



Fasting and Diabetes: A Management Guide - 2024

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Fasting and Diabetes

Diabetic patients are at risk of the following when they fast:

- Dehydration
- Hyperglycaemia
- Hypoglycaemia

There are many reasons why a person living with diabetes may fast. For example, muslims living with diabetes may fast during the holy month of Ramadan. Although they can be exempt from fasting, they may choose not to. We have to support them and give the appropriate advice to reduce their risk of complications.

As in Ramadan and other fasting activities, patients may have only two meals: one at the beginning of the fast each day (before sunrise) called Suhoor in Ramadan and one at the end of the fast each day (after sunset) called Iftar. During a fast, patients do not take food or fluids including water and their medications.

Make a risk assessment for each patient who chooses to fast

1. Low risk: These patients are at low risk of complications. They tend to be well and their diabetes is well controlled with diet and oral hypoglycaemics that are low risk for fasting such as metformin or the newer drugs like gliptins and glitazones.
2. High risk: These patients are at high risk of complications. They are more unwell and have:
 - Poor glycaemic control: high, low or unstable blood glucose levels in the 3 months prior to the fasting period.
 - Good glycaemic control but have reduced ability to respond to hypoglycaemic episodes (autonomic neuropathy)
 - One or more episodes of ketoacidosis or hyperosmolar coma in the 3 months prior to the fasting period
 - Existing diabetic complications which are likely to progress rapidly with fasting
 - Any acute illnesses like lower respiratory tract infection, cellulitis or pyelonephritis
 - Pregnant women with diabetes. There is rapid progression of diabetic related complications like nephropathy or retinopathy
 - High exertional demands such as when involved in intense physical labour
 - Patient with multimorbidities

High risk patients should be encouraged **not** to fast.

There is an online risk calculator that is developed for health professionals to use to risk stratify patients and help in providing advice to patients on their risk of diabetes complications during fasting[1].

The link to the risk calculator is: <https://daralliancehcp.org/public/risk-test>

[1] The risk calculator is based on guidelines developed by "The international federation of Diabetes "and "Diabetes and Ramadan international alliance". <https://daralliance.me/guidelines>

[2] Atkinson FS, Foster-Powell K, Brand-Miller JC. International tables of glycemic index and glycemic load values: 2008. *Diabetes Care*. 2008 Dec;31(12):2281-3. doi: 10.2337/dc08-1239. Epub 2008 Oct 3. PMID: 18835944; PMCID: PMC2584181

For the patients who choose to fast

- Plan ahead. Ideally have these discussions 2 - 4 months before fasting is due to start.
- Dietary advice and meal planning - A normal balanced, healthy diet is advised when fasting

Advice for the Suhoor meal

- Get up to eat just before sunrise, rather than late at night
 - Minimises the hours of fasting
- Take water and food with you
 - Anticipate risk of hypoglycaemia
- Eat moderate portion sizes of starchy foods like grainy breads, lentils, beans, grains like oats, basmati rice and bulgur
 - These give the feeling of fullness and have low-medium glycaemic index[1]
 - Maintains blood glucose at a safe level throughout the fasting day
- Eat healthy, low-fat proteins such as beans, fish, lean beef, chicken and lamb
- Have fruit and/or vegetables with a low – medium glycaemic index such as peas, lettuce, cucumber, carrot, tomatoes, onions, sweet potatoes, apples, pears, avocado and dates
- Avoid fried and sugary foods
- Drink lots of water (not coffee or tea)

Advice for Iftar meal

- Eat moderate portion sizes of starchy foods like grainy breads, lentils, beans, grains like oats, basmati rice and bulgur
 - These give the feeling of fullness and have low-medium glycaemic index
 - Maintains blood glucose at a safe level throughout the fasting day
- Eat healthy, low-fat proteins such as beans, fish, lean beef, chicken and lamb
- Have fruit and/or vegetables with a low – medium glycaemic index such as peas, lettuce, cucumber, carrot, tomatoes, onions, sweet potatoes, apples, pears, avocado and dates
- Avoid fried and sugary foods
- Drink lots of water (not coffee or tea)
- Try not to overeat!

Exercise

- The risk of hypoglycaemia with exercise is increased by long hours of fasting
- Advise patients to avoid strenuous activity
- All patients should carry food and water with them, and make sure their colleagues and family members know how to recognise hypoglycaemic symptoms, and what action to take.

