TRUAGE

TRUAGE REPORT

for

Date of birth:	Date reported:	Sample number:
Referring practitioner:		

Epigenetic clocks have revolutionized how we understand aging, offering insights beyond what the calendar tells us.

These innovative tools reveal your body's true age and the pace at which it's aging, acknowledging that everyone's journey through time is unique.

DNALYSIS
Biotechnology

How to read this report?

This report contains results of various algorithms, that taken together can provide fascinating insight into the rate of aging of our biological systems. Each section will provide you with your results, as well as indicating where your result lies relative to the general population at your chronological age.

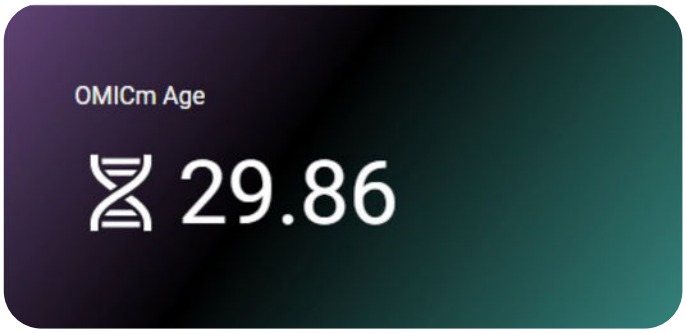
Your health practitioner will discuss each result with you and provide you with nutrition and lifestyle interventions to maintain or improve your results to help achieve optimal biological age.

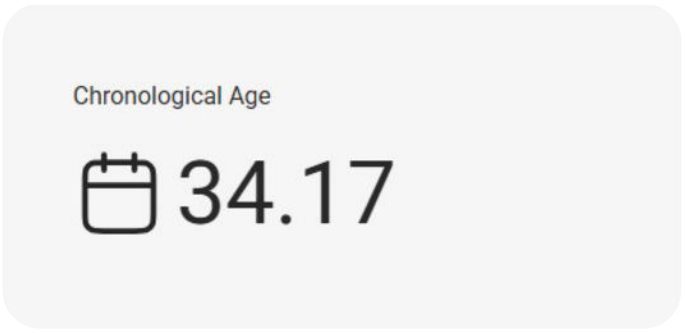
OMICm Age

Developed in collaboration with Harvard, OMICm Age evaluates proteins, metabolites, and clinical biomarkers to determine overall biological age and identify key contributors to age acceleration. This enables targeted lifestyle or medical interventions to address factors accelerating aging.

Your OMICm Biological Age Results

Your chronological age is the number of years you have lived, a straightforward measure of time since birth. The difference between OMICm Age from chronological age highlights underlying health insights, guiding tailored wellness strategies.





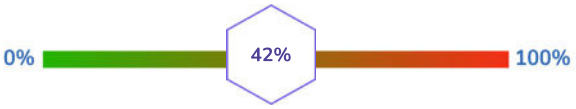
Your OMICm Age is

LOWER THAN

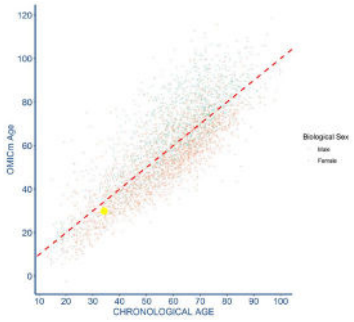
your calendar age by 4.31 years.

POPULATION COMPARISON

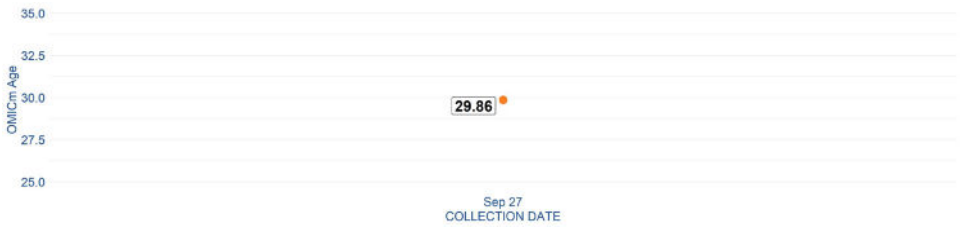
Your OMICm Age is in the **42nd** percentile.



Your biological age places you in the top 42% of the population, meaning you are aging better than 58% of your peers for your chronological age.



RESULTS OVER TIME



Your Risk of Disease

Aging has been scientifically proven to be the number one risk factor for major chronic diseases worldwide. Accelerated aging (having an older biological age than your calendar age) increases your risk of disease each year, and having a younger biological age decreases these risks.

Because your risk of chronic disease increases as you age, your omic biological can represent an increased or decreased risk of death (due to chronic disease), cancer, heart disease, stroke, type 2 diabetes, COPD and depression.

DEATH

-33.21%
Disease Risk

At your OMICm Age of 29.9, you have a 33.21% lower risk of death compared to people of your same chronological age.

Reducing your OMICm Age by 1 year would result in reducing your relative risk by 5.93%.

COPD

-9.43%
Disease Risk

At your OMICm Age of 29.9, you have a 9.43% lower risk of COPD compared to people of your same chronological age.

Reducing your OMICm Age by 1 year would result in reducing your relative risk by 2.04%.

CANCER

-12.31%
Disease Risk

At your OMICm Age of 29.9, you have a 12.31% lower risk of cancer compared to people of your same chronological age.

Reducing your OMICm Age by 1 year would result in reducing your relative risk by 2.61%.

DEPRESSION

-9.44%
Disease Risk

At your OMICm Age of 29.9, you have a 9.44% lower risk of depression compared to people of your same chronological age.

Reducing your OMICm Age by 1 year would result in reducing your relative risk by 2.04%.

STROKE

-16.55%
Disease Risk

At your OMICm Age of 29.9, you have a 16.55% lower risk of stroke compared to people of your same chronological age.

Reducing your OMICm Age by 1 year would result in reducing your relative risk by 3.41%.

HEART DISEASE

-19.32%
Disease Risk

At your OMICm Age of 29.9, you have a 19.32% lower risk of heart disease compared to people of your same chronological age.

Reducing your OMICm Age by 1 year would result in reducing your relative risk by 3.89%.

TYPE 2 DIABETES

-17.28%
Disease Risk

At your OMICm Age of 29.9, you have a 17.28% lower risk of type 2 diabetes compared to people of your same chronological age.

Reducing your OMICm Age by 1 year would result in reducing your relative risk by 3.54%.

Your Epigenetic Biomarker Proxies

Please remember that the Epigenetic biomarker proxies (EBPs) shown below are surrogate predictors from DNA Methylation alone. The EBPs are NOT meant to be a replacement for the direct Laboratory measurements. While some may offer additional value beyond the direct laboratory measurement (such as DNAmCRP and brain health outcomes), they are a proxy. As research evolves, new insights will add even more context to these EBPs.

On the percentile bar, green indicates a positive impact on health, while red signifies a negative impact. Its important to note that in some cases, the colors might be switched foe certain EBPs. This occurs because lower values may have a negative effect on health, and higher values may have a positive effect.

DNAm Insulin-like Growth Factor-Binding Protein 2

IGFBP-2 is an insulin-like growth factor-binding proteins (IGFBPs) that modulates IGF-I actions. It plays an important role in the regulation of several cellular processes and has been suggested to be a biomarker of metabolic disease and diabetes.

Your DNAm Insulin-like Growth Factor-Binding Protein 2 is higher than 89% of the population at your same calendar age and sex

Recommendations for Improvement:
- Consume protein in moderation
- Improve insulin sensitivity through lifestyle changes (calorie restriction, exercise)
- Manage stress
- Adequate sleep

Related Diseases:
- Cancer
- COPD
- Depression
- Stroke

DNAm Uridine

Uridine is an important building block used in the creation of RNA that plays a role in the synthesis of glycogen. It may support brain health, synaptic connections, and cholinergic function.

