

THE BEAUTY EXPERT

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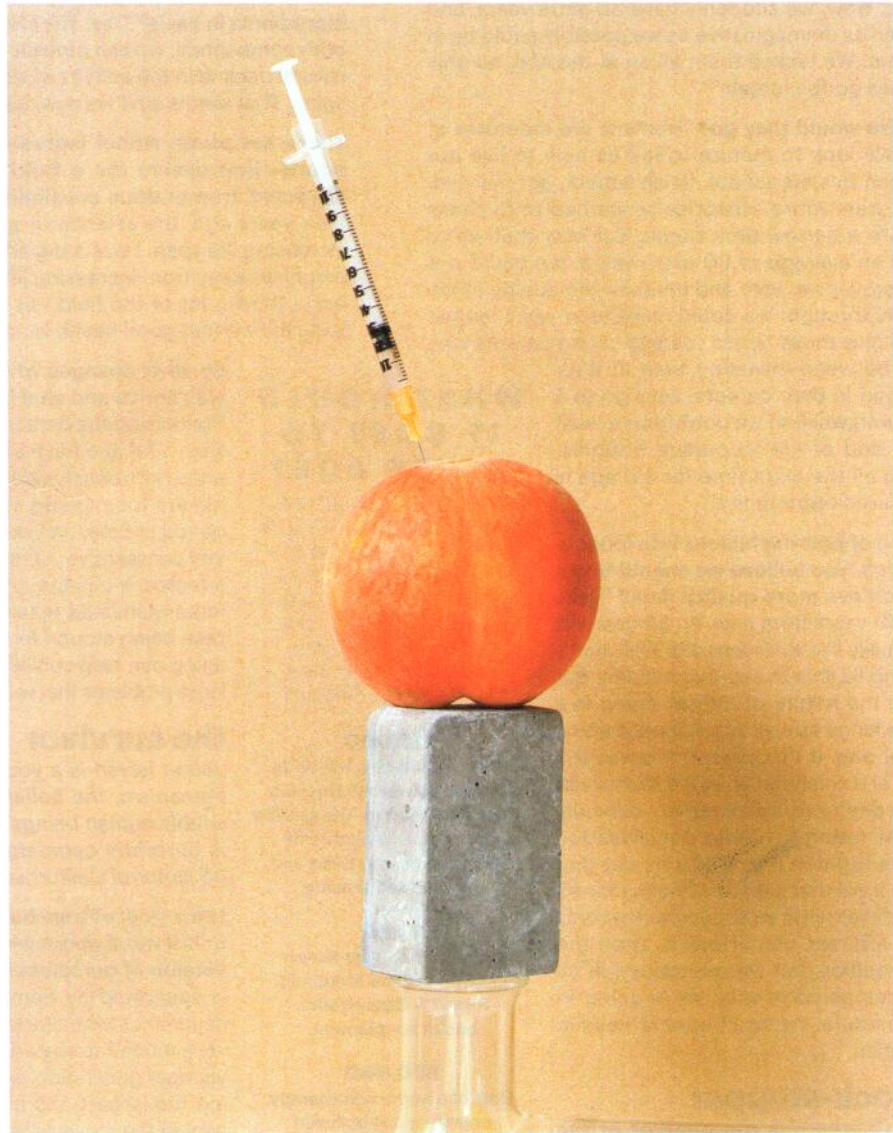
**WHAT WOULD IT COST TO NEVER AGE?**  
(AND WOULD YOU REALLY WANT THAT?)





If you've ever thought it might be nice to live forever, you're in impressive company. From moon-shot projects to billionaire-funded research, three experts share vastly different views on the future of what it means to be human. By Liana Schaffner

# life ever after



photographed by derek henderson



## the reorganizer

Laura Carstensen is the director of the Center of Longevity at Stanford University and the author of *A Long Bright Future: Happiness, Health, and Financial Security in an Age of Increased Longevity* (PublicAffairs).

**The average life span has already increased dramatically. What are some of the realities of living longer that we need to address right now?** "Life expectancy nearly doubled in the 20th century. And that happened so fast that the culture that guides us through life hasn't had time to catch up. It does a pretty good job until we reach about 50, which is what life expectancy was 100 years ago. Now, we suddenly have 30 extra years, and we've been as unimaginative as we possibly could be in using them. We tacked them all on at the end, so only old age has gotten longer."

**Where else would they go?** "Humans are creatures of culture. We look to culture to tell us how to live our lives—when to start school, finish school, get married, have children, retire. Historically, we had to fit these events into a narrow time frame. But now that we've inherited an average of 30 extra years, we could put them wherever we want and improve the quality of life all the way through. We could make teen years longer. We could give those bonus years to young parents who are torn between investing time in their families and in their careers. Let's go to a four-day workweek so we don't have to wait until the end of life to pursue hobbies. Reserving all the extra time for old age is such a missed opportunity."

**So instead of pouring billions into longevity research, you believe we should find a way to achieve more quality time?** "Let's say that 50 years from now, an 80-year-old is functionally like a 30-year-old. Well, that's terrific, and I'd love to see that happen. But changing the nature of human aging is a social challenge as well as a scientific and a biological one. If I thought there was the prospect of a scientific advance that would eliminate death, I'd be extremely nervous. And I'm not losing any sleep. But I'll tell you what does frighten me. If it turns out that we've got a pill that keeps us healthy for 95 years, and that pill is so expensive that only the very affluent can afford it, then the social inequities that we see today will be nothing compared to what we're going to see in the future. We don't want to head in that direction."

## the clock-stopper

Leonard Guarente is the director of the Glenn Laboratory for the Science of Aging at the Massachusetts Institute of Technology. He is a cofounder of and the chief scientist at Elysium, a health company that produces a supplement called Basis, which aims to delay the onset of age-related diseases.

