TOGETHER, UNPROCESSED

Blood Markers Your Doctor Isn't Explaining

A companion to Bloodwork Literacy — Part 1

A1C, fasting insulin, fasting glucose, HOMA-IR —
the markers that catch problems before they become diagnoses.

A Note From Kim

I didn't find these markers in a textbook.

I found them in the middle of a life that had already asked too much of me. Fifty years of figuring out how to keep going when my body was screaming stop, when my nervous system had been running on threat mode for so long that calm actually felt dangerous.

I'm not a doctor. I'm not a therapist. What I am is someone who did the work, read the research, tested everything on myself, and built a team of people who believe the same thing I do — that your body already knows how to heal. It just needs permission and a little direction.

Every marker in this guide is backed by real science. I just made it clear instead of a textbook.

Welcome to Together Unprocessed. I'm genuinely glad you're here.

Kim and the Team

What a routine panel is missing

The four markers that catch metabolic problems early — and what each one shows.

A standard annual blood panel is built to detect disease, not to detect the process leading to disease. The markers below catch metabolic dysfunction years before a routine panel does — and most of them are not ordered automatically. You can ask for them by name.

A1C (HbA1c)

Estimated average blood sugar over roughly the past 90 days. Often included on routine panels. Has real limitations most people aren't told about.

Fasting Insulin

How hard your pancreas is working to keep blood sugar normal. Almost never ordered automatically. Often the first marker to shift — sometimes years before glucose moves at all.

Fasting Glucose

Blood sugar after an 8–12 hour fast. Commonly ordered. Useful in context — and misleading on its own.

HOMA-IR

A calculated index of insulin resistance using fasting insulin and fasting glucose together. Not a separate test — calculable from the two above. Most labs don't print it.

The next pages cover each marker in detail — the units, the ranges, the mechanism, and what's actually worth taking from each one. The HOMA-IR formula is included so you can calculate it yourself from any standard report.

A1C (HbA1c)

Average blood sugar over roughly 90 days — with caveats most people aren't told.

1. A1C

glycated hemoglobin

THE NUMBERS

→ Reported as a percentage. Below 5.7% commonly called normal.
→ 5.7%–6.4%: pre-diabetes range.
→ 6.5% or higher: diabetes range on a single test.
→ Some labs also report mmol/mol (e.g. 5.7% ≈ 39 mmol/mol).

WHAT IT MEASURES IN YOUR BODY

How much sugar has attached to the hemoglobin inside your red blood cells. Because red blood cells live for roughly 90 to 120 days, A1C is read as an “average” over that window. The calculation is weighted: roughly half the result reflects the most recent 30 days, with the previous 60 to 90 days contributing less.

WHAT IT TELLS YOU

✓ A pattern, not a single moment. Useful when you can't measure daily glucose.
✓ Recent eating shifts the result more than older eating — the last month dominates.
✓ Not a direct measurement — it's an estimate based on assumed red-blood-cell lifespan.

WHERE A1C CAN MISLEAD

→ Shorter-lived red blood cells (e.g. some anemias, recent blood loss) can produce a lower A1C even when blood sugar has been elevated.
→ Longer-lived red blood cells can produce a higher A1C even when blood sugar has been well controlled.
→ If A1C and your lived experience or glucometer readings disagree, a fructosamine test offers a shorter-window check (roughly 2–3 weeks) and can help resolve the discrepancy.

Fasting Insulin

The marker almost nobody orders — and often the first to shift.

2. Fasting Insulin

pancreatic output

THE NUMBERS

→ Reported in µIU/mL (US) or pmol/L (rest of world).
→ To convert: pmol/L ÷ 6 = µIU/mL.
→ Many labs list 2–20 µIU/mL as “normal,” but optimal is often discussed as 2–8 µIU/mL.
→ Above 10 µIU/mL fasting often warrants a closer look, regardless of glucose.

WHAT IT MEASURES IN YOUR BODY

How much insulin your pancreas is producing in the fasted state. When cells stop responding well to insulin, the pancreas compensates by making more — sometimes for years — to keep glucose in range. Fasting insulin catches that compensation while glucose still looks normal.

WHAT IT TELLS YOU

✓ Often shifts years before fasting glucose or A1C move.
✓ A normal glucose with a high insulin is the body working harder to stay normal.
✓ Cannot be used directly in people taking insulin therapy — see C-peptide note below.

FOR PEOPLE TAKING INSULIN THERAPY — C-PEPTIDE INSTEAD

If you take insulin (commonly type 1 diabetes), a fasting insulin test cannot distinguish injected insulin from your own. C-peptide is released alongside your body's own insulin in roughly equal amounts, but is not present in injected insulin. Asking for a C-peptide test instead reveals what your pancreas is still producing.

