TOGETHER, UNPROCESSED

Reading Your Thyroid Panel

A companion to Bloodwork Literacy — Part 3

TSH, Free T4, Free T3, Reverse T3, and thyroid antibodies —
the five numbers that tell the real story, and exactly what to ask for.

Why one number isn't the whole story

The standard test orders one marker. Five tell you what's actually happening.

TSH — the test most doctors order — isn't a thyroid hormone at all. It's a message from your brain's pituitary gland asking the thyroid for more or less. When it comes back "normal," it only means the brain is satisfied. It says almost nothing about how much usable hormone is actually reaching your muscles, your brain, and your gut. It's the thermostat in the hallway telling you the house is warm while the back bedroom is freezing.

TSH — the brain's message
A pituitary signal, not a thyroid hormone. It flags the obvious extremes and misses a lot in between.

Free T4 — the storage hormone
The gland's main output. Mostly inactive until your body converts it into something usable.

Free T3 — the working hormone
The active hormone your cells actually use. Made mostly out in the body, not in the thyroid.

Reverse T3 — the brake
What your body makes when it's deactivating T4 instead of activating it — under stress, illness, or chronic under-eating.

TPO & Tg antibodies — the early warning
Whether your immune system is quietly attacking the gland — often years before TSH ever shifts.

> *The next five pages take each number one at a time — the units, the ranges, what it measures, and where it can mislead. The final page is a one-page list you can take straight to your next blood draw.*

TSH

The number almost everyone gets — and the one most often misread.

1. TSH

thyroid-stimulating hormone — a pituitary signal

THE NUMBERS

→ Reported in mIU/L (the same units worldwide).

→ Most labs flag roughly 0.4–4.0 (or 4.5) mIU/L as “normal.”

→ Healthy, iodine-replete people tend to cluster nearer 1–2 mIU/L.

→ The wide “normal” range was drawn from samples that included undiagnosed thyroid disease — part of why a 3.8 can still read as “fine.”

WHAT IT MEASURES IN YOUR BODY

TSH is your pituitary gland’s request to the thyroid: make more hormone, or make less. It rises when the brain wants more and falls when the brain is satisfied. It measures the message being sent — not the hormone that actually reached your tissues.

WHAT IT TELLS YOU

✓ Reliably catches the obvious extremes — a clearly overactive or underactive thyroid.

✓ A “high-normal” TSH isn’t automatically healthy; many people feel the difference before the lab flags it.

✓ Can read perfectly normal while the hormone reaching your cells is low — which is what the next numbers are for.

WHERE IT CAN MISLEAD

TSH reflects what the pituitary sees, not what the rest of your body sees. The pituitary makes its own active hormone locally, so it can sit perfectly content while tissues elsewhere run low. That single fact is the biggest reason a “normal” TSH can sit right next to very real symptoms.

Free T4

The storage hormone — the raw material, not the finished product.

2. Free T4

the gland's main output

THE NUMBERS

→ Reported in ng/dL (US) or pmol/L (rest of world).

→ Typical lab ranges: roughly 0.8–1.8 ng/dL, or about 12–22 pmol/L.

→ Ask for FREE T4, not TOTAL T4 — they are not the same number.

WHAT IT MEASURES IN YOUR BODY

T4 is the main hormone your thyroid gland releases. On its own it's largely inactive — closer to a stored raw material than a finished product. Your body has to convert it into T3 before your cells can use it. "Free" T4 is the small fraction not bound to carrier proteins: the part that can actually enter cells.

WHAT IT TELLS YOU

✓ Shows how much raw material the gland is putting out.

✓ A low-normal Free T4 sitting under a rising TSH is the classic picture of a gland starting to struggle.

✓ Most useful read right next to Free T3 — supply alongside the active hormone.

WHY FREE, NOT TOTAL

Over 99% of the T4 in your blood is bound to carrier proteins and biologically inactive. Total T4 counts all of it, so it swings with anything that changes those proteins — estrogen from pregnancy or the pill pushes it up with no real change in thyroid status. Free T4 ignores that noise. If a report only shows total, it's worth re-ordering the free value.

Free T3

The working hormone — what your cells actually run on.

3. Free T3

the active hormone

THE NUMBERS

→ Reported in pg/mL (US) or pmol/L (rest of world).

→ Typical lab ranges: roughly 2.3–4.2 pg/mL, or about 3.1–6.8 pmol/L.

→ Ask for FREE T3 by name — many standard panels don't include it at all.

