GlycanAge

Personal Report

Jane Doe

GA019-0484

What is GlycanAge?

GlycanAge is a scientifically proven measurement tool. It responds quickly to lifestyle changes, allowing you to measure their impact.

It works by measuring **chronic inflammation** in your immune system at the molecular level – also known as **inflammaging**.

What can it tell me?

Your biological ageing is influenced by your genes, age, and **lifestyle**. GlycanAge measures how your **lifestyle** choices affect the activity of your immune system.

If you make changes and re-test, GlycanAge will help you understand whether the adjustments in your lifestyle and habits are moving you in the right direction.

How do we analyse your profile?

Analyse composition

We look at 29 different glycan structures gathered from your blood sample to determine your unique glycan composition.

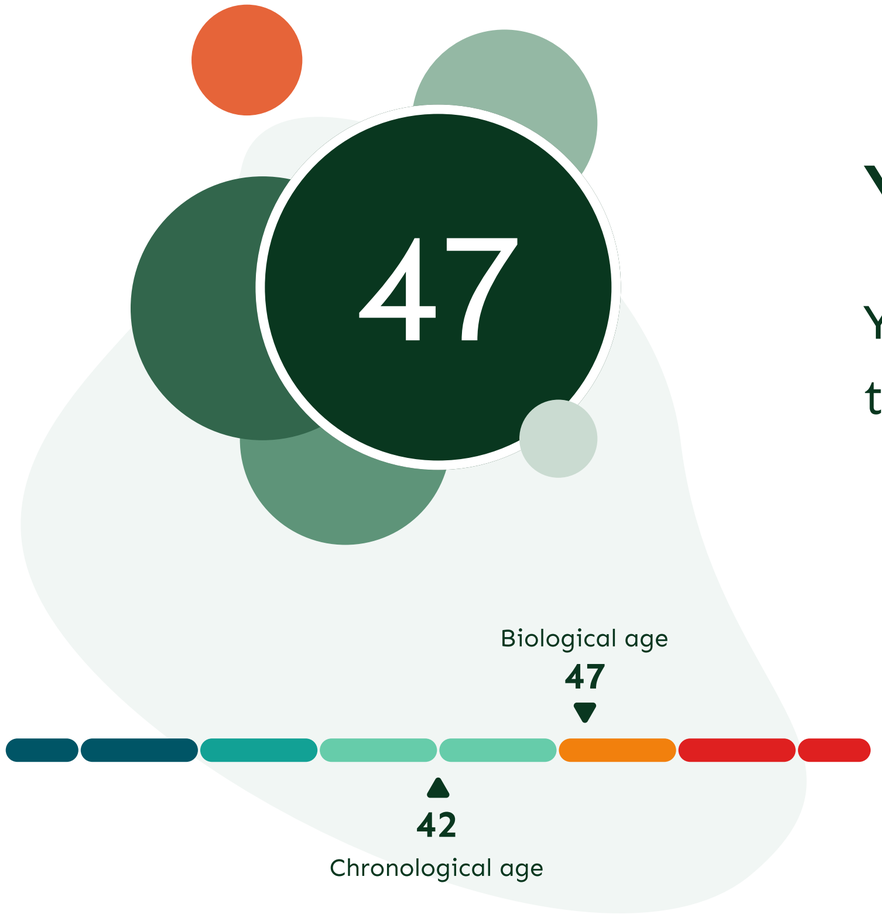
Group data into indexes

We group related structures into indexes. Some indexes promote chronic inflammation, while others shield you against it.

Calculate GlycanAge

We combine and weight your data to calculate your GlycanAge – a single number that represents the current age of your immune system.

Your Biological Age



Your results are in.

Your biological age is **5 years older** than your chronological age

Remember, you're no less healthy than you were yesterday, but this is a great early warning to make some lifestyle changes.

If you haven't already, don't forget to **fill in your health questions** and **book your free specialist consultation** to learn about areas you might want to investigate and improve.

