

Hypoglycemia In Type 2 Diabetes Mellitus

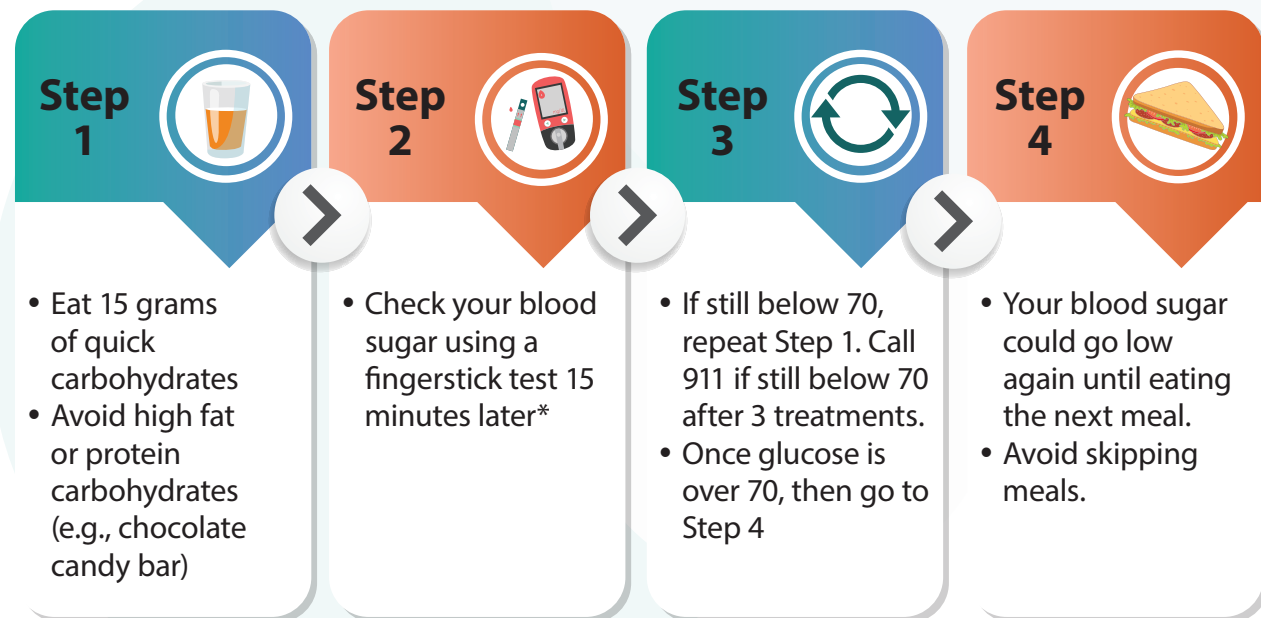
Hypoglycemia occurs when blood glucose falls below 70 mg/dL and requires action to be taken. Symptoms of hypoglycemia may include shakiness, irritability, confusion, tachycardia, sweating, lightheadedness, weakness, and sudden, extreme hunger. Untreated, it may progress to combative behavior, difficulty moving, seizures, and/or coma.¹

Hypoglycemia increases the risk of cardiovascular and cerebrovascular events, as well as falls, accidents, and all-cause mortality.¹⁻³ Hypoglycemic events may be more common among black individuals, older adults, and those with low socioeconomic status and educational attainment.⁴⁻⁶

Levels of Hypoglycemia¹

- **Level 1:** Glucose between 54 to 70 mg/dL
- **Level 2:** Glucose < 54 mg/dL
- **Level 3:** A severe event characterized by altered mental and/or physical status requiring assistance for treatment of hypoglycemia, irrespective of glucose level

Treatment of hypoglycemia → Follow the 15/15 rule when glucose is < 70 mg/dL^{1,7}



*If using a continuous glucose monitor (CGM), glucose levels can read low after 15 minutes, even when the actual blood glucose is rising. Low readings on a CGM sensor should be rechecked 15 minutes after a quick carbohydrate with a fingerstick glucose reading.

Sources of 15 grams of quick carbohydrates

- 6 pieces of hard candy
- 1/2 cup fruit juice or regular soda, or 1 cup skim milk
- 1 tube glucose gel, or 4 glucose tablets
- 1 tablespoon jelly, honey, corn syrup, or sugar



Glucagon should be offered to patients on insulin therapy who are at risk of Level 2 hypoglycemia. Glucagon is for severe hypoglycemia when the patient is unwilling to ingest carbohydrates or blood glucose is too low to treat using the 15-15 rule.¹

Risk factors for hypoglycemia^{1,7}

Modifiable: irregular eating and activity habits, alcohol use, diabetes medications like insulin, sulfonylureas, or metglinides, and other medications like beta-blockers.

Non-modifiable: longer duration of diabetes, fragility or older age, cognitive impairment, chronic kidney disease or hepatic dysfunction, and hypoglycemia unawareness.

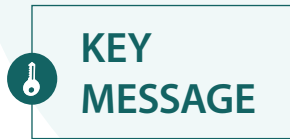
Prevention of hypoglycemia

Simplify insulin regimens and reduce the number of injections to lower the risk. Continuous glucose monitoring may benefit patients on insulin who are at high risk for hypoglycemia or have hypoglycemic unawareness. Select non-insulin therapies that are not associated with hypoglycemia. Help patients and family recognize symptoms of hypoglycemia and when it may occur. Consider a relaxed HbA1c goal when appropriate.

Key adjustments in medications to reduce hypoglycemia

Patient taking basal insulin	Patient taking basal and prandial insulin	Optimize non-insulin glucose-lowering therapies
<ul style="list-style-type: none"> Lower the dose and/or change the timing of basal insulin Consider glargine U300 if having hypoglycemia on glargine U100* 	<ul style="list-style-type: none"> Lower the dose Only use prandial insulin with meals and advise on timing Advise on consistent carbohydrate intake Discontinue prandial insulin if hypoglycemia continues 	<ul style="list-style-type: none"> Reduce dose or discontinue sulfonylurea or metglinide Therapies with lower risk: <ul style="list-style-type: none"> - Metformin - SGLT-2 inhibitors - GLP-1 RA - DPP-4 inhibitors - TZD

DPP4-I = dipeptidyl peptidase-4 inhibitor; GLP-1 RA = glucagon-like peptide 1 receptor agonist; SGLT-2 = sodium-glucose cotransporter 2 inhibitor; TZD = thiazolidinedione. *See criteria for use: [Insulin Glargine U300](#).



KEY MESSAGE Modify treatment plans and educate patients on hypoglycemic signs, symptoms, and management to mitigate risks for hypoglycemia.

References

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