BIOLOGICAL AGE · REPORT VOL. 01

Biological age report.

A single blood draw, decomposed into nine independently-scored organ systems — each expressed as the years it adds to, or subtracts from, your biological age.

PREPARED FOR

Sample Report

FEMALE · CHRONO 45 YRS

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SECTION 01 — OVERVIEW

Executive summary.

Your organ-system analysis places your biological age at **48.3 years** — +3.3 years above your chronological baseline of 45.0. **6 of your 9 organ systems** are tracking at or below your calendar age.

This report decomposes a single blood draw into nine independently-scored organ systems and expresses each as the number of years it adds to or subtracts from your biological age. Three systems — Lipid & Cardio, Inflammation, and Haemogram — account for the entire upward offset and are the primary levers.

BIOLOGICAL AGE	AGE OFFSET	SYSTEMS IN RANGE
48.3 yrs	+3.3 yrs	6 / 9
Composite across 9 organ systems	Older than calendar age	At or below chronological age

WHAT'S DRIVING THE NUMBER

Lipid & Cardio (+1.2 yrs), Inflammation (+1.0 yr) and Haemogram (+0.8 yr) account for the entire upward offset. LDL, homocysteine, CRP, ESR, and low haemoglobin are the specific markers to address.

WHAT'S PROTECTING YOU

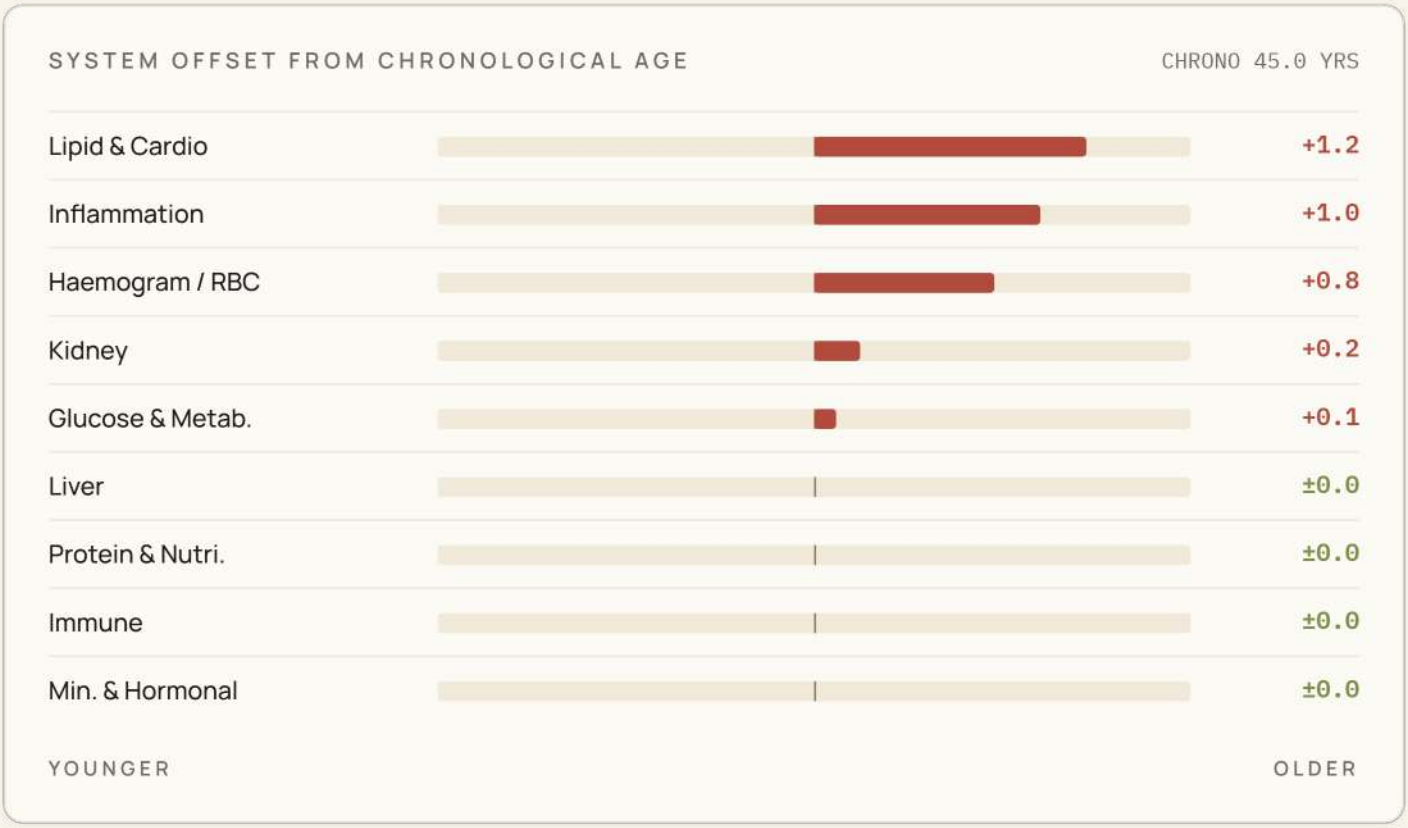
Liver, Kidney, Protein/Nutrition, Immune, Minerals & Hormonal and Glucose & Metabolic are all tracking at or below your calendar age — a strong foundation to build on.

