

Unlocking the Secrets of Centenarian Longevity

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STORY AT-A-GLANCE

- › Centenarians consistently maintain lower levels of glucose, creatinine and uric acid from their 60s, with very few having glucose levels above 6.5 mmol/L or creatinine levels above 125 µmol/L earlier in life
- › The study highlights that biomarker differences appear long before death, indicating that genetics and lifestyle choices significantly influence longevity
- › A large dataset of 44,636 Swedes was used in the study, providing robust insights into the factors contributing to living beyond a century
- › The study reveals a gender disparity in exceptional longevity, with women comprising 84.6% of the centenarians studied, highlighting biological advantages in female aging
- › The research highlights several biomarkers to predict exceptional longevity, emphasizing the importance of monitoring these indicators for health benefits

Did you know that individuals who reach the age of 100 consistently maintain lower levels of glucose, creatinine and uric acid starting in their 60s? A study published in GeroScience, involving data from 44,636 participants in Sweden, revealed that very few centenarians have glucose levels above 6.5 mmol/L or creatinine levels exceeding 125 µmol/L earlier in life.¹

Understanding these biomarkers provides you with valuable insights into the factors that contribute to a longer, healthier life. These biomarker differences appear long before

death, indicating that genetics and lifestyle choices play a significant role in promoting longevity.

As the global population ages, uncovering the biological underpinnings of such exceptional lifespan is drawing increasing attention from researchers. This research not only highlights the unique health profiles of centenarians but also offers practical knowledge on how you can optimize your own health for a more vibrant and extended life.

Groundbreaking Insights Into Centenarian Health

The GeroScience study explored the biomarker profiles of individuals who live to be 100 years old compared to those who do not, looking for the key differences in blood markers that might contribute to the likelihood of reaching a centenarian status.²

The study focused on a diverse population of Swedes aged between 64 and 99 years old, all part of the Amoris cohort. Over a span of 35 years, these individuals underwent health assessments that measured blood-based biomarkers related to various bodily functions, including inflammation, metabolism, liver and kidney performance, as well as indicators of malnutrition and anemia.³

Out of this group, 1,224 individuals, or approximately 2.7%, achieved the milestone of living to 100 years old, with a significant majority (84.6%) being female.⁴

As mentioned, centenarians consistently exhibited lower levels of glucose, creatinine and uric acid starting from their 60s. Glucose, commonly known as blood sugar, is essential for energy, but high levels lead to health issues like diabetes. Creatinine is a waste product generated from muscle metabolism, and high levels often indicate impaired kidney function. Uric acid is another waste product that, when elevated, contributes to conditions such as **gout**.⁵

The comprehensive nature of this study provides robust evidence supporting the idea that specific biomarkers are closely associated with exceptional longevity. The large sample size and long follow-up period enhance the reliability of the findings, making

them significant in the field of aging research.⁶ Additionally, the focus on a variety of biomarkers related to different aspects of health offers a holistic view of the factors that contribute to living beyond a century.

Understanding Longevity Through Biomarkers

Biomarkers are like your body's report card, offering insights into your metabolic health and potential for a long life. When you undergo tests for glucose, creatinine and uric acid, you're essentially getting a snapshot of how well your body is managing its internal processes.

These tests are important because they reveal not just your current health status but also hint at genetic and lifestyle influences that could affect your aging process. However, conventional methods often miss the complexity of aging, which is why ongoing research is focused on refining these tests for better accuracy.

While the study revealed that maintaining lower levels of glucose and creatinine from your 60s onward is associated with an increased likelihood of [reaching the age of 100](#), understanding how these factors lead to longevity involves looking at how they interact over time.

Lower glucose levels, for example, reduce strain on your body's insulin regulation systems, thereby lowering your risk of developing diabetes and its associated complications.⁷ Efficient glucose management ensures that cells receive necessary energy without the detrimental effects of high blood sugar.

Similarly, lower creatinine levels indicate better kidney function, which is essential for filtering waste from your blood. Healthy kidneys efficiently remove toxins and manage fluid balance, preventing conditions like kidney disease that significantly impact overall health and lifespan.⁸

Uric acid, while necessary in small amounts, becomes problematic when levels are too high. Elevated uric acid leads to the formation of crystals in joints, causing painful conditions like gout, and also contributes to kidney stones and kidney disease.⁹ By

keeping uric acid levels in check, centenarians reduce the risk of these painful and debilitating conditions, supporting a healthier and more active lifestyle well into old age.

