A HEAVENLY HEALTH HACKS COMPANION

Your Starting Point & Chapter 22

M46 MINISTRIES

BLOODWORK, *Plainly*

The tests to ask for, what each number means, the lab's "normal" beside the optimal range — and why fasting insulin is the one to start with.

GUIDE 01

BRYAN ELLIOTT

M46 MINISTRIES · NOVEMBER 2026 · M46MINISTRIES.COM

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BLOODWORK, *Plainly*

A plain-language guide to your blood tests. What each test measures, the lab's "normal" next to the optimal range, why it matters, and what moves it. Every number is given in US units first, with the units Canadian labs use in [brackets]. Part 1 is the plain version; Part 2 goes deeper. Four pages are made to print: the Essential Five (Section 2), the lab request (Section 19), the questions (Section 20) and the tracker (Section 21).

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⚠️ Important — Read This First

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- **See your doctor first** — before you change your diet, supplements, fasting, exercise or medication, and before you act on any test result. Never start, stop or change a prescription without the doctor who prescribed it. If you are pregnant, breastfeeding, under 18, or living with a medical condition, get medical guidance before trying anything in these pages.
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My Story — What Fourteen Panels Caught 📍

I've had fourteen blood panels in sixteen years. In 2026 Teresa and I went further: extensive testing — blood, DNA, heart scans and more — partly for the writing of *Heavenly Health Hacks*, using ourselves as human laboratories. Most of those panels told me good news, and that was part of the problem: when the headline numbers look good, you stop reading the rest of the page.

What the tests caught	The number	What I did
An iron-overload gene — one copy of C282Y	Found in 2013, then forgotten. By February 2026 my ferritin was 486 ng/mL [486 µg/L] — over three times the optimal ceiling	Blood donations and less red meat. 222 by November, still coming down
Too many cholesterol particles (ApoB)	144 mg/dL [1.44 g/L] in February 2026	Food changes, plus berberine and bergamot for four months (since stopped). 109 [1.09] by November — still above 80
B12 too high	1,374 pg/mL [1,014 pmol/L], from supplements on top of a meat-rich diet	Cut the dose
An omega-3 gap	Never measured until August 2026 — I assumed good triglycerides covered me	A verified omega-3, tracking the index toward 8–12%
HbA1c above my target	5.6% — below the prediabetes line, above my 5.4%	Still working on it

And the tests that told me what was working: fasting insulin 3.7 µIU/mL [26 pmol/L], and inflammation (hsCRP) low for sixteen years and now below detection.

The answer was there. I just didn't follow through. The iron result sat in a file for thirteen years. Knowing your numbers only helps if you read the whole page, ask what each line means, and retest.

Fix the root, not just the reading. Most of what moves these numbers is how you live — sleep, sugar and refined starch, movement, belly fat, alcohol. Change those first, retest, and use medicine for what lifestyle can't fix. *(If you already take a prescription, keep taking it — change your life first, then let your doctor adjust as your numbers move.)*

Start with the three steps in the box below.

💡 Start here — if you read nothing else

1. Book the Essential Five this week — one tube, five gauges. Ask for fasting insulin by name.
2. Prepare the same way every time (Section 1), then calculate HOMA-IR and your triglycerides ÷ HDL ratio in your own units.
3. Fix the habits that move most gauges at once — sleep, sugar and refined starch, movement, belly fat, alcohol — and retest in 8–12 weeks.

Bottom line: Normal is where a sick population sits. Optimal is where you're going. The trend is the truth.

Part 1 — Plainly

How to Use This Guide 💡

Blood tests are the dashboard gauges of your body. Most physicals check a few of them against ranges built to catch disease that has already arrived. This guide shows you the gauges that warn years earlier, and what each one is telling you.

Start with the Essential Five. Fasting insulin, fasting glucose, HbA1c, vitamin D and hsCRP. They are cheap, they come from one tube of blood, and together they tell you how your metabolism, your immune system and your inflammation are running. Section 2 sets them side by side; fasting insulin gets its own section because it is the one almost nobody is shown, and Sections 5–8 cover the other four.

Part 1 — Plainly is the short version: why normal isn't optimal, the Essential Five, fasting insulin, and how to read the gauges together. **Part 2 — Going Deeper** covers each test in turn: Section 9 lists the next tier by body system, and Sections 10–18 explain each one.

Every section opens with one line in bold — **Why it matters**. Read those lines alone and you have the booklet in a page.

How to read the tables. Every test shows two ranges:

- **Lab "normal"** is where most of the people that lab tests fall — and labs test a lot of sick people. It is built to flag disease.
- **Optimal** is where healthy, metabolically fit people sit. Unless noted otherwise, it is the range *Heavenly Health Hacks* uses, drawn from Dr. Casey Means, Dr. Peter Attia, Dr. Rhonda Patrick, Dr. Mark Hyman and functional-medicine research. Where the mainstream view differs, I say so.

Units. US units first, Canadian [SI] units in brackets. Check which units your report uses before you compare — the same blood gives very different numbers.

- **Ratios change with the units too.** Triglycerides ÷ HDL gives a different number in mmol/L than in mg/dL, so this guide gives both — use the one that matches your report.
- **Some numbers are the same in both countries:** HbA1c (%), hsCRP (mg/L), liver enzymes (U/L), homocysteine (µmol/L), SHBG and Lp(a) (nmol/L), eGFR, the omega-3 index (%), and HOMA-IR (a score with no units — just use the right formula). Ferritin is too: ng/mL and µg/L are the same number. Where one of these has no bracket, it's because the number doesn't change.

My numbers. Boxes marked 📍 **My numbers** show my own results from 2026 — the good, the off-target, and what I learned. They are examples, not targets.

📍 Cross-reference: *Heavenly Health Hacks* — Your Starting Point (the Essential Five) · Chapter 5 (Cellular Health — The Foundation of Life) · Chapter 9 (My Body, My Lab) · Chapter 22 (Supplementation — Test Before You Supplement) · *Cholesterol, Plainly* for the full lipid story · The Essential 16, Biomarkers & Testing

1 Normal Is Not Optimal — and How to Prepare 📏

Why it matters: A lab's "normal" is built to catch disease that has already arrived. Optimal shows you the problem years earlier.

A lab's reference range is usually the middle 95% of the people it tests. When most adults are metabolically unwell, the middle of the crowd is not a healthy target. A Tufts analysis of US national data (2022) found fewer than 7% of American adults have optimal cardiometabolic health. Normal in a sick population is not your target.

That is why this guide puts the optimal range beside the normal one. A result can be "normal" and still be years down the road toward a problem. Fasting insulin is the clearest example: a lab will call 15 µIU/mL [104 pmol/L] normal, and it is three times the optimal ceiling.

Two more things to know before you read any result:

- **One number is a snapshot.** Many markers wobble from draw to draw — insulin, HDL, ALT, CRP and ferritin especially. A single surprising result means retest, not panic. Trends over time tell the truth.
- **Same lab, same conditions.** Different labs use different methods. Compare like with like.

⏱️ Before the draw — a checklist

- ☐ **Book an early-morning draw**, same time each visit if you can.
- ☐ **Fast 10 to 12 hours.** Water only. Black coffee can nudge glucose and insulin; skip it on test days.
- ☐ **Eat an ordinary dinner the night before.** A late, heavy meal can push insulin, triglycerides and creatinine up the next morning.
- ☐ **No alcohol for two days before.**
- ☐ **No hard training for two days before.** Heavy lifting can raise ALT, AST, CK and creatinine.
- ☐ **Wait two weeks after a cold, infection or injury.** CRP and ferritin both rise with inflammation.
- ☐ **Stop high-dose biotin three days before.** Biotin above multivitamin amounts can skew thyroid and hormone results.
- ☐ **If you donate blood, test first.** Note the date of your last donation — it moves ferritin, hemoglobin and HbA1c.
- ☐ **Keep everything else the same as last time** — same supplements, same routine — and write down anything unusual.