Biological age is not fixed. It responds directly to how you eat, move, sleep and recover — and it can be measurably shifted within months.

SECTION 02 — RESULTS

Organ system ages.

Each system is scored independently from the markers most relevant to its function. Values below your chronological age (45.0) age favourably; values above may benefit from attention.



NINE ORGAN SYSTEMS · AT A GLANCE

LIPID & CARDIO +1.2 46.2 yrs	INFLAMMATION +1.0 46.0 yrs	HAEMOGRAM / RBC +0.8 45.8 yrs
KIDNEY +0.2 45.2 yrs	GLUCOSE & METAB. +0.1 45.1 yrs	LIVER ±0.0 45.0 yrs
PROTEIN & NUTRI. ±0.0 45.0 yrs	IMMUNE ±0.0 45.0 yrs	MIN. & HORMONAL ±0.0 45.0 yrs

SECTION 03 — MARKER ANALYSIS

Detailed marker analysis.

Each marker is shown against its clinical reference range. The dot marks where your result falls — teal within range, terracotta outside. The shaded band is the optimal interval.

Glucose & Metabolic

+0.1 yrs

Blood-sugar regulation and insulin efficiency

WHAT THIS TELLS US All glucose markers are comfortably within healthy ranges. HbA1c (5.60 %) sits at the upper edge of optimal — worth watching at the next test. Fasting glucose and C-peptide are excellent.

HbA1c REF 4.2–5.7	5.60 %	4 — 6.5	OPTIMAL
Fasting Glucose REF 70–100	91.2 mg/dl	66 — 126	OPTIMAL
Avg. Est. Glucose REF derived	114.0 mg/dl	60 — 150	OPTIMAL
C-peptide (fasting) REF 0.48–5.05	1.66 ng/mL	0 — 6	OPTIMAL

Lipid & Cardio

+1.2 yrs

Cardiovascular health, cholesterol balance, homocysteine

WHAT THIS TELLS US Total cholesterol, LDL and non-HDL are above range; HDL is adequate but ratios flag elevated cardiovascular risk. Homocysteine at 18.56 µmol/L is above range and independently linked to cardiovascular and cognitive risk. Triglycerides and VLDL are excellent. This is the dominant system driving your offset.

Total Cholesterol REF <200	218.0 mg/dl	120 — 280	REVIEW
Triglycerides REF <150	70.0 mg/dL	0 — 200	OPTIMAL
HDL Cholesterol REF 40–60	46.7 mg/dL	30 — 80	OPTIMAL
LDL Cholesterol REF <100	157.3 mg/dL	40 — 200	REVIEW
VLDL Cholesterol REF <30	14 mg/dl	0 — 50	OPTIMAL
Non-HDL Cholesterol REF <160	171.3 mg/dL	60 — 220	REVIEW
Total / HDL Ratio REF 3.30–4.40	4.67 ratio	2 — 7	REVIEW
LDL / HDL Ratio REF 0.5–3.0	3.37 ratio	0 — 6	REVIEW
Homocysteine REF 3.7–13.9	18.56 µmol/L	3 — 22	REVIEW

Inflammation

+1.0 yrs

Systemic inflammatory load

WHAT THIS TELLS US Both inflammatory markers are elevated. hs-CRP (6.54 mg/L) is above the reference range (<5) and ESR (45 mm/hr) is markedly elevated (0–12) — consistent with active systemic inflammation. Correlate clinically to identify and address the underlying cause.

hs-CRP (Quantitative) REF <5.0	6.54 mg/L	0 — 10	REVIEW
ESR (1st hour) REF 0–12	45 mm/hr	0 — 60	REVIEW

Protein & Nutrition

±0.0 yrs

Protein stores and nutritional status

WHAT THIS TELLS US Total protein, albumin and globulin are balanced — indicating adequate nutrition and healthy hepatic protein synthesis. Albumin/globulin ratio is in range.