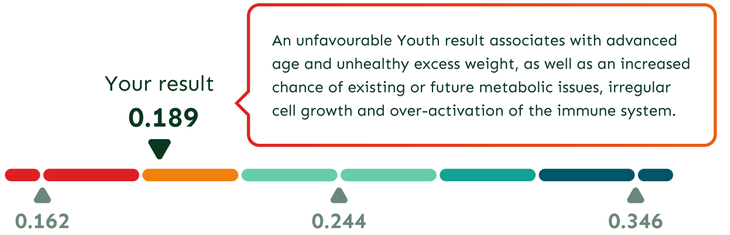
RESULT BREAKDOWN:

Anti-inflammatory indexes

These indexes protect against chronic inflammation, so it is **better to have more** of them. Their main feature is containing **galactose** and **sialic acid**.

Glycan **Youth**

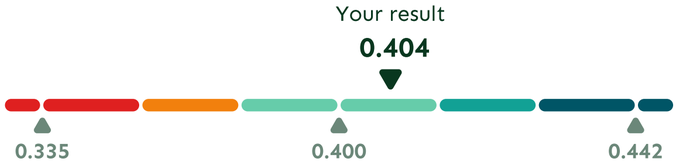
Glycan Youth represents glycans with **two galactoses**. We call this index "Youth" because we're abundant in these glycans when we're young.



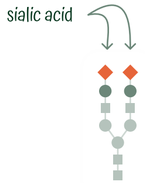
Your result puts you in the **bottom 15%** of people.

Glycan **Median**

Glycan Median represents glycans with **one galactose**. Although it isn't as good as having two galactoses, these glycans still play a vital role in lowering chronic inflammation.

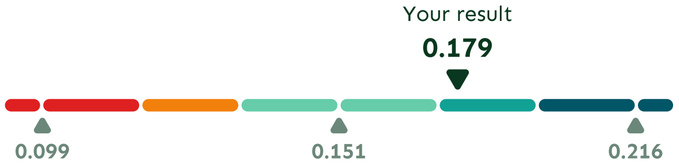


Your result puts you in the **top 40%** of people.



Glycan **Shield**

Glycan Shield represents glycans with **sialic acid** — your best defense against chronic inflammation.



Your result puts you in the **top 35%** of people.

RESULT BREAKDOWN:

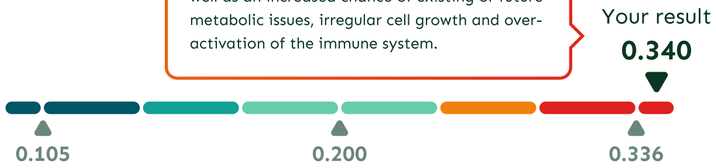
Pro-inflammatory indexes

These indexes promote chronic inflammation, so it is **better to have less** of them. Their main feature is **missing galactoses**, and/or having a **bisection** modification.

Glycan **Mature**

Glycan Mature represents glycans that are **missing galactoses**. As we get older, our glycans age with us. During that, glycans lose galactoses. This switches them from protecting us against chronic inflammation towards causing it.

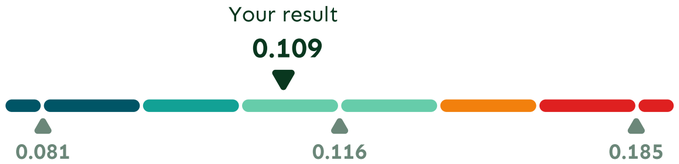
An unfavourable Mature result associates with advanced age, menopause and peri-menopause, unhealthy excess weight and inflammation, as well as an increased chance of existing or future metabolic issues, irregular cell growth and over-activation of the immune system.



Your result puts you in the **bottom 1%** of people.

Glycan **Lifestyle**

Glycan Lifestyle represents glycans that have a **bisection** modification. A good result in this index is an indicator of positive lifestyle, whereas a bad score is often related to smoking and obesity.



Your result puts you in the **top 45%** of people.

What’s next?

CONTINUE READING

Learn what affects our glycan composition

We’ll review these major areas of interest:

- Genetics
- Natural ageing
- Lifestyle

These are not personally tailored to you.

