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SystemAge™ Report

for 21 organs & systems

NAME

Eva Lasting

KIT ID

GLABDEM4GF

DATE OF BIRTH

1979-07-10

COLLECTED

2025-08-19

METHYLATION DETECTION
POWERED BY ILLUMINA®
GL260K-M CUSTOMIZED CHIP
FOR GENERATION LAB

BIOLOGICAL AGE MEASUREMENT
COMPUTED BY PROPRIETARY ALGORITHM
NOISE BAROMETER™ (V2.0.0)
BY GENERATION LAB

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About SystemAge™ Test

Before diving into your results, here's a quick dose of science to help you make sense of what's ahead. For more information, please visit our science page (www.generationlab.com/science).

The Science Behind Your Test

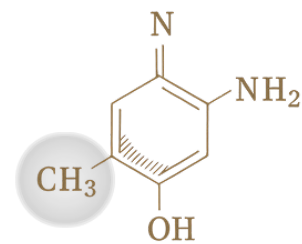
Dr. Irina Conboy, CSO and co-founder of Generation Lab, is a world-renowned expert in longevity science and regenerative medicine. With over two decades of groundbreaking research, 180+ peer-reviewed publications and 4000+ citations, she has pioneered discoveries on how biological aging can be measured and potentially reversed. Through Generation Lab, Dr. Conboy brings cutting-edge epigenetic science from the lab to your hands, making advanced biological age testing accessible and actionable.



What We Measure

Your DNA is like your body's hardware — it doesn't change with age. Traits like eye color, hair color, and ethnicity stay constant. But the software of your body — gene expression does change. Lifestyle, stress, and environment all influence how your genes are turned on or off through processes like DNA methylation at CpG sites. These chemical markers shape how your cells function and age over time.

Dr. Irina Conboy's two decades of aging research revealed that aging isn't just about "more" or "less" methylation. It's about noise in gene expression — the drift of methylation patterns away from healthy baselines. We call this BioNoise™, your body's version of entropy.



methylated cytosine

How We Measure

Built on decades of research, we analyze 460+ handpicked aging biomarkers across 21 organ systems. Your blood sample is processed in our CLIA-certified laboratory using a Generation Lab custom Illumina methylation microarray chip, capturing the precise methylation patterns that reflect how your body is aging.

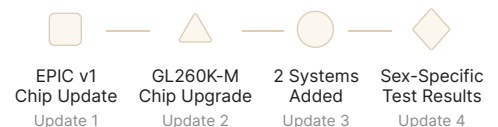


CpG site on DNA strand

What's New

Our science evolves. Since launching, we've upgraded our chip, expanded our biomarker panel, and added sex-specific analysis. Because of this, results between your tests may shift, sometimes meaningfully without your biology changing. **A surprising number doesn't always mean something's wrong.** If you have questions about a result, get in touch with us.

[See Appendix for Full Updates →](#)

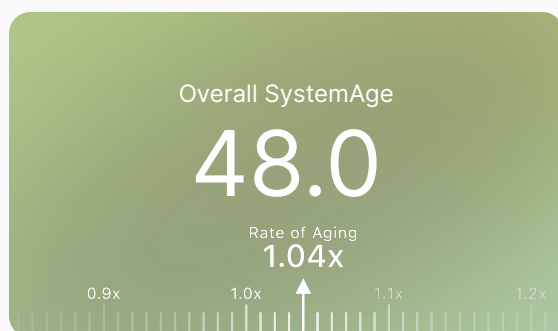


Your Overall Health

460+ BioMarkers

Your Overall Health section provides a snapshot of your body's biological state. While each body system ages at its own pace, this section offers an integrated view of how your body is performing as a whole. For your personalized recommendations on how to improve your health holistically, go to page 9.

Your Overall SystemAge



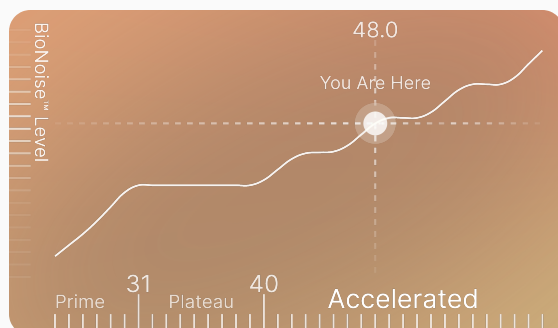
Your Overall SystemAge is **48.0** years, which is **1.9** years older than your calendar age of 46.1. This means your body has been aging faster than expected, at a rate of **1.04x** the calendar speed. This indicates your body is performing in the **normal** range for your age group.

Importantly, your rate of aging is not fixed — it's a reflection of how your lifestyle, environment, and internal physiology are interacting over time. With the right interventions, you can slow down your aging process and improve long-term health. See page 9 for your personalized recommendations.

Overall SystemAge™ refers to your body's biological age. Your overall SystemAge is based on analysis of 460+ CpGs linked to aging-related epigenetic sites to measure the pace of aging from DNA methylation.

Rate of Aging is the ratio of your biological age over your calendar age — it informs the speed your body is aging at up to the point of the test.

Overall Female Aging Entropy Curve



Your results suggest that you are in the Accelerated aging stage for overall biological health. This means your body is showing signs of faster decline in system performance with increased biological noise levels, indicating growing biological irregularities or inefficiencies. The elevated biological noise suggests more random fluctuations and decreased precision in cellular processes.

This progression aligns with typical aging patterns for your chronage and represents a natural part of the aging process.

The Overall Female Aging Entropy Curve reflects the common aging trajectory among healthy females. The curve is plotted based on Generation Lab's extensive dataset of over several million healthy data points. Curves for individual systems are different from each other, indicating distinctive aging characteristics of different bodily functions.

BioNoise™ reflects the chaos in your molecular systems — variability in gene expression that increases with age. Rising BioNoise can signal early aging or disease risk — even when labs look normal.

Your Trends Over Time

Your Overall Health section provides a snapshot of your body's biological state. While each body system ages at its own pace, this section offers an integrated view of how your body is performing as a whole.