Total Protein REF 6.6–8.3	7.32 g/dl	5.5 — 9.5	OPTIMAL
Albumin REF 3.5–5.2	4.12 g/dl	2.5 — 6	OPTIMAL
Globulin REF 3.0–4.2	3.20 g/dl	2 — 5	OPTIMAL
Albumin / Globulin Ratio REF 1.2–2.5	1.29 ratio	0.5 — 3	OPTIMAL

Liver

±0.0 yrs

Liver function and detoxification capacity

WHAT THIS TELLS US All liver enzymes and bilirubin fractions are within healthy ranges — no signal of hepatic inflammation or hepatocellular injury. Liver function is excellent.

Bilirubin (Total) REF 0.3–1.2	0.51 mg/dl	0 — 2	OPTIMAL
Bilirubin (Direct) REF 0–0.2	0.10 mg/dl	0 — 0.5	OPTIMAL
Bilirubin (Indirect) REF 0.0–0.8	0.41 mg/dl	0 — 1.2	OPTIMAL
AST / SGOT REF 3–35	14 U/L	0 — 50	OPTIMAL
ALT / SGPT REF 3–35	12 U/L	0 — 50	OPTIMAL
Alkaline Phosphatase REF 33–98	69 U/L	20 — 120	OPTIMAL
GGT REF 5–38	14 U/L	0 — 50	OPTIMAL
SGOT / SGPT Ratio REF 0.7–1.4	1.17 ratio	0.3 — 2	OPTIMAL

Kidney

+0.2 yrs

Kidney filtration and waste clearance

WHAT THIS TELLS US Creatinine, eGFR, uric acid and electrolytes are all excellent. Blood urea (16.4) and BUN (7.7) sit just below the lower reference limits — often reflective of low protein intake or over-hydration; not clinically concerning in isolation.

Creatinine REF 0.4–0.9	0.67 mg/dl	0.2	1.5	OPTIMAL
eGFR (CKD-EPI) REF ≥90	109.78 mL/min/1.73m²	90	140	OPTIMAL
Uric Acid REF 2.6–6.0	4.5 mg/dl	2	8	OPTIMAL
Blood Urea REF 17–43	16.4 mg/dl	10	50	REVIEW
BUN REF 8–20	7.7 mg/dl	5	25	REVIEW
BUN / Creatinine Ratio REF 10–20	11.43 ratio	5	25	OPTIMAL
Urea / Creatinine Ratio REF 20–40	24.48 ratio	10	50	OPTIMAL

Haemogram / RBC

+0.8 yrs

Red-blood-cell health and oxygen-carrying capacity

WHAT THIS TELLS US Haemoglobin (10.8 g/dL) and Hematocrit (33.6 %) sit below the female reference ranges — a mild normocytic anaemia. RBC count, MCV, MCH, MCHC and RDW are all normal. Consider iron studies, ferritin and B-vitamin status with your physician.

Haemoglobin (Hb) REF 12.0–15.0	10.8 g/dL	8	17	REVIEW
Hematocrit (PCV) REF 36.0–46.0	33.6 %	28	52	REVIEW
RBC Count REF 3.80–4.80	3.91 10^6/µL	3	5.5	OPTIMAL
MCV REF 83.0–101.0	86.0 fL	70	110	OPTIMAL
MCH REF 27.0–32.0	27.6 pg	22	36	OPTIMAL
MCHC REF 31.5–34.5	32.1 g/dL	28	37	OPTIMAL
RDW-CV REF 11.6–14.0	13.4 %	10	17	OPTIMAL
RDW-SD REF 39.0–46.0	41.60 fL	35	50	OPTIMAL

Immune System

±0.0 yrs

White-blood-cell balance and immune readiness

WHAT THIS TELLS US Total WBC and the full differential are all within reference ranges. Platelet count and MPV are normal. The immune compartment is balanced and responsive.