Your DNAm Uridine is higher than 15% of the population at your same calendar age and sex

Recommendations for Improvement:
- Increasing consumption of uridine-rich foods (organ meats, tomatoes, mushrooms, and broccoli)
- Include synergistic nutrients like choline (eggs, lean meats) and DHA (fatty fish)
- Uridine Supplementation

Related Diseases:
- Cancer
- Depression

DNAm Matrix-remodeling-associated protein 5

Matrix-remodeling-associated proteins are capable of degrading all kinds of extracellular matrix proteins and processing many bioactive molecules. They are thought to play a major role in cell proliferation, migration (adhesion/dispersion), differentiation, angiogenesis, apoptosis, and host defense.

Your DNAm Matrix-remodeling-associated protein 5 is higher than 93% of the population at your same calendar age and sex

Recommendations for Improvement:
- Regular exercise
- Balanced diet
- Stress management

Related Diseases:
- Stroke

DNAm 1-Stearoyl-2-adrenoyl-GPC (18:0/22:4)*

1-stearoyl-2-adrenoyl-GPC is a choline ether phospholipid (ePC) found in serum or plasma.

Your DNAm 1-Stearoyl-2-adrenoyl-GPC (18:0/22:4)* is higher than 7% of the population at your same calendar age and sex

Recommendations for Improvement:
- Increasing consumption of foods rich in plasmalogens (organ meats like liver or heart, mussels, oysters)
- Omega-3 fatty acids
- Antioxidants
- Reducing alcohol consumption
- Plasmalogen supplementation

Related Diseases:
- Cancer
- COPD
- Depression
- Stroke
- Type 2 Diabetes

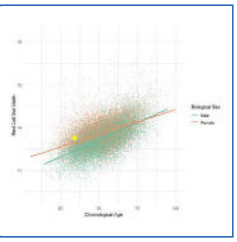
Additional Epigenetic Biomarker Proxies

DNAm Red Blood Cell Distribution Width

RDW test measures differences in red blood cell size and volume.

0% 63% 100%

Your DNAm Red Blood Cell Distribution Width is higher than 63% of the population at your same calendar age and sex

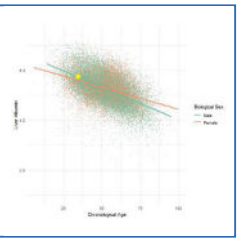


DNAm Albumin

Protein albumin produced by the liver and plays 2 important roles: carrying hormones, vitamins, and enzymes throughout the body and keeping fluids from leaking out of vessels.

0% 62% 100%

Your DNAm Albumin is higher than 62% of the population at your same calendar age and sex

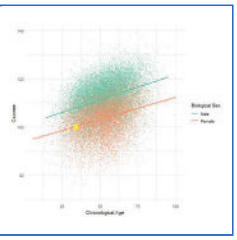


DNAm Fasting Glucose

test measures the amount of glucose (sugar) in the blood after a person has not consumed calories for at least 8 hours.

0% 43% 100%

Your DNAm Fasting Glucose is higher than 43% of the population at your same calendar age and sex

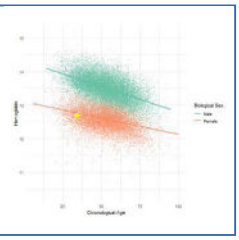


DNAm Hemoglobin

Hemoglobin test measures the amount of hemoglobin, a protein in red blood cells that transports oxygen.

0% 46% 100%

Your DNAm Hemoglobin is higher than 46% of the population at your same calendar age and sex

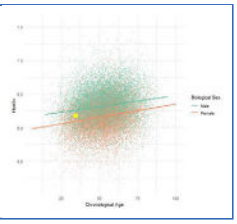


DNAm HbA1c

The HbA1c test measures the amount of glucose attached to hemoglobin.

0% 63% 100%

Your DNAm HbA1c is higher than 63% of the population at your same calendar age and sex

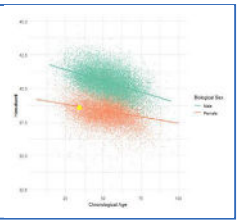


DNAm Hematocrit

A hematocrit test measures the percent by volume of red blood cells in the blood.

0% 51% 100%

Your DNAm Hematocrit is higher than 51% of the population at your same calendar age and sex

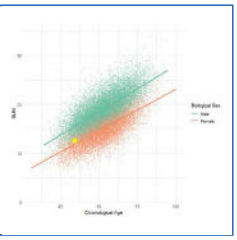


DNAm Blood Urea Nitrogen

BUN test measures the amount of blood urea nitrogen, a waste product of proteins broken down by the liver and removed by the kidneys from blood into urine.

0% 62% 100%

Your DNAm Blood Urea Nitrogen is higher than 62% of the population at your same calendar age and sex

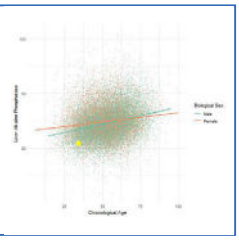


DNAm Alkaline Phosphatase

ALP measures the amount of an enzyme called alkaline phosphatase in the blood, evaluating the quantity produced by the liver and bones.

0% 11% 100%

Your DNAm Alkaline Phosphatase is higher than 11% of the population at your same calendar age and sex

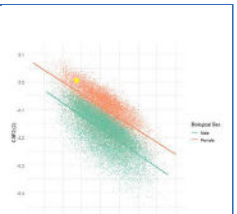


DNAm Carboxypeptidase B2

CPB2 is synthesized by the liver and circulates in the plasma as a plasminogen-bound zymogen. Activated CPB2 reduces fibrinolysis. Lower CPB2 has been suggested as a biomarker of peripheral artery disease, chronic hepatitis, and thrombotic risk.

0% 75% 100%

Your DNAm Carboxypeptidase B2 is higher than 75% of the population at your same calendar age and sex

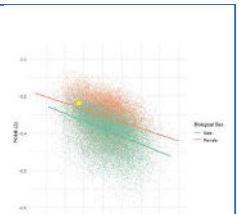


DNAm Serum Paraoxonase/arylesterase 1

Serum paraoxonase/arylesterase 1 (PON1) is an enzyme encoded by the PON1 gene and secreted mainly by the liver. PON1 acts as a major anti-atherosclerotic component of high-density lipoprotein (HDL) and protects against vascular disease by metabolizing oxidized lipids.

0% 53% 100%

Your DNAm Serum Paraoxonase/arylesterase 1 is higher than 53% of the population at your same calendar age and sex



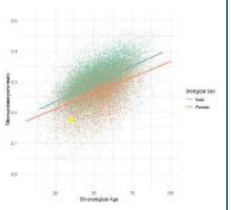
Additional Epigenetic Biomarker Proxies

DNAm Ribonuclease pancreatic

Pancreatic ribonuclease/ ribonuclease A (RNase A) / ribonuclease 1 (RNase1) is an enzyme that catalyzes the breakdown of RNA, and plays a role in the digestion of RNA.

0% 12% 100%

Your DNAm Ribonuclease pancreatic is higher than 12% of the population at your same calendar age and sex

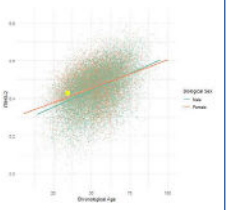


DNAm Inter-alpha-trypsin Inhibitor Heavy Chain H3

Inter-alpha (globulin) inhibitor 3 (ITIH3), one of the constituents of plasma serine protease inhibitors, is related to the proinflammatory process. Data suggests it is upregulated as a compensatory mechanism in high states of inflammation and is not itself a biomarker of inflammation.

0% 52% 100%

Your DNAm Inter-alpha-trypsin Inhibitor Heavy Chain H3 is higher than 52% of the population at your same calendar age and sex

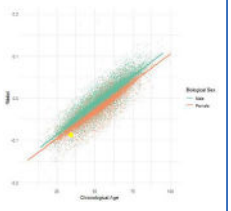


DNAm Ribitol

Ribitol is a pentose alcohol formed by the reduction of ribose and is an integral part of riboflavin (vitamin B2) and flavin mononucleotide. It has been a blood-based biomarker of diabetic retinopathy and is associated with insulin secretion and diabetes pathways with high concentrations linked to CKD.