🔑 **Remember:** The number you refuse to look at is running you from behind a curtain.

2 The Essential Five at a Glance 🩺

Why it matters: Five cheap tests from one tube tell you how your metabolism, immune system and inflammation are running.

These five tests are your check-engine lights. If your doctor runs only one extra panel, make it this one.

Test	What it measures	Lab "normal"	🎯 Optimal
Fasting insulin	How hard your pancreas works to hold blood sugar steady	up to about 25 µIU/mL [174 pmol/L]	**2–5 µIU/mL [14–35 pmol/L]**
Fasting glucose	Blood sugar after an overnight fast	under 100 mg/dL [5.6 mmol/L]	**70–85 mg/dL [3.9–4.7 mmol/L]**
HbA1c	Average blood sugar over about three months	under 5.7%	**under 5.4%**
Vitamin D (25-OH)	Vitamin D stored in your body	30–100 ng/mL [75–250 nmol/L]	**40–80 ng/mL [100–200 nmol/L]**
hsCRP	Inflammation across the whole body	under 3.0 mg/L	**under 0.36 mg/L** — "below detection" is the goal

Read them together. Insulin and glucose say how your engine handles fuel today; HbA1c says how it has handled it for three months; vitamin D says whether a key hormone is in supply; hsCRP says whether there's a fire burning somewhere.

🔍 **Glucose is the smoke detector. Insulin is the fire.** Standard labs check only the smoke detector. By the time it goes off, the fire may have been burning for ten years.

🗣️ What to say at your appointment

"I'd like some specific labs with my standard panel. Can you add HbA1c, fasting insulin, fasting glucose, vitamin D (25-OH) and high-sensitivity CRP? I'm trying to catch any metabolic problem before it shows up on standard ranges."

If they question fasting insulin: *"Insulin can be high for years before glucose rises. It's the earliest warning sign for insulin resistance, and I'd like to know my number."*

Ask for fasting insulin **by name** — it is almost never run automatically. In some provinces and states it isn't covered; private labs and self-order services (Ulta Lab Tests, Walk-In Lab, Marek Health in the US; private pay at LifeLabs or Dynacare in Canada) can run it for a modest fee.

📋 **Want the whole list in one message?** Section 19 has the full request, ready to copy and paste to your doctor.

3 Fasting Insulin — The Test Nobody Orders 💉

Why it matters: Insulin rises for years — sometimes a decade — before blood sugar does. It's the earliest warning most people are never shown.

What it is. Insulin is the hormone that moves sugar out of your blood and into your cells. Fasting insulin is the amount in your blood after an overnight fast — a measure of how hard your pancreas has to work to keep your blood sugar normal.

Why it matters more than any other number on the page. When cells stop listening to insulin — insulin resistance — the pancreas simply makes more. Blood sugar stays normal. Every standard test looks fine. Underneath, insulin climbs for years, sometimes a decade or more, before glucose finally breaks through and someone says "prediabetes." Insulin resistance sits under most of the chronic diseases this book is about: type 2 diabetes, fatty liver, high blood pressure, heart disease, polycystic ovary syndrome, and a growing list of brain problems. Dr. Casey Means calls insulin the canary in the coal mine. Dr. Ben Bikman's work on insulin resistance is the reason this test leads the list.

Fasting insulin	What it suggests
2–5 µIU/mL [14–35 pmol/L]	🟢 Optimal — highly insulin-sensitive
5–7 [35–49]	🟢 Excellent for most adults, especially lean, active, low-sugar eaters
7–10 [49–69]	🟡 Watch — insulin is working harder than it should
over 10 [69]	🟠 Warning sign — act on sleep, sugar, refined starch, movement, belly fat
up to ~25 [174]	Most labs' "normal" — a ceiling built to flag disease, not to protect you

For comparison, the average American adult sits at about 8–12 µIU/mL [56–83 pmol/L].

Make it more useful: calculate HOMA-IR. HOMA-IR is a free insulin-resistance score made from two numbers on the same draw:

- US units: **fasting glucose (mg/dL) × fasting insulin (µIU/mL) ÷ 405**
- Canadian units: **fasting glucose (mmol/L) × fasting insulin (µIU/mL) ÷ 22.5** — or, if your insulin is in pmol/L, **glucose (mmol/L) × insulin (pmol/L) ÷ 156.3**

HOMA-IR	What it suggests
under 1.0	🟢 Excellent insulin sensitivity
1.0–2.0	🟡 Reasonable
2.0–2.5	🟠 Borderline — watch the trend
over 2.5	🔴 Insulin resistance established, whatever your glucose says

Glucose and insulin must come from **the same morning**. Don't use the "estimated average glucose" some labs print beside HbA1c — it's a calculation, not a fasting measurement, and it will overstate your score.

⚠ **Insulin wobbles.** It is one of the most variable tests on the panel. In a European study that tested 90 healthy adults every week for ten weeks, the HOMA-IR score swung about 27% within the same person, mostly from insulin. A late heavy meal, a short night, a hard workout or morning stress can all push one reading up. **Judge insulin by the average of two or three clean draws, not a single number.**

📍 **My numbers.** February 2026: 5.5 µIU/mL [38 pmol/L]. April: 3.7 [26] — with glucose 92 mg/dL [5.1 mmol/L], a HOMA-IR of 0.84. From just above optimal to well inside it. One reading never tells the whole story; the trend does.

What moves it. Down: better sleep, fewer refined carbohydrates and less fructose, strength training, a post-meal walk, losing belly fat, a regular eating window. Up: sugar and refined starch, short sleep, chronic stress, inactivity, belly fat, some medications. 💡 Lean, low-carb eaters sometimes see a slightly higher fasting *glucose* while insulin stays low — the liver keeps making glucose overnight. That's adaptive, not a disease. Watch the direction across several tests.

🔑 **Remember:** Glucose is the smoke detector. Insulin is the fire.

4 Reading It All Together 🧩

Why it matters: One number rarely tells the story. The pattern tells you where to start.

One number rarely tells the story. Patterns do. Here are the common ones, and what they suggest.

Pattern	What it suggests	Where to look
Normal glucose + insulin over 10 µIU/mL [69 pmol/L] + triglycerides ÷ HDL over 2 [0.87]	Early insulin resistance the standard panel misses	Sections 3, 10; Chapter 5
High ALT or GGT + high triglycerides + high uric acid	Fatty liver from sugar, fructose and alcohol	Sections 11, 17
High ferritin + low hsCRP + saturation over 45%	Iron overload rather than inflammation	Sections 12, 18
High ferritin + high hsCRP + normal saturation	Inflammation or fatty liver raising ferritin	Sections 8, 11, 12
High LDL + high ApoB + elite triglycerides ÷ HDL + low hsCRP	Healthy engine, too many trucks — the fuel still adds up	Section 10; *Cholesterol, Plainly*
Normal TSH + fatigue, cold, weight gain + low free T3	Poor conversion to active thyroid hormone	Section 13
High homocysteine + low or low-normal B12 or folate	Slow methylation; check MTHFR	Section 14
High creatinine + normal cystatin C + normal urine ACR	Muscle, not kidneys	Section 15
HbA1c out of step with glucose and insulin	Red-cell lifespan effect — donation, iron, anemia	Section 6
New erectile dysfunction (men), whatever the testosterone	Blood vessels showing damage early — check the heart gauges	Sections 3, 10, 16; *Cholesterol, Plainly*

The order to act in. Fix what moves the most at once: sleep, refined sugar and starch, movement, belly fat and alcohol. They move insulin, glucose, HbA1c, triglycerides, uric acid, liver enzymes and hsCRP together. Then work on the specific gauges: iron, thyroid, methylation, vitamin D.

