SUPER AGE

5 Longevity Secrets from the World's Oldest Woman

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Scientists decoded the biology of a 117-year-old woman. The results challenge what we think aging markers can and can't tell us about living longer.

Maria Branyas Morera lived a long, full life. Born in San Francisco in 1907, she played piano into her 110s, gardened, stayed close with family and friends, she followed a Mediterranean diet, did not smoke or drink, walked an hour a day, and kept her daily ritual of three yogurts until the very end. She died in Spain in 2024 at age 117, the world's oldest verified person at the time.

She reportedly told researchers: *"Please study me."* And, as she requested, they did. In a recent paper published in *Cell Reports Medicine*, Maria is referred to as M116. Her blood, saliva, stool, and DNA samples were run through every lens of modern biology. They looked at her metabolism, immune system, **microbiome**, and even her epigenetic "clocks," searching for the patterns that allowed her to defy time.

What they found is less a neat formula than a paradox: her biology carried all the traditional hallmarks of aging, including shortened telomeres and older immune cells, yet her body maintained the kind of low **inflammation**, efficient metabolism, and microbial balance usually seen in much younger people.

The takeaway is that **longevity** looks less like numbers on a test and more like a balanced system, built and reinforced over decades.

What the World's Oldest Woman Teaches Us About Longevity

So what made Maria's biology so remarkable, and what does it reveal about the science of aging? The study explores five layers of her biology, from telomeres to gut microbes. Each tells a slightly different story,

sometimes signaling decline, sometimes **resilience**. Together, they sketch a rare picture of how aging and disease can be uncoupled.

1) Telomeres: Why Longer Isn't Always Better

You've probably heard that long telomeres (the protective caps on chromosomes) equal long life. But Maria's results complicate that equation. Her telomeres were the shortest among all healthy volunteers studied. The researchers suggest that in her case, telomere shortening may have worked more as a chronological clock**,** a marker of age, rather than a predictor of disease. They even raise the idea that her extremely short telomeres might have blocked runaway cell growth, helping her avoid cancer. More broadly, other studies point out that it's not just about telomere length. What really matters is whether telomeres stay **stable, functional, and intact**.

2) The Immune System Paradox

Her blood told a similarly complex story. On paper, she carried genetic mutations that can raise the odds of blood cancers, heart disease, and autoimmunity. But she never developed any of them. Why? Possibly because her immune system had checks and balances elsewhere, like stronger surveillance against rogue cells. Researchers found her immune profile was enriched with **cytotoxic T cells**, the body's frontline defenders that hunt down infected or precancerous cells, suggesting her system stayed vigilant even in extreme old age. It's a reminder: a single "risky" biomarker doesn't tell the whole tale. Context is everything.

3) Metabolism, Inflammation, and Longevity

Where Maria stood out was her metabolic profile. She had exceptionally high HDL ("good" cholesterol), very low triglycerides, and strikingly low levels of inflammation markers (known as **GlycA and GlycB**). That balance is important. Chronic, **low-grade inflammation** is tied to nearly every age-related disease, from heart disease to Alzheimer's. Maria's system ran quiet. This calm metabolic state likely buffered her from the risks flagged elsewhere in her biology.

4) A Youthful Microbiome

Most of us lose beneficial gut bacteria as we age. Maria didn't. Her gut diversity was more than twice that of her peers, and she carried unusually high levels of Bifidobacterium, the "good bacteria" that usually decline with age but appear to be enriched in centenarians and supercentenarians. Her daily habit? Eating yogurt three times a day containing Streptococcus thermophilus and Lactobacillus delbrueckii subsp. bulgaricus. While that's not a prescription, it lines up with what we know: **fermented foods and fiber** help

feed the microbes that keep your immune system balanced and your metabolism smooth.

5) Epigenetics Clocks: Younger on the Inside

When researchers ran six different "epigenetic clocks" on her DNA, tests that measure how old your cells *behave,* they all told the same story: she was biologically younger than her chronological age. Even more, she maintained genomic stability in places where older bodies usually lose it. That stability likely protected her from the DNA damage that drives cancers and other age-related conditions.

What One Woman's Biology (and Can't)Tell Us

The first lesson from Maria's biology is that longevity isn't pinned to one marker. It's a mosaic. Some parts of her system looked "aged": short telomeres, older immune cells, while others looked remarkably youthful, like her microbiome and epigenome. The interplay mattered more than any single data point.

Another theme is the protective power of calm biology. Across blood, metabolism, and gut data, the pattern was consistent: low inflammation and efficient metabolism cropped up again and again as stabilizers. These may have buffered her from the risks her other markers suggested.

This study can't give us a playbook. It's the biology of one extraordinary woman, not a blueprint to copy. It also doesn't hand us a prescriptive testing menu, because no single marker can tell you how long you'll live. And it certainly isn't a shortcut. Maria Branyas's life included decades of Mediterranean-style eating, daily walking, gardening, piano, deep social ties (and lots of yogurt). Habits and environment shaped her biology as much as genetics.

Together, these findings remind us that **healthspan** isn't a straight line, biology can send mixed signals, and resilience emerges when your whole system tilts toward protection.

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