

HbA1c and fasting glucose disagree.

Which one is right?

Both relate to blood glucose, but they do not look at exactly the same time window or depend on exactly the same biology. A mismatch is often a reason to inspect context - not to force one number to "win."

Educational content only. The values below are fictional teaching data and are not diagnostic examples.

THE SIMPLE IDEA

Related tests can tell different parts of the same story.

HbA1c reflects average glucose exposure over roughly the previous three months. Fasting plasma glucose measures glucose in a fasting blood sample at that point in time. Because they answer different measurement questions, the two can diverge. [\[1-4\]](#)

FICTIONAL EXAMPLE

Same person · three tests

HbA1c

LONGER WINDOW

5.1%

Test A



5.3%

Test B



5.6%

Test C

Fasting glucose

SINGLE FASTING SAMPLE

4.8

mmol/L · A



4.9

mmol/L · B



4.9

mmol/L · C

The point is the different direction, not a diagnosis. Real interpretation depends on clinical thresholds, repeat testing, assay context and the person behind the numbers.

They are related, but they are not duplicates.

If two measurements capture different windows of glucose exposure, perfect agreement should not be assumed. Clinical guidance explicitly recognizes that A1C and plasma-glucose results can be discordant. [\[1-4\]](#)

HbA1C

What has average glucose exposure looked like over the recent months?

HbA1c is formed as glucose binds to hemoglobin in red blood cells, so the result reflects a longer period rather than one fasting morning.

Longer-window information.

FASTING GLUCOSE

What was plasma glucose in this fasting sample?

Fasting plasma glucose is a direct glucose measurement taken after a defined fasting period. It is still only one measurement at one time.

Point-in-time fasting information.

So which one is right? Sometimes both measurements are technically correct while highlighting different aspects of glycaemia. Persistent or marked discordance is itself information that deserves checking rather than being averaged away.

Why can the numbers pull apart?

One reason is simply that the tests summarize glucose differently across time. Short-term glucose changes may affect a fasting sample without being fully reflected in HbA1c, while HbA1c carries information from weeks of prior exposure. [\[2\]](#)

HbA1c also depends on red-blood-cell biology and assay performance. Hemoglobin variants and conditions that alter red-cell survival can make an A1C result less representative of glucose exposure for some people. [\[3\]](#)

Discordant ≠ one test is useless.

Population studies have documented imperfect agreement between HbA1c and fasting plasma glucose. The mismatch can be clinically relevant, but it does not tell you the cause by itself. [\[4\]](#)

Before choosing a story, ask what could make the tests differ.

Four checks make the disagreement more interpretable without pretending that one universal explanation fits everyone.

1

Was the glucose sample truly comparable?

Fasting duration, collection conditions, acute illness and repeatability can matter when interpreting a single glucose measurement.

2

Could HbA1c be affected by red-cell biology?

Conditions that change red-cell lifespan, some hemoglobin variants and certain assay interferences can change how an A1C result should be interpreted. [\[3\]](#)

3

Is the mismatch persistent?

One discordant pair and a repeated pattern are different observations. Unexpected diagnostic results are commonly confirmed rather than treated as unquestionable. [\[1,2\]](#)

4

What does the wider glucose picture show?

Symptoms, medications, other glucose measurements and clinical context may help explain why a fasting snapshot and a longer-window marker do not line up.

3 · WHAT THIS DOES NOT MEAN

Discordance is a clue - not a diagnosis.

- It does not prove that one test is wrong.
- It does not prove diabetes, prediabetes or another condition by itself.
- It does not identify why the two measurements differ.
- It does not make a single fasting value more important than longitudinal context.
- It does not replace confirmatory testing or professional assessment when results are clinically concerning.

ONE TAKEAWAY

When two glucose markers disagree, do not
ask only “Which one wins?”

Ask “What does each one measure – and
what could make them differ?”

Discordance can be useful information when the measurement window, technical context and
relevant biology stay visible.

Sources behind this Brief

These sources support the measurement differences and discordance principles used in this Quick Read. The Brief is educational and is not a diabetes diagnostic guide.

- 1** American Diabetes Association Professional Practice Committee. *Diagnosis and Classification of Diabetes: Standards of Care in Diabetes-2026*. *Diabetes Care*. 2026;49(Suppl 1). [Source](#)
- 2** National Institute of Diabetes and Digestive and Kidney Diseases. *The A1C Test & Diabetes*. A1C reflects average glucose over the past 3 months; FPG measures a fasting blood-glucose sample, and the tests can give different results. [Source](#)
- 3** NGSP. *Factors that Interfere with HbA1c Test Results*. Updated 23 Jun 2026. Covers assay interferences and conditions affecting red-cell survival that can alter HbA1c interpretation. [Source](#)
- 4** Ho-Pham LT, Nguyen UDT, Tran TX, Nguyen TV. Discordance in the diagnosis of diabetes: Comparison between HbA1c and fasting plasma glucose. *PLOS ONE*. 2017;12(8):e0182192. [Source](#)

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