



Your bio age & insights

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There's room to improve

YOUR OVERVIEW

Bio age

58-60

You are 4 years older than your birthday age

53-55

Potential
(in 6-9 months)



55

Birthday age



Biological age appears modestly older than chronological age, driven mainly by elevated CRP, atherogenic lipid profile, and prediabetic HbA1c, all of which increase cardiovascular and metabolic aging risk. Mild kidney strain markers (urea, creatinine) add to this burden, while

normal liver function, thyroid status, and solid oxygen transport partially offset the risk profile.

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YOUR ANALYSIS

A guide to understand your blood test

YOUR OVERVIEW

Name: David L

Sex: Male

DOB: November 21, 1970

Bio age: 58-60

Birthday age at time of test: 55 years, 4 months

BioKarma Analysis: Apr 20, 2026

Top strengths

- Fasting glucose and overall metabolic snapshot – fasting glucose is comfortably normal, supporting good short-term glycemic control.
- Liver function (ALT, AST, GGT, bilirubin, alkaline phosphatase) – all within range, indicating healthy hepatic function and low current liver-related aging burden.
- Oxygen transport (hemoglobin, hematocrit, RBC) – all normal, supporting good tissue oxygenation and physical capacity.
- Thyroid function (TSH, free T4, free T3, total T4) – within reference ranges, suggesting adequate thyroid-driven metabolic support.
- Key micronutrients (vitamin B12, iron) – within range, supporting red blood cell production and neurologic health.

Areas for attention

- CRP
- Total cholesterol
- LDL cholesterol
- Triglycerides
- Urea
- Creatinine
- MCH
- HbA1c (%)

DETAILS

Inflammation & Immune Function

Why it matters:

These markers reflect systemic inflammation, which is a key driver of vascular damage, insulin resistance, and many age-related diseases. Your CRP is mildly elevated, suggesting low-grade chronic inflammation that can contribute to faster biological aging if persistent.

Biomarker	Definition	Result	Reference	Status
CRP	CRP (C-reactive protein) is a protein made by the liver that rises with systemic inflammation and is a strong predictor of cardiovascular risk and accelerated biological aging.	7.5 mg/L	<6.0	Out of range

Lipid Profile & Cardiovascular Risk

Why it matters:

Blood lipids are central to cardiovascular aging because they drive plaque formation, arterial stiffness, and risk of heart attack and stroke. Your LDL, total cholesterol, and triglycerides are elevated while HDL is adequate, indicating atherogenic dyslipidemia that meaningfully increases long-term cardiovascular and biological age risk.

Biomarker	Definition	Result	Reference	Status
Total cholesterol	Total cholesterol measures the overall amount of cholesterol in the blood and is a broad indicator of lipid-related cardiovascular risk.	6.48 mmol/L	0.00–5.5	Out of range
LDL cholesterol	LDL cholesterol is the "bad" cholesterol that deposits in artery walls and is directly linked to atherosclerosis and cardiovascular events.	4.7 mmol/L	2.2–3.7	Out of range
Triglycerides	Triglycerides are blood fats that, when elevated, are associated with insulin resistance, fatty liver, and	2.12 mmol/L	0.00–2.0	Out of range

	increased cardiovascular risk.			
HDL cholesterol	HDL cholesterol is the "good" cholesterol that helps remove excess cholesterol from arteries and is generally protective against cardiovascular disease.	1.30 mmol/L	0.90–2.00	Within range

Metabolic Health

Why it matters:

Metabolic markers show how effectively your body regulates blood sugar, a major determinant of aging through effects on blood vessels, nerves, and organs. Your fasting glucose is comfortably within the normal range, which is favorable for metabolic health despite other signs of impaired longer-term glycemic control.

Biomarker	Definition	Result	Reference	Status
Glucose (fasting)	Fasting glucose reflects how well your body maintains blood sugar levels and is a core marker of metabolic and diabetes risk.	4.06 mmol/L	3.5–6.1	Within range

Liver & Kidney Function

Why it matters:

Liver and kidney markers indicate how well your detoxification and filtration organs are functioning, which strongly influences longevity. Your liver enzymes are reassuringly normal, but urea and creatinine are mildly elevated, suggesting possible early kidney strain or reduced filtration that warrants attention for long-term health.