Blood Biomarkers Reveal Longevity Secrets

In addition to lower levels of glucose, creatinine and uric acid, the study found centenarians also exhibited lower levels of aspartate aminotransferase (ASAT), gamma-glutamyl transferase (GGT), alkaline phosphatase (ALP), lactate dehydrogenase (LD) – enzymes related to liver function and overall metabolism – and total iron-binding capacity (TIBC).¹⁰

TIBC reflects your body's iron transport capacity. Lower TIBC levels, alongside higher total iron, suggest a more regulated iron metabolism that prevents excess iron accumulation, known to cause oxidative damage and inflammation.¹¹ This regulation helps prevent chronic diseases and maintain cellular health over time.

Interestingly, the study found that centenarians had a smaller change in biomarker values between their first and second measurements compared to non-centenarians. This stability in biomarker levels indicates a more consistent physiological state.¹²

Additionally, the higher proportion of females among centenarians suggests that gender plays a role in longevity. Women generally have longer lifespans than men, and this study reinforces that trend by showing a significant majority of centenarians are female.¹³

Overall, the GeroScience study provides invaluable insights into the biological factors that underpin longevity. By identifying and understanding the role of specific biomarkers like glucose, creatinine and uric acid, researchers better comprehend the pathways that lead to living a long and healthy life.¹⁴ These findings not only enhance our knowledge of aging but also pave the way for developing targeted strategies to promote longevity and improve quality of life for future generations.¹⁵

That being said, diagnosing the likelihood of longevity through biomarkers is tricky. Often, the challenge lies in the fact that these markers fluctuate due to temporary

conditions or lifestyle changes. For instance, a single high glucose reading might not indicate a long-term problem but rather a short-term dietary choice. This variability may lead to misinterpretations if not considered in the context of a broader health assessment.

Moreover, the limitations of current diagnostic methods mean that some nuances of aging are missed. Many tests are based on clinical guidelines that don't always apply to older populations, leading to misdiagnoses. As a result, there's a growing need for more personalized approaches that take into account individual health histories and genetic backgrounds. This would help in providing a more accurate picture of one's likelihood for [exceptional longevity](#).

Tips to Maximize Your Longevity

If you're looking to enhance your longevity, a key starting point is reducing your intake of [linoleic acid](#) (LA), an omega-6 polyunsaturated fatty acid found in seed oils and most processed foods.

When you consume LA, it undergoes various metabolic processes, leading to the formation of bioactive metabolites like oxidized linoleic acid metabolites (OXLAMs) and arachidonic acid (AA). These metabolites interfere with insulin signaling, a component in maintaining your blood glucose levels.

Excess LA also influences uric acid levels. In fact, a mother's high intake of vegetable oils and other LA-rich foods during pregnancy increased blood levels of uric acid in male offspring.¹⁶ The primary reason why [excess LA is harmful to your health](#), however, is because it disrupts your cellular powerhouses – the mitochondria.

Your mitochondria produce adenosine triphosphate (ATP), the essential fuel that keeps your cells running and repairing themselves. Without energy, your cells can't repair and regenerate themselves. So, the fundamental issue underlying most chronic disease is that your cells are not producing enough energy.

This topic is covered in detail in my newest book, “Your Guide to Cellular Health: Unlocking the Science of Longevity and Joy.” Mitochondrial health is key to overall health, because your mitochondria are responsible for producing the energy necessary for all bodily functions, including the energy necessary to avoid age-related diseases and achieve exceptional longevity.

In addition to reducing LA, ensure you have sufficient carbohydrate intake to meet your energy needs. Prioritize whole, minimally processed carbohydrate sources such as whole fruits and introduce fruit juice with pulp to support gut health.

For individuals with severely compromised gut health, use dextrose water or pulp-free juice, ensuring they are sipped slowly over time – avoid high-fiber foods to prevent potential damage to your gut microbiome and increased endotoxin levels.

As your cellular energy and gut health improve, you can gradually incorporate starches and complex carbohydrates to stabilize blood sugar and improve insulin sensitivity. Additionally, ensure that approximately one-third of your protein intake consists of collagen to support your metabolic health.

Beyond diet, integrate regular exercise and daily movement into your routine to support metabolic functions and reduce chronic disease risks. Practice stress management techniques like meditation or yoga, ensure sufficient sleep and minimize exposure to environmental toxins, including avoiding seed oils and other substances detrimental to cellular health.

In addition to LA, exposure to synthetic **endocrine-disrupting chemicals** (EDCs), estrogen and pervasive electromagnetic fields (EMFs) also impair your cells' ability to generate energy efficiently. Additionally, consider the use of pharmaceutical-grade **methylene blue** as prescribed by a health care professional to support cellular energy production. By addressing these areas, you'll maintain optimal biomarker levels, avoid premature aging and promote longevity naturally.

Sources and References

- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 **GeroScience 2024, 46:1693-1702**
- ¹⁶ **Int J Mol Sci. 2024 Jan; 25(2): 1129**