meal. The family may voluntarily and in solidarity with the patient cut down on the caloric value of the feast. When families partake the same meal, it is easy for patients to adhere to their diet.

## ANTIDIABETIC MEDICATIONS

The risk of hypoglycemia is increased with insulin secretagogues such as sulfonylureas (SU) both as monotherapy and in combination.<sup>[12]</sup> Among SU, glibenclamide appears to have a higher risk of hypoglycemia.<sup>[13]</sup> Patients planning for fasting >12 h may be advised to skip SU on the day of the fast and the previous night. In patients who plan prolonged IF, a short-acting meglinitide or a dipeptidyl peptidase-4 (DDP4) inhibitor may be used temporarily. Metformin, pioglitazone, alpha-glucosidase inhibitors, and incretin-based therapies DDP4 inhibitors and glucagon-like peptide-1 analogs can be safely continued, as they have low associated risk of hypoglycemia. While sodium-glucose-linked transporter-2 inhibitors have low risk of hypoglycemia, prolonged fasting with inadequate fluid intake may increase the risk of hypotension and dehydration with the use of these agents.

## INSULIN ADJUSTMENT

Premixed insulin regimens are rigid and are less equipped to handle the erratic food regimens accompanied by fasting during festivals, increasing the risk of both uncontrolled hyperglycemia and hypoglycemia. Patients on premixed

insulin injections may be shifted to a more physiologic basal bolus regimen before the onset of festival season.

In stable T1DM and T2DM patients on insulin, planning to fast for 12–24 h, basal insulin should be continued at around 40–50% of the usual doses.<sup>[13]</sup> Neutral protamine Hagedorn, glargine, or detemir; either of the three long-acting insulin can be used. Premeal short-acting insulin boluses should be avoided during fasting state for obvious reasons. Periodic SMBG and urine ketone monitoring is strongly recommended with written instructions for when to call for help and termination of fast. The appearance of hypoglycemia and or ketosis should prompt discontinuation of the fast with a call to the physician for instructions. A more liberal glucose target of 140–200 may be suggested. Corrective insulin boluses may be required when blood glucose values exceed 250 mg/dl. Short-acting insulin analogs (lispro, glulisine, or aspart) are preferred over conventional regular insulin. Further studies are required to evaluate the impact of IF in the Indian population and their effects on glycemic variability, differences in the use of antidiabetic medications in patients and long-term health benefits or risks in any.

## CONCLUSIONS

Physicians must familiarize themselves with community practices and festivals while taking care of their patients. Newer oral hypoglycemic agents and insulins with lower-risk profiles permit stable patients to participate in fasts without major adverse consequences. With careful planning and education patients may be able to participate in the number of feasts and fasts that dot the Indian calendar with the same vigor and zest. At this point, we have only been able to extrapolate recommendations for South Indian fasting and feasting experiences based on the evidence collated from other communities.<sup>[1]</sup> Well-designed studies are required to examine ethnic variations in the response to fasting, the effect of medications, and the short- and long-term benefits and risks of fasting and feasting in this population.

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## REFERENCES

1. Jaleel MA, Raza SA, Fathima FN, Jaleel BN. Ramadan and diabetes: As-Saum (The fasting). *Indian J Endocrinol Metab* 2011;15:268-73.
2. Latt TS, Sahay R. Nutritional recommendations for type 2 diabetes during Buddhist Lent. *J Med Nutr Nutraceutical* 2013;2:84-5.
3. Mohan V, Sandeep S, Deepa R, Shah B, Varghese C. Epidemiology of type 2 diabetes: Indian scenario. *Indian J Med Res* 2007;125:217-30.

4. Barnosky AR, Hoddy KK, Unterman TG, Varady KA. Intermittent fasting vs. daily calorie restriction for type 2 diabetes prevention: A review of human findings. *Transl Res* 2014;164:302-11.
5. Baumeier C, Kaiser D, Heeren J, Scheja L, John C, Weise C, *et al.* Caloric restriction and intermittent fasting alter hepatic lipid droplet proteome and diacylglycerol species and prevent diabetes in NZO mice. *Biochim Biophys Acta* 2015;1851:566-76.
6. Kroeger CM, Klempel MC, Bhutani S, Trepanowski JF, Tangney CC, Varady KA. Improvement in coronary heart disease risk factors during an intermittent fasting/calorie restriction regimen: Relationship to adipokine modulations. *Nutr Metab (Lond)*. 2012;9:98.
7. Bello NT, Patinkin ZW, Moran TH. Opioidergic consequences of dietary-induced binge eating. *Physiol Behav* 2011 25;104:98-104.
8. Bakhotmah BA. The puzzle of self-reported weight gain in a month of fasting (Ramadan) among a cohort of Saudi families in Jeddah, Western Saudi Arabia. *Nutr J* 2011;10:84.
9. Available from: <http://www.judis.nic.in/supremecourt/imgs1.aspx?filename=10725>. [Last accessed on 2015 Sep 07].
10. Kalra S, Bajaj S, Gupta Y, Agarwal P, Singh SK, Julka S, *et al.* Fasts, feasts and festivals in diabetes-1: Glycemic management during Hindu fasts. *Indian J Endocrinol Metab* 2015;19:198-203.
11. Franz MJ, Powers MA, Leontos C, Holzmeister LA, Kulkarni K, Monk A, *et al.* The evidence for medical nutrition therapy for type 1 and type 2 diabetes in adults. *J Am Diet Assoc* 2010;110:1852-89.
12. Dutta D, Biswas K, Sharma M, Maskey R, Baruah MP, Amin MF. Managing diabetes during Navratris with special focus on Durga pujas. *J Soc Health Diabetes* 2015;3:84-8.
13. Schopman JE, Simon AC, Hoefnagel SJ, Hoekstra JB, Scholten RJ, Holleman F. The incidence of mild and severe hypoglycaemia in patients with type 2 diabetes mellitus treated with sulfonylureas: A systematic review and meta-analysis. *Diabetes Metab Res Rev* 2014;30:11-22.