0% 9% 100%

Your DNAm Ribitol is higher than 9% of the population at your same calendar age and sex

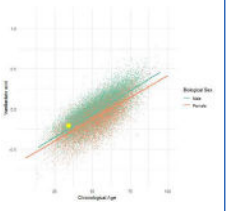


DNAm Vanillactic Acid

Vanillactic acid is an acidic catecholamine metabolite and potentially toxic. Elevated levels can be a biomarker of chronic kidney disease, associated with worse outcomes in liver failure, and linked to higher systolic blood pressure in females.

0% 76% 100%

Your DNAm Vanillactic Acid is higher than 76% of the population at your same calendar age and sex

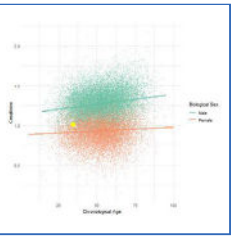


DNAm Creatinine

Creatinine test measures the creatinine, a waste product from the normal wear and tear on muscles of the body.

0% 74% 100%

Your DNAm Creatinine is higher than 74% of the population at your same calendar age and sex

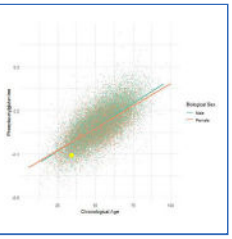


DNAm PhenylacetylGlutamine

Phenylacetylglutamine is a metabolite formed when phenylacetate and glutamine come together. It is an amino acid acetylation product after beta-oxidation of phenylacetate.

0% 13% 100%

Your DNAm PhenylacetylGlutamine is higher than 13% of the population at your same calendar age and sex

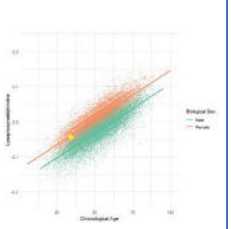


DNAm 1-margaroyl-glycerophospholipid(GPE)(17:0)*

Lysophosphatidylcholine (LPC) is mainly derived from the turnover of phosphatidylcholine in circulation by phospholipase A2 (PLA2). It has been positively associated with cardiovascular and neurodegenerative diseases. Elevated LPC content in modified low-density lipoprotein (LDL) and oxidized LDL plays a role in atherosclerotic plaque development and endothelial dysfunction.

0% 35% 100%

Your DNAm 1-margaroyl-glycerophospholipid(GPE)(17:0)* is higher than 35% of the population at your same calendar age and sex

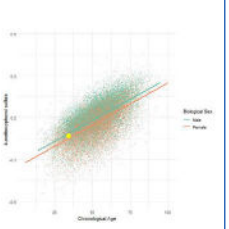


DNAm 4-Methoxyphenol Sulfate

Methoxyphenols are potential biomarkers of inhalation of woodsmoke and are present in dark aged beers. 4-methoxyphenol is a polymerization inhibitor. 4-methoxyphenol has demonstrated anti-tumor properties.

0% 52% 100%

Your DNAm 4-Methoxyphenol Sulfate is higher than 52% of the population at your same calendar age and sex

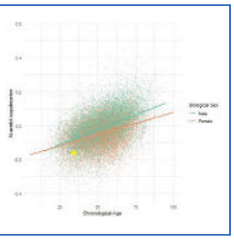


DNAm N-acetyl-isoputreanine

Isoputreanine belongs to the class of organic compounds called gamma amino acids and derivatives. Studies link higher levels of this metabolite with better cognition.

0% 18% 100%

Your DNAm N-acetyl-isoputreanine is higher than 18% of the population at your same calendar age and sex

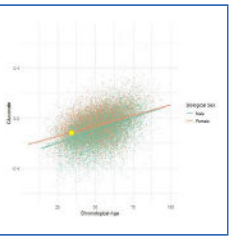


DNAm Gluconate

Gluconic acid occurs naturally in fruit, honey, and wine and has been identified as a lifestyle-related biomarker that may be a target to reduce stroke risk in Black adults.

0% 45% 100%

Your DNAm Gluconate is higher than 45% of the population at your same calendar age and sex

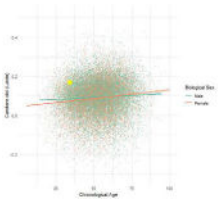


Additional Epigenetic Biomarker Proxies

DNAm Carotene Diol

Carotene-3,3-diol (Lutein) is a naturally occurring carotenoid synthesized by plants. Studies show it plays a role in cognitive function, eye health, and plays a role in protecting tissues from oxidative stress and inflammation.

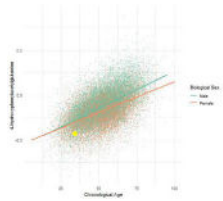
Your DNAm Carotene Diol is higher than 88% of the population at your same calendar age and sex



DNAm 4-hydroxyphenylacetylglutamine

4-Hydroxyphenylacetylglutamic acid is a metabolite in the class of organic compounds known as glutamic acid and derivatives. It my serve as a novel biomarker of type 2 diabetes with polyneuropathy and linked to systolic blood pressure in women.

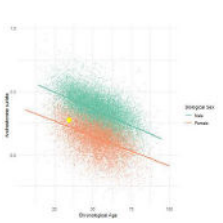
Your DNAm 4-hydroxyphenylacetylglutamine is higher than 18% of the population at your same calendar age and sex



DNAm Androsterone Sulfate

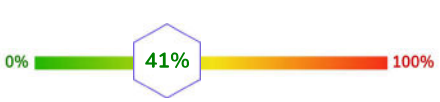
Androsterone sulfate (Andros-S) is the most abundant 5-alpha-reduced androgen metabolite in serum, and is downstream of testosterone.

Your DNAm Androsterone Sulfate is higher than 66% of the population at your same calendar age and sex

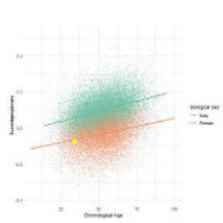


DNAm 3-Ureidopropionate

Ureidopropionic acid is a urea derivative of beta-alanine and a major metabolite associated with the risk of developing mobility disability. High levels are found in individuals with ureidopropionase deficiency.

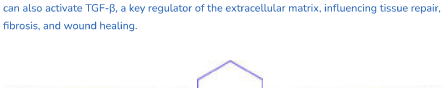


Your DNAm 3-Ureidopropionate is higher than 41% of the population at your same calendar age and sex

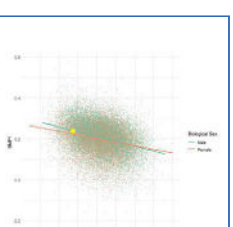


DNAm Bone Morphogenetic protein 1

Bone morphogenetic protein 1 (BMP1), induces bone and cartilage development, plays a role in promoting the formation of functional HDL and reverse cholesterol transport. BMP1 can also activate TGF-β, a key regulator of the extracellular matrix, influencing tissue repair, fibrosis, and wound healing.



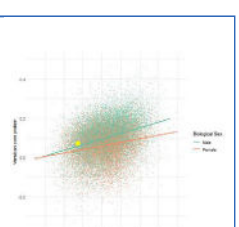
Your DNAm Bone Morphogenetic protein 1 is higher than 51% of the population at your same calendar age and sex



DNAm Versican core protein

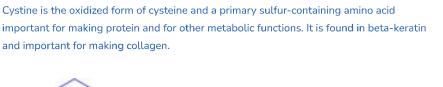
Versican is an extracellular matrix protein which has been shown to increase during inflammation in a number of different diseases such as cardiovascular and lung disease, autoimmune diseases, and several cancers.

Your DNAm Versican core protein is higher than 63% of the population at your same calendar age and sex

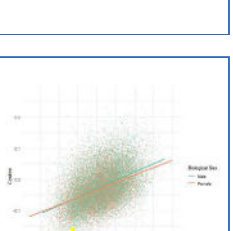


DNAm Cystine

Cystine is the oxidized form of cysteine and a primary sulfur-containing amino acid important for making protein and for other metabolic functions. It is found in beta-keratin and important for making collagen.

