50 QUESTIONS ON

Ramadan & Diabetes

A guide for people with diabetes planning to observe fasting during the holy month of Ramadan

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Disclaimer: The book offers general suggestions on the management of various medical problems like diabetes during Ramadan fasting. The authors of the book and Providence Healthcare or Providence Medical Specialities and Research Pvt Ltd are not responsible for any harm that would arise from following this advice. Before following these instructions, you should take advice from a qualified medical practitioner.

Providence Endocrine and Diabetes Specialty Centre,
SMRA 104, Prasanth Nagar, Ulloor, Trivandrum 695011, Kerala, India
Email: endodiabetes@gmail.com
Ph: 0471-6662880, 6662888
www.providence.co.in

50 QUESTIONS ON Ramadan & Diabetes

2026 Update

Dr Mathew John, MD, DM
Dr Tittu Oommen, MD, DM
Dr Deepa G MBBS, MHSc(Diab)
Dr Janetha Edwin, MDS
Mrs Rejitha Jagesh, MSc
Mrs Sreekutty S, MSc
Mrs Revathy VK, MSc
Mrs. Anila Nisha, B. Pharm

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This book is dedicated to all people living with diabetes. We have learnt a lot by being your caregivers. By caring for you, we have been healed.

Why this book ?

Fasting during the holy month of Ramadan is one of the five main pillars of Islam, and Ramadan falls in the ninth month of the Islamic lunar calendar. All healthy Muslims are expected to fast during Ramadan.

With a high prevalence of diabetes in our country, at least 20 % of all fasting adults are likely to have diabetes. A significant proportion of people with diabetes will also have heart disease, kidney disease or other diabetes-related complications. It would be ideal for all people with diabetes to have a pre-Ramadan medical assessment to see if they are medically fit to undergo fasting. However, most people do not seek a structured evaluation before fasting. This places them at a higher risk of complications.

Over the past 20 years of endocrinology and diabetes practice, we have encountered numerous questions from our clients regarding various aspects of fasting. We try to address this in this book.

This compendium of 50 questions addresses the most common questions raised by patients and their caregivers. We have made every effort to ensure the authenticity of the answers, in accordance with current guidelines, religious practices, and the scientific literature. We hope that people with diabetes find this helpful in clearing their doubts about medical management during Ramadan fasting. We thank Prof. P.K. Jabbar, Head of Endocrinology at Medical College, Trivandrum and Dr Anas A. Majeed, Neurologist at Medeor Hospital, Dubai, for carefully reviewing the work and offering their suggestions.
In this 2026 edition, we have revised several questions and answers for clarity and included a few new questions to address challenges we have faced in recent years.
This compendium is not a substitute for sound medical judgment by a physician. We would like you to please discuss these with your physician and choose the appropriate course of medical care.

We wish you a safe and holy Ramadan.

Dr Mathew John, **Dr Tittu Oommen,** **Dr Deepa G,** **Dr Janetha Edwin**
Mrs Rejitha Jagesh, **Ms Sreekutty S,** **Mrs Anila Nisha,** **Ms Revathy VK**

Foreward

Ramadan is the month of spirituality, brotherhood, sacrifice, and peace. When a person is hungry he will be able to feel the hunger of others which would enhance the feeling of charity and forgiveness. Such mental discipline rekindles the importance of brotherhood and harmony.

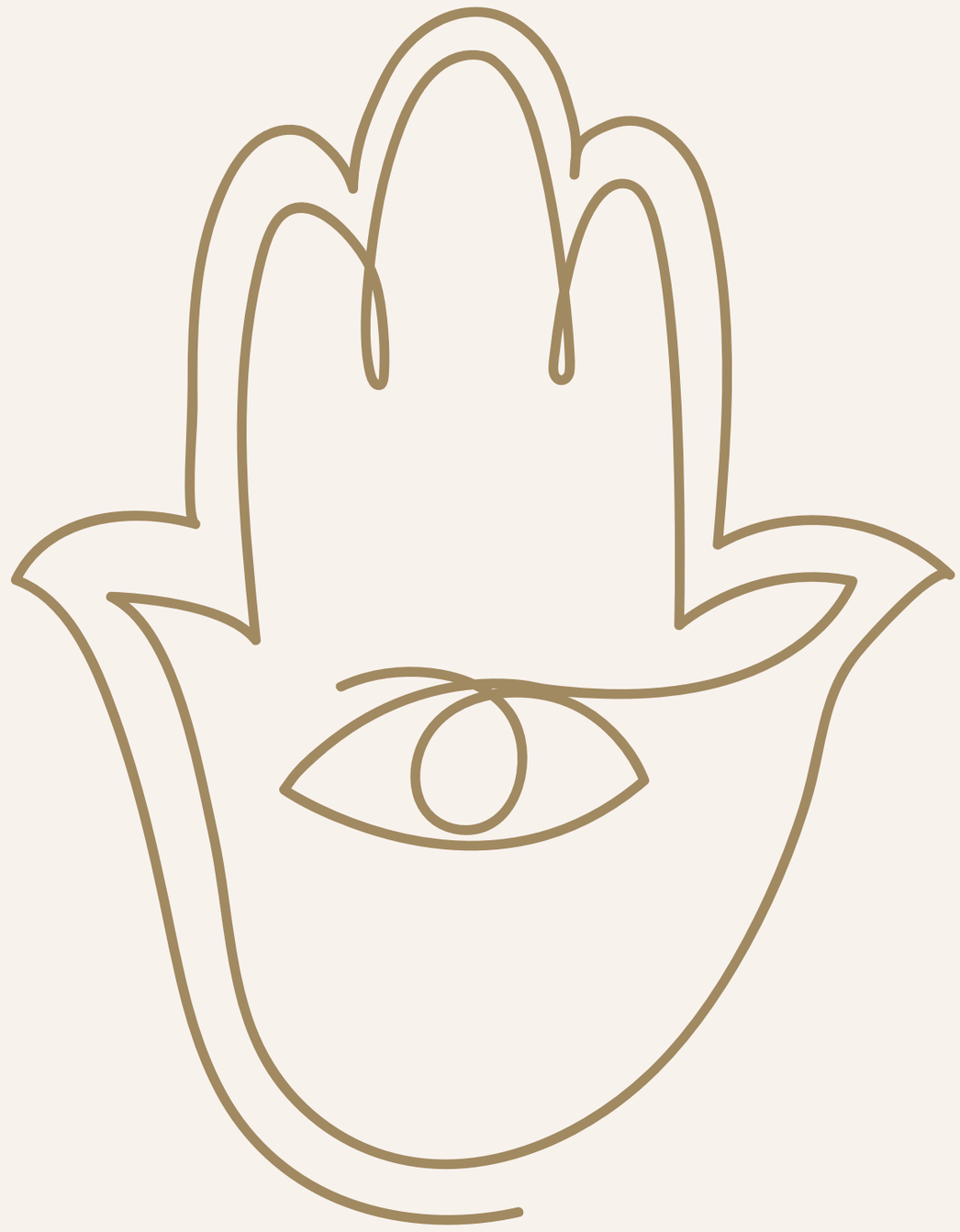
Maintaining healthy food habits helps to reap more benefits from this holy month. This Ramadan booklet prepared by Dr Mathew John and the team at Providence Endocrine and Diabetes Specialty Centre, India is a comprehensive compendium that makes it easy for all those who fast to have a rewarding month. By complete submission to the almighty, with fasting, prayers and reading Quran we will be able to nurture our mental health. At the same time, there are a lot of doubts and concerns about physical health.

This book facilitates us to maintain physical health through the period of fasting in compliance with the religious rules and regulations. The team of authors have put in quality time and effort into this sincere gesture.

As a person who had fasted during Ramadan, I find this work very useful in addressing many important questions and I am sure you will be convinced as you go through this book. The glossary will be helpful to clarify some technical words used in the book.

I honestly feel that this attempt is unmatched and I congratulate Dr Mathew John and the authors for this noble work. I expect that the authors would bring in translations of the book in local languages so that many more people will be benefitted by it.

Dr Anas Abdul Majeed MD, DM, PGDHML
Consultant Neurologist
Medeor Hospital, Dubai
Assistant Professor
University of Sharjah, UAE



Introduction

Ramadan is the 9 th month of the Lunar calendar. The lunar calendar has 355 days; therefore, Ramadan occurs 10 days earlier each year. The Ramadan fast begins at dawn and ends at dusk. In most places, the Ramadan fast lasts 12-14 hours, though it can be up to 20 hours depending on latitude.

There is a pre-dawn meal called Suhoor(Sehri/Athazham). The first of the five prayers (Fajr/Subhi) is offered as dawn breaks. Most people would break their sleep to have Suhoor. Afterwards, they go back to sleep and wake up later for their daily tasks. The fast ends with the Maghrib prayer just after sunset. Most people break their fast with dates, and a more elaborate meal (Iftar) follows. After Iftar, Muslims would go to their mosques to offer the Isha prayer, the last of the five daily prayers. The day ends with a special voluntary prayer, Taraweeh, offered by the congregation as they recite the Qur'an, the holy book of Islam. At the end of Ramadan, Eid al-Fitr, a feast that celebrates the breaking of the fast, takes place.

People with diabetes face various challenges during Ramadan fasting. For most people, medications are taken with or without food and adjusted based on the timing of meals and exercise. Drugs like insulin and sulphonylureas are likely to cause low blood glucose if their ingestion is not in keeping with their food intake. Furthermore, they are at risk of dehydration due to insufficient fluid intake, especially when external temperatures are high.

People with diabetes who fast have doubts about adjusting their medicines and insulin. In our experience, it is pretty common to see people stopping essential drugs like statins and antihypertensives, thinking that cholesterol levels and blood pressure levels would come down with reduced food intake.

We have tried to answer many questions for people with diabetes who fast in clear, straightforward language. We have used various journal articles and books to prepare this write-up. Please feel free to email us your doubts and queries if something is unclear or if you have additional questions. Our email is endodiabetes@gmail.com

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Basics
Fitness for fasting

1. Who can fast safely?

People with type 2 diabetes at low risk of developing complications according to their current disease state are allowed to fast. This includes individuals with a short duration of type 2 diabetes (< 10 years), reasonably well-controlled glucose levels (HbA1c < 7.5 %), no major chronic diabetes complications, and no recent hospitalisation for hyperglycaemia or hypoglycaemia. However, if individuals choose to fast, they should be cautious and discontinue fasting if any problems arise. Likewise, those with uncontrolled type 2 diabetes, type 1 diabetes, and people with diabetes-related complications belonging to the high-risk category should refrain from fasting. People with diabetes who plan to fast should consult their treating physicians to discuss the risks and safety of fasting.