**A daily pill that promises to slow the aging process is a seductive idea, but it also feels suspiciously easy.** "People used to wonder

why ships would disappear on the horizon. Now that we know the Earth is round, the answer is obvious, but that took a major realization. With regard to Basis, the pill seems simple, but the amount of science behind it is quite extensive."

**Can you detail some of that science?** "It began almost 30 years ago. The research progressed from studying aging in yeast to the discovery of a family of proteins called sirtuins that control aging. That led to the identification of two compounds, pterostilbene and nicotinamide riboside, that activate sirtuins."

**And those sirtuin-stimulating compounds are the main ingredients in Basis?** "Yes. The idea is that by combining both compounds, we can prevent or at least forestall the natural decline in the activity of sirtuins that occurs with aging. That seems obvious now, but it wasn't at the time."

**There are seven Nobel laureates on your advisory board—impressive for a field that hasn't always attracted tremendous credibility. What's changed?** "Ten years ago, the science of aging was focused on increasing life span. I was a big advocate of shifting our emphasis away from increasing life span to health span. And I think a lot of the field has made that transition. Long life without good health is not very valuable."

## WHAT WOULD IT COST TO NEVER AGE?

THE PREVENTATIVE, EXPERIMENTAL, AND BONE-CHILLING TREATMENTS THAT COULD GIVE YOU A HEAD START ON IMMORTALITY—IF YOU HAVE THE MONEY TO SPEND.

### \$25,000

Cost of a full-day, full-body exam at the Health Nucleus clinic in San Diego. The service includes a 4D picture of the inside of your heart and genome sequencing.

### \$480

Cost of a one-year supply of Elysium Basis Metabolic Repair & Optimization health supplement.

### \$50,000

Cost of a home cryotherapy chamber. It is believed that spending time in a nearly minus-300-degree Fahrenheit tank may reduce inflammation and improve immune function.

### \$200,000

Cost of having your dead body cryopreserved in the hope that one day it will be possible to revive it.

## So what changes when people are able to stay active and vital by just popping a pill?

"Increasing the duration of people who have seen a lot and have a bigger base of knowledge is extremely valuable. I also think if people are functioning and active for a longer period of time, they're going to have a different perspective. One area that I see being affected is climate change. People may be more motivated to take action if they anticipate being around longer. So the science of aging can help societies come to grips with large problems that will play out in the future."

## the survivor

Zoltan Istvan is a vocal advocate of transhumanism, the belief that technology will enable human beings to live indefinitely. He is currently campaigning to become the governor of California.

**Is the goal of transhumanism to end death or is it more about preserving some digital version of ourselves?** "The actual meaning is separated by demographics. The older academics who started transhumanism are very much interested in life extension. The younger generation, which is quickly becoming the largest and most powerful component of the movement, isn't focused on living forever, because they're millennials and not worried about dying. They want bionic limbs and robotic exoskeletons that will allow them to climb Mount Everest. I'm in the middle of the age groups, and I believe that transhumanism's first priority is using science and technology to overcome death."

**What is it about immortality that you find so appealing?** "In 10 or 15 years, with AI and





**\$4,500**

Average cost of the Stem Cell Aesthetics treatment at Goldenberg Dermatology in New York City, where patients are injected with umbilical-cord stem cells said to reverse signs of aging.

neural prosthetics and implants, our brains are going to have the computing power of servers that could fill the Empire State Building. We're going to be much, much more intelligent. Our complexity of experience, our ability to really understand the universe, will be dramatically different. And that's what makes living long so fascinating. You're going to want to experience what happens."

**In a nutshell, transhumanists don't want to die because they have a fear of missing out.** "Our experience of life will increase, maybe by a billionfold. So that's really my main argument. You'll want to be around for it."

**I have to assume you've experienced a fair amount of pushback. I've also heard you encountered some violent reactions on the campaign trail. Is it possible that transhumanists are following in the tradition of persecuted forward-thinkers like Galileo?** "One hundred percent. We're trying to modify our biological bodies, and that freaks a lot of people out. Tradition and religion say you're not supposed to mess with the human form. But you know, everyone thought the environmentalists were crazy, too. I used to be the director of a major wildlife organization and was a journalist for *National Geographic* for many years, so I saw environmentalism develop from a fringe movement into one of the most important issues of our time. I'm confident transhumanism will follow the same trajectory. The amount of money and funding going into living forever has gone up 10 times in the last 12 months alone."

**Of course, environmentalism is a global effort. By comparison, don't you think transhumanism can feel a little inward-focused or egocentric?** "The number of human deaths between the years 2030 and 2050 is going to be approximately 1 billion. The most humanitarian thing you can do in the world today is dedicate your resources to making sure people don't have to die if they don't want to."

**If we've all managed to defy death and no longer have a sense of finality, will we still feel motivated to innovate or create? Simplistically speaking, if I don't have a deadline, I'm not finishing this story.** "That's a good metaphor. One of the central questions I get is, 'Can we get bored with our lives?' But when we talk about indefinite life spans, we're not talking about immortality. People can still die. If you're flying into outer space, you could get disintegrated in some kind of weird atmospheric meltdown."

**I love how that's your scenario.** "It's just one. There are a lot of ways you can still die. So we're not eliminating death entirely, just making it harder. But I also don't believe that fear of death is our motivation for completing anything. Maybe our incentive is our integrity about our work or our devotion to our loved ones. The idea that we need to die in order to justify our lives or give it meaning is wrought with confusion and error, in my opinion."

**Thank you. I found this conversation so interesting. And I'm recording this on an analog tape recorder.** "I understand. I still have a VHS in my house."