

# Measuring Longevity Fitness: *The Unit of Health*

Health and wealth are two sides of the same coin, a phrase that is now often repeated. In this *Voice of Experience and Expertise* paper, we explore the idea of defining a *Unit of Health*<sup>SM</sup>, comparable to a dollar in wealth. Inspired by longevity research, actuarial science, and behavioral economics, this idea reframes health as trackable, investable, and actionable, earned through daily choices. By bridging health and wealth, the TIAA Institute aims to spark new thinking, tools, and policies to help individuals and society extend vitality, purpose, and quality of life.

Our son Rahul was a high school summer intern at the MIT AgeLab nearly a decade ago. Around the same time, he visited my father, Dr. Raman Kolluri, on his 80th birthday. When my dad said he was feeling somewhat old at 80, Rahul replied, “Grandpa, we run a focus group at the AgeLab and one of the participants is a military veteran, who is in his mid-90s and he doesn’t say he is old!” My father was taken aback. He had trained students in Laser Physics for nearly 50 years, and he was surprised hearing this from a teenager. Later at age 85, during the pandemic, perhaps catalyzed by this conversation, he took up painting. Today, at 89, he has completed over 50 works.

In an earlier brief titled *From longevity literacy to longevity fitness*, I had explored the intersection of health span, wealth span, and life span. The idea was that as people live longer, more and more responsibility is being handed over to individuals to manage those added years. Yet there was no clear framework to help navigate that responsibility. Longevity Fitness is a way to think holistically about human potential across the arc of modern life. Life expectancy has increased by 17 years since the Social Security Act was introduced nearly 90 years ago. This demographic shift brings both promise and challenge. For example, since 1980, U.S. health trends reveal striking increases in chronic conditions. Diabetes tripled, now affecting over 11% of Americans.



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Obesity rose from 13% to over 40%, while hypertension climbed from 30% to nearly 48%. Sleep difficulties have grown steadily, with up to 46% of adults reporting insufficient sleep. Alzheimer's cases have risen dramatically with aging demographics. Over 7 million Americans are now living with this disease.

These shifts underscore the urgent need for preventive health strategies, social connection, and behavior-driven approaches to longevity fitness. Matching life span with health span and pairing both with financial readiness has become a defining challenge. It will require shifts in infrastructure, workplace policy, and cultural attitudes about aging.

### LONGEVITY AND PURPOSE

Andrew J. Scott, London Business School,  
from *The 100-Year Life*:

“Living longer is not just about surviving; it’s about thriving. The gift of longevity is a chance to reshape life’s narrative, to have more stages, more choices, more potential.

The challenge is not time itself, but how we redesign our lives to make the most of it.”

Scott, A. & Gratton, L. (2016). *The 100-Year Life: Living and Working in an Age of Longevity*.

The question I am now asking is this: what if we could define a *Unit of Health*<sup>SM</sup> in the same way we define a unit of wealth?

It seems to me that the financial sector has been able to successfully establish a shared understanding of money. We know what a dollar is (or a currency of choice). We know what interest rates are. We are familiar with compounding, inflation, and risk. A dollar is a standard measure of value that can be saved, invested, or spent. It can grow, erode, or disappear depending on how we manage it.

Health does not have anything equivalent. We use all sorts of terms such as calories, steps, sleep hours, cholesterol; but there is no single unit that ties it all together. We lack a common reference point that says, “this is a building block of future health.” And unlike wealth, which people plan decades ahead for, health is often managed only when something goes wrong.

This is the gap I am trying to explore. Financial fitness is about investing over time. Health, more often, is about managing crisis.

But what if we treated health the way we treat wealth? What if health was something we could grow, protect, and pass on?

What if we defined a *Unit of Health* and made it a working part of how we think about living longer?

## Measuring longevity fitness

This line of thinking leads me to the idea of longevity fitness: that is, our capacity to extend vitality, purpose, and function into the years ahead. It appears that we might already have a way to measure that.

Longevity calculators are actuarial tools based on large datasets that project our life expectancy using factors like age, blood pressure, BMI, smoking habits, and family history. These tools are used by insurers, researchers, and government agencies. Most important, they can project changes based on behavior. If one quits smoking, the estimate improves. With more walking, better sleep, or a reduction in cholesterol, the calculator reflects improvement in life expectancy.