One gauge that isn't a blood test. Blood pressure belongs on this dashboard: under 120/80, measured at home with an arm cuff — seated, after five minutes' rest, two readings a week.

Then retest. Retest what you're changing every 8–12 weeks. Once you're in range, once or twice a year.

Part 2 — Going Deeper

The reference: read the section you need. Each one opens with why it matters.

5 Fasting Glucose 🍬

Why it matters: It's the most-ordered test and the last to move — useful mainly beside fasting insulin.

What it is. The sugar in your blood after an overnight fast.

Why it matters. It's the most-ordered test on the list and the last to move. Glucose stays normal while insulin rises to hold it there. When fasting glucose finally climbs, insulin resistance is usually well established. Its main value in this guide: it's the partner you need beside fasting insulin to calculate HOMA-IR.

Fasting glucose	US units	Canadian units
🎯 Optimal	**70–85 mg/dL**	**[3.9–4.7 mmol/L]**
Lab normal	under 100 mg/dL	[under 5.6 mmol/L]
Prediabetes	100–125 mg/dL (US)	[6.1–6.9 mmol/L] (Canada) — the two countries draw the line in different places
Diabetes	126 mg/dL or higher	[7.0 mmol/L or higher]

Note the line moves with the country: US guidelines call 100 mg/dL [5.6 mmol/L] the start of prediabetes; Diabetes Canada starts at 6.1 mmol/L [110 mg/dL]. A Canadian reader at 5.8 mmol/L [104 mg/dL] can be told "fine" by one system and "prediabetic" by the other. The optimal range sidesteps the argument.

Read it with insulin. Normal glucose with low insulin: healthy. Normal glucose with high insulin: early insulin resistance — the pattern standard labs miss. High glucose with high insulin: established insulin resistance.

⏱️ **Practical.** A truly fasted sample matters — even a coffee with cream or a late snack can lift it. Poor sleep and a stressful morning can raise it a few points through cortisol (the "dawn effect"). A continuous glucose monitor, worn for two weeks, shows what one fasting number can't: how high you spike after meals and how fast you come back down.

6 HbA1c 📈

Why it matters: It shows three months of blood sugar, meals included, and predicts heart disease and dementia even below the diabetes line.

What it is. Sugar sticks to hemoglobin, the protein in your red blood cells. HbA1c measures the percentage that has sugar attached. Red cells live about three months, so HbA1c reflects your average blood sugar over roughly the last three months — meals included.

Why it matters. It's a powerful long-term predictor: higher HbA1c tracks with heart disease, dementia and early death, even below the diabetes line. And it can't be gamed by one good morning.

HbA1c	What it means
🎯 **under 5.4%**	Optimal

HbA1c	What it means
5.4–5.6%	Normal, but above optimal
5.7–6.4%	Prediabetes (US). Diabetes Canada starts prediabetes at 6.0%
6.5% or higher	Diabetes

Canadian and US labs both report HbA1c as a percentage. Some labs also show it in mmol/mol: 5.4% is about 36, 5.7% about 39, 6.5% about 48.

Where it can mislead. Anything that changes how long red cells live changes HbA1c without changing your blood sugar:

- **Blood donation, blood loss, recent transfusion:** newer, younger red cells — reads **low** for some weeks.
- **Iron deficiency:** older red cells — can read **high**.
- **Iron overload, some anemias and hemoglobin variants:** can read either way.

If your HbA1c doesn't match your glucose or insulin, ask about these — or ask for a fructosamine test (a two-to-three-week average) as a cross-check.

📍 **My numbers.** 5.6% in February, 5.5% in April, 5.6% in November — steady, below the prediabetes line, and above my own target of 5.4%. I expected it to fall as my iron came down; so far it hasn't. April's slightly lower reading came a few weeks after two blood donations, which can lower HbA1c on its own. It's the number I'm still working on.

7 Vitamin D ☀️

Why it matters: Vitamin D works like a hormone in almost every cell, and deficiency is common in the north and in winter.

What it is. Vitamin D is really a hormone. Your skin makes it from sunlight; food and supplements add some. The test to order is **25-hydroxy vitamin D** (25-OH D) — the storage form, which reflects your status over weeks. Don't accept the "1,25" form; it's a different test for a different question.

Why it matters. Almost every cell has vitamin D receptors. It shapes immune function, mood, muscle and bone strength, insulin sensitivity and hormone production. Deficiency is common in northern countries, in winter, in darker skin and in anyone who works indoors.

25-OH vitamin D	US units	Canadian units
Deficient	under 20 ng/mL	[under 50 nmol/L]
Lab normal	30–100 ng/mL	[75–250 nmol/L]
🎯 Optimal (book)	**40–80 ng/mL**	**[100–200 nmol/L]**
Too high — ask your doctor	over 100 ng/mL	[over 250 nmol/L]

Dr. Rhonda Patrick and Dr. Casey Means target 40–60 ng/mL [100–150 nmol/L], with levels up to about 80 [200] still within a sound range. Mainstream guidelines set the floor lower (20–30 ng/mL [50–75 nmol/L]). To convert: ng/mL × 2.5 = nmol/L.

What moves it — sun first, supplement second.

- **In summer, the sun does it.** Your skin only makes vitamin D when the UV Index is 3 or higher — usually between 10 a.m. and 2 p.m. Quick check: if your shadow is shorter than you are, the sun is high enough. Your phone's weather app shows the UV Index.
- **How much sun.** At UV 3–7, 10–20 minutes of bare skin — arms and legs, not just your face — without sunscreen, a few times a week. Darker skin needs longer. At UV 8 and above, keep it short. Never burn; when your time is up, cover up or use sunscreen. Glass blocks the rays that make vitamin D, so sun through a window doesn't count. The free dminder app works out your time from your location and skin type.
- **Your skin makes a lot, then stops.** A full-body session in strong midday sun — roughly until your skin just starts to turn pink — can make 10,000–25,000 IU, more than most supplements. Then the skin switches itself off: more sun breaks down the extra, so you can't overdose on vitamin D from the sun. Staying out longer only adds burn risk.
- **In the north, winter sun can't do it.** In most of Canada and the northern US, the UV Index stays below 3 at every hour of the day from about October to March, and sometimes into April. Time outside then makes little or no vitamin D. Those are the months to supplement.
- **Test twice a year:** at the end of winter (your lowest point) and the end of summer (your highest). That tells you whether summer sun alone keeps you in range, or whether you need a smaller dose year-round.

Supplementing in the low-UV months. Test first. If you're low, the book's range is 2,500–5,000 IU a day with vitamin K2 — 5,000 in winter or in the north — and 5,000 is above the 4,000 IU daily limit set for unsupervised use, so do it with your doctor and a test before and after. Then **retest at 8–12 weeks** and adjust to stay in range. Ask your doctor first if you have kidney stones, sarcoidosis or high calcium, or take a thiazide water pill; and no K2 with warfarin unless your doctor manages it. Take it with a meal that has fat. Magnesium is needed to activate it.

⚠ More is not better. Above about 100 ng/mL [250 nmol/L], calcium can rise too high. Test, don't guess — especially at higher doses.