Total Leucocyte Count REF 4.0–10.0	7.2 $10^3/\mu L$	3 — 12	OPTIMAL
Neutrophils REF 40–80	52.2 %	30 — 90	OPTIMAL
Lymphocytes REF 20–40	38.1 %	15 — 50	OPTIMAL
Monocytes REF 2–10	6.2 %	0 — 15	OPTIMAL
Eosinophils REF 1–6	3.0 %	0 — 10	OPTIMAL
Basophils REF 0–2	0.5 %	0 — 3	OPTIMAL
Platelet Count REF 150–410	300 $10^3/\mu L$	100 — 450	OPTIMAL
MPV REF 7–9	8.3 fL	6 — 12	OPTIMAL

Minerals & Electrolytes

±0.0 yrs

Bone minerals and fluid-balance electrolytes

WHAT THIS TELLS US All electrolytes (calcium, phosphorus, sodium, potassium, chloride) are in range. Magnesium sits right at the lower reference limit — worth prioritising magnesium-rich foods (leafy greens, nuts, seeds, whole grains).

Calcium REF 8.8–10.6	9.0 mg/dl	7 — 12	OPTIMAL
Phosphorus REF 2.5–4.5	3.9 mg/dl	2 — 6	OPTIMAL
Sodium REF 136–146	140 mmol/L	130 — 150	OPTIMAL
Potassium REF 3.5–5.5	4.40 mmol/L	3 — 6	OPTIMAL
Chloride REF 101–109	106 mmol/L	95 — 115	OPTIMAL
Magnesium REF 1.9–2.5	1.9 mg/dl	1.5 — 3	OPTIMAL

Vitamins & Thyroid

±0.0 yrs

Vitamin status and thyroid axis

WHAT THIS TELLS US Thyroid function (TSH, T3, T4) is normal. Vitamin D3 is comfortably sufficient; Vitamin B12 is within range but toward the lower half — worth watching alongside the elevated homocysteine.

Vitamin D (25-OH) REF 30–100	34.11 ng/ml	0 — 110	OPTIMAL
Vitamin B12 REF 211–912	341 pg/ml	100 — 1000	OPTIMAL
TSH (Ultra-sensitive) REF 0.55–4.78	2.973 µIU/mL	0 — 6	OPTIMAL
T3 (Total) REF 0.60–1.81	1.09 ng/ml	0.3 — 2.2	OPTIMAL
T4 (Total) REF 3.2–12.6	8.80 µg/dl	2 — 15	OPTIMAL

SECTION 04 — IMPLICATIONS

What your results mean.

Every major chronic condition of modern life is, at root, a disease of accelerated biological ageing. Here is how your nine-system profile translates into real-world health implications.

Lipid & Cardio

PRIMARY LEVER

LDL (157.3), total cholesterol (218) and non-HDL (171.3) are all above range, with an unfavourable Total/HDL ratio of 4.67. Elevated homocysteine (18.56) compounds cardiovascular and cognitive risk. This is the dominant lever in this report.

Inflammation

INVESTIGATE

Both hs-CRP (6.54) and ESR (45) are elevated — consistent with active systemic inflammation. Low-grade inflammation underlies most age-related disease; correlate clinically to identify and address the underlying source.

Haemogram / RBC

REVIEW

Haemoglobin (10.8) and Hematocrit (33.6) sit below the female reference range — a mild normocytic anaemia. Iron studies, ferritin, and B-vitamin status are worth ordering to pinpoint the cause. Fatigue and reduced exercise capacity are common presenting symptoms.

Glucose & Metabolic

WATCH

HbA1c at the upper edge of optimal (5.60) shapes your long-term risk of insulin resistance and type-2 diabetes. Small dietary changes now compound into substantially lower metabolic age over decades.

Liver, Kidney & Protein

MAINTAIN

Liver enzymes, renal filtration and protein/albumin status are all in healthy ranges. These foundations require routine maintenance, not intervention.

Longevity Trajectory

TARGET

With focused attention on LDL cholesterol, homocysteine, systemic inflammation and haemoglobin, a measurable shift in biological age is achievable within 6–12 months. Re-testing is the only reliable way to confirm the change.

SECTION 05 — ACTION

Personalised recommendations.

Targeted actions that can meaningfully improve your biological-age score, ordered by expected impact. Always discuss changes with your physician before starting.

01

Address LDL & non-HDL cholesterol

HIGH IMPACT

Reduce saturated and trans fats (fried foods, processed snacks, fatty meats). Increase soluble fibre (oats, legumes, psyllium), fatty fish, nuts, olive oil, and plant sterols. Discuss lipid-lowering therapy with your physician given LDL of 157 mg/dL. Re-test the lipid panel at 12 weeks.