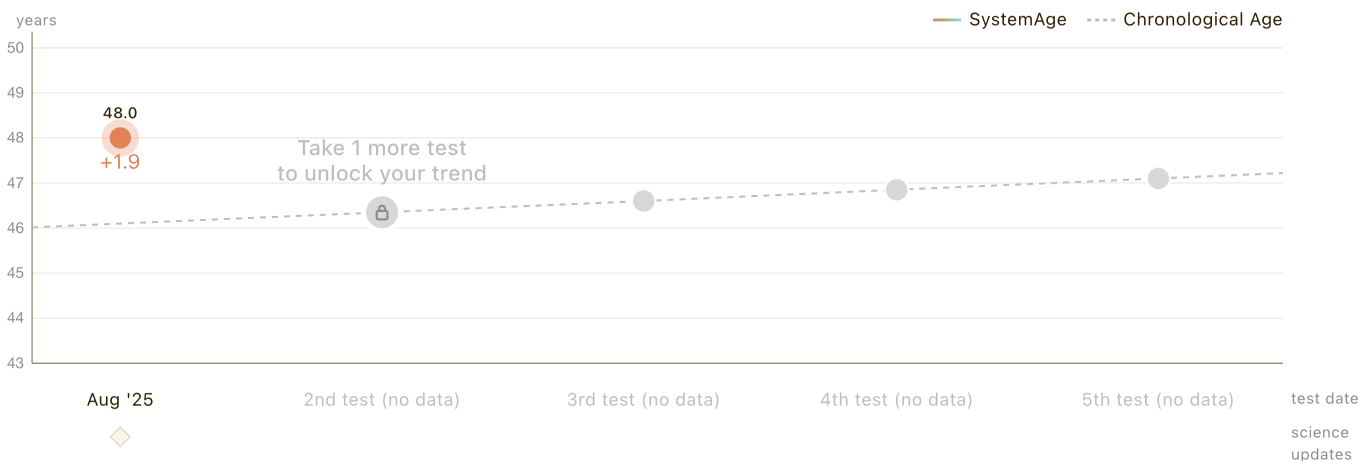
Total tests taken

1

What we're seeing

Your body is currently aging 1.9 years faster than your calendar age. This baseline is the foundation for tracking how your body responds over time. Your **2nd test** will show the direction of change, and by your **3rd**, you'll have a meaningful trend.

Trend for Your Overall Health



Age Difference The solid line is your biological age; the dashed line is your calendar age. Below the dashed line means you're aging slower than expected. The +/- number at each dot is the gap between the two.

Science Updates Please go to [Appendix](#) to view full version updates information.

Test Date It's when your sample was collected, reflecting your biology at that moment. We capture this from your online collection confirmation (when you click "I've collected my sample") or from your return shipping date as a fallback.

Recommended Testing Cycle

📅 Next Test: Nov 2025

We recommend retesting every 3 months to track your health progress. Our research shows this is the ideal interval to detect meaningful changes in your SystemAge. Depending on your specific plan, you may retest more or less frequently.



Current Test

Aug 2025



Provider Consultation

review this report with your provider



Protocol & Lifestyle

ongoing



Retest

Nov 2025






Your Trend Begins

track your progress




Biological Ages of 21 Systems

● optimal ● normal ● attention


Brain & Nervous System

-  Brain Health and Cognition
49.4 1.07x rate of aging
-  Auditory System
48.4 1.05x rate of aging
-  Nervous System
49.3 1.07x rate of aging







Heart & Circulation

-  Respiratory System (Lung)
50.5 1.10x rate of aging
-  Cardiac System (Heart)
53.0 1.15x rate of aging
-  Blood and Vascular System
49.2 1.07x rate of aging






Reproductive Health

-  Female Reproductive System (Ovaries & Uterus)
48.5 1.05x rate of aging




Cellular & Immune Defense

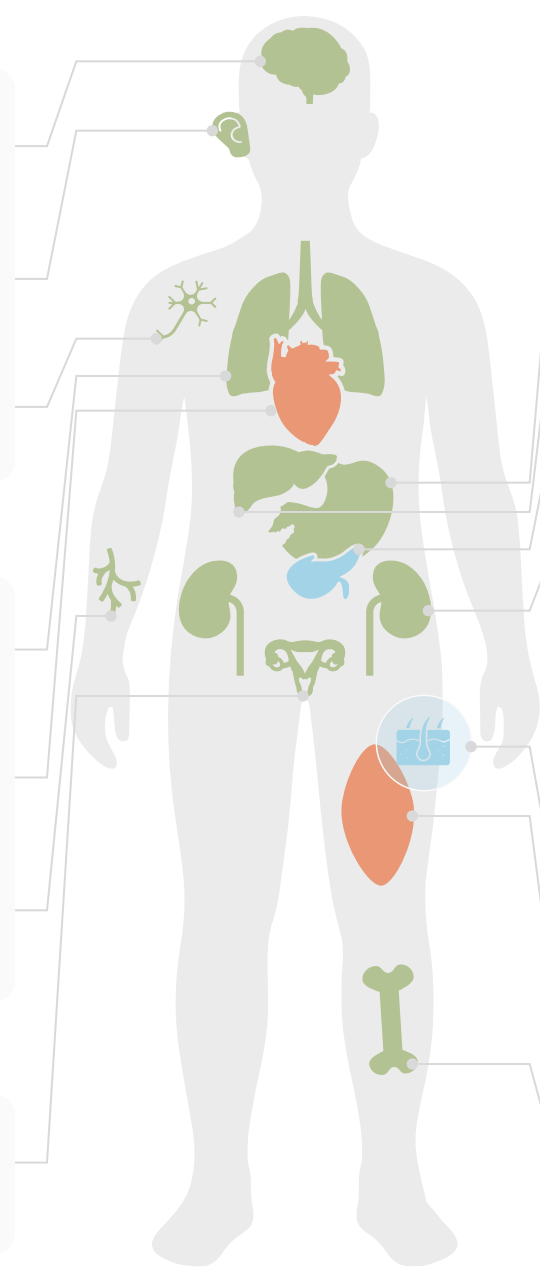
-  Immune System
49.0 1.06x rate of aging
-  Mitochondria Health
49.2 1.07x rate of aging
-  Fibrosis (Scar Tissue Formation)
46.9 1.02x rate of aging
-  Inflammatory Regulation
48.5 1.05x rate of aging
-  Tissue Regeneration
44.8 0.97x rate of aging
-  Oncogenesis (Cell Mutation)
48.1 1.04x rate of aging

Metabolic Health

-  Digestive System
46.9 1.02x rate of aging
-  Hepatic System (Liver)
42.6 0.92x rate of aging
-  Blood Sugar and Insulin Control
39.2 0.85x rate of aging
-  Urinary System
46.7 1.01x rate of aging
-  Metabolism
47.1 1.02x rate of aging