2. What happens to your body during fasting if you have diabetes?

When you fast, the body initially uses glucose from food and from the liver's glycogen stores. Subsequently, the body starts breaking down the fats to provide energy. Simultaneously, the body will begin producing glucose from non-carbohydrate sources. Prolonged fasting also results in protein breakdown.
However, since Ramadan fasting lasts around 12-14 hours, significant metabolic changes are not expected in healthy people. In people with diabetes, there may be varying degrees of insulin deficiency, insulin resistance, or both. People with diabetes who are insulin-deficient deplete liver glucose stores more rapidly and are more likely to break down fats into fatty acids, which subsequently form ketone bodies. This can lead to a severe condition called diabetic ketoacidosis.

3. What is the need for a pre-Ramadan medical assessment?

A medical check-up conducted prior to observing the Ramadan fast is scientifically termed a pre-Ramadan assessment. This is very important for people with any medical problems before they observe a fast. A pre-Ramadan medical assessment should ideally be conducted 6–8 weeks before the start of Ramadan. Here, the treating doctor will obtain a detailed medical history, do the required investigations and perform a risk assessment. (See table) This risk assessment will serve as the basis for classifying individuals planning to fast as low, moderate, or high risk. The doctor will advise if fasting is safe (low or moderate risk) or not (high risk). ***See Appendix 1***

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Furthermore, during this visit, the physician will develop strategies for dose modifications and treatment regimen adjustments. Next, the dietician or diabetes educator will provide Ramadan-focused education and nutrition advice. Following this, individuals who decide to fast will need to adhere to guidance on managing their diabetes during Ramadan, including changes to glucose monitoring schedules and medication dosing adjustments. Finally, after Ramadan ends, it is recommended that a post-Ramadan follow-up be conducted. A follow-up after Ramadan will help obtain crucial information about the person's successes and challenges during the fasting period

4. What are the check-ups required before fasting?

Everyone with diabetes who plans to fast should undergo a pre-Ramadan check-up. This check-up assesses each person's glycemic control, diabetic complications, and safety during fasting. The treating doctor will investigate the glucose control, risk and severity of diabetes complications, risk of possible hypoglycemia during fasting, and the potential for worsening complications. The check-ups include tests of glucose control, kidney and liver function, assessment of ocular issues, and cardiovascular disease screening.
Based on these reports and clinical evaluation, the doctor will help classify your risk for fasting. People at low risk can fast without increasing the risk of disease progression. Those with high risk should preferably avoid fasting**.**

5. Can a newly diagnosed person with diabetes fast?

Suppose a person has been diagnosed with diabetes recently, and his glucose levels are only marginally elevated, and HbA1c is below 7%. In that case, he can continue fasting and take the prescribed medications. However, frequent monitoring of blood glucose is required, as the body is gradually adapting to the new medications and diet and may develop hypoglycemia.
The changes in the dietary pattern during Ramadan can also increase the blood glucose level in these people with newly detected diabetes. Physicians treating such patients should prefer medications with a low risk of causing hypoglycemia. If there is extreme fatigue, fasting should be discontinued, and blood glucose should be checked more frequently.
On the other hand, if you are diagnosed with very high blood glucose levels (fasting blood glucose>200 mg/dL or HbA1c> 9%), you should avoid fasting, as you are at high risk of developing complications.

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02 Glucose testing during fasting

1. Can I test my blood samples during fasting?

People with diabetes must self-monitor their blood glucose to reduce the risk of developing high and low blood glucose levels. Further, people may require surgical procedures or blood draws during the holy month of Ramadan. This month, people with diabetes may develop complications such as electrolyte imbalances (e.g., low sodium), hyperglycemia, hypoglycemia, infections, or kidney disease. These illnesses may be life-threatening if not detected early and treated appropriately. Blood draws or intravenous infusion of fluids may be required urgently to reverse these potentially life-threatening complications. Blood draws are allowed during Ramadan fasting if they are for a medical purpose and are advised by the doctor. Intravenous infusions of medicines for treatment are permitted during Ramadan

2. Is there a need to do SMBG (self-monitoring of blood glucose), and is it advisable?

There is reasonable consensus that pricking the skin for blood glucose testing does not invalidate the Ramadan fast. Checking blood glucose levels is an essential component of safe diabetes care during Ramadan fasting. Individuals should be provided with the tools and knowledge to self-monitor blood glucose (SMBG). This can help people effectively self-manage their disease and identify and prevent episodes of hypoglycemia and hyperglycemia. This is particularly important during Ramadan, when dietary and lifestyle changes can increase the risk of both hypoglycemia and hyperglycemia. Additionally, by regularly measuring blood glucose, people with diabetes may become more aware of their eating habits and how these affect their blood glucose levels. Self-monitoring of blood glucose can help identify hypoglycemia, aid emergency treatment and help save lives.

3. How often should one do SMBG during fasting?

It is now accepted that self-monitoring blood glucose with a glucometer does not invalidate the fast. People with diabetes should be educated about the frequency of monitoring during the pre-Ramadan education. The number of times blood glucose should be monitored varies according to the patient's risk category. Regular glucose monitoring may not be required for individuals with well-controlled blood glucose levels and on medications that do not cause hypoglycemia (E.g., Metformin, SGLT2 inhibitors, DPP-4 inhibitors). If you have well-controlled diabetes on oral drugs that cause hypoglycemia or insulin, you need to check at least two times daily. If glucose levels are not well controlled and you have diabetes complications, you need to check your glucose more frequently. An ideal 7-point glucose profile recommendation by IDF is as follows

- Ø pre-dawn meal (Suhoor)
- Ø morning
- Ø midday
- Ø mid-afternoon
- Ø pre-sunset meal (Iftar)
- Ø 2 hours after Iftar
- Ø Any time that you feel unwell

03 Medicines and fasting

1. What are the effects of different types of anti-diabetic medications in a person who is fasting?

In the management of diabetes, various types of drugs are used to reduce blood glucose. From the risk of causing low blood glucose (hypoglycemia), medicines can be classified as 1. Medicines likely to cause hypoglycemia, and 2. Medicines less likely to cause hypoglycemia.

Medicines likely to cause hypoglycemia include sulphonylureas (E.g., Glimepiride, Gliclazide, Glibenclamide) and Insulin. Medicines less likely to cause hypoglycemia are DPP4 inhibitors (Sitagliptin, Vildagliptin, Saxagliptin, Linagliptin), SGLT2 blockers (Empagliflozin, Dapagliflozin, Canagliflozin), Metformin, Pioglitazone, Voglibose, and Acarbose. The group of injectable and oral drugs belonging to the class of GLP-1 receptor agonists/ dual agonists also do not cause hypoglycemia when used alone. These drugs include Liraglutide, Dulaglutide, Semaglutide and Tirzepatide.

People taking insulin or sulfonylureas should be cautious about hypoglycemia during Ramadan fasting. People treated with insulin exhibited the most significant fluctuations and the highest risk of hypoglycemia during Ramadan fasting. However, a pre-Ramadan check-up, dose adjustment of insulin, and regular glucose monitoring can help ensure safe adherence to the Ramadan fast.

2. I am taking SGLT2 inhibitors (e.g. Jardiance), and the doctor has advised me to take more water along with this tablet. Will I face some problems during fasting?

SGLT2 inhibitors are medications that promote glucose excretion in the urine. They provide excellent protection for the kidneys and heart and regulate weight and blood pressure. Anyone using these drugs as part of their stable diabetes medicines can continue using them. The person fasting should ensure that an additional 500 ml (2 glasses) of water is consumed daily during non-fasting periods.

It is preferable not to initiate SGLT2 inhibitors near the onset of the Ramadan fast. In addition, it is preferable to avoid combining diuretics and SGLT2 inhibitors, as this increases the risk of dehydration. People with diabetes should be warned of the signs of low blood pressure and discontinue the SGLT2 inhibitor if they develop vomiting or diarrhoea. If you have had recurrent vaginitis or urinary infection, do not start SGLT2 inhibitors, especially around the time of Ramadan fasting. It would also be helpful to do home BP monitoring if you are on multiple antihypertensives, diuretics, and SGLT2 inhibitors.

3. If my blood sugars are under control with current medicines, can I fast, and are any precautions needed?

It depends a lot on your medical conditions and the type of drugs you are currently using. If you have medical conditions like unstable or acute heart disease, low kidney function, or dangerous respiratory or gastrointestinal disease, it is preferable not to fast. Your physician is the best person to decide on that.

If you are well controlled on drugs like sulphonylureas (Glimepiride, Gliclazide or Glipizide, Glibenclamide), you have a higher risk of hypoglycemia on fasting. Insulin also increases the risk of hypoglycemia. It would be best to discuss dose modifications for medications and insulin with your physician. If you are on metformin, DPP 4 inhibitors (e.g., sitagliptin, linagliptin, or vildagliptin), SGLT2 inhibitors, or pioglitazone, you have a low risk of hypoglycemia. You can undertake fasting with minor or no adjustment to medications.

4.**Can I use anti-obesity injections like semaglutide and tirzepatide during Ramadan?**

Yes, if you are already on semaglutide or tirzepatide, you can usually continue them safely while fasting, with some precautions. It is preferable not to initiate these medications near the beginning of Ramadan and not to increase the dose during the fasting month, as side effects such as nausea or vomiting are more likely during the titration phase.
During Ramadan, try to:

- Eat small portions at iftar and suhoor, and stop eating when you feel comfortably full. This helps reduce stomach discomfort and nausea.
- Prioritise protein (dal, eggs, lean meat, curd/paneer) and fibre, and avoid very heavy, oily and sugary foods which can worsen gastric symptoms.
- Maintain good hydration between iftar and suhoor by drinking plenty of water and other sugar-free fluids, and limit caffeine.

If you develop troublesome stomach symptoms (persistent nausea, vomiting, abdominal pain, severe bloating) or feel dizzy, weak, or unwell during the fast, you should break the fast and contact your doctor for advice.