📍 **My number.** 77 ng/mL [192 nmol/L] in February 2026 — near the top of the range, so I hold my dose rather than raise it. I take D3 only from fall to early spring, when the UV Index stays under 3, and let the sun do the work the rest of the year. K2 is the partner that matters most: on 125 mcg of K2 a day, a cell-level nutrient test in May 2026 still flagged my K2 as deficient, right at the line. So I raised it to 200 mcg — test, supplement, retest. And honestly, I'm outside so much in summer that I've never tested then. The end-of-summer test is next on my list.

8 hsCRP 🔥

Why it matters: Low-grade inflammation is the fire under heart disease and much of what we call aging.

What it is. C-reactive protein is made by your liver when there's inflammation anywhere in the body. The **high-sensitivity** version (hsCRP) can measure the low levels that matter for long-term risk. A regular CRP can't — ask for "hs" by name.

Why it matters. Chronic, low-grade inflammation is the fire under heart disease, insulin resistance, fatty liver and much of the decline we call aging. In heart disease, cholesterol particles are the fuel; inflammation is what lights them. A person with high particles and no fire is in a very different place from a person with both.

hsCRP	What it suggests
🎯 **under 0.36 mg/L**	Optimal — "below detection" is the goal
under 1.0 mg/L	Low risk (American Heart Association)

hsCRP	What it suggests
1.0–3.0 mg/L	Average risk — find the source
over 3.0 mg/L	High risk, if not caused by a recent infection or injury
over 10 mg/L	Acute inflammation — retest in two weeks; see your doctor if it stays high

hsCRP is reported in mg/L in both countries. Many Canadian labs can't measure below 0.5 or 0.6 mg/L — a result like "<0.6" means "too low to measure," which is the best result that lab can give.

⏱️ **Practical.** Don't test within two weeks of a cold, infection, dental work, injury or a very hard workout — any of these can spike it for days.

What moves it. Up: belly fat, insulin resistance, gum disease, poor sleep, smoking, seed-oil-heavy processed food, chronic infection, autoimmune disease, chronic stress. Down: fixing those. If your hsCRP is elevated, something is driving it — the work is to find out what.

📍 **My numbers.** Below detection in February, April and November 2026 — and low for sixteen years (0.32 in 2010). With high cholesterol particles on the same panels, it's the number that most reassures me: plenty of fuel, very little fire.

9 The Next Tier at a Glance 🔬

Why it matters: Once you have the Essential Five, these fill in the picture system by system.

Once you have the Essential Five, these fill in the picture. You don't need them all at once — add them as the book's chapters become relevant to you.

System	Test	Lab "normal" (typical)	🎯 Optimal
Heart	Standard lipid panel — total cholesterol, LDL-C, HDL, triglycerides (any requisition; fasting)	the ranges on your sheet	no target on its own — read the three rows below
	Triglycerides	under 150 mg/dL [1.7 mmol/L]	under 80 mg/dL [0.90 mmol/L]
	Triglycerides ÷ HDL	not reported	under 1.0 (mg/dL) [under 0.44 mmol/L]
	ApoB — the add-on; ask by name	under 105 mg/dL [1.05 g/L]	under 80 mg/dL [0.80 g/L]
	Lp(a) — once in a lifetime	under 75–100 nmol/L	under 75 nmol/L
Liver	ALT and AST	up to ~40 U/L	under 17 U/L each (book)
	GGT	up to ~60 U/L	under 20 U/L
Iron	Ferritin	men ~30–400, women ~15–150 ng/mL [µg/L]	men 75–150, women 50–150
	Transferrin saturation	20–45%	20–45%; over 45% → ask about iron overload
Thyroid	TSH	~0.4–4.5 mIU/L	0.5–2.5 mIU/L

System	Test	Lab "normal" (typical)	🎯 Optimal
	Free T3 / free T4	lab range	T3 upper third; T4 mid-range or above
Methylation	Homocysteine	up to ~15 µmol/L	under 8 µmol/L
	Vitamin B12	~200–900 pg/mL [148–664 pmol/L]	over 500 pg/mL [369 pmol/L]
Kidney	eGFR	90 or more	90 or more
	Urine albumin ÷ creatinine	under 30 mg/g [3 mg/mmol]	under 30 mg/g [3 mg/mmol]
Hormones	Testosterone (men), SHBG, free or bioavailable T	see Section 16	morning, fasting, read together
Other	Uric acid	up to ~7.0 mg/dL [416 µmol/L]	men under 5.0 mg/dL [297 µmol/L]; women under 4.0 [238]
	Omega-3 index	not reported	8–12%

"Typical" lab ranges vary between labs, ages and sexes — read your own sheet. Each system has its own page next.

10 Heart — Lipids, ApoB and Lp(a) ❤️

Why it matters: Cholesterol particles are the fuel for heart disease, and the standard panel doesn't count them.

The full story is in *Cholesterol, Plainly*. The short version: cholesterol travels in particles — trucks. LDL-C is the cargo; **ApoB** counts the trucks, and trucks are what get stuck in artery walls, so ApoB is the number to ask for by name. **Triglycerides ÷ HDL** — two numbers on any standard panel — reads insulin sensitivity and particle size in one figure; use the target that matches your units. **Lp(a)** is a sticky, inherited particle that barely moves with diet: test it once, and if it's high, be stricter on everything else.

Three tiers, in the order to ask: the **standard lipid panel** (any doctor, every draw, fasting), **ApoB** (the add-on — ask by name), **Lp(a)** (once in a lifetime).

Test	Lab "normal"	🎯 Optimal
Total cholesterol (standard)	under 200 mg/dL [5.2 mmol/L]	no target on its own — *which trucks?*
LDL-C (standard)	under 135 mg/dL [3.5 mmol/L]	read with triglycerides; confirm with ApoB
Triglycerides (standard)	under 150 mg/dL [1.7 mmol/L]	**under 80 mg/dL [0.90 mmol/L]**
HDL (standard)	over 40 mg/dL [1.0 mmol/L] men, 50 [1.3 mmol/L] women	**50–90 mg/dL [1.29–2.33 mmol/L]**
Triglycerides ÷ HDL	not reported	**under 1.0 [under 0.44]**
Non-HDL (total − HDL)	Canada's treatment line 162 mg/dL [4.2 mmol/L]	under 130 mg/dL [3.4 mmol/L]
ApoB — the add-on	under 105 mg/dL [1.05 g/L]	**under 80 mg/dL [0.80 g/L]**
Lp(a) — once in a lifetime	Canada flags 100 nmol/L or higher	**under 75 nmol/L**

Advanced, if you want the full picture: an NMR LipoProfile (particle number and size) and imaging — a calcium score, or a CT angiogram with plaque analysis, which also shows soft plaque.

📍 **My numbers.** Triglycerides ÷ HDL: 0.46 [0.20] in February, 0.33 [0.15] in November — elite. ApoB: 144 mg/dL [1.44 g/L] in February, 128 [1.28] in April, 109 [1.09] in November — falling, still above 80. Lp(a): under 10 nmol/L — essentially zero. A healthy engine carrying too many trucks: the reason this guide tells you to read every gauge, not just the ones that look good.

11 Liver — ALT, AST and GGT 🧪

Why it matters: Fatty liver is the most common liver condition in North America, and it's silent for years.

What they are. Enzymes that leak into the blood when liver cells are stressed. **ALT** is the most liver-specific. **AST** also comes from muscle. **GGT** rises earliest — often years before ALT and AST — and is tied to the liver's master antioxidant, glutathione.