Structural Health

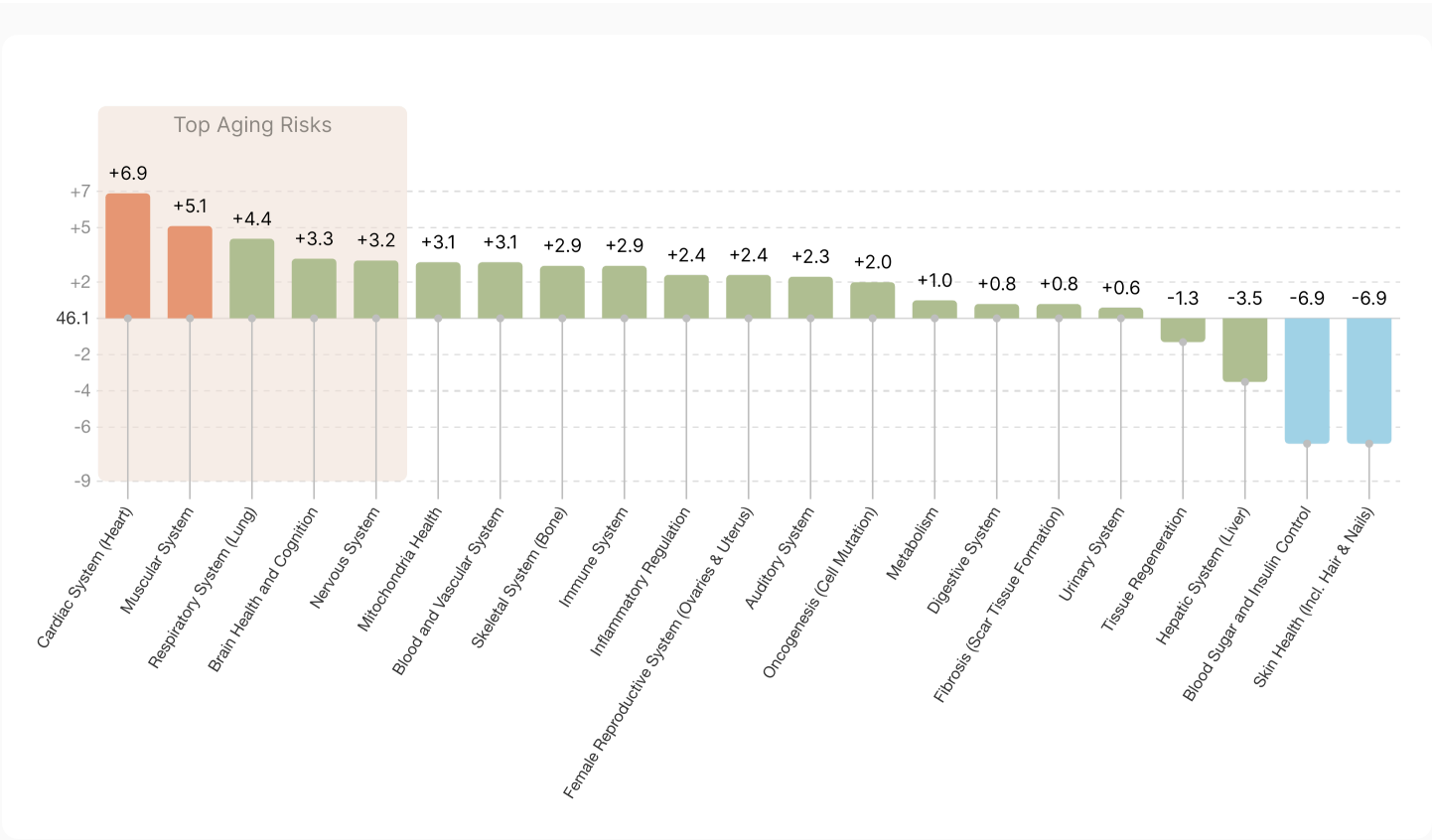
-  Skin Health (Incl. Hair & Nails)
39.2 0.85x rate of aging
NEW
-  Muscular System ⚠️
51.2 1.11x rate of aging
-  Skeletal System (Bone)
49.0 1.06x rate of aging



ⓘ **NOTE on Muscular System:** Muscular SystemAge can spike temporarily after heavy training, when muscles mid-repair register as accelerated aging. [See page 20 →](#)

Bar Graph Comparison

Your Overall Health section provides a snapshot of your body’s biological state. While each body system ages at its own pace, this section offers an integrated view of how your body is performing as a whole.



The Solid Line in the bar graph refers to your chronological age at the time of the test.

Top Aging Risks are the five body systems contributing most to your overall aging. By focusing on these areas first, you can take the most effective steps to improve your overall health. See page 18 for more details.

What's Next?

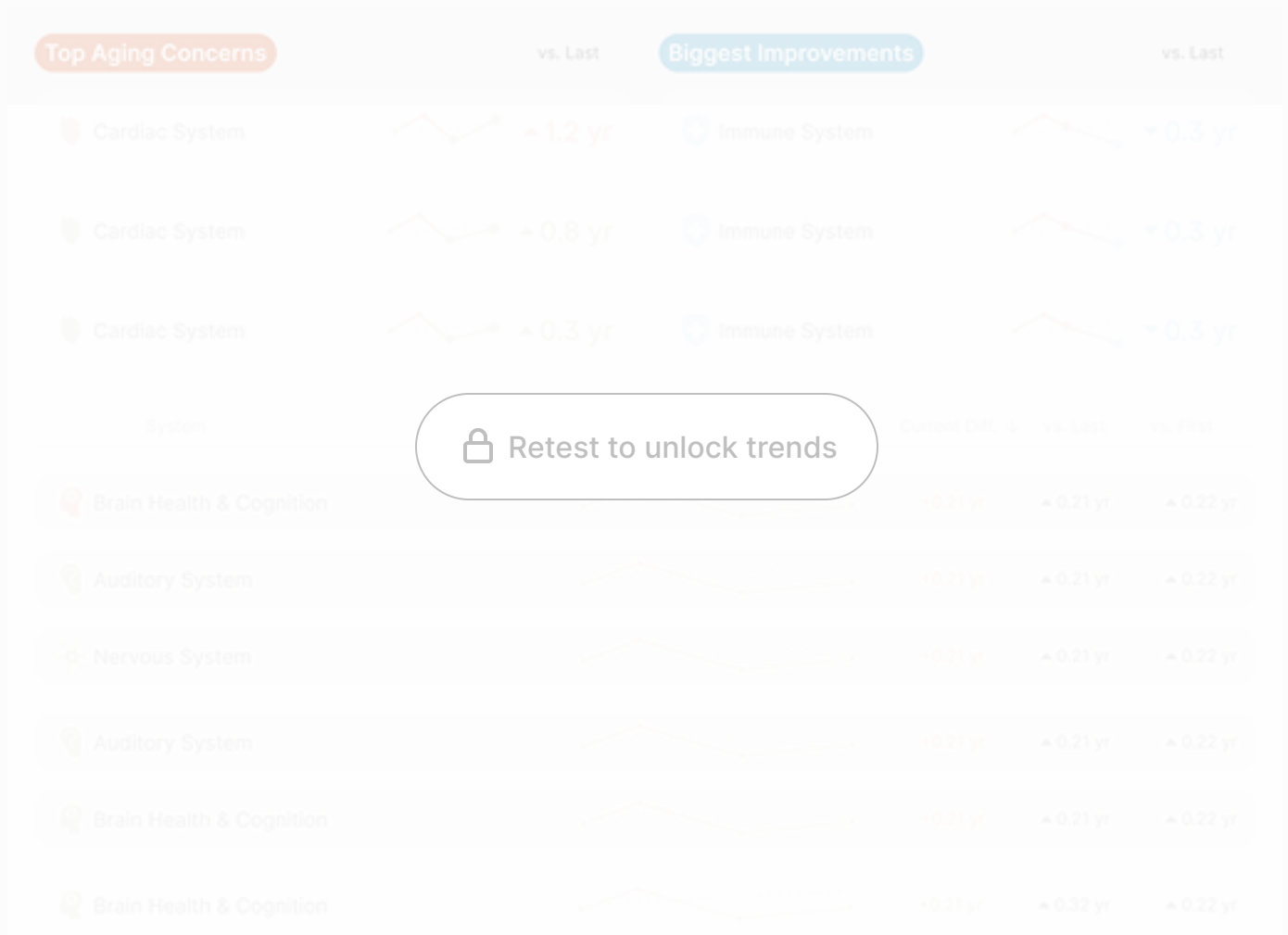
See how your body responds.
Retest in 3 months.

Your biological age isn't fixed — it shifts in response to lifestyle, environment, and the work you put in. We recommend retesting every 3 months to track real progress against the recommendations in this report.