Here is a thought experiment. Just as a dollar is a unit of wealth that can be invested for future return, a *Unit of Health* can be defined as a behavior or action that improves our longevity estimate.

A *Unit of Health* is something we earn by doing something good for our future body and mind. Exercise earns a unit. Good sleep earns a unit. Social connection earns a unit. Meditation, clean eating, hydration, recovery, all of these are inputs. They are deposits just like wealth.

A study published in *BMJ Open* followed retirees over a six-year period and revealed something profound: health is social. Retirees who maintained at least two group memberships, whether through clubs, communities, or religious or volunteer organizations, had a 2% risk of death in the first six years after retirement. Those who lost one group faced a 5% risk. Those who lost both saw their risk jump to 12%. The study also showed that for each group lost, retirees experienced a 10% drop in quality of life. Connection and belonging, like diet or exercise, adds a *Unit of Health*.

We already have ample evidence that behavior changes translate into added life. If quitting smoking adds time to your life, studies show anywhere from 1–10 years depending on age and smoking history, then each cigarette avoided contributes measurable value. These figures are illustrative examples based on population averages, not precise individual predictions. A daily 30-minute walk can reduce the risk of premature death by as much as 20%. Even modest improvements in sleep, shifting from under six hours to a full seven or eight, can reduce the risk of heart disease, obesity, and depression. These gains reflect statistically significant population-level health improvements, measurable through rigorous longitudinal studies that control for confounding factors. They are the raw materials of what we call a *Unit of Health*.

## HEALTH AND WELLBEING

Vivek Murthy, U.S. Surgeon General, from his book *Together*:

“Loneliness is more than just a bad feeling—it harms both individual and societal health. It’s associated with a greater risk of cardiovascular disease, dementia, depression, and anxiety.

But the cure exists in plain sight. It lies in social connection.”

Murthy, V. (2020). *Together: The Healing Power of Human Connection in a Sometimes Lonely World*.

And just as healthy behaviors build future vitality, poor health can erode financial well-being. It reduces lifetime earnings by as much as 15–25%, and drives up out-of-pocket medical expenses in retirement. The parallels to financial loss and inflation are hard to ignore.

A recent story published in *TIAA TMRW* magazine about Dr. Gerald Meyer is both a triumph and carries a valuable lesson. A TIAA participant since the 1950s, he retired as a chemistry professor and dean in 1990. Today, at 104, he is still going strong. In his mid-80s, he rode a Harley Davidson across Alaska to present at a science conference. He has competed in the National Senior Games and spent three decades in retirement leading a company focused on green energy innovation.

“A chart says your lifetime is supposed to be so and so,” he once said. “I am way beyond that.”

But his longevity is also a reminder: long life requires long-term planning. Few expect to live that long, fewer still plan for it. Without longevity literacy, even a long life can outlast the money meant to sustain it.

## Defining a *Unit of Health*

A *Unit of Health*<sup>SM</sup> is one day of added lifespan. It is the health equivalent of a minimum wage. Just as one hour of work earns a set amount of income, one good choice earns you one more day of projected life. Actuarial tools already exist that can calculate how behavior affects longevity. If quitting smoking adds ninety days to your life, then each cigarette avoided is worth something. We build these added days through small, repeated actions such as walking, sleeping well, eating wisely, managing stress, and staying connected, choices that compound over time, with healthy behaviors in your 20s paying dividends in your 40s, 50s, and beyond,

much like financial investments. But days are not everything. Just as a dollar loses value through inflation, a day of poor health is not equal to a day of full vitality. The goal is not longevity; it is *longevity fitness*.

And just as we can spend a dollar well or not, we can also spend a *Unit of Health*. We can spend it through stress, through overwork, poor sleep, loneliness, or neglect.

By building the language and tools to make health trackable over time, we create a new kind of agency. The same way we can log in to our 401(k) and see projected retirement balance, we should be able to view our projected health horizon.