Why they matter. Fatty liver is now the most common liver condition in North America and travels with insulin resistance. It's silent for years. These cheap enzymes are the early alarm.

Test	Lab "normal" (typical)	🎯 Optimal
ALT	up to ~40–45 U/L	**under 17 U/L** (book)
AST	up to ~40 U/L	**under 17 U/L** (book)
GGT	up to ~60 U/L (men)	**under 20 U/L**; over 25 is a signal, over 40 significant

U/L is used in both countries. The book's optimal targets are strict. For comparison, the American College of Gastroenterology puts a healthy ALT at up to 29–33 U/L for men and 19–25 for women — still far below most lab ceilings.

⏱️ **Practical.** Heavy lifting or a long run in the two days before a draw can raise ALT and AST — sometimes doubling them. If they come back high after training, a **creatine kinase (CK)** test shows whether the source is muscle. Alcohol, acetaminophen (Tylenol), some statins and some supplements can raise them too.

What moves them. Down: losing belly fat, cutting fructose, sugar, refined starch and alcohol, fewer seed oils, more movement. GGT also responds to glutathione support (NAC, glycine — Chapter 4).

📍 **My numbers.** April 2026: ALT 19 U/L — just above the book's 17, well inside the lab range; GGT 14 U/L, under 20. The liver wasn't the problem it might have been with my iron history.

12 Iron — Ferritin, Saturation and Blood Count 🩸

Why it matters: Too little iron makes you tired; too much quietly damages the liver, heart and joints for decades.

What they are.

- **Ferritin** — your stored iron, the warehouse.
- **Transferrin saturation** — how full iron's delivery trucks are. Calculated from serum iron and TIBC.
- **Complete blood count (CBC)** — hemoglobin, hematocrit and the rest; how many red cells and how thick the blood is.

Why they matter. Too little iron and you're tired, cold, breathless and foggy. Too much and the excess drives oxidative damage in the liver, heart, joints and pancreas — silently, for decades. Hereditary hemochromatosis is one of the most common genetic conditions in people of Northern European descent: about 1 in 200 carry two copies of the C282Y gene variant, and about 1 in 10 carry one.

Test	Lab "normal" (typical)	🎯 Optimal
Ferritin	men ~30–400, women ~15–150 ng/mL [µg/L]	**men 75–150, women 50–150 ng/mL [µg/L]**
Transferrin saturation	20–45%	20–45% — **over 45% on a fasting test: ask about iron overload**
Hemoglobin	men ~13.5–17.5, women ~12–15.5 g/dL [×10 = g/L]	middle of range
Hematocrit	men ~40–50%, women ~36–46% [0.40–0.50 L/L]	middle of range

⚠ **Ferritin can mislead on its own.** It also rises with inflammation, fatty liver, alcohol and metabolic syndrome. **Transferrin saturation is the first-line screen for iron overload.** If ferritin is high, get the full iron panel — ferritin, serum iron, TIBC and saturation — before drawing conclusions. And standard panels often don't include ferritin at all: ask.

What moves it. High: donate blood (the simplest tool there is), reduce heme iron from red meat, avoid iron-fortified foods and iron in supplements, keep vitamin C away from iron-rich meals. If ferritin is very high or saturation is over 45%, ask your doctor about HFE gene testing and therapeutic phlebotomy.

Raising low iron — find the cause first. Low iron is common, especially in women who menstruate. The usual causes are heavy periods, blood loss (including slow bleeding from the gut), and poor absorption (celiac disease, low stomach acid). Then work on getting iron in and keeping it in:

- **Eat heme iron.** Red meat, liver, shellfish (oysters, clams, mussels) and the dark meat of poultry carry heme iron, which your body absorbs 3–4 times better than the iron in plants.
- **Pair plant iron with vitamin C.** Beans, lentils, spinach and fortified foods absorb far better with vitamin C at the same meal — peppers, citrus, berries.
- **Keep the blockers away from iron meals.** Calcium (dairy and calcium pills), tea and coffee all cut iron absorption. Have them an hour or two apart from your iron-rich meals.
- **Check your stomach acid.** Iron needs acid to be absorbed. Long-term acid-blocking drugs (such as omeprazole), lower stomach acid with age, and H. pylori infection all reduce it. If you take an acid blocker, ask your doctor about your iron.
- **Check your copper.** Your body needs copper to move iron out of storage and into new red blood cells. Low copper — often from high-dose zinc taken without copper — can look like iron deficiency that doesn't get better with iron. Keep zinc and copper at about 15:1 (Chapter 22).
- **If you supplement,** take iron every other day rather than daily, with vitamin C and away from coffee, tea and calcium. Every-other-day doses absorb better and upset the stomach less. Retest ferritin in about three months. Don't take iron without a test — too much is harmful, and some people (Section 18) store it too easily.

📍 **My numbers.** I carry one copy of C282Y, found in 2013 and then forgotten. Ferritin climbed from 348 ng/mL [348 µg/L] in 2010 to 486 [486] by February 2026 — over three times the optimal ceiling — amplified by years of eating 1–1.5 lb [0.45–0.7 kg] of red meat a day. With blood donations: 264 in April, 222 in November. Still above 150, and still coming down. The test was done in 2013. The answer was there. I just didn't follow through.

13 Thyroid 🦋

Why it matters: Your thyroid sets your metabolic speed, and TSH alone can miss a slow one.

What it is. Your thyroid sets your metabolic speed — energy, temperature, heart rate, weight, mood, cholesterol clearance. **TSH** is the brain's signal asking the thyroid to work. **Free T4** is the storage hormone; **free T3** is the active one your cells use. **Reverse T3** is an inactive form the body makes under stress. **TPO antibodies** detect Hashimoto's, the most common cause of a low thyroid.

Test	Lab "normal" (typical)	🎯 Optimal (book)
TSH	~0.4–4.5 mIU/L	**0.5–2.5 mIU/L**
Free T4	lab range	mid-range or above
Free T3	lab range	**upper third** of lab range
Reverse T3	lab range	under 15 ng/dL [230 pmol/L]
TPO antibodies	under lab cut-off	negative

Why "normal" can miss it. Many doctors run TSH alone. TSH can sit "normal" while the body converts too little T4 into active T3 — common under chronic stress, low calories, illness and low selenium or iron. Symptoms (fatigue, cold hands, weight gain, hair thinning, brain fog, constipation, high LDL) deserve the full panel. Mainstream endocrinology treats a TSH up to about 4–4.5 as normal; the narrower 0.5–2.5 is the functional-medicine view the book follows.

⚠ Biotin supplements can falsely skew TSH and T4 — stop high-dose biotin three days before testing.

⚠ **Iodine — test before you take it.** Your thyroid can't make its hormones without iodine, and the book notes that deficiency is common worldwide. But get the full panel above, antibodies included, *before* you supplement: extra iodine can make Hashimoto's worse. Food first — seaweed, wild fish, eggs. If you supplement, do it with a practitioner; the dose needs more care than most minerals.

📍 **My numbers.** TSH 1.72 mIU/L in February, 1.12 in April, 1.82 in November — all inside 0.5–2.5. Free T3 2.7 pg/mL [4.1 pmol/L] in April, on a lab range of 1.7–3.8 [2.6–5.8]: mid-range, a little under the upper-third target, with no symptoms. I'm watching it, not chasing it.

14 Methylation — Homocysteine, B12 and Folate 🧬

Why it matters: High homocysteine damages artery walls and is cheap to test — yet almost never ordered.

What it is. Methylation is a chemical process your body runs billions of times a second — to make neurotransmitters, repair DNA, process hormones and clear toxins. **Homocysteine** is a by-product that builds up when methylation is slow. B12 and folate are the vitamins that run it.