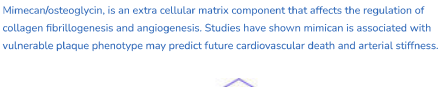


Your DNAm Cystine is higher than 1% of the population at your same calendar age and sex

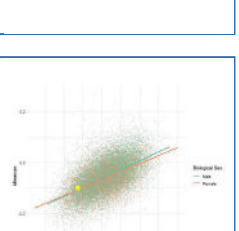


DNAm Mimecan

Mimecan/osteoglycin, is an extra cellular matrix component that affects the regulation of collagen fibrillogenesis and angiogenesis. Studies have shown mimican is associated with vulnerable plaque phenotype may predict future cardiovascular death and arterial stiffness.

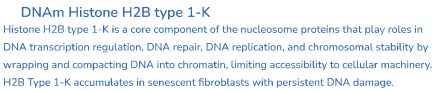


Your DNAm Mimecan is higher than 57% of the population at your same calendar age and sex

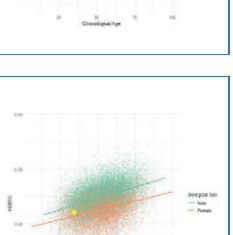


DNAm Histone H2B type 1-K

Histone H2B type 1-K is a core component of the nucleosome proteins that play roles in DNA transcription regulation, DNA repair, DNA replication, and chromosomal stability by wrapping and compacting DNA into chromatin, limiting accessibility to cellular machinery. H2B Type 1-K accumulates in senescent fibroblasts with persistent DNA damage.



Your DNAm Histone H2B type 1-K is higher than 59% of the population at your same calendar age and sex



SymphonyAge

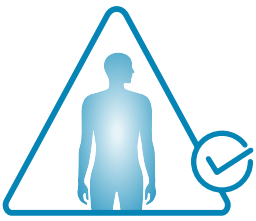
Licensed from Yale, this test measures biological aging across 11 key organ systems (brain, heart, lungs, hormones, metabolic system, musculoskeletal system, blood, liver, inflammation, kidneys, and immune system).

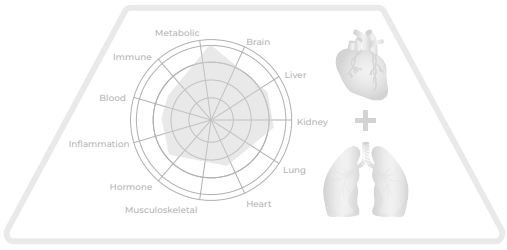
It's crucial to note that our body's systems don't age in isolation. Many age-related illnesses stem from issues in various biological systems working together. For instance, arthritis is the result of both musculoskeletal wear and inflammation, whereas stroke can happen due to problems in the cardiovascular system, metabolism, inflammation, and brain function. These interconnected patterns can lead to different aging types, making some people more prone to certain age-related diseases. Understanding these patterns helps in forecasting health outcomes.

But there's more to the story than a single age number. Your lifestyle choices – from how much you move, to what you eat, and whether you smoke or drink – can influence the aging process of different organs in varied ways. Recognizing the diversity of aging experiences led to the creation of SYMPHONYage.

These results pinpoint organ specific aging patterns to tailor precise interventions, optimizing individual organ health.

Most clocks focus on the **WHOLE BODY AGING** of heterogeneity



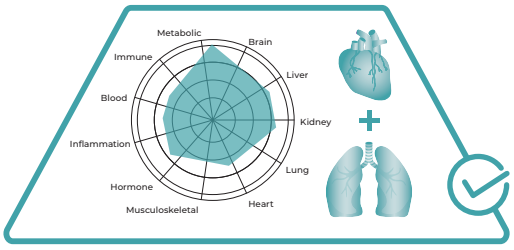


BIOLOGICAL SYSTEMS

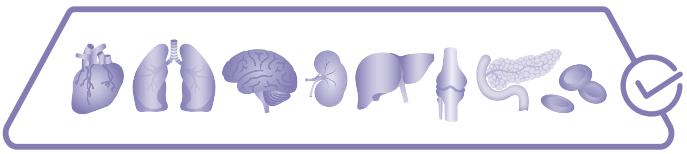
AGING SUBTYPES

SYMPHONYAge captures organ level and whole body heterogeneity in aging using epigenetic data from a single blood draw

WHOLE BODY AGING



BIOLOGICAL SYSTEMS



AGING SUBTYPES

What Are The Benefits To This Approach?

Knowing the age of your organs can provide several advantages over knowing just your biological age. Some of these include:

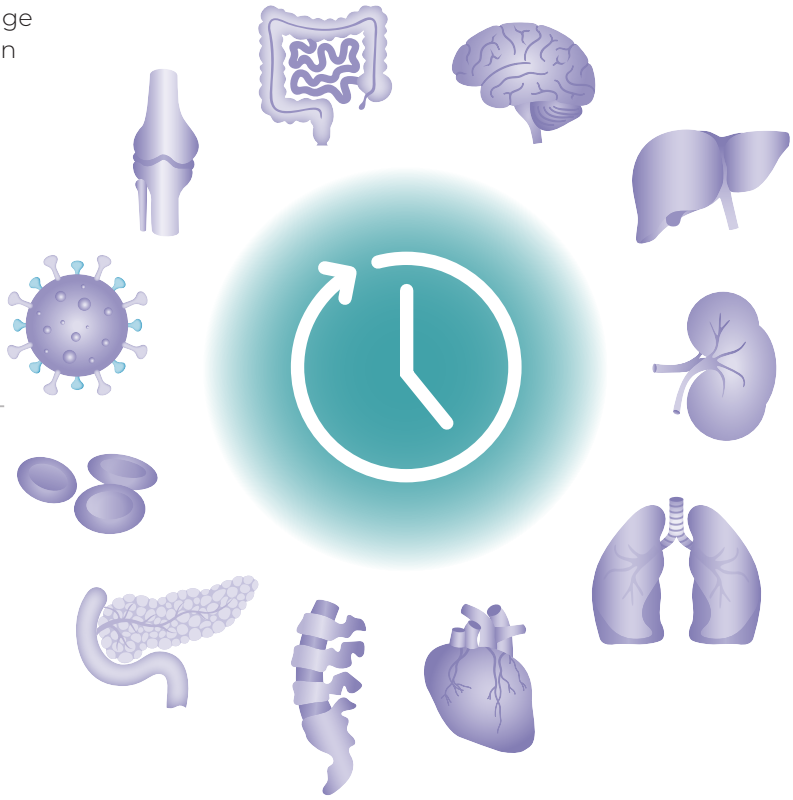
A BETTER UNDERSTANDING OF DISEASE RISK:

Knowing the age of individual organs can help identify which organs are aging faster and increasing the risk of developing age-related disease associated with that organ system.

Armed with this knowledge targeted interventions can be developed to prevent or delay the onset of these diseases.

PRECISION MEDICINE:

Understanding the age of specific organs can help tailor medical treatments to an individual's needs. This can improve treatment outcomes and minimize side effects.



EARLIER DETECTION OF DISEASE:

Changes in the age of specific organs could motivate an individual to more closely monitor and screen for diseases associated with that organ.

Early detection of disease may be beneficial if found at a stage that is more treatable.

IMPROVED HEALTH AND LIFESTYLE CHOICES:

Understanding the age of specific organs can help individuals make better lifestyle choices to improve organ health. For example, if a persons liver is aging faster than their chronological age, they may be motivated to adopt a healthier diet and lifestyle to improve liver function.