5.How should I take oral semaglutide (Rybelsus) during Ramadan?

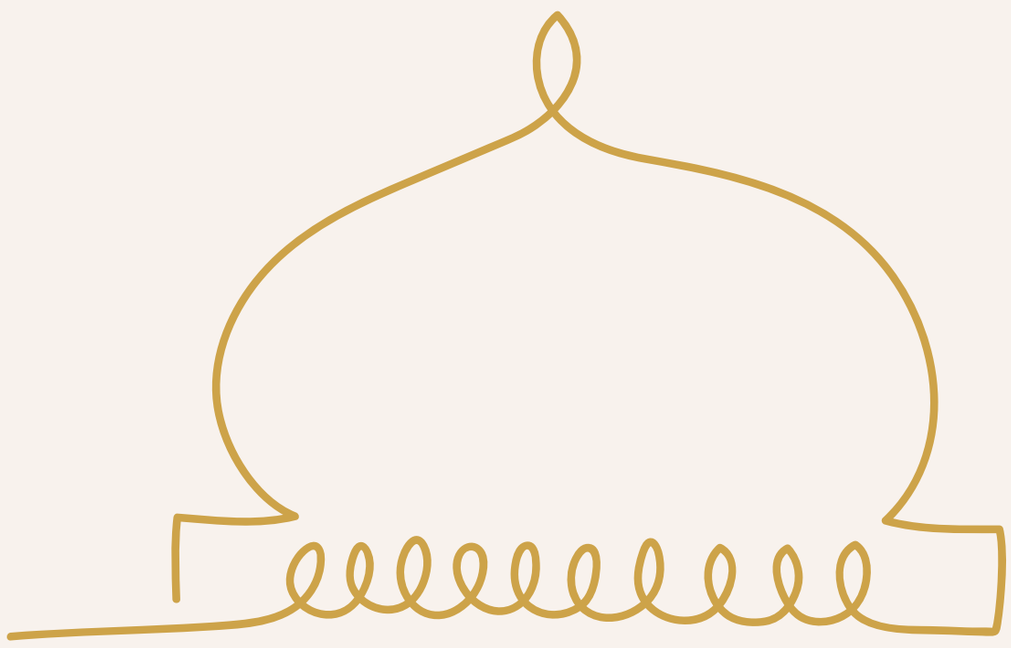
Rybelsus has special instructions: it must be taken on an empty stomach with up to 120 mL of plain water, and you must wait at least 30 minutes before eating, drinking anything else, or taking other tablets. This can be challenging in Ramadan, but real-world studies in people with diabetes who fasted during Ramadan show that most were able to continue Rybelsus and achieved good glucose and weight control without new safety concerns.
The preferred option is to keep the same early-morning routine you had before Ramadan:

- Take Rybelsus early in the morning before suhoor, with up to 120 mL water,
- Wait at least 30 minutes, then eat suhoor.

If this is not practical, another option is:

- At iftar, break your fast first with water only (up to 120 mL) and take Rybelsus,
- Wait 30 minutes, then eat your main iftar meal.

Your doctor should avoid starting Rybelsus for the first time very close to Ramadan and should usually avoid increasing the dose during the fasting month, to reduce the risk of new gastrointestinal side effects.



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6. I have Type 1 diabetes and am on twice-daily premixed insulin. Is it safe to observe fasting?

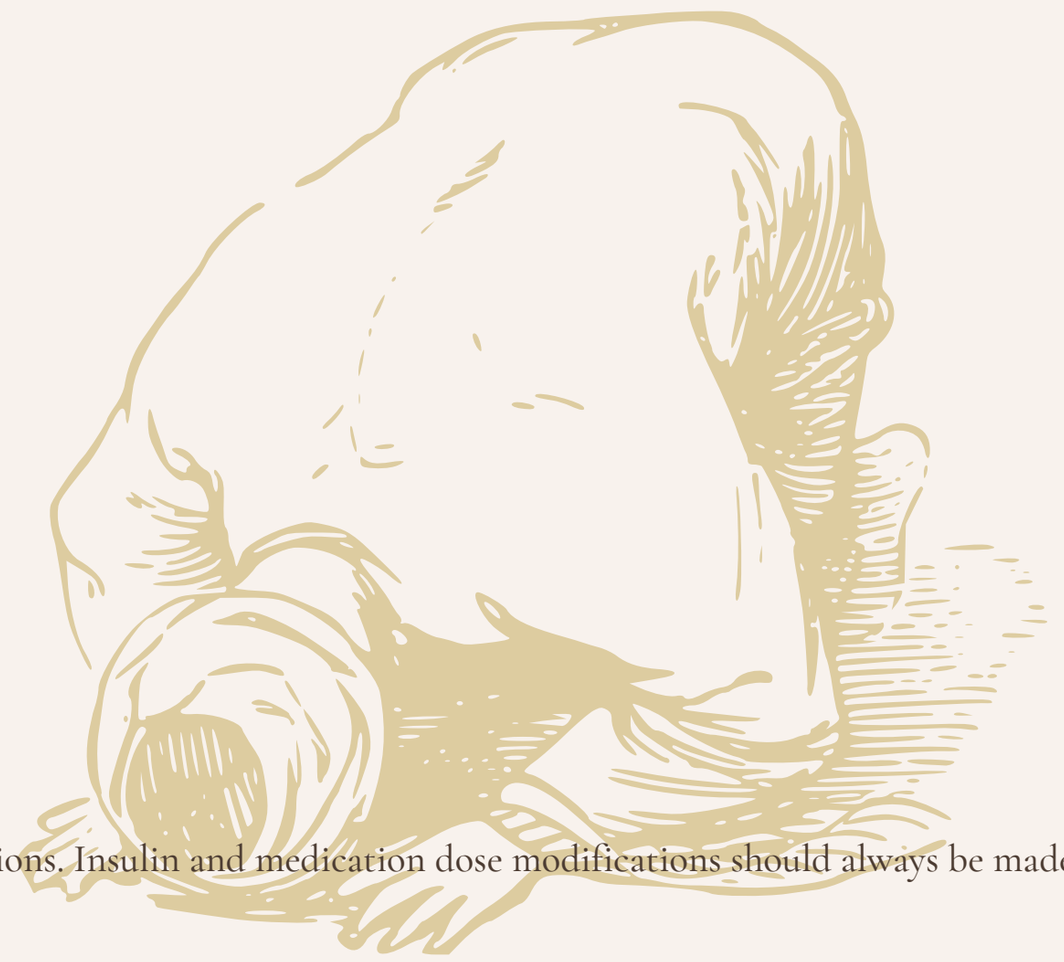
Although not recommended, many people with type 1 diabetes use premixed insulin for the convenience of using just two injections. Commonly available premixed insulins include Human Mixtard 30/70 (and 50/50), Huminsulin 30/70 (and 50/50), Insuman Comb 25, Novomix 30 (and 50), and Humalog Mix 25 (and 50). Although not premixed, Ryzodeg also falls into this category.

Premixed insulin regimens in type 1 diabetes are incompatible with safe fasting and should be discouraged. It is always recommended to transition to a basal-bolus regimen (combination of short-acting and long-acting insulin) a few months before Ramadan. However, patients who insist on continuing a premixed insulin regimen can do so with appropriate adjustments and blood glucose monitoring, provided that their blood glucose is controlled before Ramadan. It is also advisable to switch to newer analogue insulins to reduce the risk of hypoglycemia. Patients should also be instructed to take the usual pre-Ramadan morning insulin dose at Iftar. The pre-Ramadan evening dose should be reduced and taken at Suhoor*. In addition, patients should be encouraged to monitor their blood glucose at least 2-3 times daily and whenever hypoglycemic symptoms develop. These decisions are personalised and decided by the doctor.

7. I am a person with Type 1 diabetes on treatment with four times insulin; can I skip two doses and fast?

In Type 1 diabetes, fasting is recommended after assessing the risk of hypoglycemia, pre-Ramadan glucose control, prior fasting experience, ability to monitor blood glucose, and motivation. It is also advisable to switch to newer analogue insulins to reduce the risk of hypoglycemia. Mealtime doses during the fasting period should be adjusted based on the meals consumed. Doses of long-acting insulins such as Glargine should be reduced by 30-40% and should be taken at Iftar. The mealtime insulin dose should remain the same around Iftar, and the amount at Suhoor may be reduced by 30-50%.* It is recommended that insulin doses be adjusted based on meal carbohydrate content.

Although these dose adjustments may seem quite overwhelming, your physician can help you adjust the doses and advise on appropriate self-monitoring of blood glucose.



*These are broad recommendations. Insulin and medication dose modifications should always be made in consultation with the treating physician.

8. I have been diagnosed with Type 1 diabetes mellitus (T1DM) for two years and am planning a pregnancy. Is it safe to fast?

The general opinion is that people living with T1DM are at risk of complications when fasting and can be exempted. Especially women with type 1 diabetes planning pregnancy need good glucose control before conceiving. Fasting can be associated with an increased risk of dehydration, hypoglycemia, and hyperglycemia, including diabetic ketoacidosis.

Women with T1DM planning for pregnancy should have a pre-Ramadan assessment done 6-8 weeks before the start of Ramadan. Fasting should be considered when they have a low to moderate risk for fasting. They can safely observe fasting if glucose control is near normal, they have no episodes of severe hypoglycemia or hypoglycemic unawareness in the past, and no diabetes-related complications are present. The woman should also be encouraged to follow a healthy diet and a physically active lifestyle. In addition, they should be educated on the importance of frequent SMBG or continuous glucose monitoring (CGM).
Following a period of fasting, the person should undergo an evaluation of blood glucose control stability before planning pregnancy.

9. What are the precautions to be taken by people who are on insulin pumps during fasting?

The use of insulin pumps among people with type 1 diabetes has reduced the risk of hypoglycemia, improved glycemic control, and enhanced quality of life. In addition, from the perspective of fasting during Ramadan, the insulin pump offers several advantages: it allows basal insulin delivery to be adjusted during fasting periods and bolus doses to be tailored to carbohydrate intake.