● Preview

Trend for Your 21 Systems

After your next test, this page will show you exactly which systems improved and which ones need more attention — system by system, test by test. Here's a preview of what you'll see.



Your Best 3 Systems

Each of your body systems ages at its own pace. These are the systems performing best for you right now. It's a strong starting point and a foundation worth protecting as you build from here.



Skin Health

pg. 58

39.2 years old 0.85x rate of aging ● optimal

Your Skin Health is biologically 6.9 years younger than your chronological age, making it your best system.

A great skin health may demonstrate strong collagen production and effective barrier function, likely from sun protection, proper hydration, and balanced nutrition. Healthy skin maintains elasticity, moisture retention, and efficient wound healing throughout life.

Superb! You've optimized your Skin Health — let's sustain this success!



Blood Sugar and Insulin Control

pg. 56

39.2 years old 0.85x rate of aging ● optimal

Your Blood Sugar and Insulin Control is biologically 6.9 years younger than your chronological age, making it your 2nd best system.

A great blood sugar regulation indicates excellent insulin sensitivity and glucose control, likely from balanced eating, regular activity, and healthy weight. Stable blood sugar prevents cellular damage and reduces risk of metabolic complications.

Fantastic job! Let's keep up the good work on your Blood Sugar and Insulin Control!



Hepatic System

pg. 54

42.6 years old 0.92x rate of aging ● normal

Your Hepatic System is biologically 3.5 years younger than your chronological age, making it your 3rd best system.

A good liver function shows effective detoxification and metabolic processing, reflecting moderate alcohol use, healthy diet, and toxin avoidance. Optimal liver health supports nutrient metabolism, hormone regulation, and natural detoxification processes.

Let's continue working on this and potentially improve your Hepatic System!

Your Top 5 Aging Risks

These 5 systems represent your greatest health vulnerabilities — they are the leading causes of your potential disease risks. By focusing on these priority areas, you can prevent health problems from developing and most effectively slow your aging process. For your personalized recommendations to improve these systems, go to Page 9.



Cardiac System

pg. 18

53.0 years old 1.15x rate of aging ● need attention

No.1

Your Cardiac System is your No.1 aging risk, 6.9 years older than your biological age.

Sedentary lifestyle, high-sodium diets, chronic stress, smoking, and excessive alcohol consumption strain heart muscle and disrupt rhythm regulation. Poor sleep quality and social isolation further accelerate cardiovascular aging and reduce heart function efficiency.



Muscular System

pg. 20

51.2 years old 1.11x rate of aging ● need attention

No.2

Your Muscular System is your No.2 aging risk, 5.1 years older than your biological age.

Physical inactivity, inadequate protein intake, and chronic inflammation accelerate muscle loss and weakness. Poor sleep, hormonal imbalances, and excessive alcohol impair muscle protein synthesis and recovery, leading to progressive loss of strength and functional capacity.



Respiratory System

pg. 22

50.5 years old 1.10x rate of aging ● normal

No.3

Your Respiratory System is your No.3 aging risk, despite its normal health status.

Smoking, air pollution exposure, sedentary lifestyle, and poor posture reduce lung capacity and efficiency. Chronic respiratory infections, occupational hazards, and obesity further compromise breathing mechanics and oxygen exchange, accelerating decline in respiratory function.



Brain Health and Cognition

pg. 24

49.4 years old 1.07x rate of aging ● normal

No.4

Your Brain Health and Cognition is your No.4 aging risk, despite its normal health status.

Chronic stress, poor sleep quality, social isolation, and physical inactivity accelerate cognitive decline and neural deterioration. High sugar intake, excessive alcohol, and lack of mental stimulation reduce neuroplasticity and impair memory, concentration, and problem-solving.



Nervous System

pg. 26

49.3 years old 1.07x rate of aging ● normal

No.5

Your Nervous System is your No.5 aging risk, despite its normal health status.

Chronic stress, neurotoxin exposure, vitamin B12 deficiency, and excessive alcohol consumption damage nerve cells and myelin sheaths. Poor sleep, sedentary lifestyle, and uncontrolled blood sugar accelerate neural degeneration, impairing nerve signal transmission and coordination.

Personalized Preliminary Action Plan

Powered by Generation Lab Recommender Engine™

Published by Generation Lab

The following recommendations are generated automatically by the Generation Lab Recommender Engine™ and have not been manually reviewed. They are intended for informational purposes only. Incorrect use of supplement, fitness, medication and therapy can lead to serious health consequences. Please consult a physician before taking any actions.

Medication for you

BEFORE YOU READ ON




These suggestions are generated algorithmically to support a provider consultation. Please **review each item with a provider before starting, stopping, or changing anything.**

Acarbose

Effects may vary between individuals. Consult a provider before use to avoid potential risks.

Acarbose slows carbohydrate absorption in the gut, reducing post-meal glucose spikes and insulin demand. It improves glycemic control and has shown longevity benefits in preclinical studies.

Why Recommend This for You?

-  **Your Cardiac System**
Your Top 1 Aging Factor 53.0 years old 1.15x rate of aging
No.1
Acarbose provides cardiovascular benefits through improved blood sugar control and reduced oxidative stress. It can reduce cardiovascular risk factors associated with diabetes and metabolic dysfunction.
-  **Your Inflammatory Regulation**
48.5 years old 1.05x rate of aging
Through improved blood sugar control, acarbose reduces chronic inflammation associated with high glucose levels. It can lower inflammatory markers and oxidative stress throughout the body.
-  **Your Metabolism**
47.1 years old 1.02x rate of aging
The medication improves metabolic health through glucose regulation and may promote longevity through dietary restriction-like effects. It enhances metabolic efficiency and reduces metabolic stress on the body.

Urolithin A

Effects may vary between individuals. Consult a provider before use to avoid potential risks.

Urolithin A enhances mitochondrial health by stimulating mitophagy, the removal of dysfunctional mitochondria. It improves muscle endurance, metabolic efficiency, and cellular vitality.

Why Recommend This for You?



Your Cardiac System

Your Top 1 Aging Factor 53.0 years old 1.15x rate of aging

This metabolite supports heart health by improving cardiac muscle cell energy production and reducing oxidative stress. Cardiovascular endurance and heart disease protection experience notable enhancement.



Your Muscular System

Your Top 2 Aging Factor 51.2 years old 1.11x rate of aging

Urolithin A enhances muscle function by promoting mitochondrial renewal and improving muscle cell energy production efficiency. Muscle strength and endurance increase while age-related muscle loss experiences significant reduction.



Your Nervous System

Your Top 5 Aging Factor 49.3 years old 1.07x rate of aging

The compound may protect brain cells by improving neuronal energy metabolism and reducing age-related cellular damage. Cognitive function support and brain aging process deceleration represent potential benefits.

Nutrition & Supplement for you

Vitamin C

Vitamin C, also known as ascorbic acid, is a powerful antioxidant that helps protect cells from damage. It is necessary for the growth, development, and repair of all body tissues, and plays a key role in collagen production, iron absorption, and maintaining immune health.

Suggestions for Vitamin C

Bell Peppers, Grapefruit, Kale, Kiwifruit, Mangoes, Oranges, Pineapples, Strawberries

Why Recommend This for You?