Why it matters. Elevated homocysteine damages artery walls, promotes clotting and independently predicts heart attack, stroke and dementia in many studies. It's cheap and almost never ordered. The most common causes: low B12, low folate, low B6, or the MTHFR gene variant.

Test	Lab "normal" (typical)	🎯 Optimal
Homocysteine	up to ~15 µmol/L	**under 8 µmol/L**; over 10 → review B vitamins

Test	Lab "normal" (typical)	🎯 Optimal
Vitamin B12	~200–900 pg/mL [148–664 pmol/L]	**over 500 pg/mL [369 pmol/L]**; functional ceiling ~1,000 [738]
Folate (serum or RBC)	lab range	mid-to-upper range

What moves it. Methylated B vitamins — methylcobalamin (B12), methylfolate (B9), plus B6 — are the direct fix (Foundation Six, Chapter 22). Retest 90 days after any change.

⚠ **Too much is also a signal.** A B12 well above range in someone taking supplements usually just means the dose is higher than needed.

📍 **My numbers.** Genetic testing in 2026 confirmed two copies of MTHFR C677T — slow methylation wiring. My B12 tested 1,374 pg/mL [1,014 pmol/L] in February, above the functional ceiling, from methylated B12 on top of a meat-rich diet; I cut the dose. And honestly: I have no 2026 homocysteine result. With two copies of MTHFR, it's the next test on my list.

15 Kidney 💧

Why it matters: Creatinine can make strong, muscular people look like they have kidney disease. Two more tests settle it.

What they are.

- **Creatinine** — a waste product from muscle, cleared by the kidneys. Used to estimate kidney filtration (**eGFR**).
- **Cystatin C** — another filtration marker, much less affected by muscle and diet.
- **Urine albumin-to-creatinine ratio (ACR)** — a spot urine test for protein leaking into the urine. The other half of a kidney check, and the one most often skipped.

Test	What the number means
eGFR 90 or more (mL/min/1.73 m²)	Normal filtration
eGFR 60–89	Mildly reduced — **not kidney disease on its own** unless the urine test or a scan shows damage
eGFR under 60 for 3 months	Chronic kidney disease
Urine ACR under 30 mg/g [3 mg/mmol]	Normal
ACR 30 or higher [3 or higher], confirmed	Early kidney damage — see your doctor

Why creatinine misleads muscular people. More muscle makes more creatinine, so a strong, lean person can read "high creatinine, low eGFR" with healthy kidneys. A large meat meal the night before or creatine supplements can do the same. **Ask for cystatin C** — or a combined creatinine-cystatin C eGFR — and the urine ACR. Together they settle it.

What protects the kidneys. Blood pressure and blood sugar in range above all; hydration; caution with regular NSAIDs (ibuprofen, naproxen). With kidney disease, potassium and salt need a doctor's guidance.

16 Hormones ⚖️

Why it matters: Timing changes everything in a hormone test. A few rules matter more than any range.

Hormone tests are easy to misread because timing changes everything. A few rules matter more than any range.

Men

- **Test total testosterone in the morning (before 10 a.m.), fasting.** A low result needs a repeat on a second morning before anyone calls it low.
- **Ask for SHBG** (sex hormone-binding globulin). SHBG binds testosterone and holds it out of action. High SHBG means total testosterone overstates what's available.
- **Ask for free or bioavailable testosterone** — by equilibrium dialysis, or calculated from total testosterone, SHBG and albumin. The direct "analog" free-testosterone test is not accurate.
- **LH and FSH** (the brain's signals to the testes) tell you whether a low level starts in the testes or the brain.
- **Starting a statin?** Test testosterone, SHBG and free testosterone before and about three months in. Statins lower testosterone about 4% on average, more in some men; other cholesterol drugs don't. *Cholesterol, Plainly* has the full story.

⚠ **Erections are a blood-vessel test before they're a hormone test.** New erectile dysfunction raised the risk of heart attack, stroke and other heart events by 25% in 9,457 men followed for up to seven years. If it shows up, check ApoB, fasting insulin, HbA1c and blood pressure alongside testosterone — not testosterone alone.

Test	Lab range (typical, adult men)
Total testosterone	~264–916 ng/dL [9.2–31.8 nmol/L] — 264 [9.2] is the Endocrine Society's lower limit
SHBG	~10–57 nmol/L
PSA (prostate)	under 4.0 ng/mL [µg/L] — the trend matters more than one number

Women

- **Cycle day matters.** Estradiol and progesterone change through the month. Progesterone is usually tested about a week before your period (around day 19–21 of a 28-day cycle) to confirm ovulation.
- **In perimenopause, hormones swing day to day** — one normal or abnormal test can't confirm or rule it out. Symptoms and patterns over time matter more.
- **Iron, thyroid and vitamin D first.** Low ferritin and an underactive thyroid cause many of the same symptoms as hormone changes, and they're far easier to fix.

I don't give optimal ranges for sex hormones: they depend on age, sex, cycle and symptoms, and the book doesn't set them. Read hormones with a doctor who looks at the whole picture.

📍 **My numbers.** Total testosterone 1,058 ng/dL [36.7 nmol/L] in February 2026 — strong. But SHBG was 79.9 nmol/L, well above the usual male range, so far less of it is free to work than the big number suggests. I first blamed my iron; the full story is in Chapter 9. Lesson: total testosterone alone can mislead.

17 More Worth Knowing — Uric Acid, Omega-3, Magnesium, CGM, Biological Age 🐟

Why it matters: These five aren't on most panels, but each one catches something the others miss.

Uric acid

What it is. A waste product of purine breakdown — and of fructose processed in the liver. **Why it matters:** most people link it only to gout, but elevated uric acid drives visceral fat, raises blood pressure, suppresses fat burning and predicts metabolic syndrome, independent of other markers. Dr. Attia and Dr. Hyman both flag it as an underused early warning.

Uric acid	US	Canadian
🎯 Optimal — men	**under 5.0 mg/dL**	**[under 297 µmol/L]**
🎯 Optimal — women	**under 4.0 mg/dL**	**[under 238 µmol/L]**
Metabolic risk rises	over 5.5 mg/dL	[over 327 µmol/L]
Heart and kidney risk escalate	over 7.0 mg/dL	[over 416 µmol/L]

What moves it: cut fructose (sweet drinks, juice, high-fructose corn syrup), refined carbohydrates and alcohol — beer especially. 📍 Mine: 4.4 mg/dL [264 µmol/L] in April 2026.

Omega-3 index

What it is. The share of EPA and DHA in your red-cell membranes — the only direct measure of your omega-3 status. **Why it matters:** below 4% is linked to markedly higher heart risk; 8–12% is the protective zone. Dr. Rhonda Patrick has called it one of the most important biomarkers to track. 🎯 **Optimal: 8–12%.** It's usually a finger-prick home test from a specialty lab, not a standard requisition.

⚠ Low triglycerides don't prove good omega-3 status. A low-carb eater can post triglycerides of 40 mg/dL [0.45 mmol/L] with an omega-3 index of 3%. 📍 I assumed my good triglycerides covered me. They didn't. I never measured it until August 2026, and I now take a verified, EPA-forward omega-3 and track the index toward 8–12%.

Magnesium

What it is. A mineral used in over 300 enzyme reactions — energy, sleep, muscle, nerve and blood-sugar control. **Why it's tricky:** standard **serum** magnesium measures the tiny fraction in your blood, which the body holds steady even when your cells run low. Ask for **RBC (red blood cell) magnesium** by name for a better picture of your stores. 📍 My serum magnesium: 2.4 mg/dL [0.99 mmol/L] — within the functional range of 2.1–2.6 [0.86–1.07].