The idea of a *Unit of Health* draws inspiration from well-established public health and actuarial metrics. Healthy Life Expectancy (HALE) estimates years lived in good health at the population level. Disability-Adjusted Life Years (DALYs) and Quality-Adjusted Life Years (QALYs) are core to public health economics and are designed for population-level intervention analysis, not individual action. The “microlife,” coined by David Spiegelhalter, equates specific behaviors with 30-minute life expectancy changes.

Drawing on these ideas, the *Unit of Health* tries to reimagine these concepts as a daily, personal metric, earned or spent through behavior, hopefully bringing clarity, agency, and accountability to individual longevity fitness. The *Unit of Health* is bottom-up, individual-level, behavior-driven, and trackable in real time.

## WEALTH AND LONGEVITY

Raj Chetty, Harvard University, from the Health Inequality Project:

“Life expectancy increases continuously with income. The life expectancy gap between the richest one percent and poorest one percent of Americans was 15 years for men and 10 years for women.

However, inequality in life expectancy is not inevitable. There are cities throughout America—like New York, San Francisco, and Birmingham—where gaps in life expectancy among low-income groups are relatively small or are narrowing over time.”

Chetty, R. et al. (2016). The Association Between Income and Life Expectancy in the United States, 2001–2014. *The Journal of the American Medical Association*.



A *Unit of Health*<sup>SM</sup> is one day of added lifespan.

## The “longevity copilot”

The ‘longevity copilot’: Potentially an AI-powered personal health assistant that tracks units of health in real-time through a dashboard. We can imagine a dashboard that works like a retirement calculator. We enter our data, and it gives us a forecast of our healthy years ahead. When we adjust our behavior, the number changes. We can see, in real time, what our actions today mean for our quality of life later.

What if that calculator was active and intelligent? It follows us throughout the day. Let us picture an AI agent layered on top of our calculator. It lives in our phone or on our fitness band. It continuously monitors real inputs such as heart rate, blood pressure, sleep, glucose, movement. These come from devices already in use: a fitness bracelet, a glucose monitor, a smart scale. The AI Agent watches what we do and recalculates our projected healthy life. When we gain a day or lose one, it records it. Over time, it can coach or nudge.

However, what if someone decides “I cannot afford to live that long so I might as well keep smoking”? This is the “reverse optimization” problem to think about. The *Unit of Health* is not meant as a judgment, rather as a source of agency, hope, and control.

## A public good

A publicly available database of actuarial health data could be developed and maintained, perhaps through the CDC or the Society of Actuaries, with proper guardrails such as privacy and access. On top of this foundation, we could build an integrated app that links behavior, biometric data, and AI interpretation. The app could serve as the interface, powered by an AI agent. It monitors, nudges, and guides. It tracks units of health just as a financial app tracks your net worth. This must be treated as a public good. Like a dollar, the *Unit of Health* should be available to all. However, we must ensure this framework doesn’t inadvertently disadvantage those with chronic conditions or limited resources. We do not need to be wealthy to earn a dollar, and we should not need to be wealthy to earn a longer, better life.

Over time, longevity fitness can enter the shared language of health and planning, and become part of our culture, just as saving, investing, and compounding have become.

## Open questions

While the concept may sound attractive, it may not entirely be feasible as conceived. That leaves us with some open questions.

- What are the boundaries of the *Unit of Health* as a concept? Not all dollars carry the same value due to factors like taxes and inflation. In the same way, are there situations where a *Unit of Health* might not hold equal value for everyone? Should the unit adjust based on age, medical history, or personal circumstances?
- Who should be responsible for building and managing the system behind longevity fitness? Should it be a government agency like the CDC or a public-private partnership? What kind of oversight and transparency would be needed to build trust and ensure fairness?
- How can this framework support people with limited access to health resources? Many individuals face barriers such as time constraints, financial limits, or unsafe environments. How can the concept of the *Unit of Health* include and support these groups?
- How can this idea be introduced to people who are unfamiliar with financial or actuarial tools? Would it be helpful to begin with real life examples such as a medical visit, a fitness goal, or a family member’s health journey? What approach would make this idea easier to understand and adopt?
- What would success look like in ten years if this idea is widely adopted? Would doctors use the *Unit of Health* in their conversations with patients? Would families talk about it when making health decisions? Could it appear in education, community programs, or retirement planning?