WHAT IT MEASURES IN YOUR BODY

T3 is the active hormone — the one your cells actually use for energy, temperature, mood, and metabolism. Most of it isn't made in the thyroid; it's converted from T4 out in your tissues. That conversion needs the right conditions and raw materials, and it can stall even when the gland itself is working fine.

WHAT IT TELLS YOU

✓ The clearest read of how much usable hormone is actually reaching your cells.

✓ Can sit low while TSH and Free T4 both look normal — the gap that explains a lot of "normal but exhausted."

✓ When conversion is the problem, this is usually the number that shows it first.

WHY IT GETS LEFT OFF

Many panels stop at TSH, on the assumption that if the message is normal, everything downstream must be too. Free T3 tests that downstream directly. You can ask for it by name alongside Free T4.

Reverse T3

The brake — T4 deactivated instead of activated.

4. Reverse T3

the “off” switch

THE NUMBERS

→ Reported in ng/dL. The assay isn’t standardised between labs — read a trend within one lab, not single values across labs.

→ Often interpreted as a ratio against Free T3 rather than on its own.

→ Not on most standard panels; you’d usually request it specifically.

WHAT IT MEASURES IN YOUR BODY

When your body converts T4, it can go one of two ways: into active T3, or into Reverse T3 — a near-mirror molecule that fits the same locks but switches nothing on. Reverse T3 is the brake. The body deliberately makes more of it during stress, illness, surgery, and chronic under-eating, dialling metabolism down on purpose.

WHAT IT TELLS YOU

✓ A high Reverse T3 suggests T4 is being deactivated rather than put to use.

✓ Most informative when TSH and Free T4 look fine but the symptoms don’t match.

✓ Best read as one clue among several, not a diagnosis on its own.

> **A PATTERN, NOT A VERDICT**
> *Some practitioners look at the Free T3 to Reverse T3 ratio as a rough read of whether the “brake” is winning. It’s a useful conversation-starter with a clinician — not a validated diagnostic cut-off. Treat any single ratio as a question, not an answer.*

TPO & Tg Antibodies

The early warning — often years ahead of TSH.

5. Thyroid antibodies

anti-TPO and anti-Tg

THE NUMBERS

→ Anti-TPO and anti-Tg are reported in IU/mL; each lab prints its own cut-off.

→ Whether they're present matters more than the exact number.

→ The trend over time tells you more than any single reading.

WHAT THEY MEASURE IN YOUR BODY

These antibodies show whether your immune system is targeting the thyroid itself — the process behind Hashimoto's, the most common cause of an underactive thyroid. Anti-TPO is usually the more informative of the two. The immune attack can be underway for years before it drags TSH out of range.

WHAT THEY TELL YOU

✓ Can explain a "normal TSH but I feel off" picture that nothing else accounts for.

✓ Catch an autoimmune process early, while there's the most room to support the gland.

✓ Positive antibodies are common — they describe a direction, not a sentence.

WHY THEY'RE WORTH ASKING FOR ONCE

Antibodies aren't something most people need re-checked constantly, but knowing your status once is genuinely useful — it reframes every future TSH reading you'll ever get. If thyroid trouble runs in your family, this is the number most worth having on record.

What to ask for

One page to take to your next blood draw.

THE FIVE TO ASK FOR BY NAME

→ TSH — usually already included.
→ Free T4 — the storage hormone (free, not total).
→ Free T3 — the active hormone your cells use (often left off).
→ Reverse T3 — the brake; especially if you feel off but TSH looks fine.
→ TPO & Tg antibodies — at least once, to know your autoimmune status.

WORDING THAT USUALLY WORKS

> *"I'd like a full thyroid panel — not just TSH. Could we add Free T4, Free T3, and thyroid antibodies?" / "My TSH has been normal, but I still have symptoms. I'd like to check Free T3 and Reverse T3 to see what's actually reaching my cells."*

TWO THINGS TO REMEMBER

✓ Always ask for FREE T4 and FREE T3, not the total versions — totals swing with carrier proteins and mislead.
✓ If you hit pushback, asking is ordinary patient advocacy. You can ask the reasoning, see another GP, or use direct-to-consumer testing where it's available.

This is literacy, not treatment — no doses and no protocols here. The goal is simply to walk into your next appointment knowing exactly what to ask for.

TOGETHER,
UNPROCESSED

You don't need to fix this today.

You just need to know you're not alone.

@togetherunprocessed

Everything we share comes from our own journeys and experiences.
We're not doctors, and nothing here is meant as medical advice.
Always make decisions about your health with a trusted professional.