ASKING FOR THIS TEST

Pushback is common. Some health systems don't subsidise it; some clinicians say you don't need it because your glucose is normal. The cost out of pocket is usually modest. Many people who eventually got a useful answer had to ask for this test by name and stand by the request.

Fasting Glucose

What it shows — and what a single reading misses.

3. Fasting Glucose

blood sugar after 8–12 hr fast

THE NUMBERS

→ Reported in mg/dL (US) or mmol/L (rest of world).
→ To convert: mg/dL ÷ 18 = mmol/L.
→ Below 100 mg/dL (5.6 mmol/L): commonly called “normal.”
→ 100–125 mg/dL (5.6–6.9 mmol/L): pre-diabetes range.
→ 126+ mg/dL (7.0+ mmol/L) on two readings: diabetes range.

WHAT IT MEASURES IN YOUR BODY

Blood sugar concentration after at least 8 to 12 hours without food or calorie-containing drinks. Affected by recent stress, sleep, illness, and the morning cortisol rise — which itself raises glucose. A single reading is a snapshot of one morning, under one set of conditions.

WHAT IT TELLS YOU

✓ More useful read alongside fasting insulin than on its own.
✓ Reference range is wider than many people realise — 99 mg/dL is technically normal.
✓ Affected by stress, illness, poor sleep, and recent intense exercise.

FOR PEOPLE FOLLOWING KETO OR CARNIVORE

Fasting glucose readings can run higher in well-adapted keto and carnivore eaters even with low overall carbohydrate intake. The body produces glucose endogenously (gluconeogenesis) when needed. A single fasting reading on this kind of diet can give a misleading picture without an A1C, fasting insulin, and HOMA-IR for context.

MAKING THE READING USEFUL

If you're tracking fasting glucose over time, keep the conditions consistent: same approximate time of day, same fasting duration, no exercise the morning of, no coffee or tea. Inconsistent conditions are the most common reason readings appear to swing for no reason.

HOMA-IR (calculated, not measured)

The number your lab probably didn't print — and how to calculate it yourself.

HOMA-IR (Homeostatic Model Assessment of Insulin Resistance) is a calculated index that uses fasting insulin and fasting glucose together to estimate insulin resistance. It's not a separate test — if you have both fasting values, you have everything you need. Most labs don't print it for you.

THE HOMA-IR FORMULA

If your glucose is in mg/dL (US):

HOMA-IR = (Fasting Insulin × Fasting Glucose) ÷ 405

If your glucose is in mmol/L (rest of world):

HOMA-IR = (Fasting Insulin × Fasting Glucose) ÷ 22.5

Insulin in µIU/mL (also written µU/mL or mU/L). Both values must be from the same fasted blood draw.

A WORKED EXAMPLE

Fasting insulin: 12 µIU/mL Fasting glucose: 96 mg/dL (5.3 mmol/L)

US units: (12 × 96) ÷ 405 ≈ 2.84

World units: (12 × 5.3) ÷ 22.5 ≈ 2.83

(Both formulas yield the same number when used correctly. Mixing units is the most common mistake.)

COMMONLY-CITED RANGES

Below 1.0	Generally suggests good insulin sensitivity.
1.0 – 1.9	Often described as a “grey zone”; functional ranges vary.
2.0 – 2.9	Often discussed as early insulin resistance, even when A1C is still normal.
3.0 and above	Generally discussed as significant insulin resistance.

WHY HOMA-IR ADDS WHAT THE OTHERS DON’T

Fasting glucose alone misses early dysfunction. Fasting insulin alone is hard to interpret without context. HOMA-IR combines both into a single index that often moves before A1C does — making it a useful early-warning calculation for people who want to track their metabolic trajectory.

Why routine panels miss this

The system is built to detect disease, not to detect what leads to disease.

What's typically on a standard panel

CBC (complete blood count), basic metabolic panel (electrolytes, kidney markers), lipid panel, often A1C, often TSH. Almost never: fasting insulin, HOMA-IR, C-peptide, fructosamine, advanced lipid markers.

Detection vs prevention

A standard panel is designed to flag disease that has already developed. The markers that catch the process leading to disease — particularly metabolic dysfunction — are usually not included. “All clear” on a routine panel is not the same as “optimal.”

The compensation gap

The body compensates for years before it fails. Insulin can rise steadily while glucose stays normal. A1C can stay in range while postprandial spikes are large. Routine panels measure the surface; the markers in this guide measure the work underneath.

Reference range vs personal optimal

Lab “normal” ranges reflect population statistics, not individual targets. A glucose of 99 mg/dL is technically in range and may also be a useful early signal — depending on your trend, your insulin, and the rest of your picture.

Why this is your job, not the system’s

Most clinicians work within standard ordering protocols. The tests in this guide are not standard. Asking for them by name is the most reliable way to get them ordered, regardless of country.