People using insulin pumps can reduce their risk of hypoglycemia from prolonged daytime fasting and hyperglycemia from nighttime eating by adjusting the pump's settings. Both the basal and bolus settings need to be adjusted during the fasting period. Reduce the basal insulin dose by 20-35% in the last 4-5 hours before Iftar, and increase the dose by 10-30% after Iftar through midnight. *Ideally, the mealtime insulin bolus should be calculated using the usual insulin-to-carbohydrate ratio and the insulin sensitivity factor. Meals higher in fat content may require an extended or combined bolus, as higher fat content delays the postprandial rise in blood glucose.

People with type 1 diabetes using an Artificial Hybrid Closed Loop (AHCL) will benefit during Ramadan due to fewer challenges with basal-dose adjustments.
It would be best to consult your treating team to determine any modifications to pump settings well before starting the fast. In addition, a regimen of frequent or continuous glucose monitoring should be adopted to achieve optimal results.

*These are broad recommendations. Insulin and medication dose modifications should always be made in consultation with the treating physician.

10. I have diabetes in pregnancy and on twice-daily insulin; can I fast?

Pregnant women with diabetes have a higher risk than usual during fasting. Pregnant women with poor glycemic control should avoid fasting. However, women who have diabetes and maintain reasonable glucose control without hypoglycemia and other obstetric complications can consider fasting under strict medical supervision.

Pregnant women with diabetes planning to fast during Ramadan should discuss this with their obstetrician and physician well in advance. A comprehensive assessment should be conducted, including a fasting risk assessment. Pregnant women must be advised that, regardless of their fasting status, they should maintain blood glucose targets during pregnancy: fasting between 70-95 mg/dL and postprandial < 120 mg/dL.* Using a continuous glucose monitoring system can help identify hypoglycemia during this period.

Women on twice-daily insulin should shift the morning pre-Ramadan dose to Iftar and take 50% of the pre-Ramadan evening dose at Suhoor.* In addition, they should be encouraged to do 5–7-point blood glucose monitoring. Since poor glucose control and hypoglycemia can be harmful to both the mother and baby, abandon fasting if glucose control becomes a challenge.

11. I am a person with type 2 diabetes on twice-daily insulin and tablets. Can I take fast and continue with the same doses?

All individuals planning to fast should have a pre-Ramadan consultation with their doctor 6-8 weeks before Ramadan. Some tablets may require dose or timing adjustments. The twice-daily insulin doses must be adjusted accordingly. The Iftar dose can be continued, and the Suhoor dose must be reduced by 20-50%. Patients on twice-daily insulin should aim for at least 2-3 daily blood sugar readings.

12. I am taking only once daily insulin and tablet. Is it safe to fast?

All individuals planning to fast should consult their physician before Ramadan. During this visit, in addition to other medical checkups, your physician will assess your risk of hypoglycemia and the safety of fasting. Some tablets may require changes in dose or timing. The insulin dose will also need to be adjusted in conjunction with the timing of administration. It is recommended that patients taking once-daily insulins like NPH, detemir, glargine, Toujeo, or Tresiba reduce the dose by 15-30% and take it at Iftar. It is also recommended to perform at least 2-3 blood glucose measurements daily.
Since these dose changes are not fixed, frequent glucose monitoring and reporting to your diabetes team will help adjust medications and insulin.

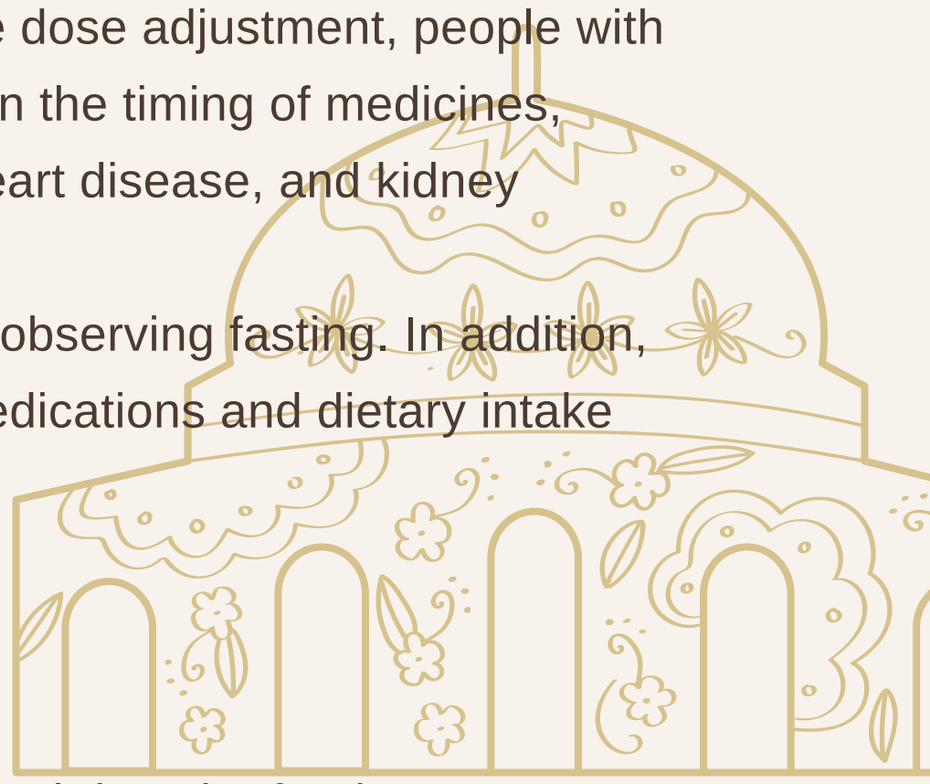
*These are broad recommendations. Insulin and medication dose modifications should always be made in consultation with the treating physician.

04 Complications Medical diseases

1. What happens to complications during Ramadan?

People with diabetes observing Ramadan are prone to diabetes-related complications. Scientific studies have not shown a consistent increase in diabetes-related admissions during Ramadan fasting. People with type 1 diabetes and type 2 diabetes on insulin can develop major complications like DKA (Diabetic ketoacidosis), which may require urgent hospital admission. Due to changes in the food timing and inappropriate dose adjustment, people with diabetes can also develop low blood glucose. Due to changes in the timing of medicines, food intake, and hydration, other diseases like hypertension, heart disease, and kidney disease are likely to worsen.

All efforts should be made to consult the treating doctor before observing fasting. In addition, relevant tests should be conducted, and a plan for adjusting medications and dietary intake should be developed well before the start of the fast.



2. Is it normal to find ketones in urine during fasting?

Yes. It is normal to find ketones in urine while fasting. On a typical day, the food we consume contains carbohydrates that are digested into glucose, which is then absorbed into the bloodstream. This glucose provides the energy for our everyday activities. The additional glucose is stored in the liver and muscles. During a fasting day, because glucose is not ingested, glucose stored in the liver and muscles is used to maintain blood glucose levels. However, with prolonged fasting, this alone is insufficient, and fat is broken down to supply energy. Ketones are produced as by-products during fat metabolism.

In general, if your glucose levels are normal and you feel fine, these ketone levels are not dangerous. However, if your blood glucose is more than 200 mg/dl or you feel tired, have vomiting, or are giddy, you should consult your doctor. If you have a fever, dehydration, or any infection, your doctor may place greater emphasis on urinary ketones and advise you to discontinue fasting.

3. For a person with repeated episodes of hypoglycemia, is it advisable to fast?

Fasting during Ramadan for people with diabetes carries considerable challenges. One of the main risks reported with fasting is hypoglycemia. The risk of hypoglycemia should be assessed individually for each person. It is not advisable for a person with repeated hypoglycemia to fast.

Most people with low blood glucose may experience sweating, tremors, palpitations, and hunger. However, some individuals do not experience symptoms of hypoglycemia despite blood glucose levels below 70 mg/dL. This is known as "hypoglycemia unawareness." People with hypoglycemia unawareness are advised not to undergo fasting. Sometimes hypoglycemic episodes may be severe and frequent. Those who have experienced severe hypoglycemia within the last three months should refrain from fasting.

4. I had repeated admissions due to high blood sugars, is it advisable to take fasting?

People with unstable blood glucose (hypoglycemia or hyperglycemia), diabetic ketoacidosis, hyperglycemic hyperosmolar coma, or severe hypoglycemia should avoid fasting. Since you had repeated episodes of high glucose levels requiring hospitalisation, you will likely be on a complex insulin regimen, regular glucose monitoring, and a stable and controlled meal pattern. Therefore, it is preferred that you avoid fasting. Prolonged fasting may lead to significant blood glucose fluctuations and, in turn, hospitalisation.

5. I have been admitted recently following leg cellulitis, but now don't have any related issues. Can I fast?

Cellulitis is a common infection of the skin and the tissues beneath it. Most people with cellulitis will require hospital admission and treatment with intravenous antibiotics and multiple insulin doses. Furthermore, recent hospital admission for cellulitis or any other infection is typically associated with higher blood glucose levels, kidney problems, and subsequent poor appetite and reduced food intake.

Even if cellulitis has subsided, blood glucose levels may remain elevated and continue to fluctuate. High glucose levels can trigger another infection. So, it is better to avoid fasting. It is also likely that your appetite may be poor, and you have gastric problems associated with antibiotics and pain relief medicines. Hence, it would be safe not to observe fasting.
However, if fasting is observed, you should check blood glucose levels frequently to avoid significant glycemic fluctuations and discontinue fasting if blood glucose levels are elevated or low.

6. I have heart disease and diabetes. Is it safe to fast?

It is generally safe to observe Ramadan fasting even if you have chronic stable heart conditions like stable coronary artery disease or heart failure. Scientific studies have shown no increased risk of disease progression with fasting.
However, suppose you had a recent hospitalisation with acute coronary artery disease. (acute myocardial infarction, unstable angina), angina at rest, heart failure, or dangerous arrhythmias. In that case, it is preferable to refrain from fasting. You are likely to be on multiple drugs distributed throughout the day, measure water intake, and tailor and restrict physical activity in these conditions**.**
Fasting increases the risk of hypoglycemia. Low blood glucose can be dangerous and trigger heart problems.

7. I was admitted recently following a minor stroke. Can I fast?

There is no increased harm in fasting during Ramadan if you are reasonably functional after the stroke. The person with a stroke who is observing a fast should ensure adequate hydration by increasing water intake. Antiplatelet drugs, statins, and diabetes-related medicines should be taken at appropriate times.