Your Cardiac System

Your Top 1 Aging Factor 53.0 years old 1.15x rate of aging

Vitamin C helps reduce overall stress levels in the body by lowering cortisol levels. Reduced stress decreases the likelihood of stress-induced cardiovascular problems like hypertension and arrhythmia. Therefore, Vitamin C indirectly supports heart health by promoting a calmer physiological state.



Your Muscular System

Your Top 2 Aging Factor 51.2 years old 1.11x rate of aging

The antioxidant properties of Vitamin C help alleviate exercise-induced muscle damage. This helps maintain muscle strength and function, promoting overall muscular health.



Your Respiratory System

Your Top 3 Aging Factor 50.5 years old 1.10x rate of aging

By supporting the function of the immune system, vitamin C aids in the repair and maintenance of lung tissues that are often damaged by infections or environmental stressors. This helps in respiratory recovery and maintains long-term lung health.

Vitamin D

Vitamin D is crucial for bone health, immune function, and calcium absorption. Its deficiency is linked to various health issues, including bone disorders and an increased risk of chronic diseases.

Suggestions for Vitamin D

Cod liver oil, Egg yolks, Fortified cereals, Fortified milk, Fortified orange juice, Mushrooms exposed to UV light, Tuna

Why Recommend This for You?



Your Cardiac System

Your Top 1 Aging Factor 53.0 years old 1.15x rate of aging

Adequate levels of vitamin D have been linked to lower risks of heart failure and cardiovascular issues by supporting the cardiovascular system's optimal functioning.



Your Muscular System

Your Top 2 Aging Factor 51.2 years old 1.11x rate of aging

Vitamin D's role in calcium regulation is critical for muscle function because calcium is essential for muscle contractions. Strong muscle contractions are necessary for effective physical movements and stability. Vitamin D deficiency can lead to weaker muscles and reduced physical performance.



Your Respiratory System

Your Top 3 Aging Factor 50.5 years old 1.10x rate of aging

Ensuring adequate Vitamin D levels can improve respiratory health by lowering inflammation in the airways and boosting the body's ability to fight off respiratory pathogens. This results in fewer infections and better lung function.

Resveratrol

Resveratrol is believed to help activate genes that protect against aging-related diseases. It is often researched for its potential to improve heart health and increase insulin sensitivity, making it a popular supplement in longevity circles.

Suggestions for Resveratrol

Blueberries, Cranberries, Dark Chocolate, Lingonberries, Mulberries, Peanuts, Pistachios, Raspberries, Red Grapes, Red Wine

Why Recommend This for You?



Your Cardiac System

Your Top 1 Aging Factor 53.0 years old 1.15x rate of aging

Resveratrol supports the cardiac system by promoting healthy blood vessel function and improving endothelial health, which enhances circulation and reduces arterial stiffness. It also helps modulate lipid metabolism and reduce oxidative stress in cardiac tissue, contributing to overall heart resilience and reduced cardiovascular risk. These effects may be particularly beneficial in aging or metabolically stressed individuals.



Your Brain Health and Cognition

Your Top 4 Aging Factor 49.4 years old 1.07x rate of aging

Resveratrol may enhance brain health and cognition by improving cerebral blood flow and supporting mitochondrial function in neurons, which are critical for sustained mental performance. It also helps protect neural tissue from oxidative damage and inflammation, potentially slowing cognitive decline and supporting memory and executive function with age.



Your Inflammatory Regulation

48.5 years old 1.05x rate of aging

By blocking specific pathways that trigger inflammation, resveratrol can decrease the production of pro-inflammatory cytokines. This action helps to manage and soothe chronic inflammatory conditions, making it beneficial for overall systemic health.



Therapy for you

BEFORE YOU READ ON

These suggestions are generated algorithmically to support a provider consultation. Please **review each item with a provider before starting, stopping, or changing anything.**

Follistatin Gene Therapy

Effects may vary between individuals. Consult a provider before use to avoid potential risks.

Follistatin Gene Therapy enhances muscle growth and regeneration by inhibiting myostatin and related growth inhibitors. It supports improved body composition, physical performance, and metabolic health.

Why Recommend This for You?



Your Muscular System

Your Top 2 Aging Factor 51.2 years old 1.11x rate of aging

Follistatin treatment results in muscle hypertrophy and increased muscle mass and bone density. It directly blocks myostatin, the primary brake on muscle growth throughout the body.



Your Nervous System

Your Top 5 Aging Factor 49.3 years old 1.07x rate of aging

Follistatin improves nerve-muscle connection function and communication in aged subjects. The therapy supports motor neuron health and helps maintain muscle control with aging.



Your Skeletal System

49.0 years old 1.06x rate of aging

The therapy increases bone density and supports skeletal muscle attachment points. Follistatin promotes bone-building cell activity and bone formation through growth factor enhancement.

Stem Cell Therapy

Effects may vary between individuals. Consult a provider before use to avoid potential risks.

Stem Cell Therapy promotes tissue regeneration by replenishing damaged or aging cells with pluripotent or multipotent stem cells. It supports systemic rejuvenation and recovery from degenerative conditions.

Why Recommend This for You?



Your Cardiac System

Your Top 1 Aging Factor 53.0 years old 1.15x rate of aging

Stem cells hold promise for cardiac repair and regeneration, particularly in cases of heart attacks and heart failure. They can promote new blood vessel formation, reduce fibrosis, and enhance cardiac function, offering potential for restoring damaged heart tissue.



Your Respiratory System

Your Top 3 Aging Factor 50.5 years old 1.10x rate of aging

Stem cells are being studied for treating chronic lung diseases such as chronic obstructive pulmonary disease (COPD) and pulmonary fibrosis. Their regenerative properties may help restore lung tissue, reduce inflammation, and improve overall lung function.



Your Brain Health and Cognition

Your Top 4 Aging Factor 49.4 years old 1.07x rate of aging




Stem cells contribute significantly to brain health and cognition by supporting neurogenesis and maintaining neuronal plasticity. By replenishing lost or damaged neurons, stem cells may enhance cognitive function and protect against age-related decline. Their ability to secrete neurotrophic factors also promotes neuronal survival and function.

Fitness for you

Swimming

Swimming is a physical activity that involves moving through water using one's arms and legs. It is an excellent exercise for improving cardiovascular health, building muscle strength, and enhancing flexibility. Swimming is also a low-impact activity, making it suitable for people of all ages and fitness levels. It can be done in pools, lakes, and oceans, providing both recreational enjoyment and competitive opportunities.

Why Recommend This for You?

-  **Your Cardiac System**
Your Top 1 Aging Factor 53.0 years old 1.15x rate of aging
Swimming's continuous and controlled movements provide excellent cardiovascular conditioning, improving the heart's pumping efficiency and reducing the chance of developing heart issues. This keeps the cardiovascular system robust and healthy.
-  **Your Muscular System**
Your Top 2 Aging Factor 51.2 years old 1.11x rate of aging
Swimming improves muscle flexibility and joint mobility due to the range of motion required to perform different strokes. This flexibility is crucial for preventing injuries and maintaining muscular health and function.
-  **Your Mitochondria Health**
49.2 years old 1.07x rate of aging
Full-body aerobic activity supports mitochondrial respiration and efficiency.

