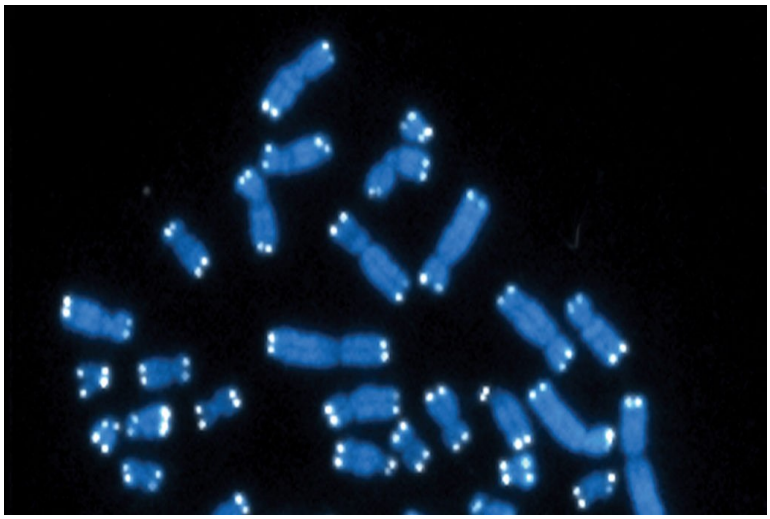
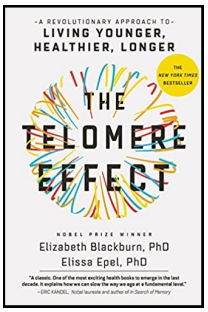
Unwinding the Aging Clock



Telomeres are like the little caps at the ends of shoelaces that prevent the laces from unraveling. In this case, they prevent rodlike chromosomes from fraying and tangling with other chromosomes. Without telomeres, genetic information would degrade, causing cells to malfunction, increasing the risk of disease, or even hastening death. Every time a cell divides, its telomeres get a little shorter. Years of replication can eventually wear telomeres down so far that cells can't divide anymore, and they become dormant or die. As more tissues have trouble rejuvenating, the body follows the cells, aging and eventually breaking down. In short, your cells have an aging clock built into them. But your chronological age in years doesn't set the clock—your biological age in telomere length does.

By KAREN WEINTRAUB JANUARY 3, 2017



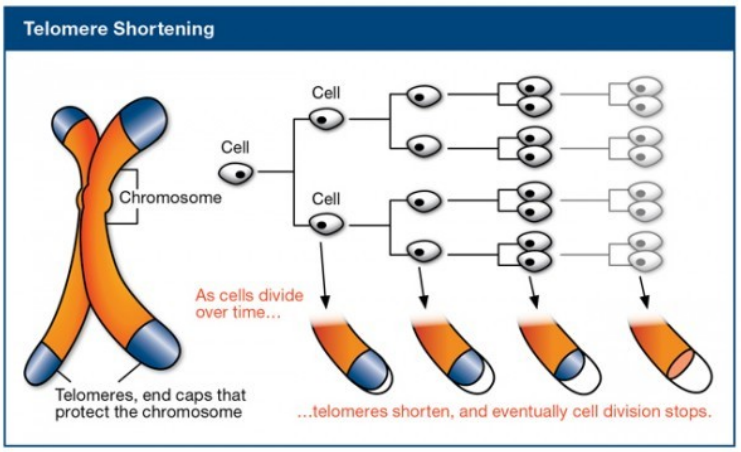
Molecular biologist Elizabeth Blackburn shared a Nobel Prize for her research on telomeres — structures at the tips of chromosomes that play a key role in cellular aging. But she was frustrated that important health implications of her work weren't reaching beyond academia.

So along with psychologist Elissa Epel, she has published her findings in a new book aimed at a general audience — laying out a scientific case that may give readers motivation to keep their new year's resolutions to not smoke, eat well, sleep enough, exercise regularly, and cut down on stress.

The main message of "The Telomere Effect," is that you have more control over your own aging than you may imagine. You can actually lengthen your telomeres — and perhaps your life — by following sound health advice, the authors argue, based on a review of thousands of studies.

"Telomeres listen to you, they listen to your behaviors, they listen to your state of mind," said Blackburn, president of the Salk Institute for Biological Studies in La Jolla, Calif

Too many of these senescent cells accelerates human aging. This doesn't cause any particular disease, but research suggests that it hastens the time when whatever your genes have in store will occur — so if you're vulnerable to heart disease, you're more likely to get it younger if your telomeres are shorter, said Epel, director of the University of California, San Francisco's Aging, Metabolism and Emotions Center.



Blackburn said the best part of the telomere research is that it's quantifiable, giving people more specific direction than the advice your mother may have given you to get off the couch and exercise.

Also, Blackburn said, her research suggests that lengthening telomeres with medications could be dangerous — that lifestyle changes are far safer than a pill.

Have you wondered why some sixty-year-olds look and feel like forty-year-olds and why some forty-year-olds look and feel like sixty-year-olds? While many factors contribute to aging and illness, Dr. Elizabeth Blackburn discovered a biological indicator called telomerase, the enzyme that replenishes telomeres, which protect our genetic heritage. Dr. Blackburn and Dr. Elissa Epel's research shows that the length and health of one's telomeres are a biological underpinning of the long-hypothesized mind-body connection. They and other scientists have found that changes we can make to our daily habits can protect our telomeres and increase our health spans (the number of years we remain healthy, active, and disease-free).