CGM — a continuous glucose monitor

What it is. A small sensor, about the size of a shirt button, worn on the back of your upper arm. It reads your blood sugar every few minutes for two weeks. HbA1c gives you a three-month average; a CGM shows you what each meal, walk, bad night and stressful meeting does to *your* sugar.

What the book calls a healthy pattern (Dr. Casey Means):

Moment	🎯 Healthy pattern
Fasting, morning	70–85 mg/dL [3.9–4.7 mmol/L]
After a meal	rises no more than 30 mg/dL [1.7 mmol/L] above fasting
Peak, about 1 hour after eating	under 120 mg/dL [6.7 mmol/L]
Back to baseline	within 2 hours
Overnight	steady, no big swings

How to use one.

- Wear it at least two weeks.
- Eat normally for the first few days, so you see your real baseline.
- Then experiment: your usual breakfast; carbs with and without protein and fat; a 10-minute walk after dinner; a poor night's sleep.

FreeStyle Libre sensors run roughly $100 for two weeks at most pharmacies, and some versions are sold without a prescription. You don't need one forever. Two honest weeks is usually enough to change how you eat for good. Mainstream guidelines don't call for a CGM in people without diabetes, and readings can drift; use it to learn patterns, not to diagnose.

Biological age — DunedinPACE

What it is. A blood or saliva test that reads chemical tags on your DNA (methylation) and estimates how fast you are aging *right now*. A score of 1.0 means one year of biological aging per calendar year; 0.80 means 20% slower. It's a specialty test you order yourself, not a standard requisition.

Read it honestly. The book is plain about this: DunedinPACE is a *surrogate* marker, not a hard outcome. No trial has yet shown that lowering the score lowers the risk of disease or death, and results aren't directly comparable across labs, sample types or time points. The proven markers — ApoB, Lp(a), fasting insulin, VO_2 max, muscle mass — still come first. Treat a pace-of-aging score as one data point that should agree with them.

📍 **My numbers.** DunedinPACE 0.71 in April 2026, at 55 — about 29% slower than average. Teresa's was 0.75 at 48. Both agreed with what our primary markers already showed; they didn't replace them.

18 One-Time Gene Tests 🧬

Why it matters: Your genes don't change, so these are once in a lifetime — they tell you which gauges to watch more closely.

Your genes don't change, so these are once in a lifetime. They don't decide your future — they tell you which gauges to watch more closely.

Gene test	What it tells you	Why it changes what you do
HFE (C282Y, H63D)	Whether you're prone to absorb and store too much iron	Two copies, or C282Y plus H63D, carries real risk. Even one copy plus a high-red-meat diet can drive ferritin up. Check ferritin and saturation yearly.
MTHFR (C677T, A1298C)	Whether your methylation runs slow	Two copies of C677T: use methylated B vitamins and track homocysteine.

Gene test	What it tells you	Why it changes what you do
ApoE	Your risk wiring for Alzheimer's and how your cholesterol responds to dietary fat	ApoE4 carriers often see LDL and ApoB rise more on saturated fat, and carry higher dementia risk — a strong reason to protect sleep, blood sugar and fitness.
Lp(a) (a blood test, but set by genes)	The sticky inherited cholesterol particle	If high, be stricter on ApoB, blood pressure, insulin and inflammation.

⚠ Some gene results — ApoE4 especially — can be heavy news. Consider whether you want to know, and ideally review them with a doctor or genetic counsellor.

📍 **My results.** HFE: one copy of C282Y (2013). MTHFR: two copies of C677T (2026). Lp(a): under 10 nmol/L — essentially zero. ApoE: not yet tested.

19 Your Lab Request — Copy, Paste, Hand It Over 📋

People ask me all the time: *"What do I actually ask my doctor for?"* Here it is. Copy the block you want into an email or patient-portal message, or print this page and hand it over. Pick one path.

- **Path A — Two rounds.** Start with Round 1. Do Round 2 at your retest, 8–12 weeks later, or at your next physical. Cheaper, and easier for a doctor to say yes to.
- **Path B — One comprehensive draw.** Everything in one visit. More tubes, more cost, the full picture at once.

For every draw: morning, fasting 10–12 hours, water only. Use the checklist in Section 1.

Three kinds of heart test. The lipid panel — total cholesterol, LDL-C, HDL, triglycerides — is standard: any doctor orders it, and it belongs on every draw, fasting. ApoB is the add-on — same tube, but you have to ask by name. Lp(a) is once in a lifetime — it's set by your genes and doesn't change.

If a test isn't covered, ask what it costs, or order it privately (Section 2 lists self-order labs). Your doctor may decline some tests. That's a conversation, not a closed door.

Path A, Round 1 — Start here

```
Hello Dr. ______,

At my next blood draw, could you please add the following to my
standard panel (CBC, metabolic panel and a fasting lipid panel)?

  1. HbA1c
  2. Fasting insulin  (please order by name; it isn't automatic)
  3. Fasting glucose  (drawn with the insulin, so I can calculate HOMA-IR)
  4. Vitamin D, 25-hydroxy
  5. High-sensitivity CRP (hsCRP)

Please keep the lipid panel on the requisition and fasting — I use
triglycerides ÷ HDL from it.

I'm building an early baseline so we can catch any metabolic problem
before it shows up on standard ranges. I'll come in fasting, in the
morning.

Thank you,
_____
```

Path A, Round 2 — Going deeper (8–12 weeks later)

```
Hello Dr. ______,

At my retest, could you please add the following?

  Heart:        Lipid panel (standard — total cholesterol, LDL-C,
                HDL, triglycerides), fasting
                ApoB — the add-on; please order it by name
                Lipoprotein(a) — once in a lifetime; skip if I've
                ever had it
  Liver:        GGT
  Iron:         Ferritin, serum iron, TIBC, transferrin saturation
  Thyroid:      TSH, free T3, free T4, reverse T3,
                TPO antibodies, thyroglobulin antibodies
  Methylation:  Homocysteine, vitamin B12, folate
  Kidney:       Urine albumin-to-creatinine ratio
                (and cystatin C if my creatinine is high)
  Other:        Uric acid, RBC magnesium

  And please repeat: fasting insulin, fasting glucose, HbA1c and
  hsCRP, so we can see the trend.

Thank you,
______
```

Men, add:

```
  Hormones:  Total testosterone (morning, before 10 a.m.), SHBG,
             free or bioavailable testosterone (calculated or by
             equilibrium dialysis), LH and FSH.
             PSA, if you feel it's appropriate for my age.
```

Women, add:

```
  Hormones:  Estradiol, progesterone, total testosterone, DHEA-S.
             (If I'm still cycling, I'll book this draw about a week
             before my period, around day 19–21 of a 28-day cycle.)
```

Path B — One comprehensive panel

```
Hello Dr. ______,

I'd like one comprehensive baseline. Along with my standard panel
(CBC and metabolic panel), could you please order:

  Metabolic:    HbA1c, fasting insulin, fasting glucose
  Inflammation: High-sensitivity CRP (hsCRP)
  Vitamin D:    25-hydroxy vitamin D
  Heart:        Lipid panel (standard — total cholesterol, LDL-C,
                HDL, triglycerides), fasting
                ApoB — the add-on; please order it by name
                Lipoprotein(a) — once in a lifetime; skip if I've
                ever had it
  Liver:        GGT
  Iron:         Ferritin, serum iron, TIBC, transferrin saturation
  Thyroid:      TSH, free T3, free T4, reverse T3,
                TPO antibodies, thyroglobulin antibodies
  Methylation:  Homocysteine, vitamin B12, folate
  Kidney:       Urine albumin-to-creatinine ratio
  Other:        Uric acid, RBC magnesium

  [Men]    Total testosterone (morning), SHBG, free or bioavailable
           testosterone, LH, FSH; PSA if appropriate for my age
  [Women]  Estradiol, progesterone, total testosterone, DHEA-S
           (timed to day 19–21 of my cycle if I'm still cycling)

I'll come in fasting, in the morning. If any of these aren't covered,
could you let me know so I can arrange them privately?

Thank you,
______
```

Not on a standard requisition — order separately if you want them

These come from specialty labs or kits, not your doctor's usual form:

- **Omega-3 index:** a finger-prick home kit (Section 17).
- **Four-point salivary cortisol, or a DUTCH panel:** the cortisol curve across the day, plus how your body processes its hormones.
- **NMR LipoProfile:** LDL particle number and size (see *Cholesterol, Plainly*).
- **One-time gene tests (HFE, MTHFR, ApoE):** see Section 18.