High-Intensity Interval Training

High-Intensity Interval Training, or HIIT, is a workout method that alternates between short bursts of intense exercise and periods of low-intensity recovery or rest. These workouts can be done with various exercises, such as sprinting, cycling, or bodyweight exercises, and typically last anywhere from 10 to 30 minutes. HIIT aims to improve cardiovascular fitness, burn calories, and enhance overall athletic performance in less time compared to traditional exercise routines.

Why Recommend This for You?



Your Cardiac System

Your Top 1 Aging Factor 53.0 years old 1.15x rate of aging

Strongly improves cardiac function by enhancing cardiac remodeling, stroke volume, and vascular function. Elevates VO2 max and mitochondrial capacity in cardiac and skeletal muscle.



Your Mitochondria Health

49.2 years old 1.07x rate of aging

Strong activator of PGC-1 α , mitochondrial biogenesis, and respiratory chain activity. Improves mitochondrial turnover and efficiency rapidly.



Your Female Reproductive System

48.5 years old 1.05x rate of aging

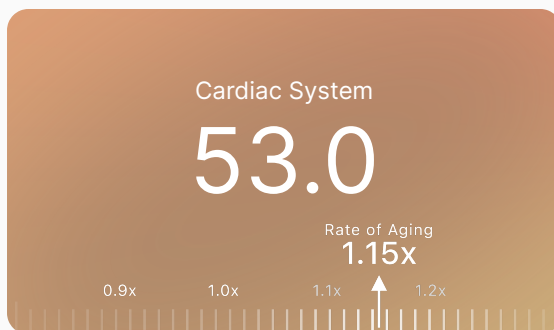
Highly effective for PCOS: improves insulin resistance, reduces hyperandrogenism, and can restore ovulation.

Cardiac System Details

21 BioMarkers

Our hearts pump blood without stopping from early embryonic development until the end of our lives. The health of cardiac system is regulated by the complex interplay of the heart organ, cardiac tissue, cardiomyocyte cells, the systemic environment, and feedback to and from other organ systems, including the endocrine system and central nervous system (CNS).

SystemAge for your Cardiac System



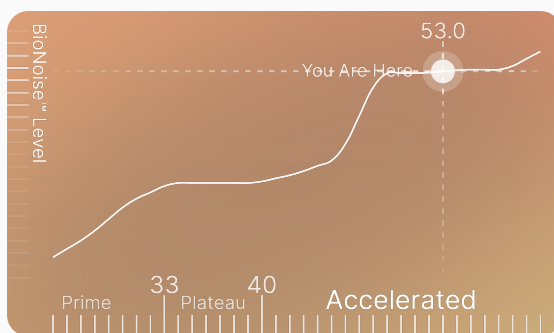
Your Cardiac System SystemAge is **53.0** years, which is **6.9** years older than your calendar age of 46.1. This means your Cardiac System has been aging faster than expected, at a rate of **1.15x** the calendar speed. This indicates your Cardiac System is performing in the **attention** range for your age group.

Remember, your biological age and rate of aging are not fixed. With the right interventions, you can slow your aging process even further.

SystemAge for Your Cardiac System reflects the biological state of your Cardiac System. It is calculated from DNA methylation patterns at a handpicked set of biomarkers that are specifically tied to how this system ages. Unlike tests that may use generic or non-aging-related CpGs, Generation Lab focuses only on scientifically validated, aging-relevant markers to ensure your results truly reflect the biology of aging.

Rate of Aging is the ratio of your biological age over your calendar age — it informs the speed your body is aging at up to the point of the test.

Female Aging Entropy Curve for Cardiac System



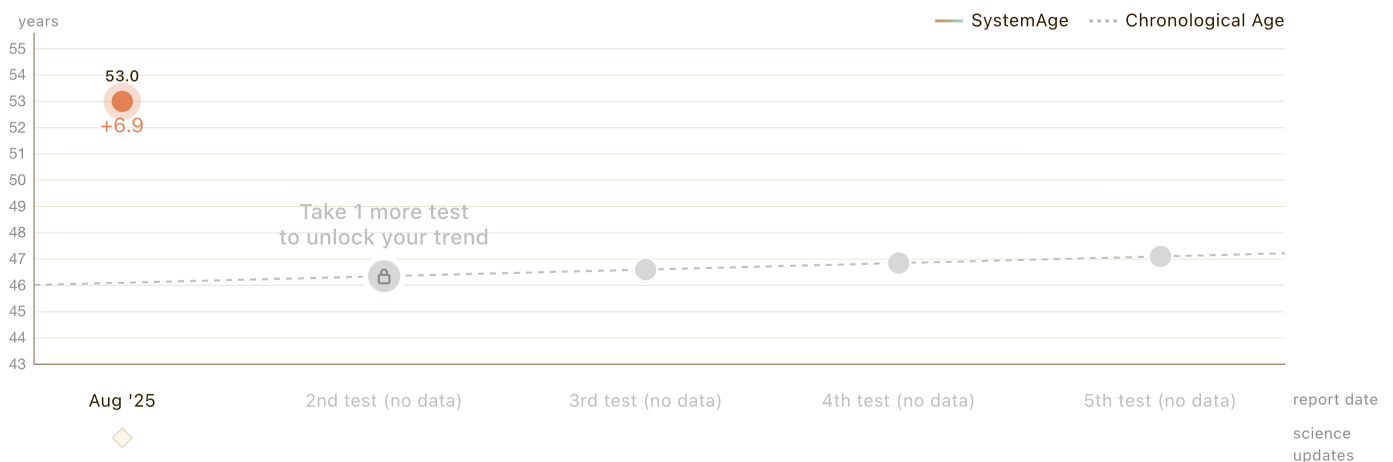
Your cardiac system demonstrates accelerated aging with increasing cardiovascular challenges. This stage signifies that the aging process for your cardiac function has progressed beyond the plateau phase, with changes occurring at a quicker pace. Regular check-ups and adhering to a heart-healthy lifestyle can help manage the impacts.

You have significant potential for health improvements, making this an ideal time to take proactive steps toward better health outcomes.

The Female Cardiac System Aging Entropy Curve reflects the common aging trajectory of the Cardiac System among healthy females. The curve is plotted based on Generation Lab's extensive dataset of over several million healthy data points. Curves for individual systems are different from each other, indicating distinctive aging characteristics of different bodily functions.

BioNoise™ reflects the chaos in your molecular systems — variability in gene expression that increases with age. Rising BioNoise can signal early aging or disease risk — even when labs look normal.

Trend for Your Cardiac System

[View Trend for All Systems \[pg. 6\] →](#)


Lifestyle Reflection

Sedentary lifestyle, high-sodium diets, chronic stress, smoking, and excessive alcohol consumption strain heart muscle and disrupt rhythm regulation. Poor sleep quality and social isolation further accelerate cardiovascular aging and reduce heart function efficiency.

Common Symptoms & Conditions

As the cardiac system ages, reduced cardiovascular efficiency can manifest as:

- Shortness of breath during exertion
- Fatigue and reduced endurance
- Irregular heartbeat or palpitations
- Swelling in legs or ankles

Common age-related cardiac conditions include left ventricular hypertrophy, diastolic dysfunction, and atrial fibrillation. In some cases, declining cardiac function can progress to heart failure, coronary artery disease, and increased stroke risk, highlighting the importance of regular cardiovascular screening and heart-healthy lifestyle modifications.