Symptoms without a diagnosis

What the labs miss often shows up in how you feel.

When labs are technically in range and symptoms are real, you fall into a gap. The disconnect isn't in your head — it's in the testing. Here are some patterns that often correspond to early metabolic dysfunction even when standard panels look fine.

Energy crashes after meals

A noticeable slump 30 to 90 minutes after eating, especially after meals with refined carbs or sugar. Often points to large insulin responses bringing glucose down quickly.

Reactive lows

Feeling shaky, lightheaded, irritable, or hungry between meals — sometimes with measurably low glucose readings — even without diabetes. Can reflect a pancreas overshooting after a meal.

Stubborn weight that doesn't move with effort

Weight that resists reasonable diet and exercise often correlates with elevated fasting insulin. Insulin resistance and fat storage are physiologically linked.

Brain fog and afternoon fatigue

Recurring patterns at the same time of day, especially after carbohydrate-heavy meals. Worth tracking against what was eaten earlier.

Sugar cravings that feel out of proportion

Cravings that come back quickly after eating, or that feel chemically driven rather than situational, often track with blood sugar swings rather than willpower.

Poor or fragmented sleep

Waking around 2 to 4 a.m., or feeling unrested despite hours in bed, can correspond to nighttime glucose dips and the cortisol rise that follows.

Conclusions to be careful with

Easy reads that often turn out to be wrong reads.

“My A1C is normal, so my blood sugar is fine.”

A1C is a weighted estimate based on assumed red-blood-cell lifespan. It can be misleadingly low when red blood cells are short-lived, and can mask significant post-meal spikes. Normal A1C and high fasting insulin is a common combination.

“My glucose is normal, so my insulin must be normal too.”

The opposite is the whole point of fasting insulin. Insulin can rise for years while compensation keeps glucose normal. “Normal glucose” on a routine panel is one of the things fasting insulin is designed to look behind.

“I had bloodwork last year. That’s enough.”

Metabolic markers shift over months and years. The most useful question is rarely “what is my number today?” — it's “where has my number been heading?”

“If something were wrong, my doctor would have ordered the test.”

Most clinicians order from a standard panel. The tests in this guide are not on that panel. “Would have ordered it” assumes the system is built to find what you're looking for. For early metabolic dysfunction, it usually isn't.

“I shouldn’t ask for specific tests — that’s the doctor’s job.”

Patients ask for specific tests routinely; most clinicians will agree to add common markers like fasting insulin or A1C when asked. Pushback happens. Asking is standard advocacy, not overstepping.

What to ask your doctor — and how to frame it

Concrete language for your next appointment.

The four to ask for by name

→ Fasting insulin — the marker that catches compensation early.

→ A1C — if it's not already on your standard panel.

→ Fasting glucose — taken in the same blood draw, at the same fasting state.

→ HOMA-IR — may be calculated from the two fasting values; if not, you can calculate it yourself.

Wording that usually works

“I’d like to add fasting insulin and A1C to my next blood panel.”

“I’d like to track my metabolic health over time. Could you order fasting insulin alongside the usual fasting glucose?”

“I’m happy to pay out of pocket if it’s not covered — I’d still like the test ordered.”

If a test is refused, ask why. “You’re not diabetic” is not a reason to skip fasting insulin if your goal is to catch metabolic dysfunction before diabetes. Most labs will run the test if you pay for it directly.

Quick reference

Terms you'll encounter on the panel and in this guide.

Glycation
The process by which sugar attaches to proteins (including hemoglobin). The basis of how A1C is measured. Excess glycation is one mechanism by which chronically elevated blood sugar damages tissues.

Hemoglobin
The protein in red blood cells that carries oxygen. A1C measures glycated hemoglobin specifically — it's the protein the sugar attaches to.

Fructosamine
An alternative test that reflects average blood sugar over roughly 2 to 3 weeks. Useful when A1C may be misleading due to red-blood-cell lifespan issues.

Insulin resistance
A reduced cellular response to insulin. The body compensates by producing more insulin. Often present for years before fasting glucose rises.

Compensation
The body's tendency to maintain normal-looking outputs (like glucose) by increasing inputs (like insulin). Routine panels often miss the compensation phase.

Gluconeogenesis
The body's ability to produce glucose from non-carbohydrate sources. Why fasting glucose can run normal even on very low-carbohydrate diets.

C-peptide
A peptide released by the pancreas alongside insulin in roughly equal amounts. Not present in injected insulin. Used to assess pancreatic insulin output in people on insulin therapy.

µIU/mL / pmol/L
Units for fasting insulin. µIU/mL is common in the US; pmol/L is common elsewhere. Convert: pmol/L ÷ 6 = µIU/mL.

TOGETHER,
UNPROCESSED

You don't need to fix this today.

You just need to know you're not alone.

@togetherunprocessed