If you have experienced a major stroke, you may likely have difficulties moving around, swallowing, or expressing your need for food and water. You may be on a fixed, timed intake of food and water. You may also be undergoing timed physiotherapy. Hence, you should avoid fasting. If you are on warfarin or newer oral anticoagulants, you should talk to your physician before observing fasting.

8. Can people with diabetic kidney disease fast?

People with kidney disease may experience worsening kidney function if they become dehydrated, alter protein, phosphorus, or potassium intake, experience changes in blood glucose, or experience changes in blood pressure. In addition, individuals with kidney disease may receive instructions on fluid intake and may use diuretics to manage fluid status. Because many of these factors can be affected by prolonged fasting, individuals with more severe kidney disease should refrain from fasting.

Individuals with advanced kidney disease, acute renal failure, or those undergoing dialysis should refrain from fasting. People who have undergone renal transplantation should observe fasting only with strict guidance from nephrologists on monitoring renal functions and drug levels. Anyone who decides to fast with chronic kidney disease should monitor creatinine and electrolytes and plan clinical visits with the nephrologist every 7-10 days during the fast.

9. If I am suffering from repeated migraine episodes, can I fast?

According to scientific studies, there is a 3-fold increase in the risk of migraine during Ramadan fasting. Migraines can be triggered by stress, hunger, low blood glucose levels, dehydration, irregular sleep patterns, and acidity. When you observe fasting for more than 12 hours, these problems can arise, leading to another episode of migraine headache. However, if you plan to fast, you must continue taking the prescribed medication.

Caffeine withdrawal can lead to increased migraines. If you regularly take caffeine, it is good to have a strong coffee at Suhoor. Increase water intake during non-fasting hours to prevent dehydration. Ensure that you get enough sleep and reduce smartphone use. If migraine episodes worsen, consider discontinuing the fast.

05 Fasting and other medicines

1. Should I avoid statins during Ramadan fasting?

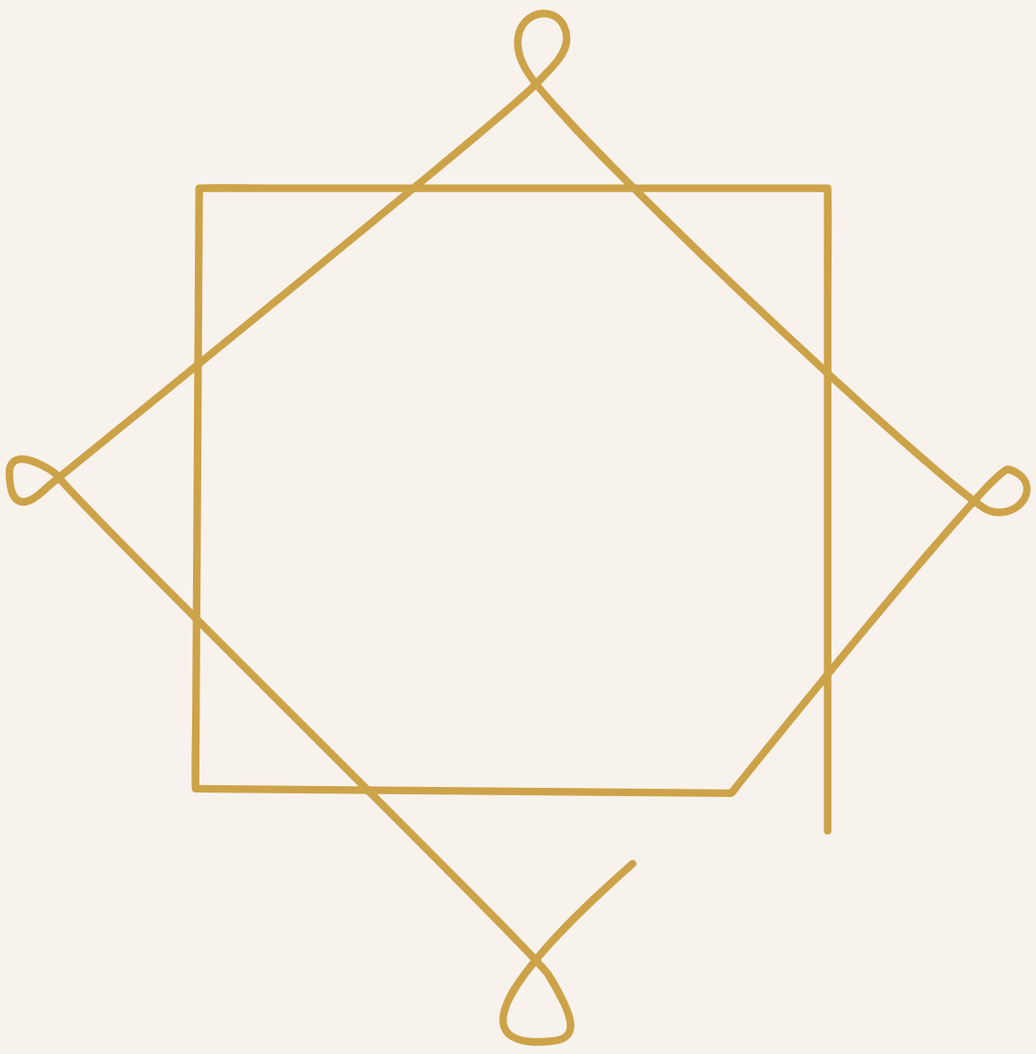
Heart disease and stroke are common causes of death in people with diabetes. Studies show that although there is no increased risk of acute heart disease during fasting, there is a slightly increased risk of stroke. Most people take statins at night; therefore, there should not be any problems with taking the medication. However, some of our clients report reducing food intake during fasting and expressing a preference to avoid statins. However, statins lower cholesterol and reduce the risk of heart disease and stroke. Hence, statins must be continued during fasting.

2. Should I stop Aspirin during fasting?

You are most likely taking Aspirin or a blood thinner since you are at high risk for coronary heart disease, stroke, blood-clotting diseases, blood vessel blockage, or abnormal heart rhythm. You might be taking it after coronary or peripheral stenting or bypass surgery. These drugs should not be discontinued. It was found that people on warfarin, a blood thinner, had changes in the prothrombin time when they fasted. People on antiplatelet drugs like clopidogrel or Aspirin can fast without many health problems. However, those on warfarin, dabigatran, rivaroxaban, or apixaban should discuss with their physician before fasting.

3. Should I change the dose or stop antihypertensive (BP medicines) during Ramadan fasting?

People with hypertension may experience a mild reduction in systolic and diastolic blood pressure while fasting. This may not be low enough to cause symptoms or adverse health effects. However, people with hypertension using diuretics (e.g., chlorthalidone, hydrochlorothiazide, indapamide, frusemide, or torsemide) for controlling blood pressure should be more cautious. They may experience more drops in blood pressure. It would be beneficial to perform home blood pressure monitoring while fasting. People taking these medications should contact their healthcare provider if a home BP monitor shows a blood pressure below 100/70 mm Hg. It is not advisable to change antihypertensive medications during fasting without the health care provider's advice.



4. Can I take my vaccinations during fasting?

Many people with diabetes receive other vaccines, such as Hepatitis B, the flu vaccine, and the Pneumococcal vaccines. During the COVID pandemic, various Islamic religious leaders have agreed that taking vaccines during Ramadan fasting is permissible.
Further, there may be family and social events where people come together during this time. Vaccines against the flu reduce the transmissibility of these diseases. Therefore, the vaccine can help protect not only yourself but also your dear ones.

5. When should I take my thyroid medicines during fasting?

Most people with hypothyroidism consume their thyroxin tablets (Eltroxin, Thyronorm, Euthyrox, etc.) on an empty stomach after waking up. This is followed by the next meal or drink 30-60 minutes later. However, during Ramadan, fasting makes it challenging to take medication and then fast for the next 30-60 minutes. Therefore, they can consider taking the tablets 30 minutes before the Suhoor meal or 1 hour after the night snack before going to bed. Scientific studies have shown that bedtime intake of thyroxine results in good tablet absorption.
It is less of a challenge for people with hyperthyroidism to consume Carbimazole or Methimazole. However, doctors should avoid radioactive iodine therapy in people with hyperthyroidism around the time of Ramadan. This is to prevent the potential risk of worsening hyperthyroidism that can happen following the ablation and avoid the risk of hypothyroidism and subsequent doctor visits during Ramadan fast.