Cardiac System Biomarkers

KCNQ1, CHD5, DMD, FGF1, TNF, SYTL2, IL1RN

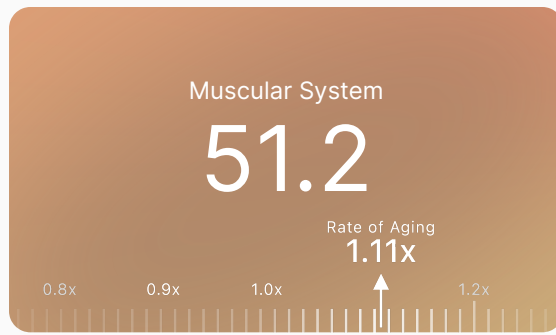
These Biomarkers are measurable biological signals that reflect the state or function of your body. In the SystemAge™ test, we use specific CpG sites — regions in your DNA where methylation patterns can be measured as biomarkers. Each set of CpGs is handpicked based on strong scientific evidence linking it to the aging of a particular body system.

Muscular System Details

33 BioMarkers

Skeletal muscle allows us to move voluntarily and gives us strength and agility. Muscle tissue becomes progressively lost with aging and in certain diseases (dystrophies), causing people to lose strength, become frail, and depend on others.

SystemAge for your Muscular System



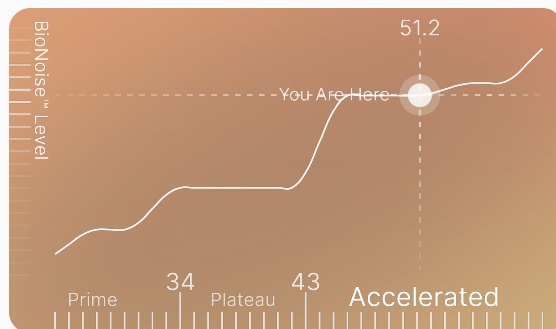
Your Muscular System SystemAge is **51.2** years, which is **5.1** years older than your calendar age of 46.1. This means your Muscular System has been aging faster than expected, at a rate of **1.11x** the calendar speed. This indicates your Muscular System is performing in the **attention** range for your age group.

Active lifestyle? Heavy exercise can change the cell composition of your blood, which may lead to "older" SystemAge results. This typically reflects that your body is rebuilding, a normal process of staying active. [Read more](#)

SystemAge for Your Muscular System reflects the biological state of your Muscular System. It is calculated from DNA methylation patterns at a handpicked set of biomarkers that are specifically tied to how this system ages. Unlike tests that may use generic or non-aging-related CpGs, Generation Lab focuses only on scientifically validated, aging-relevant markers to ensure your results truly reflect the biology of aging.

Rate of Aging is the ratio of your biological age over your calendar age — it informs the speed your body is aging at up to the point of the test.

Female Aging Entropy Curve for Muscular System



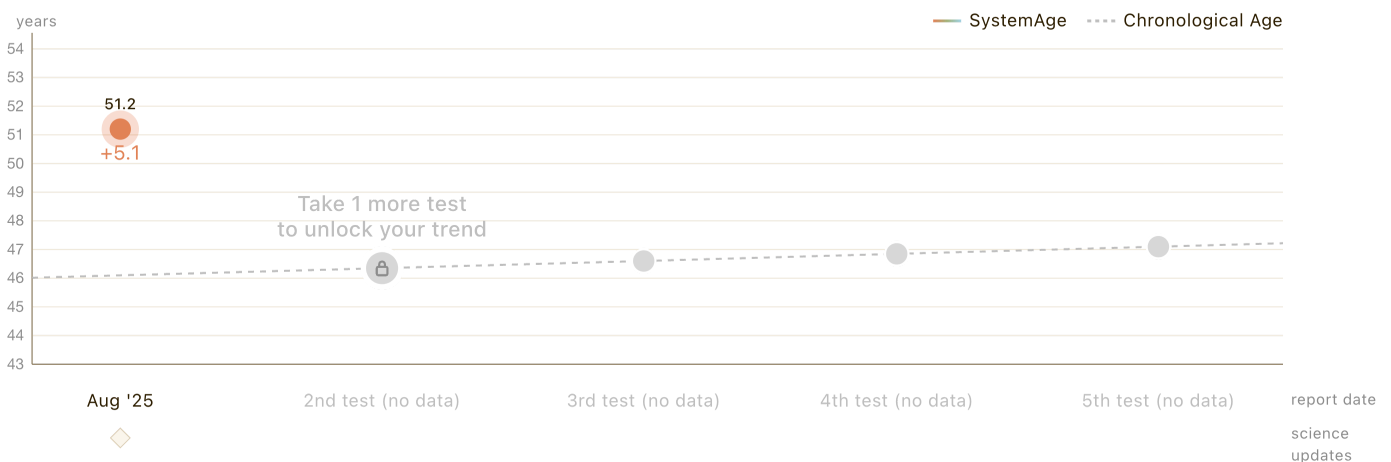
Your muscular system shows accelerated aging with progressive loss of muscle mass and strength. This stage signifies that the natural decline in muscle mass and strength is occurring at a faster pace, which is common later in life. Continued attention to physical activity, nutrition, and overall health can help manage the effects.

You have significant potential for health improvements, making this an ideal time to take proactive steps toward better health outcomes.

The Female Muscular System Aging Entropy Curve reflects the common aging trajectory of the Muscular System among healthy females. The curve is plotted based on Generation Lab's extensive dataset of over several million healthy data points. Curves for individual systems are different from each other, indicating distinctive aging characteristics of different bodily functions.

BioNoise™ reflects the chaos in your molecular systems — variability in gene expression that increases with age. Rising BioNoise can signal early aging or disease risk — even when labs look normal.

Trend for Your Muscular System

[View Trend for All Systems \[pg. 6\] →](#)


Lifestyle Reflection

Physical inactivity, inadequate protein intake, and chronic inflammation accelerate muscle loss and weakness. Poor sleep, hormonal imbalances, and excessive alcohol impair muscle protein synthesis and recovery, leading to progressive loss of strength and functional capacity.

Common Symptoms & Conditions

As the muscular system ages, signs include:

- Decreased muscle strength and power
- Reduced physical endurance
- Slower movement and reaction time
- Impaired balance and coordination

Common age-related muscular conditions include muscle atrophy, chronic weakness, and myopathies such as muscular dystrophy. In some cases, declining muscle function can also contribute to metabolic issues, impaired mobility, and difficulty performing daily activities, highlighting the importance of maintaining muscle health through proactive lifestyle and medical interventions.

Muscular System Biomarkers

KY, DMD, CACNA2D4, IL1RN, GRM4, PFKP

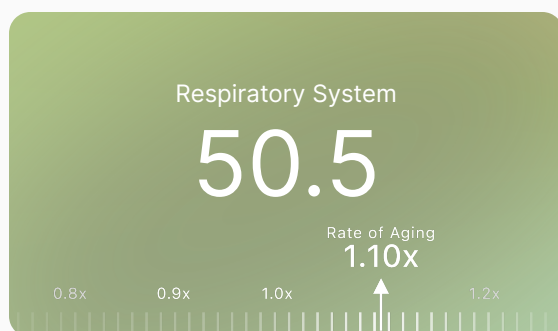
These Biomarkers are measurable biological signals that reflect the state or function of your body. In the SystemAge™ test, we use specific CpG sites — regions in your DNA where methylation patterns can be measured as biomarkers. Each set of CpGs is handpicked based on strong scientific evidence linking it to the aging of a particular body system.

