

BRAIN FOG IS A LAB RESULT.

The Brain Fog Lab Guide.

The seven blood markers that explain why you can't think straight — and what optimal looks like.

WHY THIS GUIDE EXISTS

Most people are told their brain fog is stress, sleep, or aging. They get a basic blood panel at their physical and walk away with a clean bill of health — and the same fog.

The truth is simpler. Brain fog is almost always a metabolic signal. Your brain is 2% of your body weight, but it burns 20% of your glucose. When something disrupts that energy delivery — insulin resistance, inflammation, low B vitamins, low thyroid — your thinking gets foggy long before any standard lab flags a problem.

This guide shows you the seven markers that actually catch it. You can take it to your own doctor or a direct-to-consumer lab. Or you can come to Range — every one of these is on our Essential panel.

It's not a mood. It's a metabolic event.

Brain fog is when you read the same email three times and still don't know what it said. It's walking into a room and forgetting why you went in there. It's losing your train of thought mid-sentence. It's reaching for a word you've used your whole life and it's just... gone.

These aren't personality traits. They aren't aging. They're symptoms of a brain that isn't getting fuel on a steady delivery.

THE MECHANISM

Why your brain is the first thing to feel it.

Your brain runs almost entirely on glucose. When you're insulin resistant, two things happen at once:

- 1. Glucose delivery becomes erratic.** Big spikes after meals, crashes a few hours later. Your attention and memory track those swings in real time — that's the 2pm fog after lunch.
- 2. Your hippocampus stops responding to insulin.** The part of your brain that handles working memory and learning has its own insulin receptors. Over years of high circulating insulin, those receptors get worn down. Researchers now call advanced versions of this "Type 3 Diabetes" because of how closely it tracks with cognitive decline.

"The fog you're feeling at 35 is the same biological pathway that shows up as cognitive decline at 65. You don't have to wait to find out which way yours is heading."

What to test. What's optimal.

These are the seven blood markers most likely to explain brain fog. Your standard physical typically runs two of them. We run all seven on every Essential panel.

01 Fasting Insulin

METABOLIC

OPTIMAL Under 6 μ IU/mL

STANDARD LAB Most labs flag at 25+

WHY IT MATTERS The single most important marker for brain fog. Insulin resistance shows up here 5 to 10 years before it ever moves your glucose. If your insulin is high, your brain is being starved of steady fuel — even if your glucose looks fine.

02 Hemoglobin A1c

METABOLIC

OPTIMAL Under 5.4%

STANDARD LAB Flagged at 5.7% (prediabetic)

WHY IT MATTERS Your average blood sugar over 90 days. Catches the people whose fasting glucose looks fine but whose post-meal spikes are damaging the brain over time. Pairs with fasting insulin to give a complete metabolic picture.

03 hs-CRP

INFLAMMATION

OPTIMAL Under 1.0 mg/L

STANDARD LAB Often not run at physicals

WHY IT MATTERS High-sensitivity C-reactive protein measures whole-body inflammation. Brain fog is often the first symptom you'll feel from chronic inflammation — and chronic inflammation drives brain insulin resistance directly. This is the marker that catches the "I eat clean but I'm still foggy" patient.

04 Homocysteine

METHYLATION

OPTIMAL Under 7 $\mu\text{mol/L}$

STANDARD LAB Flagged at 15+

WHY IT MATTERS Elevated homocysteine is directly toxic to neurons. It's one of the strongest predictors of brain shrinkage in midlife. The good news: it's almost always fixable with B12, folate, and B6. A fast win when caught early.

05 Vitamin B12

METHYLATION

OPTIMAL Above 500 pg/mL

STANDARD LAB Flagged deficient at 200

WHY IT MATTERS Subclinical B12 deficiency is one of the most common causes of brain fog and the most missed by standard labs. Especially common in patients on metformin, GLP-1 medications, acid blockers, or eating low animal protein.

06 Ferritin

IRON STATUS

OPTIMAL 50 to 150 ng/mL

STANDARD LAB Often not run at physicals

WHY IT MATTERS Iron storage. Low ferritin causes brain fog even when your regular CBC looks fine — particularly in menstruating women. High ferritin signals inflammation or insulin resistance. Both ends of the range matter.

07 TSH + Free T3 + Free T4

THYROID

OPTIMAL Full panel, not just TSH

STANDARD LAB Most physicals run TSH alone

WHY IT MATTERS Subclinical hypothyroidism is one of the most common causes of brain fog and it's often missed because TSH alone gets read as "normal." You need the full thyroid picture to see what's actually happening.

Two paths. Same markers.

You have two options for getting these labs run. We'll be honest about both — including when each one makes more sense.

OPTION 1

Get tested at Range Medical.

Every marker in this guide is included in our Essential Panel — \$350. That includes the blood draw, the lab work, and a full provider review to walk you through what each marker means for you specifically. If anything is off, we build the protocol to fix it.

Best for: people who want the markers *and* the interpretation. Most patients haven't had these run before and don't want to figure out what optimal means on their own.

Book your Range Assessment to get started. range-medical.com | (949) 997-3988

OPTION 2

Order the labs yourself.

You can order most of these markers without a doctor through direct-to-consumer lab services. The blood draw happens at a partner lab and results come back to you in about a week.

Where to order: Quest Health, Labcorp OnDemand, Ulta Lab Tests, or Marek Health. Search for a panel that includes fasting insulin, A1c, hs-CRP, homocysteine, B12, ferritin, and a full thyroid panel (TSH, Free T3, Free T4).

Best for: people who already know how to read their labs or who want to start cheap. Note: most insurance won't cover fasting insulin without a diagnosis, so you'll likely pay out of pocket either way.

The catch: labs without interpretation are just numbers. If you get results back that look concerning and don't know what to do next, that's where most people get stuck.

WHAT TO DO WITH YOUR RESULTS

Reading the picture, not the points.

One marker tells a small story. Two or three together tell the real one. Here's how the patterns usually break down:

Insulin elevated, A1c normal

Early insulin resistance. The most common pattern we see. Catchable, reversible — but it's the foundation almost every other marker eventually follows.

Insulin elevated, hs-CRP elevated

Metabolic inflammation. Often driven by diet, visceral fat, or chronic stress. Brain fog tends to be heavier here, and it doesn't respond to caffeine.

Homocysteine high, B12 low

Methylation issue. Almost always fixable with the right form of B vitamins (methylated B12 and folate). One of the fastest brain fog wins when caught.

TSH normal, Free T3 low

Subclinical thyroid issue. Standard physicals miss this constantly because they only run TSH. The full panel catches it.

Ferritin under 50

Iron-driven brain fog. Common in menstruating women and endurance athletes. Standard CBC won't catch it because hemoglobin can still look fine while iron stores are tanked.

WHEN YOU'RE READY

Stop guessing. Start measuring.

If your brain fog has a pattern, your blood will show it. You don't have to feel foggy at 40 just because everyone around you does.

BOOK YOUR RANGE ASSESSMENT

Includes Essential Panel + provider review

range-medical.com | (949) 997-3988

This guide is for educational purposes only. It does not constitute medical advice and is not intended to diagnose, treat, cure, or prevent any disease. Lab values cited reflect commonly used optimal ranges in functional and longevity medicine and may differ from standard reference ranges used in conventional labs. Always consult a qualified healthcare provider before making changes to your health regimen.

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