Your SYMPHONYAge Results

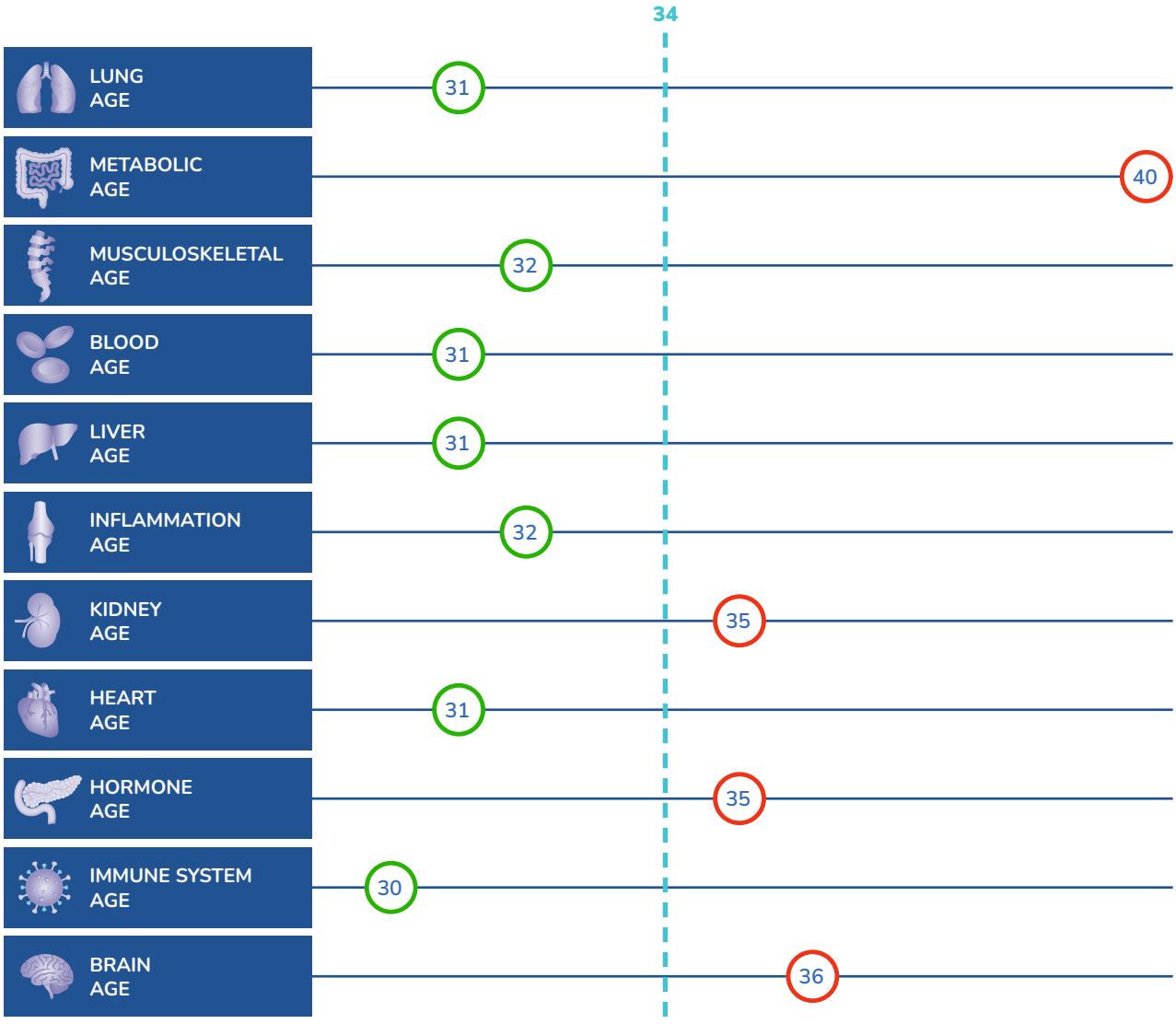
SYMPHONYAge

*Developed with Yale**

The center bar serves as a baseline marker for your chronological age. Here you can see the difference between your organ ages versus your chronological age,

Green Is less than your chronological age, **red** is more than your chronological age, and **purple** is equal to your chronological age, The **blue** is your overall SYMPHONYAge.

CURRENT AGE	OVERALL SYMPHONYAge
34	**34**



Further Testing and Related Diseases

METABOLIC

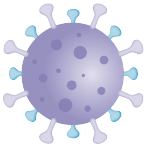
BIOMARKERS: PCSmoking-packyears, Previous Diabetes, C-Reactive Protein, Glucose-fasting, HDL-Cholesterol, LDL-Cholesterol, Triglycerides, Interleukin – 6, BMI, Waist Circumference

DISEASE: Cognitive Function, Physical Function, Total Comorbidities, Diabetes, and Cataract

BRAIN

BIOMARKERS: Homocysteine, BDNF (serum), Stroke, Total mental status summary score, Total cognition summary score, Immediate word recall, Delayed word recall, Total word recall, summary score, Serial 7s

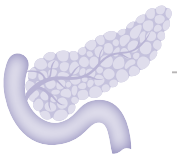
DISEASE: Cognitive Function, Leukemia, and Cataract



IMMUNE SYSTEM

BIOMARKERS: Eosinophil Count, Lymphocyte Count, Monocyte Count, Neutrophil Count, Percent Basophils, Percent Eosinophils, Percent Lymphocytes, Percent Monocytes, White blood Cell Count, Myeloid Dendritic Cells (DC-M) Percentage, Plasmacytoid, Dendritic Cells (DC-P) Percentage, NK Cells: CD56HI Percentage, NK Cells: CD56LO Percentage, CD16 – Monocytes Percentage, CD16+ Monocytes Percentage, B Cells Percentage, CD8+ T Cells; Central memory (CM) Percentage, CD4+ Cells: (TemRA) Percentage, CD4+ T Cells Percentage, IgD + Memory B Cells Percentage, IgD – Memory B Cells Percentage, CD8+ T Cells: T Cells Percentage, Naïve B Cells Percentage, CD8+ T Cells: Effector Memory (Tem) Percentage, Natural Killer (NK) Cells Percentage, Monocytes Percentage, Dendritic Cells Percentage

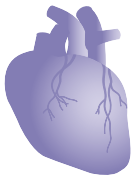
DISEASE: Cognitive Function, Leukemia, Lung Cancer, and Coronary Heart Disease



HORMONE

BIOMARKERS: IGF-1; DHEAS

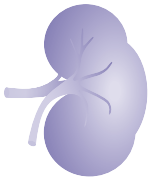
DISEASE: Thyroid Disease, Arthritis, Leukemia, and Breast Cancer



HEART

BIOMARKERS: Shortness of breath while awake, PComponents of Grimage, Previous High Blood Pressure, Previous Heart Attack, Previous Stroke, Homocysteine, BMI

DISEASE: Physical Function, Total Comorbidities, Lung Cancer, Coronary Heart Disease, Diabetes, Thyroid Disease, and Cataract



KIDNEY

BIOMARKERS: Albumin, Urea Nitrogen, Chloride, Bicarbonate Creatinine, Cystatin C, Potassium, Sodium

DISEASE: Cognitive Function, Physical Function, Total Comorbidities, Leukemia, Diabetes, Arthritis, and Cataract

Systems-related Biomarkers and Disease (continued)

INFLAMMATION

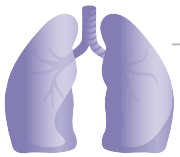
BIOMARKERS: Ferritin, C-Reactive Protein, Transforming Growth Factor Beta, Interleukin 10, Interleukin 1 Receptor Antagonist, Interleukin 6, Tumor Necrosis factor Receptor 1

DISEASE: Cognitive Function, Physical Function, Total Comorbidities, Coronary Heart Disease, Diabetes, Arthritis, and Cataract

LIVER

BIOMARKERS: Albumin, Alkaline Phosphatase, ALT, AST, Bilirubin, Total Protein

DISEASE: Cognitive Function, Leukemia, and Cataract



LUNG

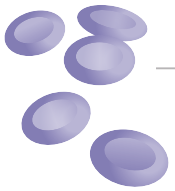
BIOMARKERS: Peak expiratory flow, Bicarbonate, Chronic Lung Disease, Shortness of breath while awake, Persistent wheezing, cough, or bringing up phlegm PCSmoking-packyears

DISEASE: Lung Cancer, Coronary Heart Disease, and Thyroid Disease

MUSCULOSKELETAL

BIOMARKERS: Vitamin D3, Dehydroepiandrosterone sulphate, IGF-1, Arthritis, Height, Weight, BMI, some diff-mobility, hand grip strength maximum measurement, semi tandem balance test time, times walk test time, hand grip strength-left hand hand grip strength – right hand, had back problems, some diff-stoop/kneel/crouch, diff-stoop/kneel/crouch, diff-walk one block, Diff-walk sev blocks, some diff-walk one block, some diff-walk sev blocks, diff climb sev flt stair, diff-climb one flt stair, some diff-clmb sev flt str, some diff-climb 1 flt stair, diff-get up fr chair, some diff get up fr chair, some diff-get up fr chair, diff-reach/extnd arms up, some diff-rch/xtnd arms up, diff-lift/carry 10lbs, some diff-lift/carry 10lbs, side-by side balance test time, full tandem balance test time, Sum of 7 different functional tests, Combination of all balance scores.