## Potential path forward

Leaders across different domains in both the health and wealth fields could embark on a path forward.

### Research

In our own work at the TIAA Institute, through our Fellows and partners, we could engage in a multidisciplinary study to identify the most evidence-based behaviors that increase life expectancy by discrete increments, serving as candidates for defining a standard *Unit of Health*, a term the Institute plans to service mark.

### Technology

Health and fitness apps are at the frothy end of innovation even as we speak. Entrepreneurs could develop a prototype app that combines wearable device data with actuarial

models to estimate, track, and display real-time gains and losses in projected healthy life expectancy. Perhaps this exists!

### Data infrastructure

It would be of great value to establish a public database of anonymized health and longevity data, curated by a consortium of trusted institutions, potentially including universities, actuarial societies, and medical associations, to serve as the foundation for calculators, benchmarks, and innovation.

### Employer engagement

Employers have expressed overwhelming interest and priority on employee well-being. They could launch a pilot to integrate health unit tracking into wellness programs, offering incentives tied to measurable gains in employee longevity fitness. This would not be a scoring system for employers or insurers. Rather, it is meant to be a personal compass, not a compliance tool. For employer adoption, the focus must be on immediate workforce benefits: reduced sick days, lower disability claims, improved current productivity, and decreased healthcare premiums for employees in their 40s and 50s.

### Public policy

Leverage the decade of Healthy Aging policy proposals to designate the *Unit of Health* as a public good, ensuring equal access to its tools and calculators regardless of income, geography, or insurance status.

### Culture and education

Create a public awareness initiative to introduce the *Unit of Health* as a simple, trackable idea. This would be much like daily step goals or savings targets and encourage its adoption in everyday health planning.

## Summary

Life span, health span, and wealth span are a single arc with the possibility of tools to act early, consistently, and with confidence.

We have done it with money. We have built an entire system around the dollar (or name a currency). Could we do the same with health? Could we define such a *Unit of Health*?

Health and wealth remain two sides of the same coin. With a *Unit of Health*, alongside the unit of wealth, we can begin to measure and manage both sides with equal care.

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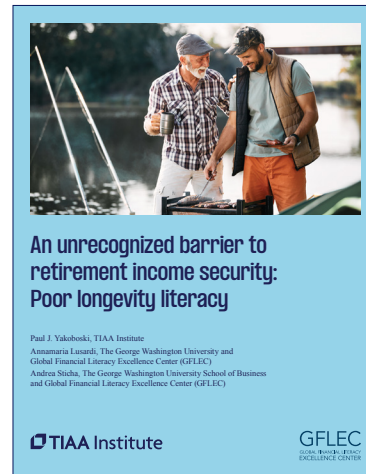
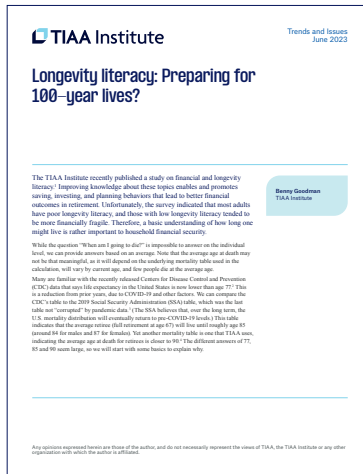
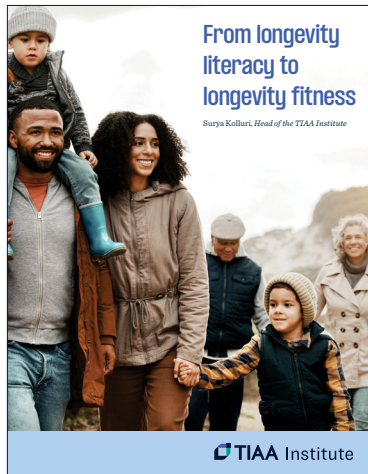
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## Thought leadership on longevity literacy



## About the TIAA Institute

The TIAA Institute helps advance the ways individuals and institutions plan for financial security and organizational effectiveness. The Institute conducts in-depth research, provides access to a network of thought leaders, and enables those it serves to anticipate trends, plan future strategies, and maximize opportunities for success.

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