Respiratory System Details

29 BioMarkers

Respiratory health is essential for breathing and relies on lung health. Lungs maintain optimal respiratory function throughout our lives. Respiration intakes oxygen and expels carbon dioxide, essential for sustaining life. Respiratory health often declines with aging and in certain diseases, such as pulmonary illnesses.

SystemAge for your Respiratory System



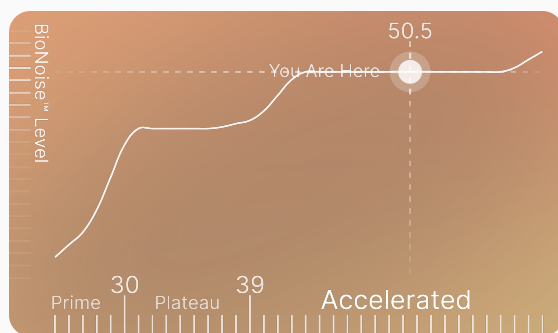
Your Respiratory System SystemAge is **50.5** years, which is **4.4** years older than your calendar age of 46.1. This means your Respiratory System has been aging faster than expected, at a rate of **1.10x** the calendar speed. This indicates your Respiratory System is performing in the **normal** range for your age group.

Remember, your biological age and rate of aging are not fixed. With the right interventions, you can slow your aging process even further.

SystemAge for Your Respiratory System reflects the biological state of your Respiratory System. It is calculated from DNA methylation patterns at a handpicked set of biomarkers that are specifically tied to how this system ages. Unlike tests that may use generic or non-aging-related CpGs, Generation Lab focuses only on scientifically validated, aging-relevant markers to ensure your results truly reflect the biology of aging.

Rate of Aging is the ratio of your biological age over your calendar age — it informs the speed your body is aging at up to the point of the test.

Female Aging Entropy Curve for Respiratory System



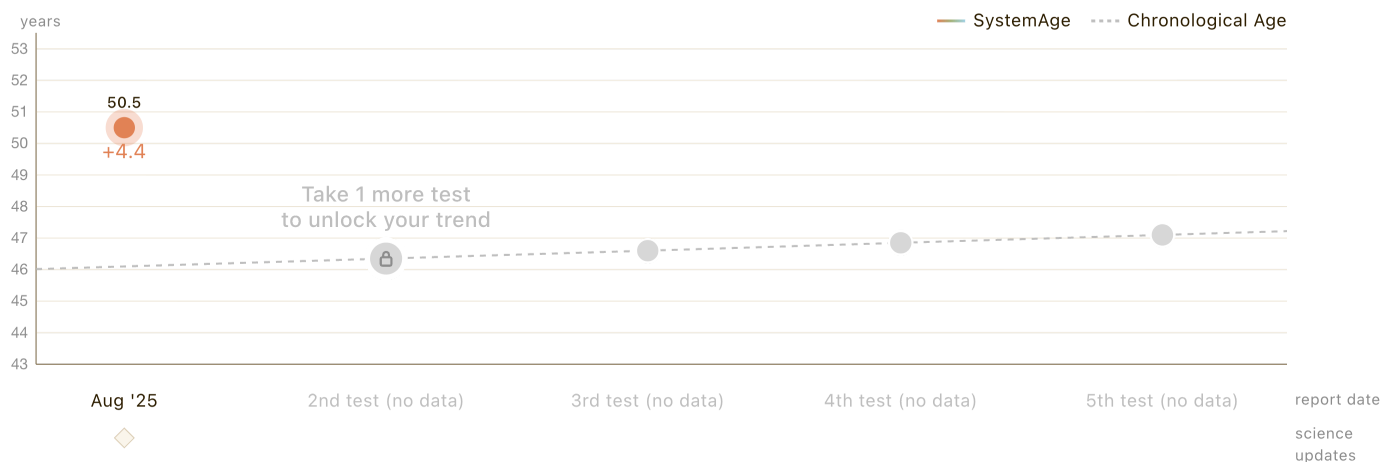
Your respiratory system exhibits accelerated aging with progressively reduced lung capacity. This stage indicates a quicker degradation of respiratory capacity, which is a common trajectory as individuals age. Maintaining healthy lifestyle practices and consulting healthcare professionals regularly helps manage this natural decline.

This progression aligns with typical aging patterns for your chronologic age and represents a natural part of the aging process.

The Female Respiratory System Aging Entropy Curve reflects the common aging trajectory of the Respiratory System among healthy females. The curve is plotted based on Generation Lab's extensive dataset of over several million healthy data points. Curves for individual systems are different from each other, indicating distinctive aging characteristics of different bodily functions.

BioNoise™ reflects the chaos in your molecular systems — variability in gene expression that increases with age. Rising BioNoise can signal early aging or disease risk — even when labs look normal.

Trend for Your Respiratory System

[View Trend for All Systems \[pg. 6\] →](#)


Lifestyle Reflection

Smoking, air pollution exposure, sedentary lifestyle, and poor posture reduce lung capacity and efficiency. Chronic respiratory infections, occupational hazards, and obesity further compromise breathing mechanics and oxygen exchange, accelerating decline in respiratory function.

Common Symptoms & Conditions

As the respiratory system ages, signs include:

- Shortness of breath during exertion
- Reduced exercise tolerance
- Increased respiratory infection susceptibility
- Morning cough or difficulty clearing secretions

Common age-related respiratory conditions include decreased vital capacity, reduced gas exchange efficiency, and weakened respiratory muscles. In some cases, declining lung function can progress to chronic obstructive pulmonary disease or respiratory failure, highlighting the importance of pulmonary function testing and respiratory health maintenance.

Respiratory System Biomarkers

KCNQ1, TNF, IL1RN, CDH23, CHRNA2, IGF2BP2

These Biomarkers are measurable biological signals that reflect the state or function of your body. In the SystemAge™ test, we use specific CpG sites — regions in your DNA where methylation patterns can be measured as biomarkers. Each set of CpGs is handpicked based on strong scientific evidence linking it to the aging of a particular body system.

Science Updates

[Back to Trends Over Time \[pg.3\] →](#)

Generation Lab is continuously advancing the science. As our research evolves, so does our test. We're committed to providing the most accurate, up-to-date insights for your longevity journey.

from earliest to most recent ↓

□ EPIC v1 Chip Update

Launched the first version of the SystemAge test featuring 19 physiological systems and personalized intervention recommendations powered by the EPICv1 DNA methylation chip.

△ GL260K-M Chip Upgrade

Officially transitioned from the EPICv1 chip to Generation Lab's proprietary GL260K-M Customized Chip.

○ Additional Systems: Skin & Mitochondria

Expanded the platform from 19 to 21 physiological systems, including the addition of Skin Health and Mitochondrial Health, along with updates to the Reproductive System.

◇ Male vs. Female Test Results

Introduction of sex-specific (male and female) reports for all 21 systems, along with longitudinal trend-view.

Elevate Your Health

Personalized Recommendations

With Clinical Evidences

Your Longevity Journey Starts Here



generationlab.com