02

Correct elevated Homocysteine

HIGH IMPACT

Homocysteine at 18.56 µmol/L is well above range. Supplement methylated B-vitamins (B12, folate, B6), reduce alcohol, and increase leafy greens. Re-test in 6–8 weeks.

03

Investigate systemic Inflammation

HIGH IMPACT

hs-CRP 6.54 mg/L and ESR 45 mm/hr indicate active inflammation. Ask your physician about screening for occult infection, autoimmune conditions, or oral / GI / dental sources. Anti-inflammatory diet, adequate sleep and stress management support the workup.

SECTION 05 — ACTION · CONTINUED

Actions 04 — 06.

04

Work up mild Anaemia

Hb 10.8 g/dL and Hct 33.6 % are below female reference ranges. Request iron studies (ferritin, TIBC, transferrin saturation) and dietary review — iron-rich foods (leafy greens, lean red meat, legumes, fortified cereals) with vitamin C to aid absorption.

MODERATE IMPACT

05

Watch HbA1c

HbA1c at 5.60 % sits at the upper edge of optimal. Prioritise fibre-rich vegetables and protein, reduce refined carbohydrates, and add 20–30 minutes of daily walking to keep it from drifting upward.

LOW IMPACT

06

Maintain Your Strengths

Liver, kidney, protein/nutrition, immune balance, electrolytes, thyroid, Vitamin D3 and Vitamin B12 are all in healthy ranges. Continue your current habits to sustain these systems.

MAINTAIN

SECTION 06 — ROADMAP

Your 12-month plan.

A phased follow-up schedule designed to close your main gaps and confirm the gains with objective re-testing.

NOW

Review with your physician

Share this report with your physician — flag the lipid panel, homocysteine, inflammatory markers and low haemoglobin for clinical interpretation.

1–4 WEEKS

Begin lipid, B-vitamin & iron plan

Start dietary changes, B-vitamin supplementation, and (with your physician) any lipid-lowering therapy. Order iron studies and ferritin.

6–8 WEEKS

Re-test homocysteine, CRP & ESR

Re-check homocysteine, hs-CRP and ESR to confirm downward / corrective trends after diet and B-vitamin changes.

3 MONTHS

Full lipid panel re-test

Re-test the full lipid panel (Total, LDL, HDL, TG, non-HDL, ratios) to measure the response to your intervention.

6 MONTHS

Complete haemogram & metabolic

Re-run CBC, HbA1c, fasting glucose and kidney function to confirm sustained improvement across systems.

12 MONTHS

Full biological-age report

Run a complete biological-age report to measure your year-on-year improvement and recalibrate the plan.

YOUR STRENGTHS

- Liver enzymes & bilirubin excellent
- Kidney filtration (eGFR 109.78)
- Full WBC differential in range
- Platelet count & MPV normal
- Thyroid function balanced
- Vitamin D sufficient (34.11 ng/ml)
- Glucose, HbA1c & C-peptide healthy

AREAS TO IMPROVE

- LDL cholesterol 157.3 mg/dL (target <100)
- Total & non-HDL cholesterol above range
- Homocysteine 18.56 µmol/L (ref 3.7–13.9)
- hs-CRP 6.54 mg/L (ref <5)
- ESR 45 mm/hr (ref 0–12)
- Haemoglobin 10.8 g/dL (ref 12–15)
- Hematocrit 33.6 % (ref 36–46)

SECTION 07 — REFERENCE

Understanding your markers.

A plain-language glossary of the blood markers used in this report, their reference ranges, and what an abnormal value may indicate.

HbA1c
`4.2–5.7 %`

Glycated haemoglobin — average blood sugar over 2–3 months. Elevated levels indicate prediabetes or diabetes risk.

Fasting Glucose
`70–100 mg/dl`

Blood sugar after fasting. High values signal insulin resistance or diabetes; very low values may indicate hypoglycaemia.

C-peptide
`0.48–5.05 ng/mL`

Reflects pancreatic insulin secretion. Helps distinguish insulin deficiency from insulin resistance.

Total Cholesterol
`<200 mg/dl`

Sum of LDL, HDL and VLDL. Elevated total cholesterol increases cardiovascular risk.

LDL Cholesterol
`<100 mg/dL`

"Bad" cholesterol. High LDL increases the risk of arterial plaque build-up and cardiovascular disease.

HDL Cholesterol
`40–60 mg/dL`

"Good" cholesterol — transports excess cholesterol back to the liver. Higher is generally protective.