DISEASE: Physical Function, Total Comorbidities, Diabetes, and Arthritis



BLOOD

BIOMARKERS: SFerritin, Hematocrit, Hemoglobin, Mean Corpuscular Hemoglobin, Mean Corpuscular Hemoglobin Conc, Mean Corpuscular Volume, Mean Platelet volume, Platelet Distribution width, Platelet Count, Red Blood Cell Count, Red Cell Distribution Width

DISEASE: Leukemia and Cataract

DunedinPACE

Developed form the landmark Dunedin study, DunedinPACE measures how fast patients are biologically aging each year compared to the calendar year. The DunedinPACE algorithm is a revolutionary approach to quantifying aging that shifts the focus from merely knowing your biological age to understanding the pace, or rate at which you're aging.

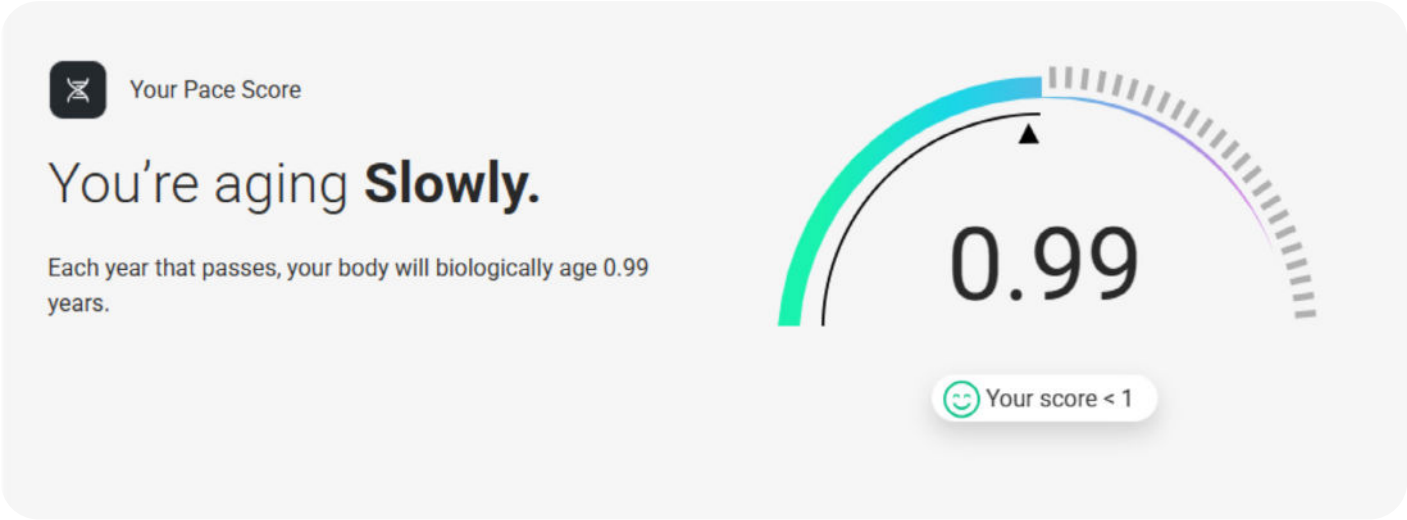
It's not just about how old your body is biologically; it's equally crucial to grasp how quickly you are moving towards aging. This knowledge is vital because slowing down the pace of aging can significantly impact your health, vitality, and the prevention of chronic diseases. By providing a clearer picture of how fast you're aging,

DunedinPACE empowers you to make informed lifestyle choices that can help decelerate the aging process, aiming for a healthier, more vibrant life. Your pace of aging changes quickly and has been shown to be affected by lifestyle choices, making it a perfect tool to understand the success of interventions.

Through repeat testing you are able to track progress over time and measure the effectiveness of your interventions.

A pace greater than 1 has been associated with a **54%** increased risk of chronic disease in the next 7 years.

Your DunedinPACE Score



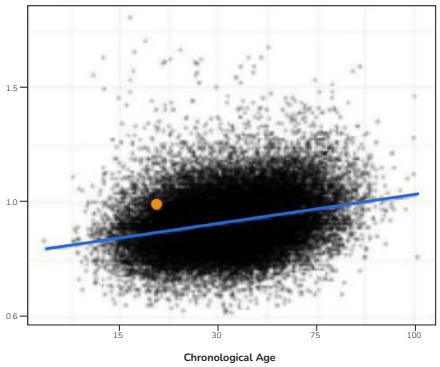
Your DunedinPACE Results

DunedinPACE of Aging

DunedinPACE Value

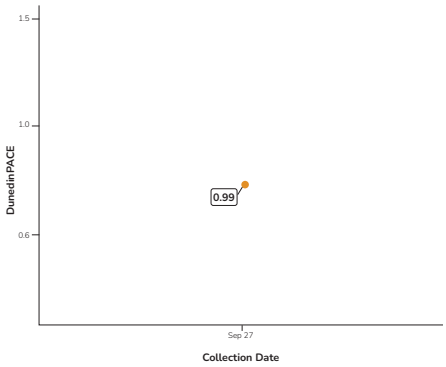
0.99

Population



Your DunedinPACE is higher than **86.70%**
of the general population at your same calendar age

Changes over time



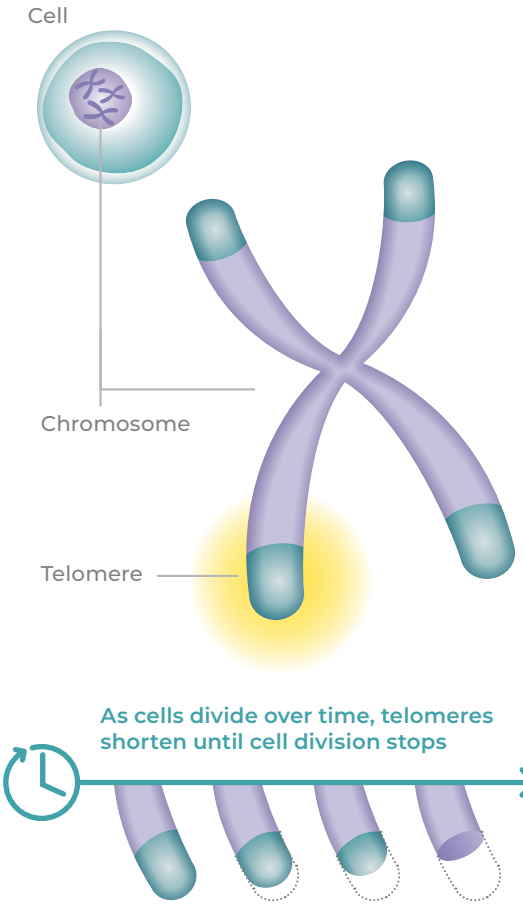
ALGORITHM	PATIENT DATA	MORBIDITY AND MORTALITY RISK ASSOCIATIONS	STATEMENT
DunedinPACE	**0,99** Biological years per year	**All-Cause Mortality** (Belsky et al., 2020)	If you are aging above a rate of 1,00, you would increase risk of death by 56% over the next 7 years.
		Chronic Disease (Belsky et al., 2020)	If you are aging above a rate of 1,00, you would increase risk of chronic disease diagnosis by 54% over the next 7 years.