06 Diet and exercise during fasting

1. What are the effects on body weight while fasting?

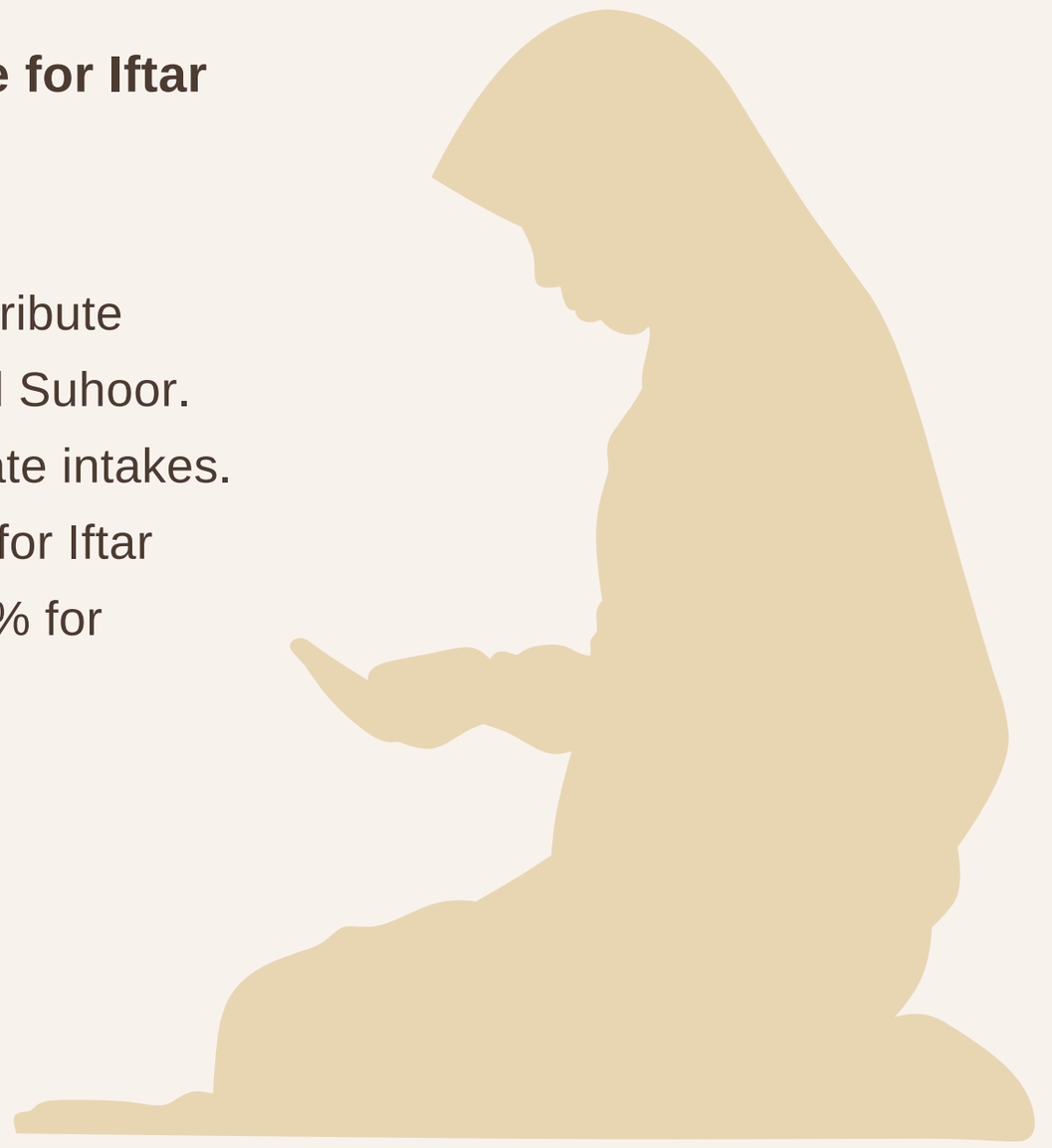
During Ramadan, since there is a large gap between the main meals, intense hunger can occur, particularly towards the end of the day. Therefore, resisting the temptation to have a substantial meal at Iftar can be difficult, and studies have reported that a large proportion of total daily calorie intake occurs at this time. In general, scientific studies have reported that the effect of Ramadan on weight change varies. Most studies have reported a weight reduction or no difference in weight. However, a net energy excess can lead to overall weight gain in some individuals. Furthermore, there was a significant reduction in fat percentage in people who were overweight or obese, but not in those of a normal weight range.
So, a weight change in a particular individual usually reflects overall caloric intake, physical activity, and the individual's metabolism's response to these changes.

2. Can I cut down calories during Ramadan and practice weight loss?

Ramadan is an ideal opportunity to strengthen the resolve and desire to maintain good dietary habits. Nutrition advice from an expert dietician helps an individual make structured dietary changes during Ramadan.
If a person is already following a weight-loss diet before Ramadan fasting, they can continue it with professional advice. Consideration should be given to prevent dehydration. Healthy weight loss leads to better glucose control. Gradual weight loss of 0.5-1kg per week is desirable.
If you are on an exercise plan, you may be unable to follow it during Ramadan fasting. So, you'll need to plan the time and the type of exercise. Even for diet modifications, you should plan to adjust your diet during non-fasting hours.

3. Out of the total food, how much should I include for Iftar and Suhoor?

To prevent weight gain and improve glucose control, distribute carbohydrate and calorie intake evenly between Iftar and Suhoor. Therefore, it is better to distribute calorie and carbohydrate intakes. For example, you can consume 10-20% of total calories for Iftar snacks and bedtime snacks, 40-50% for Iftar, and 30-40% for Suhoor.



It is advisable to avoid heavy meals containing highly processed carbohydrates and sweetened snacks/meals during Iftar, Suhoor, and between meals. This could lead to sudden spikes in blood glucose. High-fat foods or snacks should be restricted, as they can cause delayed spikes in blood glucose, typically after 3 hours. A high eating pace can lead to overeating and, in turn, lead to being overweight as well as uncontrolled blood glucose.
It is preferable to include fibre-rich sources of carbohydrates, i.e., whole grains, vegetables (cooked and raw), whole fruits, yoghurt, milk, and dairy products, in meals and snacks. (see sample meals)

4. What are the dietary precautions to be taken at Suhoor?

The Suhoor meal should be taken as late as possible. You should include foods rich in fibre, adequate protein (legumes, pulses, fish, poultry, or lean meat), and fats (avoid deep-fried foods). This will prevent an immediate surge in blood glucose levels. Foods rich in high-quality protein and fat will help maintain satiety more than easily digestible carbohydrate-rich foods. It is better to avoid food that is made from refined flours, too. You should limit consumption of caffeinated beverages such as coffee, tea, and cola, as they can increase urine output, which can easily lead to dehydration. (see sample meals)

5. Can I know some healthy drinks that can be taken to break the fast?

Break the fast with plenty of water to prevent dehydration and relieve tiredness. Using three dried or fresh dates, or a piece of fresh fruit, is preferable for breaking the fast rather than fruit juices, sugary drinks, syrups, or canned juices. Maghreb prayer requires greater energy expenditure, and additional precautions should be taken to prevent hypoglycemia.

6. Is it advisable for a person with diabetes to exercise during Ramadan fasting?

Yes. For a person with diabetes, mild-to-moderate physical activity can be part of their day-to-day life, even during fasting. Following precautions during the duration, timing, and intensity of exercise can help prevent common complications that occur during fasting. Individuals can exercise at low intensity for up to 35 minutes, with a focus on aerobic and strength training. This is generally safe in people with diabetes and can help control blood glucose. People accustomed to more intensive exercise can maintain the same intensity with more frequent glucose monitoring to prevent hypoglycemia. Health professionals can discuss moderate resistance training / low-intensity cardio workouts instead of intensive exercise regimes. Brisk walking, stair climbing, yoga, swimming, Tai Chi, and cycling are low-intensity exercises that people with diabetes can perform during fasting. Individuals can perform these exercises five times per week, for a total of 150 minutes per week, to optimise their health and control their blood glucose levels.

7. Which type of exercise should be focused on by the person during fasting?

It is desirable to perform resistance training along with low-intensity cardio. Fasting leads to muscle mass loss. Resistance training helps preserve muscle mass, and exercises such as squats and push-ups can be performed during this period. In addition, low-intensity activities such as slow jogging, brisk walking, cycling, rowing, and yoga can improve overall well-being. It is advisable not to modify your exercise routine (e.g., increases in weight, sets, repetitions, speed, or distance) during Ramadan; instead, maintain the regimen from the previous month. Training sessions during the first week should be light to moderate, with intensity progressively increasing as one progresses into Ramadan. The maximum total exercise duration should be 35 minutes. Two sets of 7-10 reps of strength training can be done for a minimum of 2 days per week, whereas other exercise modes like a warm-up, stretching, and cardio can be done in the remaining time.

8. Is there any specific time or duration to do exercise during fasting?

Exercise has various benefits for people with diabetes. In addition to improving glucose control, it can help regulate weight, improve mood, and enhance cardiorespiratory fitness. The best time for exercise is during the evening (two hours after the Iftar meal). This will ensure adequate nutrition and hydration. The other possible time is before the Suhoor meal and 30-40 minutes before Iftaar. It is preferable not to exercise 2-3 hours after the Suhoor meal, as this may increase the risk of hypoglycemia and dehydration.
Examples such as brisk walking later in the evening or slow jogging can be performed without undue risk of hypoglycemia. Exercises can be of 30-45 minutes duration and preferably at the same time daily. The insulin doses and the timing of glucose monitoring should be adjusted to prevent hypoglycemia. In addition, individuals who take part in "Taraweeh" prayer will also have a significant amount of energy expenditure and can consider it as physical activity.
It is calculated that approximately 80 calories (per 20 rakaah) are expended in Taraweeh prayer. It is also essential for athletes who undergo regular training to adapt their training schedules and exercise routines to accommodate the fasting period during Ramadan.

9. Does exercising lead to any complications in people with diabetes while fasting?

During Ramadan, physical activity and exercise frequency may decrease. Because there is no food consumption during the day, most people are reluctant to exercise in the morning. Exercises in people with diabetes during fasting are beneficial. However, they should perform only light physical activities to avoid complications such as low blood glucose or the feeling of lethargy & being weak. Strenuous exercises can cause complications such as hypoglycemia, hyperglycemia, & dehydration.
Excessive physical activity may lead to a higher risk of hypoglycemia and should be avoided, particularly during the few hours before the sunset meal. Exercise may lead to extreme hyperglycemia in some patients with poorly controlled type 1 diabetes. The fast should be terminated if hypoglycemia (blood glucose <70 mg/dL) occurs or if blood glucose exceeds 300 mg/dL.

10. What is the importance of sleep during Ramadan fasting?

Sleep is an essential prerequisite for optimal performance during the day. Inadequate sleep is associated with poor mood, irritability, headaches, reduced alertness, poor functioning at work, and risk of injuries. Hence, avoid sleep deficits and chronic sleep deprivation that may accompany lifestyle changes during Ramadan fasting. Scientific studies have shown that Ramadan fasting generally results in about 60 minutes of sleep loss per day.
It is good to plan well ahead and get the same amount of sleep during Ramadan fasting as before. This can be managed by getting 4-5 hours of sleep after Iftar, then waking for Suhoor and returning to sleep for a couple of hours before getting up for the day. It would be good to get 20-30 minutes of afternoon sleep to compensate for lost nocturnal sleep. Restrict mobile phones and other visual media that may interfere with sleep. Using alarms to keep the time will help ensure enough sleep. Keep yourself well hydrated during the non-fasting hours. Avoid spicy food and stimulants like coffee, which may irritate the stomach and interfere with sleep.