Biomarker	Definition	Result	Reference	Status
ALT	ALT (alanine aminotransferase) is a liver enzyme that rises with liver cell injury and is used to assess liver health and fatty liver risk.	12 U/L	10–45	Within range
AST	AST (aspartate aminotransferase) is a liver and muscle enzyme that helps evaluate liver integrity and, together with ALT, screens for liver damage.	13 U/L	10–34	Within range

Urea	Urea is a waste product from protein metabolism cleared by the kidneys, and elevated levels can reflect reduced kidney function, high protein intake, or dehydration.	12.32 mmol/L	2.7–7.8	Out of range
Creatinine	Creatinine is a muscle-derived waste product filtered by the kidneys, and higher levels can indicate reduced kidney filtration capacity.	112 µmol/L	45–109	Out of range

Hematologic Profile

Why it matters:

Red blood cell indices reflect oxygen delivery to tissues, which underpins energy levels, exercise capacity, and resilience with aging. Your hemoglobin, hematocrit, and RBC count are solidly normal, indicating good oxygen transport, while a slightly high MCH is a minor red cell variation without clear impact on biological age in this context.

Biomarker	Definition	Result	Reference	Status
Hemoglobin (HGB)	Hemoglobin is the oxygen-carrying protein in red blood cells and is essential for delivering oxygen to tissues and supporting energy and organ function.	14.60 g/dL	11.00–18.00	Within range
Hematocrit (HCT)	Hematocrit is the percentage of blood volume made up of red blood cells and reflects overall oxygen-carrying capacity and blood viscosity.	43.00 %	35.00–60.00	Within range
Red blood cells (RBC)	Red blood cells transport oxygen from the lungs to tissues, and adequate counts are vital for stamina, cognition, and overall vitality.	4.60 10^6/µL	4.00–10.50	Within range
MCH	MCH (mean corpuscular hemoglobin) is the average amount of hemoglobin per red blood cell and helps characterize red cell size and hemoglobin content in anemia evaluation.	31.8 pg	27.0–31.2	Out of range

Micronutrients & Vitamins

Why it matters:

Micronutrients support energy metabolism, immune function, and tissue repair, all of which influence how quickly or slowly you age. Your vitamin D, B12, and iron are within the lab's ranges, though vitamin D is at the low end of an "insufficient" band where modest improvement could further support long-term health.

Biomarker	Definition	Result	Reference	Status
Vitamin D	Vitamin D is a hormone-like vitamin important for bone health, immune function, and muscle performance, and low levels are linked to frailty and chronic disease risk.	20.0 ng/mL	20–30 insufficient	Within range
Vitamin B12	Vitamin B12 is essential for red blood cell production and nerve function, and deficiency can cause anemia, cognitive issues, and neuropathy.	246 pg/mL	180–914	Within range
Iron	Serum iron reflects circulating iron available for red blood cell production and other metabolic processes, with both deficiency and overload affecting health and aging.	11.4 µmol/L	7–26	Within range

📄 Glycemic Control

Why it matters:

Long-term glycemic markers show how much sugar your tissues are exposed to over time, which drives vascular damage, nerve injury, and accelerated aging when elevated. Your HbA1c values are in the prediabetic range, indicating chronically higher-than-ideal glucose exposure despite a normal fasting glucose.

Biomarker	Definition	Result	Reference	Status
HbA1c (%)	HbA1c (%) reflects the average blood glucose over the past 2–3 months and is used to diagnose and monitor prediabetes and diabetes.	6.08 %	<5.7 normal	Out of range
HbA1c (mmol/mol)	HbA1c (mmol/mol) is an alternative unit for long-term blood sugar control, with higher values indicating increased risk of diabetes and vascular complications.	43.0 mmol/mol	<39 normal	Out of range

📄 Thyroid Function

Why it matters:

Thyroid hormones regulate metabolic rate, body temperature, and many aspects of cardiovascular and brain function that influence biological aging. Your TSH and thyroid hormone levels are within the lab's reference ranges, suggesting generally adequate thyroid function without a clear signal of thyroid-driven aging acceleration.

Biomarker	Definition	Result	Reference	Status
TSH	TSH (thyroid-stimulating hormone) is produced by the pituitary to regulate thyroid hormone production and is a sensitive marker of overall thyroid axis status.	4.70 μIU/mL	0.38–5.33	Within range
Free T4 (FT4)	Free T4 is the unbound form of thyroxine, the main hormone produced by the thyroid gland, and is crucial for metabolic rate and energy balance.	9.17 pmol/L	6.86–14.41	Within range
Free T3 (FT3)	Free T3 is the active thyroid hormone that directly controls cellular metabolism, temperature regulation, and energy levels.	4.6 pmol/L	3.8–6.0	Within range
Total T4	Total T4 measures both bound and free thyroxine in the blood and helps assess overall thyroid hormone production.	102.35 nmol/L	78.38–157.4	Within range

Summary:

Biological age appears modestly older than chronological age, driven mainly by elevated CRP, atherogenic lipid profile, and prediabetic HbA1c, all of which increase cardiovascular and metabolic aging risk. Mild kidney strain markers (urea, creatinine) add to this burden, while normal liver function, thyroid status, and solid oxygen transport partially offset the risk profile.

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