20 Questions to Ask Your Doctor 🗣️

Bring this page. A good doctor will welcome it.

About the tests

1. Can you add fasting insulin, fasting glucose, HbA1c, vitamin D (25-OH) and hsCRP to my panel? If they aren't covered, what would they cost privately?
2. Can we add ApoB, ferritin with transferrin saturation, and a full thyroid panel (TSH, free T3, free T4, TPO antibodies)?
3. Have I ever had Lp(a) tested? Could we do it once?
4. Can we check homocysteine and B12 — and RBC magnesium instead of serum?

About my results

5. Which of my results are normal but not optimal — and does that matter for me?
6. How do my results compare with last time? Can we look at the trend, not just today's number?
7. Is anything here likely to be a one-off — from training, a meal, an infection or a recent blood donation — that we should repeat before acting on?
8. My creatinine is high — can we check cystatin C and a urine albumin test before calling it a kidney problem?

About next steps

9. If I change my diet, sleep and training, when should we retest — 8 to 12 weeks?
10. If a result is out of range, what is the most likely cause, and can we test for the cause before treating the number?

If a doctor won't order a test or explain a result, you are allowed to ask why, get a second opinion, or order it privately. You are a participant in your health, not a passenger.

21 My Tracker 📋

Print this page. Fill in after each draw. Trends tell the truth.

Test	Optimal	Date: _____	Date: _____	Date: _____	Date: _____
Fasting insulin	2–5 µIU/mL [14–35 pmol/L]				
Fasting glucose	70–85 mg/dL [3.9–4.7 mmol/L]				
HOMA-IR (calculated)	under 1.0 (same in both)				
HbA1c	under 5.4% [36 mmol/mol]				
Vitamin D (25-OH)	40–80 ng/mL [100–200 nmol/L]				
hsCRP	under 0.36 mg/L				
Triglycerides	under 80 mg/dL [0.90 mmol/L]				
HDL	50–90 mg/dL [1.29–2.33 mmol/L]				
Triglycerides ÷ HDL	under 1.0 (mg/dL) [0.44 (mmol/L)]				
ApoB	under 80 mg/dL [0.80 g/L]				
ALT / GGT	under 17 / under 20 U/L				
Ferritin	♂ 75–150 / ♀ 50–150 ng/mL [µg/L]				
Transferrin saturation	20–45%				
TSH	0.5–2.5 mIU/L				
Homocysteine	under 8 µmol/L				
Uric acid	♂ under 5.0 / ♀ under 4.0 mg/dL [297 / 238 µmol/L]				
eGFR / urine ACR	90+ / under 30 mg/g [3 mg/mmol]				
Omega-3 index	8–12%				
Notes (sleep, meals, training, donation)					

Key Takeaways 💡

1. Normal is not optimal. Lab ranges are built to flag disease; optimal ranges show where healthy people sit — often years earlier.
2. Start with the Essential Five: fasting insulin, fasting glucose, HbA1c, vitamin D and hsCRP. One tube of blood, a clear picture of your metabolism and inflammation.
3. Fasting insulin is the earliest warning most people are never shown. Ask for it by name, pair it with glucose for HOMA-IR, and judge it by the average of several draws.
4. One result is a snapshot; the trend is the truth. Prepare the same way every time and retest before you react to a surprise.
5. Read the gauges together. Patterns — insulin with triglycerides, ferritin with saturation, creatinine with cystatin C — tell you more than any single number.
6. Fix the root before the quick fix. The same few habits — sleep, less sugar and refined starch, strength and movement, less belly fat, less alcohol — move most of these numbers at once.
7. Knowing your numbers only helps if you follow through. Read the whole page, ask what each line means, and retest.

Action Steps ✅

1. 🩸 Book the Essential Five this week. Use the script in Section 2.
2. ⏱️ Prepare with the checklist in Section 1 — same lab, same conditions, every time.
3. 🧮 When results arrive, calculate HOMA-IR and your triglycerides ÷ HDL ratio in your own units.
4. 📋 Copy your results into the tracker in Section 21.
5. 🔍 For anything outside optimal, read its page here and the matching chapter in *Heavenly Health Hacks*.
6. 🗣️ Send the Section 19 lab request before your draw, and take the Section 20 questions to your appointment.
7. 🔁 Retest what you're changing in 8–12 weeks.

Reflection Questions 🤔

1. Which of your numbers have you actually seen — and which have you been told were "fine" without seeing them?
2. Which gauge have you stopped checking because everything else looks good?
3. What one habit, changed this month, would move the most numbers at once — and what's stopping you?

Sources: Heavenly Health Hacks, Fourth Edition (Your Starting Point — The Essential Five; Chapters 4, 5, 9 and 22); Bryan Elliott, Stand Up, Son (M46 Field Guide No. 1, 2026); Thompson et al., JAMA 2005 (erectile dysfunction and subsequent cardiovascular disease); O'Hearn et al., Journal of the American College of Cardiology 2022 (cardiometabolic health in US adults); Matthews et al., Diabetologia 1985 (HOMA model); European Biological Variation Study (EuBIVAS), biological variation of insulin-resistance markers; American Diabetes Association Standards of Care (diagnostic thresholds); Diabetes Canada Clinical Practice Guidelines (diagnostic thresholds); Pearson et al., Circulation 2003 (AHA/CDC statement on hsCRP); Webb et al., Journal of Clinical Endocrinology & Metabolism 1988 (latitude, season and vitamin D production in skin); Endocrine Society clinical practice guidelines on vitamin D and on testosterone therapy in men (2018); AACC guidance on biotin interference with laboratory tests; Kwo et al., American Journal of Gastroenterology 2017 (ACG guideline on abnormal liver chemistries); EASL Clinical Practice Guidelines on haemochromatosis (2022); Stoffel et al., Lancet Haematology 2017 (alternate-day iron dosing); Hurrell & Egli, American Journal of Clinical Nutrition 2010 (iron bioavailability, heme and non-heme iron); Lam et al., Gastroenterology 2017 (acid-suppressing drugs and iron deficiency); Myint et al., Annals of Hematology 2018 (copper deficiency anemia); KDIGO 2024 guideline on the evaluation and management of chronic kidney disease; Canadian Cardiovascular Society 2021 dyslipidemia guideline; Harris and von Schacky, Preventive Medicine 2004 (omega-3 index); Bryan Elliott's own lab and Regenalife reports, February–November 2026, as told in Chapter 9 of Heavenly Health Hacks and updated with his November 2026 panel.