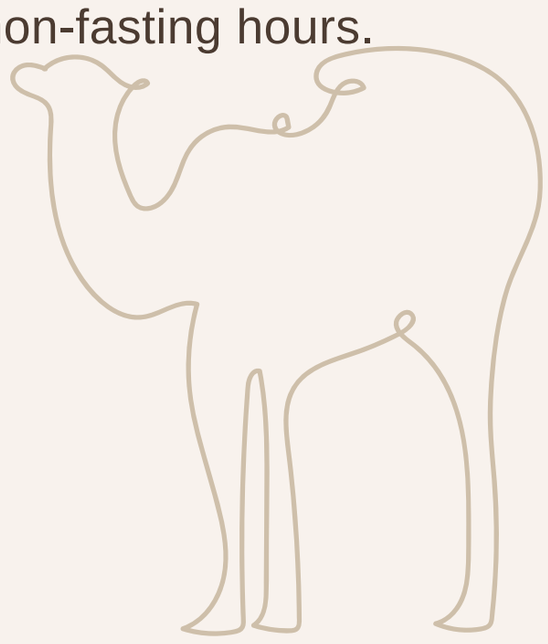
07 Dental care during fasting

1. How does bad breath occur during the fasting period?

Saliva plays a vital role in protecting your mouth and reducing bacterial growth. The reduction in salivary flow during fasting is the leading cause of bad breath. Reduced saliva production will allow bacteria to multiply more quickly in the mouth. As a result, bacteria can produce gases that give off an unpleasant odour, causing bad breath. Once a person starts eating, the salivary glands are stimulated, and saliva production returns to normal.
People with diabetes have higher glucose levels in saliva, which favour bacterial growth and periodontal infections. This increases their risk of bad breath. In addition, because saliva production decreases during fasting, bad breath may be a problem for people with diabetes.

2. Is there a way to prevent bad breath while fasting?

Practice excellent oral hygiene to eliminate plaque efficiently. Thorough brushing, cleaning, and flossing are highly recommended during this period. Eat fruits and vegetables and avoid salty, fried, and sticky food. You should cut down on drinks such as coffee, tea, and soda, as well as other caffeinated beverages. Smoking may cause a reduction in saliva production and result in an increased risk of bad breath. Rinse your mouth with water during the fasting hours without swallowing it. Drink plenty of water during the non-fasting hours.



3. What are the tips for maintaining a healthy oral hygiene routine during Ramadan?

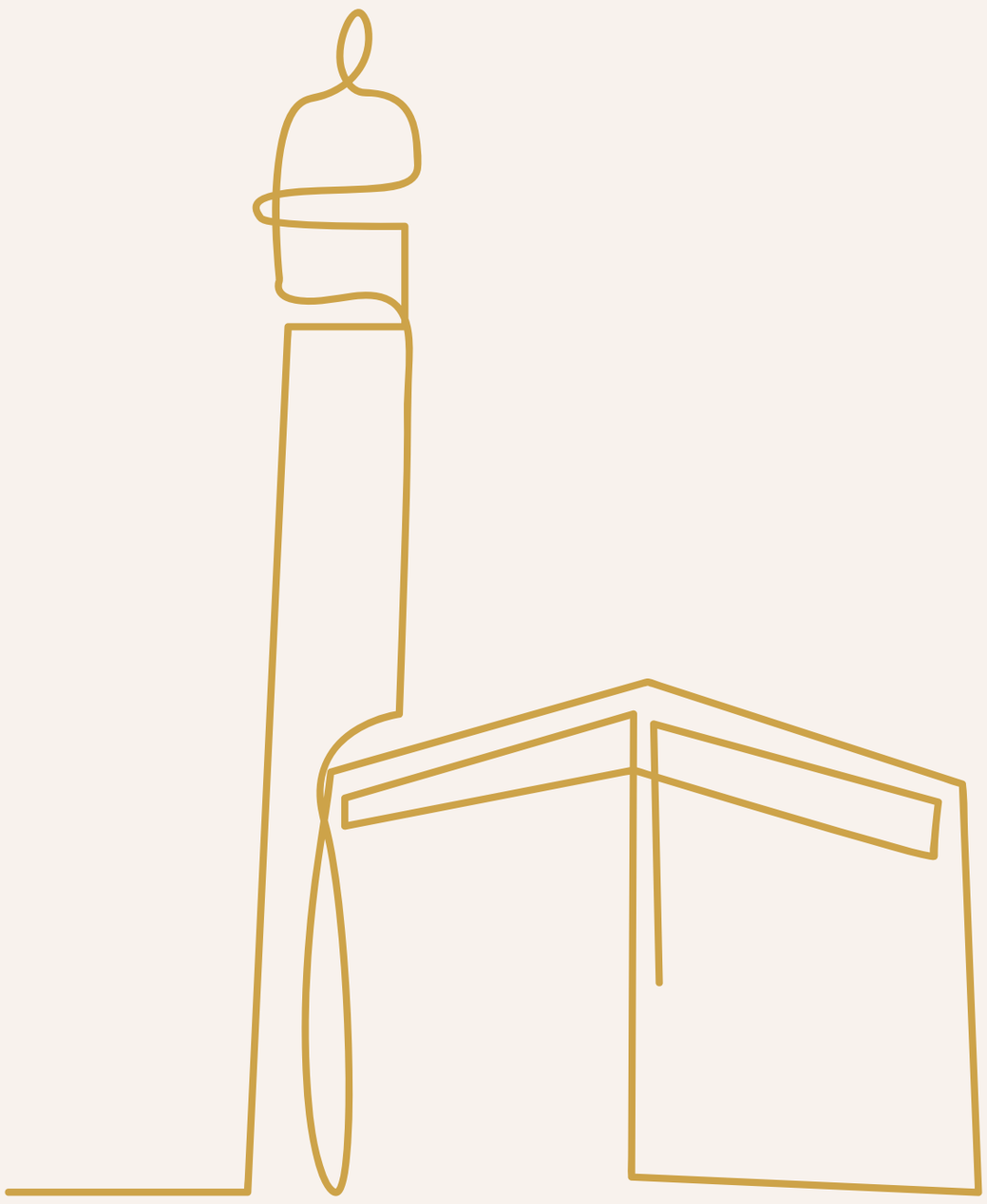
Brush thoroughly in the morning and at night before sleeping. Floss at least once a day to remove food debris (between two teeth) in the interdental area. Clean your tongue with tongue scrapers or a toothbrush. Clean the tongue with a gentle rubbing motion using a toothbrush. Use alcohol-free mouthwash twice daily (ColgatePlax, Clohex ADS, Senquel AD). If you have any dental caries or periodontitis (gum inflammation), consult a dentist and address it promptly.

4. Will dental treatments/procedures and anaesthetic administration (injections) nullify the fast?

There is always concern about whether activities during dental procedures will nullify their fast. Local anaesthetics (injections) are acceptable forms of treatment for those observing Ramadan fast. The blood that oozes during the procedure or rinsing solutions should not be swallowed. However, it is best to reschedule or delay treatments, especially if there is no acute pain/discomfort. Acute pain, swelling, pus discharge, tooth fracture, severe teeth sensitivity, and facial trauma require immediate attention. All elective cosmetic procedures, including veneers, teeth whitening, bridges, and orthodontic treatments, can be delayed until the fasting period is complete. Transdermal patches of pain-relieving medications may be used during fasting.

5. Should fasting patients postpone dental procedures if the treatment dates fall during Ramadan fasting?

Dental treatments and preventive procedures (including restorations, scaling, and extractions) do not invalidate the fast. Still, people who observe fasting are sometimes reluctant to undergo procedures. However, those who require immediate or advanced treatment, like those who suffer from deteriorating chronic illness or facial or dental emergencies, should discontinue the fast and undertake the procedure. People at high risk, like those with uncontrolled diabetes, heart disease, stroke, and kidney conditions, who develop tooth pain or infections, should consider undergoing dental procedures at the earliest if required**.**



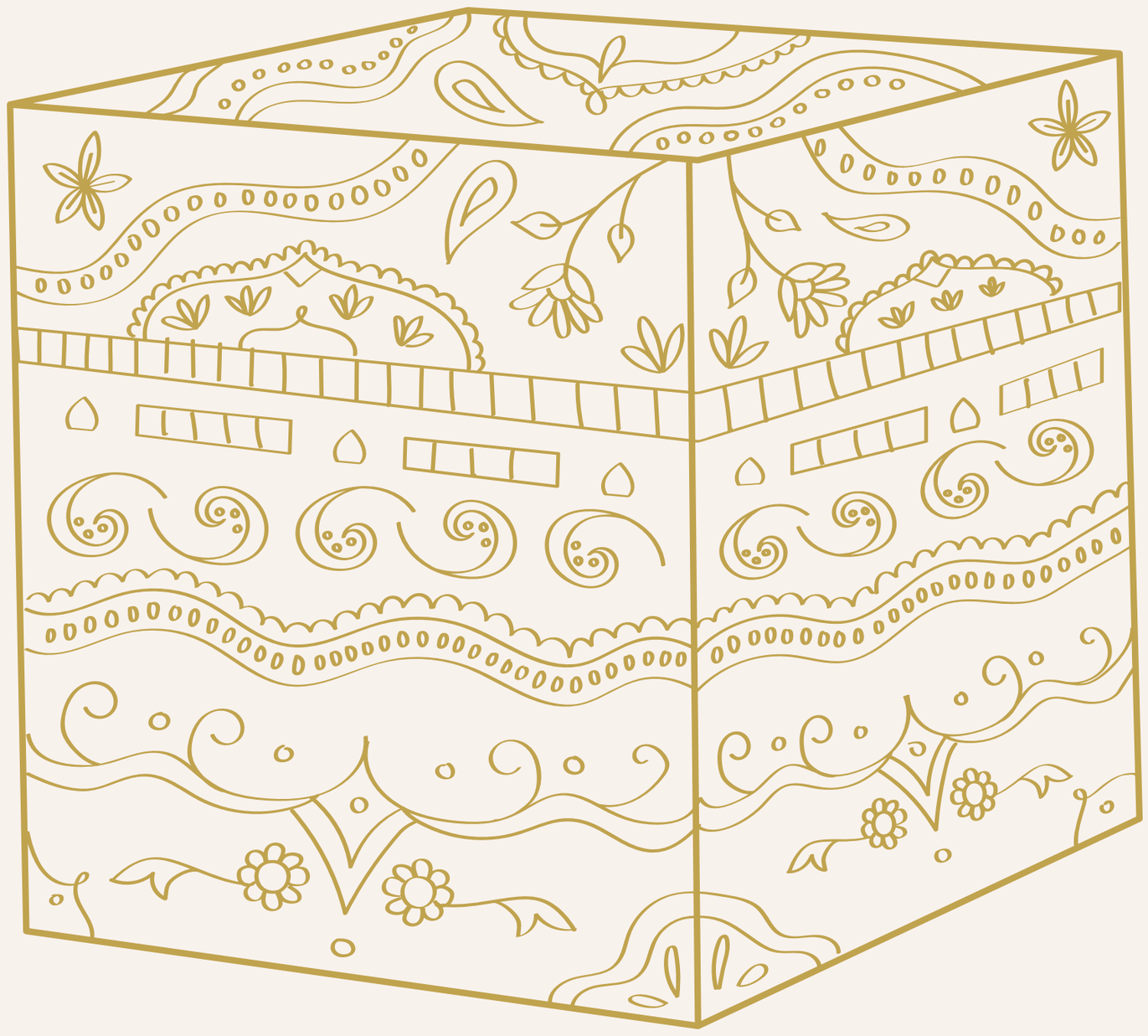
When should a person observing fast stop fasting?