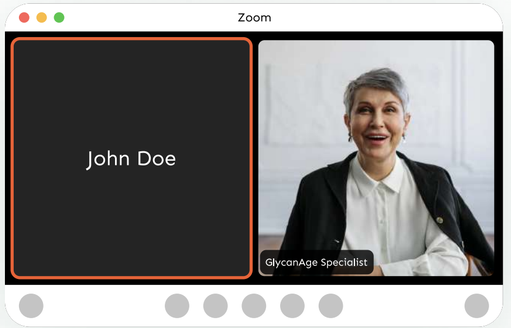
Exploring this chapter might give you some ideas of what to discuss with your specialist.

TAKE ACTION

Book your **free** 30 minute consultation with a specialist

It is confidential and gives you the opportunity to discuss your health, lifestyle and any medical conditions in conjunction with your results to help you decide what you’d like to do next.

glycanage.com/consultations



What affects our glycan composition?

Important note

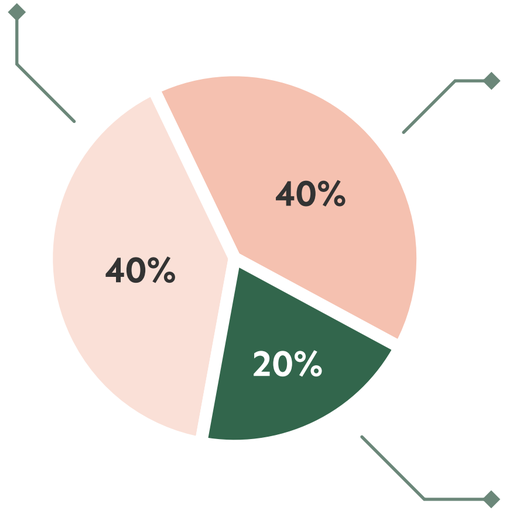
Before you continue...

Content on this and next page is for informational purposes only. It is derived from scientific research.

It is NOT personally tailored to you.

Natural ageing

When we're young, our glycan composition is rich in glycans with sialic acid. As we get older, the glycans tend to lose "arms". More precisely — they lose sialic acids and galactoses. This causes them to transition from preventing chronic inflammation to promoting it.



Genetics

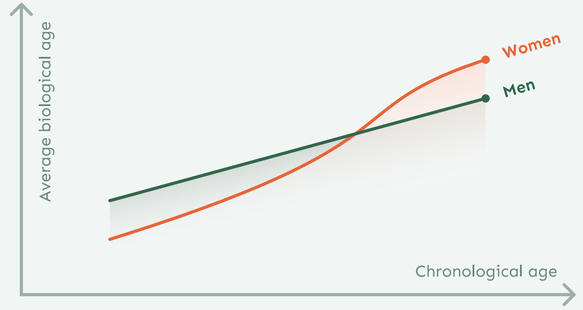
Our glycan composition is partly inherited. We've conducted research on cohorts across the world which demonstrate that different ethnic groups age differently.

Lifestyle

Our lifestyle choices play a major role in shaping us. Nutrition, exercise, stress and medical interventions, all affect our glycan composition. This is great news as it gives us a way to influence our glycans.

Men and women age differently

Men and women exhibit slightly different biological ageing curves. Women tend to have a greater amount of glycans that prevent chronic inflammation BEFORE perimenopause and menopause. During and after — there is usually a strong shift towards pro-inflammatory glycans. Men on the other hand have a much more linear change in glycan profile.



Menopause & Perimenopause

Menopause is when a woman stops having periods and is no longer able to get pregnant naturally. Perimenopause is the period leading up to menopause.

During this life-stage there are drastic changes in women's glycan composition. Pro-inflammatory glycans increase, and anti-inflammatory are reduce.

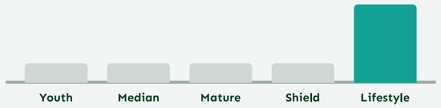
Andropause

Andropause describes the steady changes (decline) in male's hormone levels, which usually relates to other age-related issues. This steady change is why men have a more linear ageing curve.

Nutrition

Changing nutrition can yield long-term benefits, but optimising it often requires a personalised approach. In our studies, the only plan that had a consistently beneficial effect was a low-calorie diet that removed overly processed foods.