Triglycerides
`<150 mg/dL`

Blood fats linked to diet and metabolic health. Elevated by high sugar/alcohol intake and low exercise.

Non-HDL Cholesterol
`<160 mg/dL`

Total cholesterol minus HDL — captures all atherogenic lipoproteins in one number.

Homocysteine
`3.7–13.9 µmol/L`

Amino-acid byproduct of methionine metabolism. Elevated values are linked to cardiovascular and cognitive risk; usually corrected by B-vitamins.

hs-CRP
`<5 mg/L`

High-sensitivity C-reactive protein — a sensitive marker of systemic inflammation. Elevated values increase cardiovascular risk.

ESR
`0–12 mm/hr`

Erythrocyte sedimentation rate — a broad marker of inflammation. Elevated in infection, autoimmune conditions or chronic disease.

AST / ALT
`3–35 U/L`

Liver enzymes. Elevated levels indicate liver-cell damage, fatty liver or hepatitis.

Alkaline Phosphatase
`33–98 U/L`

Enzyme from liver and bone. Elevated in biliary obstruction, bone disease, or hepatitis.

GGT
`5–38 U/L`

Sensitive marker of hepatobiliary disease and alcohol-related liver injury.

Bilirubin
`0.3–1.2 mg/dl`

Breakdown product of heme. Elevated in haemolysis or biliary obstruction.

SECTION 07 — REFERENCE · CONTINUED

Glossary (continued).

Creatinine `0.4–0.9 mg/dl (F)`

Waste product filtered by the kidneys. Elevated creatinine signals reduced kidney filtration (GFR).

eGFR `≥90 mL/min/1.73m²`

Estimated glomerular filtration rate — the gold-standard measure of kidney function.

BUN / Urea `BUN 8–20 · Urea 17–43 mg/dl`

Reflect kidney function and dietary protein intake. Low values often benign; high values signal renal impairment or dehydration.

Uric Acid `2.6–6.0 mg/dl`

Byproduct of purine metabolism. High levels cause gout and are linked to kidney stones and cardiovascular risk.

Total Protein / Albumin / Globulin `TP 6.6–8.3 · Alb 3.5–5.2 · Glob 3.0–4.2 g/dl`

Liver-synthesised proteins. Reflect nutritional status and hepatic protein synthesis.

Haemoglobin / Hematocrit `Hb 12–15 · Hct 36–46 % (F)`

Oxygen-carrying capacity of the blood. Low values indicate anaemia.

RBC / MCV / MCH / MCHC `RBC 3.8–4.8 · MCV 83–101 fL`

Red-cell count and size / haemoglobin content. Characterises the type of anaemia when present.

RDW-CV / RDW-SD `RDW-CV 11.6–14 %`

Red-cell distribution width. Elevated RDW often signals early micronutrient deficiency.

WBC & Differential `TLC 4–10 · Neut 40–80 · Lymph 20–40 %`

Total and subset counts of white blood cells. Reflect immune status and capacity to fight infection.

Platelets / MPV `PLT 150–410 · MPV 7–9 fL`

Platelet count and size — reflect clotting capacity and marrow production.

Calcium / Phosphorus / Magnesium `Ca 8.8–10.6 · P 2.5–4.5 · Mg 1.9–2.5 mg/dl`

Bone and neuromuscular minerals. Balanced levels support cardiovascular, bone and metabolic health.

Sodium / Potassium / Chloride `Na 136–146 · K 3.5–5.5 · Cl 101–109 mmol/L`

Electrolytes that regulate fluid balance, blood pressure, and nerve/muscle function.

Vitamin D3 (25-OH) `30–100 ng/ml`

Critical for bone health, immunity and mood regulation. Deficiency is common and easily corrected with supplementation.

Vitamin B12 `211–912 pg/ml`

Required for nerve function and red-blood-cell formation. Low levels link to fatigue, neuropathy and elevated homocysteine.

TSH / T3 / T4 `TSH 0.55–4.78 · T3 0.60–1.81 · T4 3.2–12.6`

Thyroid axis. Outside range indicates hypo- or hyperthyroidism, both affecting metabolism and energy.

A CLOSING WORD

Connect with your physician for medical advice and correlate clinically.

Biological age is dynamic. Consistent improvements in diet, exercise, sleep and stress management can reduce biological age by 1–5 years over 12–24 months. This report gives you an evidence-informed baseline and the specific targets to work toward.

The body is a system. Engineer it.