Blood glucose monitoring:

- All patients who are fasting should know how they can monitor their blood glucose during the fast
- They need to be able to:
 - Check their blood glucose if unwell, for example with a fever, or symptoms of hypoglycaemia
 - Self-monitor at other times if they are able to and need to adjust medication such as insulin

How to recognise hyperglycaemic and hypoglycaemic symptoms and when to recommend breaking fast:

Make sure patients and their families know the symptoms for hypoglycaemia and hyperglycaemia.

Hypoglycaemia:

- Symptoms and signs are feeling hungry, shaking, sweating, feeling light-headed, irritability, confusion, change in behaviour (may look as if they are drunk), coma.
- Remember that some patients do not get symptoms even when their blood glucose is very low.
- Hypoglycaemia can develop rapidly.

Hyperglycaemia:

- Symptoms and signs are thirst, polyuria, polydipsia, ketones on breath, dehydration, confusion, coma with acidotic (sighing) respiration.
- Hyperglycaemia develops gradually and there are always plenty of warning symptoms and signs that should alert patients and staff before the patient's condition becomes serious.

It is advisable to break the fast if:

- Blood glucose $<3.9\text{mmol/L}$ (70mg/dl) or $>16.6\text{mmol/L}$ (299mg/dl).
- Symptoms of hypoglycaemia or hyperglycaemia, or dehydration, develop.
- Symptoms of acute illness develop.

Specific advice on medication during fasting

Some medications have a high risk of hypoglycaemia and lower doses should be given or the dose time changed during periods of fasting. For medications with divided doses the larger dose is to be taken with the Iftar meal. See below for specific advice according to medication:

Metformin:

- Has a low hypoglycaemic risk
- Apply the 'sick day' rules
- Dehydration increases risk of lactic acidosis, a dangerous side effect of metformin
- During the fast
 - If taking 3 divided doses, split dose to take 2/3 with Iftar meal and 1/3 with Suhoor meal.
 - If taking 2 doses, take one dose with Iftar meal and the second dose to be taken with Suhoor meal.
 - If taking once a day or slow-release metformin take with Iftar meal.

Sulfonylureas (Gliclazide):

- Has a high hypoglycaemic risk
- During the fast
 - If taking once daily; take the dose with the Iftar meal
 - If taking twice daily; take half the usual morning dose with the Suhoor meal and the usual evening dose with the Iftar meal.
- Older sulfonylureas like glibenclamide are more likely to cause hypoglycaemia and if possible, should be changed to gliclazide before fasting.

Newer anti-diabetic agents

Gliptins:

- Have a low hypoglycaemic risk
- No dose adjustment needed

Pioglitazone:

- Has a low hypoglycaemic risk
- Take the dose with the Iftar meal.
- No dose adjustment needed

Gliflozins (SGLT2 inhibitors):

- Have a low hypoglycaemic risk
- There is a higher risk of diabetic ketoacidosis if there is mildly elevated glucose or acute illness or dehydration
- Use with caution
- Take the dose with the Iftar meal
- No dose adjustment needed

GLP1s:

- Have a low hypoglycaemic risk
- No dose adjustment needed

Insulin:

- Has a high hypoglycaemic risk
- Patients must not stop their insulin because there is still a risk of worsening diabetic control even though they are fasting
- They should be advised to check their blood glucose regularly
- In principle, insulin doses and/or frequency will need to be reduced and specialist advice should be sought to manage and individualise insulin regimen during fasting

Multiple Medications

- The use of 3 or more anti-diabetic medications is associated with an increased risk of hypoglycaemia. If patient is taking a sulfonylurea and/or using insulin, then reducing doses by 25-50% should be considered.

In Summary

- Plan ahead. Think about this 2 - 4months before the fast as it may involve changing medication, particularly insulins.
- Encourage a healthy diet and normal exercise, modifying foods to more slow-release carbohydrates and fibre.
- Encourage blood glucose monitoring if there are symptoms of hypoglycaemia or feeling unwell.
- Discuss the need to break the fast if hypoglycaemia or intercurrent illness or complications develop.
- Adjust drug regimens as necessary

References:

GPCPD Diabetes and Ramadan management
International Diabetes Foundation – 2021 Guidelines on management of Diabetes and Ramadan
<https://daralliance.me/guidelines>

Thank You

Dear Healthcare Professional,
Thank you to for your dedication to improving the lives of patients with diabetes. We hope this guide proves helpful in managing care. For further information, please visit our website:

<https://pci-360.com/>.

With appreciation,
Primary Care International

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