Removing overly processed foods rich in hidden sugars and empty calories improves Glycan Lifestyle index, but doesn't have a significant effect on other indexes.

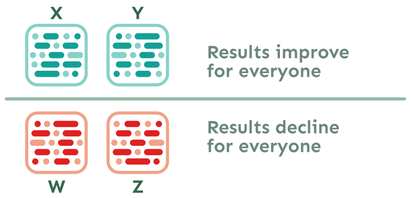


There's no "magic diet"

We've conducted a research to determine whether there's a diet that is beneficial to **everyone**.

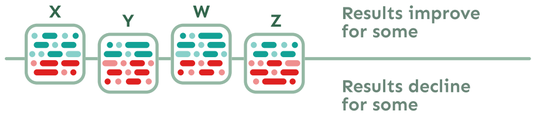
What we expected:

- Clear improvement with diet X and Y
- Clear decline with diet W and Z



What we actually learned:

- No clear indication of benefits for different diets
- **Diet needs to be tailored for your unique metabolism.**



Managing obesity

There are various types of fat our bodies tend to accumulate over the years. Not all fat is considered "bad". However, accumulation of a large amount of excess abdominal fat causes metabolic stress and inflammation.

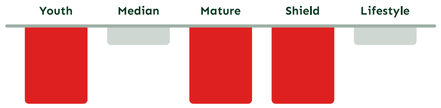
In context of managing obesity, **low calorie diet** yields positive improvements across all indexes.

Extensive weight loss has been proven to positively affect almost all indexes.

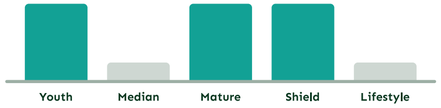
Exercise

Exercise has many positive effects on health, but over-exercise will have a negative effect.

High intensity training when combined with caloric restriction depletes the natural capacity of our immune system. It has a negative impact on most indexes.



However, high intensity training can be beneficial for your glycan profile when combined with a good recovery period and proper nutrition.



Thank you for choosing GlycanAge

Glycans are complex carbohydrate molecules and one of the four primary components of the cell (alongside DNA, proteins, and lipids).

Glycans perform numerous tasks and play a major role in all essential functions of the human body, including our immune system. They participate in virtually all our body's processes; therefore, it is not surprising that molecular defects in glycan synthesis are recognised as a direct cause of an increasing number of diseases.

The study of glycans is still in its infancy. However, it is already providing useful and unique insights into how our bodies age at a molecular level.

GlycanAge provides you access to the most advanced information available. Created by the world's leading authority on glycoscience, Professor Gordan Lauc and fulfilled at his laboratory, Genos — world leaders in the extraction and analysis of glycans.

Our combined research team has studied ageing for over 25 years, publishing our findings in more than 200 scientific papers.

GlycanAge is proven to respond to lifestyle changes, in both scientific trials and personal tests spanning over 150k individuals.

List of references

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2. Decreased Immunoglobulin G Core Fucosylation, A Player in Antibody-dependent Cell-mediated Cytotoxicity, is Associated with Autoimmune Thyroid Diseases
3. Molecular Pathways Mediating Immunosuppression in Response to Prolonged Intensive Physical Training, Low-Energy Availability, and Intensive Weight Loss
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14. Intense Physical Exercise Induces an Anti-inflammatory Change in IgG N-Glycosylation Profile
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23. Glycans Are a Novel Biomarker of Chronological and Biological Ages
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25. Heterogeneity of IgG Glycosylation in Adult Periodontal Disease
26. Estrogens regulate glycosylation of IgG in women and men
27. Glycosylation of plasma IgG in colorectal cancer prognosis
28. Immunoglobulin G glycosylation in aging and diseases
29. IgG Glycome in Colorectal Cancer

Glycans are directly involved in the pathophysiology of every major disease...

Additional knowledge from glycoscience will be needed to realize the goals of personalized medicine and to take advantage of the substantial investments in human genome and proteome research and its impact on human health.

— US National Academies, 2012