

YOUTH CRUSADERS

This month on ELLE.com, Elizabeth Blackburn and Elissa Epel, a pair of supercharged PhDs, share their secrets on how to eat, sleep, and meditate your way to a physically younger self—with techniques backed in cold, hard science

In the fifth century B.C., Herodotus, the gossipy Athenian historian, wrote about a legendary Ethiopian spring that could reverse aging. Around the twelfth century A.D., Europeans believed that the mythic King Prester John ruled over a mystic land with a river of gold and an age-defying fountain. Legend has it that more than 300 years later, Ponce de León was looking for the so-called Fountain of Youth when he stumbled upon Florida. The idea of a magical elixir that lets us escape growing old has long captured the human imagination, but in the end, it was University of California, Berkeley, associate professor Elizabeth Blackburn who found it back in 1984. Kind of.

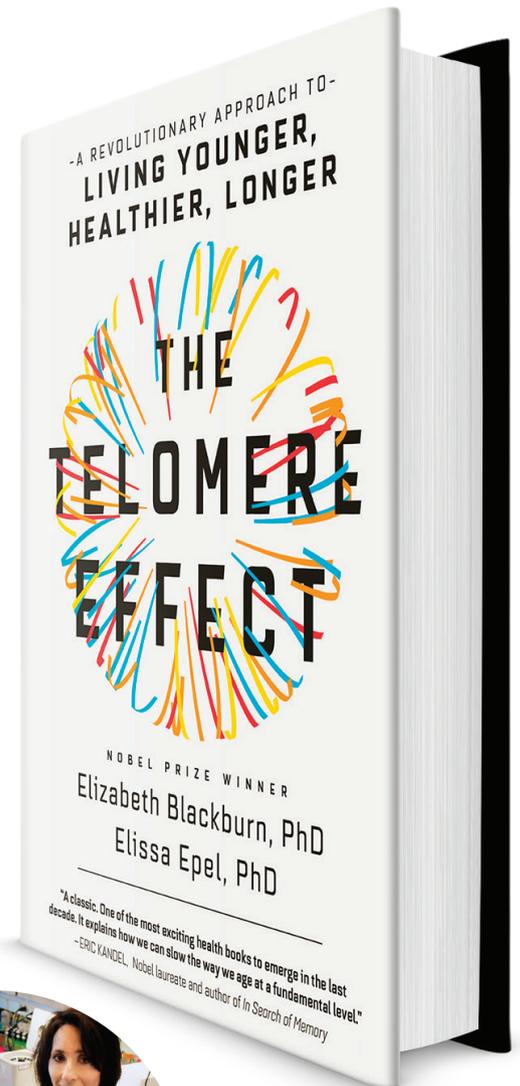
What Blackburn, who holds a PhD in molecular biology, actually found, with the help of one of her graduate students, was a little more complex than magic water: It was telomerase (which ELLE has reported on periodically since), an enzyme that lengthens the protective DNA sequences at the end of chromosomes, called telomeres (pronounced *tee-lo-meers*). A few years earlier, Blackburn and another scientist had discovered that telomere shortening, among other factors, causes aging. As newborns, we have about 10,000 base pairs (the unit of measurement for telomeres); by age 65, we have just 4,800. Blackburn's discovery of an enzyme that rebuilds telomeres suggested that the aging process could be reversed. Fountain of youth? Found. Nobel Prize? Won, with two teammates, in 2009.

Now, three decades and multiple studies after her initial discovery, Blackburn has released *The Telomere Effect: A Revolutionary Approach to Living Younger, Healthier, Longer* (Grand Central Publishing), coauthored by psychologist Elissa Epel, PhD, and chock-full of highly usable information previously accessible only through disparate articles in sci-

entific journals. The women met at the University of California, San Francisco, in 2001, where Epel was studying the physiological effects of stress on mothers with chronically ill children. "I asked if [Blackburn] would be willing to study whether chronic stress was related to telomere health," she says. Blackburn jumped at the opportunity. The pair found that telomere length was directly correlated to the length of time each subject had been stressed and to how she perceived that stress. And that telomere length correlated not only with visible signs of aging, such as skin elasticity, but also with the risk of disease.

For the past 15 years, Blackburn and Epel have been examining ways in which our actions influence the shortening or rebuilding of telomeres, and for the last two and a half, they've worked on synthesizing their findings into *The Telomere Effect*, which tackles everything from what to eat to how to optimize your mind-set. Epel is a longtime yoga devotee, while Blackburn, after having completed an intensive six-day mindfulness course, fits in what she calls "micro-meditations," which she does periodically for a couple of minutes at her desk or, as a frequent flier, during lift-off when electronics are powered down. "This book is meant to be very empowering," says Blackburn, now the president of the Salk Institute in La Jolla, California. The methods are designed to be manageable lifestyle additions that are, as she says, "based in a lot of knowledge rather than a hopeful quicker fix."

While there isn't yet enough data to determine whether our ability to build new telomeres changes as we age, "there are studies



Blackburn and Epel in Blackburn's UC San Francisco lab

of people with breast cancer or prostate cancer where these mind-body interventions are helping them either increase their telomerase or stabilize their telomeres,"

Epel says. "There's a lot of hope that, at any age, we can still do things each day that improve our telomere health." This month, let Blackburn and Epel help you improve yours by visiting ELLE.com/coach-of-the-month each week. You have nothing to lose—except maybe years off your visible age.—Keziah Weir

A WRINKLE IN TIME
Make like Benjamin Button and roll back the clock with these research-backed tips

FEBRUARY 6

MICROBIOLOGY CLASS

Blackburn breaks down the basics of telomeres, and why they're (at least partially) responsible for what we know to be markers of old age, such as blotchy skin, gray or thinning hair, and deep wrinkles.

FEBRUARY 13

EAT THIS, NOT THAT

The researchers' food guide is pure peer-reviewed intel. For instance, some studies have found that increased vitamin D (in women more so than men) correlates with longer telomeres. Start stocking up on flounder and eggs!

FEBRUARY 20

PILLOW TALK

These habits will help boost your body's nighttime telomere maintenance: It's a lot easier to leave your iPhone in the kitchen when it could mean the difference between waking up with dull or dewy skin.

FEBRUARY 27

GET IN YOUR HEAD

Toxic stress can come from ceaselessly thinking about an anxiety-provoking subject. Train your brain, with Epel's help, to focus deeply on the task at hand. Your body (and boss) will thank you for your increased productivity.