Telomere Length Report

Introduction to Telomeres

Telomeres are repeating sequences of nucleotide sequences (TTAGGG) that tag the ends of all chromosomes. They are designed to prevent unpredictable changes in the DNA strand, keeping the genome stable [3].

Their primary function is to prevent chromosomal “fraying” when a cell replicates, much like the plastic tips on the end of shoelaces [5]. As a cell ages, its telomeres become shorter.



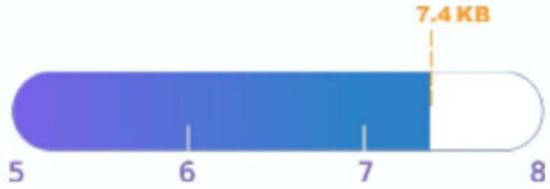
Why are Telomeres Important?

Telomere length is affected by both genetic and epigenetic contributions. A new study found that DNA methylation is closely linked to TL. The study by researchers at the University of California Los Angeles shows a very significant linkage between two different markers that indicate aging [2].

Shorter telomeres are not only associated with age but with disease too. In fact, shorter telomere length and low telomerase activity are associated with several chronic preventable diseases. These include hypertension, cardiovascular disease, insulin resistance, type 2 diabetes, depression, osteoporosis, and obesity.

Your Telomere Length Results

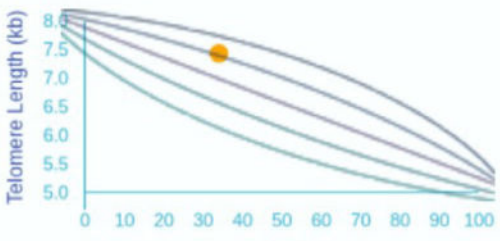
Average Telomere Length



Your average telomere length is:

7.44 kilobases (Kb)

Your Percentile



At your chronological age of 34.17, you would be in the 68.5th percentile of telomere length compared to others of your same chronological age. This means that your telomeres are longer than 68.5% of people your age

FitAGE

How your Physical Fitness Impacts Age

It is a visible and well-known fact that physical fitness declines as we age. This functionality and performance loss is well-correlated with health, and can be measured indirectly through reduced function in specific organs (such as the lungs), as well performance tests of strength.

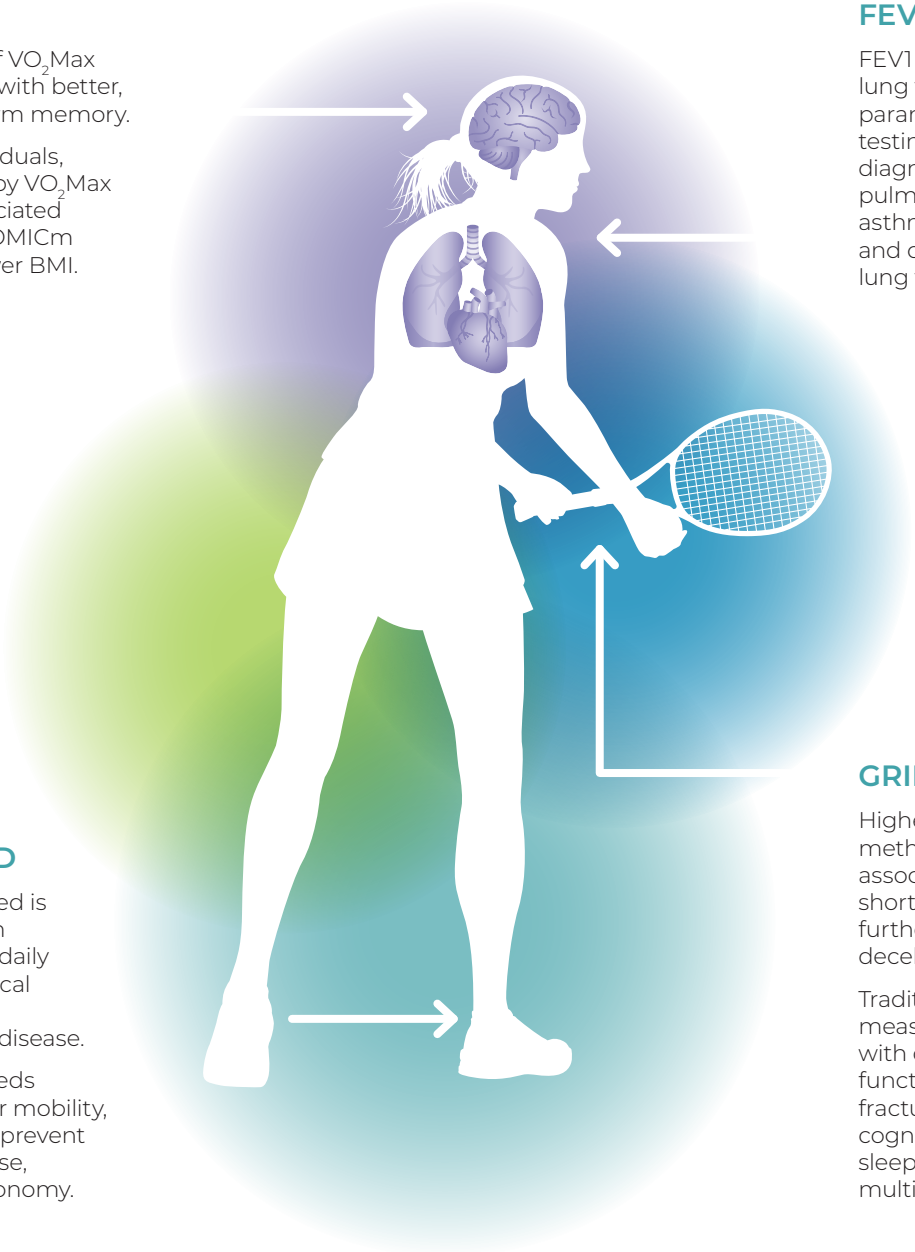
The rate and extent of this decline varies between individuals, however, those who maintain physical fitness as they age are at lower risk for a range of diseases. These people also tend to live longer lives.

The use of DNA methylation (DNAm) has allowed for the development of fitness biomarkers, as well as biomarkers of age-related changes in physical fitness. Physiological data can be incorporated into algorithms in order to predict aging-related morbidity, disability, and mortality through DNAm biomarkers; indicating that individual differences in carious fitness parameters can be reflected in DNAm data.

VOX_2MAX

Higher levels of VO_2Max are associated with better, verbal short term memory.

Highly fit individuals, as considered by VO_2Max levels, are associated with younger OMICm FitAge and lower BMI.



FEV1

FEV1 specifically measures lung function. Collectively, these parameters make-up spirometry testing, which is beneficial in diagnosing chronic obstructive pulmonary disease (COPD), asthma, restrictive lung disease, and other disorders that affect lung function.

GAIT SPEED

Lower gait speed is associated with impairment of daily activities, physical inactivity, and cardiovascular disease.

Faster gait speeds indicate greater mobility, which helps to prevent disability, disease, and loss of autonomy.

GRIP STRENGTH

Higher levels of Gripmax (DNA methylated Grip Strength) are associated with better verbal short-term memory; which is further associated with decelerated aging.

Traditional grip strength measurements are correlated with overall strength, upper limb function, bone mineral density, fractures, falls, malnutrition, cognitive impairment, depression, sleep problems, diabetes, multimorbidity, and quality of life.