All people with diabetes should attend a pre-Ramadan assessment with their treating doctor 6–8 weeks before Ramadan begins. In this assessment, the risks to people with diabetes who intend to fast should be made, and they should be educated on how to manage their diabetes during the fast. One critical component to discuss is when to break the fast.

Individuals should be educated to recognise the symptoms of hypoglycemia and hyperglycemia. They should be advised to test their blood sugar regularly if any of these complications or an acute illness occur. All individuals should break their fast if

- · Blood glucose <70 mg/dL
- Blood glucose >300 mg/dL
- · Symptoms of hypoglycemia, hyperglycemia, dehydration or any acute illness occur

People with cardiac, gastrointestinal, respiratory, or kidney disease should consult their healthcare providers to determine whether they are fit for fasting. They should also discuss warning signs that should prompt them to discontinue fasting.



Appendix 1: risk calculation for people with diabetes planning to fast during Ramadan

ELEMENTS FOR RISK CALCULATION AND SUGGESTED RISK SCORE FOR PEOPLE WITH DIABETES MELLITUS (DM) THAT SEEK TO FAST DURING RAMADAN

Risk Element	Risk Score
1. Diabetes type and duration	
Type 1 diabetes	1
Type 2 diabetes	0
2. Duration of Diabetes (years)	
A duration of = 10	1
A duration of < 10	0
3. Presence of hypoglycemia	
Hypoglycemia unawareness	6.5
Recent Severe hypoglycemia	5.5
Multiple weekly Hypoglycaemia	3.5
Hypoglycemia less than 1 time per week	1
No hypoglycemia	0
4. Level of glycaemic control	
HbA1c levels > 9% (11.7 mmol/L)	2
HbA1c levels 7.5–9% (9.4–11.7 mmol/L)	1
HbA1c levels < 7.5% (9.4 mmol/L)	0
5. Type of treatment	
Multiple daily mixed insulin Injections	3
Basal Bolus/Insulin pump	2.5
Once-daily Mixed insulin	2
Basal Insulin	1.5
Glibenclamide	1
Gliclazide/MR or Glimepride or Repeglanide	0.5
Other therapy not including SU or Insulin	0
6. Self-Monitoring of Blood Glucose (SMBG)	
Indicated but not conducted	2
Indicated but conducted sub-optimally	1
Conducted as indicated	0
7. Acute complications	
DKA/ HONC in the last 3 months	3
DKA/ HONC in the last 6 months	2
DKA/ HONC in the last 12 months	1
No DKA or HONC	0

Risk Element
8. MVD Complications/Comorbidities
Unstable MVD
Stable MVD
No MVD
9. Renal Complications/Comorbidities
eGFR < 30 mL/min
eGFR 30–45 mL/min
eGFR 45–60 mL/min
eGFR >60 mL/min
10. Pregnancy*
Pregnant not within targets*
Pregnant within targets*
Not pregnant
11. Frailty and Cognitive function
Impaired cognitive function or Frail
> 70 years old with no home support
No frailty or loss in cognitive function
12. Physical Labour
Highly Intense physical labour
Moderate Intense Physical Labour
No physical labour
13. Previous Ramadan Experience
Overall negative experience
No negative or positive experience
14. Fasting hours (location)
= 16 hours
< 16 hours

DKA — Diabetic Ketoacidosis
HONC — Hyperglycaemic Hyperosmolar Nonke
eGFR — Estimated glomerular filtration rat
MVD — Macrovascular disease

SCORE 0 TO 3	LOW RISK
SCORE 3.5 TO 6	MODERATE RISK
SCORE > 6	HIGH RISK

This chart is adapted from the "Risk stratification of people with diabetes before Ramadan" (Chapter 5) from Diabetes and Ramadan authored by Mohamed Hassanein, Bachar Afandi, Monira Alarouj and Shehla Shaikh.
This should be used only by physicians caring for people with diabetes as they prepare for Ramadan fast.

Appendix 2: Sample diet plan for Ramadan fasting 1200 Kcals

Time	Food Item	Quantity
Iftar Snack	Dates **OR** Guava/ Apple or Watermelon/ Pineapple Low-fat yogurt / skimmed milk	2 **or** 1 medium or 1/4th cup 1 cup
Iftar Meal	Brown rice **OR** Dosa/ Idiyappam/ Appam Pulses or Chicken curry (2 piece)/ Fish curry (2 piece) Veg salad/ Veg curry + Flaxseed (1 tsp.) Low-fat buttermilk	1.5 cup **Or** 3 no's 1 cup/ 2 medium pieces 1 cup 1 cup
Bedtime	Skimmed milk **OR** Oats- 1 tbsp.	 1 cup
Pre-Suhur Snack (Optional)	Soaked almonds/cashews/ Peanut (half a hand full)	6-7 / 4-5 / half of the palm
Suhur Meal	Millet dosa/ Chappathi (homemade multigrain) Veg Kuruma/ Kadala Curry/ Sambhar or / Chicken curry (2 piece)/ Fish curry (2 piece) Skimmed milk	3 nos 1 cup 1 cup

Total Calories: 1200 Kcals

Protein: 60 g

CHO: 175 g

Fat: 28 g

Appendix 2: Sample diet plan for Ramadan fasting 1500 Kcals

Time	Food Item	Quantity
Iftar Snack	Dates **Or** Guava/ Apple or Watermelon/ Pineapple Skimmed yogurt/ milk	2 **or** 1 medium or 1/3th cup 1 cup
Mid-Snack	Chicken soup/ dhal soup Wheat rusk	1 cup 2 nos
Iftar Meal	Vegetable brown rice pulao or Rice Cucumber + onion raita Chickpeas/ Paneer Curry/ Chicken curry (2 piece)/ Fish curry (2 piece) Veg salad + Flaxseed (1 tsp.) **Or** Puttu (ragi/ whole wheat+ oats) / Stuffed Chappathi Pulses or / Chicken curry (2 piece)/ Fish curry (2 piece) Veg salad/ Veg curry + Flaxseed (1 tsp.) Low-fat buttermilk	1.5 cup 1.5 cup ½ cup 1 med cup 1 cup **Or** 3 no's 1 cup/ 2 medium pieces 1 cup 1 cup
Bedtime	Skimmed milk + soaked almonds- 4 nos **Or** Oats- 1 tbsp. + almonds- 4 nos	1 cup
Early morning (Opt)	Soaked almonds/cashews/ Peanut (half a hand full)	5-6 / 4-5 / half of the palm
Pre-Suhoor Snack	Tea without sugar Marie/ Arrowroot biscuit	1 cup 2 nos
Suhoor Meal	Stuffed Idli/ Chappathi (homemade multigrain) Sambhar/ Chickpeas curry/ Dhal Or / Chicken curry (2 piece)/ Fish curry (2 piece) Skimmed milk	3 nos 1 cup 1 cup

Total Calories: 1500 Kcals

Protein: 72 gm

CHO: 230 gm

Fat: 37 gm

Glossary

Antiplatelet drugs are a class of medications used to prevent blood clotting. This includes medications such as aspirin, Clopidogrel, Prasugrel, and Ticagrelor.

Arrhythmia refers to an irregular heartbeat.

Acute Myocardial Infarction: blockage of the blood vessel to the heart, causing chest pain and breathing difficulty. Otherwise called " heart attack :

Carbohydrate: is a component of food that serves as the primary energy source for the body. It includes sugars, starches, and dietary fibre.

Chronic diabetic complications: specific organs such as the kidneys, retina, nerves, and heart are affected in people with diabetes. They are called chronic diabetic complications.

Diabetic Ketoacidosis(DKA) is a severe, life-threatening acute complication of uncontrolled diabetes. In this condition, there are high glucose levels, elevated ketones in blood and urine, and blood acidity.

Diuretics are medications that promote the excretion of sodium and water from the body. They are used to reduce oedema (swelling) and lower blood pressure.

Heart failure is a form of heart disease in which the heart cannot pump blood normally.

Hyperglycemia is a condition characterised by high blood sugar levels.

Hyperglycemic hyperosmolar coma is a severe complication in people with diabetes mellitus. It usually occurs in adults when blood glucose levels become too high (more than 500 mg/dl) for a prolonged period, resulting in dehydration and altered behaviour.

Hypoglycemia occurs when blood glucose levels fall below normal. In most people with hypoglycemia, glucose levels are <70 mg/dL.

Home BP monitoring refers to the measurement of BP by individuals or caregivers using validated BP monitoring devices at home.

IDF: The International Diabetes Federation

Risk category: Based on various factors, the physician classifies a person with a medical condition as low, medium**,** or high risk for fasting. The risk level denotes the probability of developing complications during fasting.

Salivary glands are glands in the mouth that produce saliva.

Severe hypoglycemia is a condition in which blood glucose levels dip so low that they can be restored only with the help of another person. In these situations, glucose levels are typically below 54 mg/dL.

SMBG: Self Monitored Blood Glucose (glucose checking done by the person at home using a glucometer)

Unstable Angina is a condition that occurs due to poor blood flow to the heart leading to inadequate oxygen supply and resulting in a heart attack.

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Ramadan & Diabetes

Providence Endocrine and Diabetes Specialty Centre,
SMRA 104, Prasanth Nagar, Ulloor, Trivandrum 695011, Kerala, India
Email: endodiabetes@gmail.com
Ph: 0471-6662880, 6662888

@providenceendo Providence Endocrine www.providence.co.in