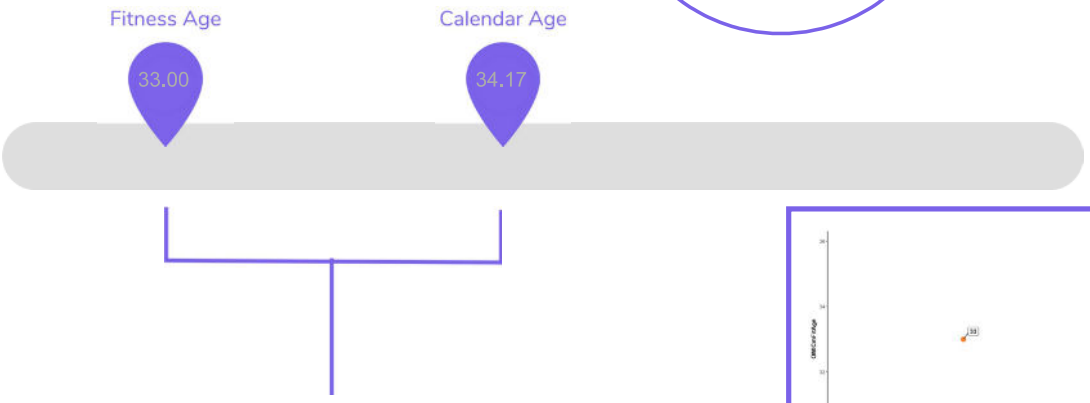
Your Results.

DISCLAIMER: All population graphs included in this report are based off of data from thousands of research participants and TruAge test takers. Population graphs are included to provide context to your results, with your individual scores being indicated by a neon green dot that is plotted amongst population trends.

33.00

YEARS OLD

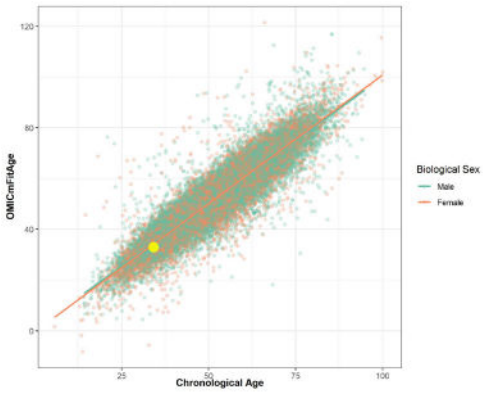
OMICm FitAge



Your OMICm FitAge is

LOWER THAN

your calendar age by **1.17** years.



For every one year older that your OMICm FitAge is over your calendar age, there is an average **0.29 decrease in relative grip** strength and a 0.32 increase in BMI. OMICm FitAge has estimated that highly-fit individuals (classified through VO2max) have a **1.5 to 2.0 younger biological age** compared to low/medium fit individuals in females and males, respectively.

Younger OMICm FitAge was associated with better memory test performance, emphasizing the **beneficial role of physical exercise on cognitive health.**

Weight Loss Resistance

Learn about your genes: PON3

PON3 creates a protein that circulates in the blood stream. This protein binds to lipoproteins, which transport fat molecules through the blood.

The PON3 protein protects lipoproteins like HDL and LDL (also known as cholesterols) against oxidation. When LDL is oxidized, it can cause inflammation which leads to plaque in the arteries and possible damage to arterial walls.

Oxidized LDL is also believed to play a role in increasing the amount of fat your body deposits. It increases the production of triglycerides, which is the most common type of fat produced when your body has extra calories available.

Studies have found that the pattern of methylation on PON3 can predict how a person's weight and body fat will respond to caloric restriction.

Your Results

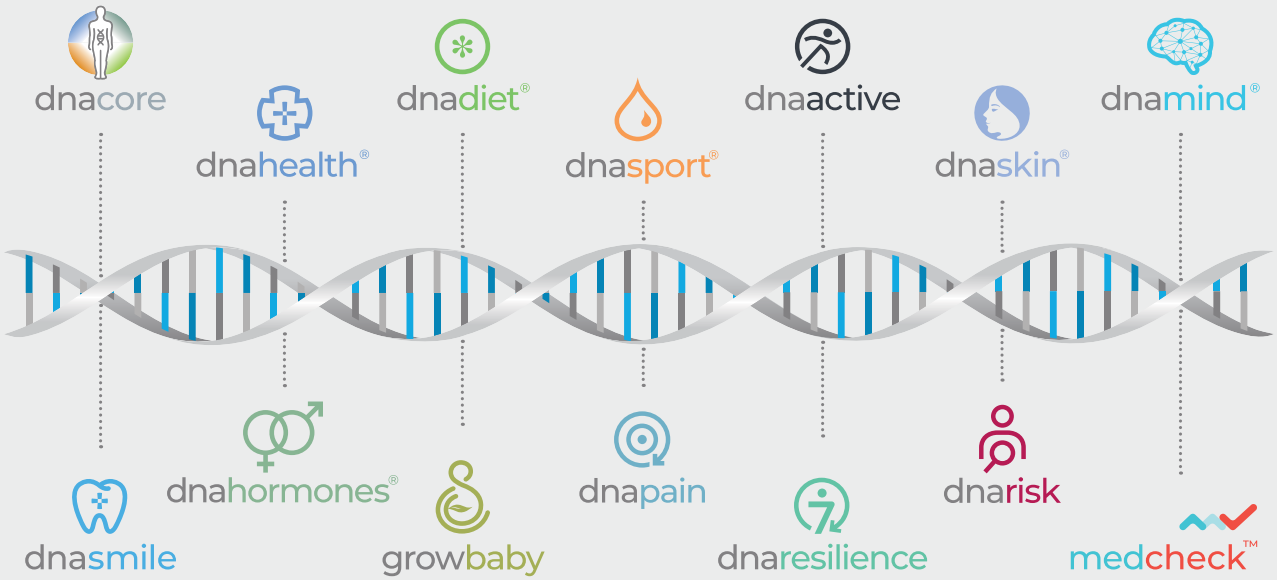
Weight Loss Response

CPG SITE	CPG	CPG	CPG	CPG
cg03301582	PON3	0,120	0,09	Hypomelhylated
cg04060282	PON3	0,324	0,38	Hypomelhylated
cg08461TT2	PON3	0,418	0,48	Hypomelhylated
cg08898155	PON3	0,163	0,11	Hypomelhylated
cg0329418	PON3	0,252	0,33	Hypomelhylated
cg11435506	PON3	0,165	0,12	Hypomelhylated
cg15500865	PON3	0,072	0,07	Hypomelhylated
cg24750391	PON3	0,355	0,48	Hypomelhylated
cg25161512	PON3	0,115	0,15	Hypomelhylated
cg26457160	PON3	0,490	0,62	Hypomelhylated
cg2716692	PON3	0,253	0,33	Hypomelhylated

RISK REPORT	PATIENT OUTCOMES	IMPACT	IMPACT	ADDITIONAL NOTE
Weight Loss Response	**Intermediate response**	Your DNA response methylation scores at the above loci indicate you are an **intermediate responder** for weight loss treatment utilizing a hypocaloric diet, This means you **may or may not lose weight** from caloric restriction.	If your DNA methylation score puts you in the category of non-responder or intermediate responder, then a hypocaloric diet might not be the best treatment option for you. If you are a responder, that means a hypocaloric diet has a greater chance of positively impacting your weight loss goals.	Studies on these particular CpG loci have concluded that some individuals have a better response to a calorie deficit diet than others. This may indicate why weight loss has been difficult to achieve and can provide insight into finding the best weight loss strategy.

A lifetime of optimal health awaits you

Your genes do not change, which means our laboratories will only ever need one sample* from you. Throughout your life, as your health goals and priorities change, we can continue to provide valuable health insights from this single sample* to support your unique health journey.



Requires finger prick blood spot sample collection

Our Commitment

DNAlysis Biotechnology is continuously developing new tests with the highest standards of scientific rigour. Our commitment to ensuring the ethical and appropriate use of genetic tests in practice means that gene variants are only included in panels once there is sound motivation for their clinical utility and their impact on health outcomes.

ADVANCED technology | ACTIONABLE interventions | APPROPRIATE use in practice

From the laboratories of:

DNALYSIS Biotechnology

For more information:
011 268 0268 | admin@dnalysis.co.za | www.dnalysis.co.za

Risks and Limitations:
DNAlysis Biotechnology has a laboratory with standard and effective procedures in place for handling samples and effective protocols in place to protect against technical and operational problems. However as with all laboratories, laboratory error can occur; examples include, but are not limited to, sample or DNA mislabelling or contamination, failure to obtain an interpretable report, or other operational laboratory errors. Occasionally due to circumstances beyond DNAlysis Biotechnology's control it may not be possible to obtain SNP specific results.