11 ways you can predict how long you'll live

Among the most pressing questions I get in daily practice is: "Doc, how long do I have to live?" Even when posed by a patient with "terminal" cancer, it's a hard one to answer. The patient's viability may conform closely to probability; or, some ineffable factors might allow him or her to outperform by months or even years.

When it comes to well persons, prognostication is even tougher. Good genes, healthy habits, and a good mental outlook may help you live longer. But longevity points are not strictly allocated on merit.

In preparing this article, I test-drove some of the more popular longevity calculators. I got a shock when "My Life Calculator"predicted my demise at a mere 79. But its questionnaire was heavily skewed to family history (my father had heart disease), gave me no credit for a healthy diet, while faulting me for having smoked (I quit in my early 20s).

The government's Social Security calculator was a little more optimistic. Used for calculating the age at which you should take benefits, it predicted 84.3 years, the average for a U.S. male who has successfully attained the age of 65.

Life insurance companies are in the business of predicting lifespan. The actuaries who designed the Mutual Life Insurance calculatorprojected my longevity to be 94. Similarly, the Wharton Longevity Calculator told me I'd likely attain 92. That's 7 years more than most, with a 75% chance of attaining the age of 84.

But these calculators are very rudimentary and static. They don't take into account individual differences in performance—there may be a disconnect between your chronological age and your biological age. Elaborate workups at anti-aging and longevity centers can be processed into algorithms that tell you whether you're older or younger than your birth certificate, but it's still an inexact science. Or, as Yogi Berra famously said: "It's tough to make predictions, especially about the future."

So here are some additional, scientifically-validated predictors of your life expectancy:

1. **Take your pulse:** In the animal kingdom, heart rate correlates roughly with longevity. A hamster has a heart rate of 450; an elephant around 30. In humans, the principle seems to hold, as it's a reflection of cardio conditioning. The resting heart rates of professional athletes may be as low as 40 (mine is 54). A recent study concluded that people whose resting heart rates were 90 or above had double the chance of premature death.

2. **Get a grip:** A recent study showed that hand strength was a better predictor of mortality than blood pressure. To perform the test, you need a device called a dynamometer; rate your performance by comparing yourself to your age-matched cohort here.

3. **Git-on-up!** A self-test called the SRT (sitting rising test) can reveal much about longevity potential. A Brazilian researcher tested a group of adults (51-80) on their ability to sit, then rise from the floor from a cross-legged position. For every use of hand, forearm or knee, a point is subtracted from the top score of 10; wobbles earn you a half-point reduction, down to a score of 0. Lower scores were significantly associated with risk of early death; Overall, each point reduction in the SRT score was associated with a 21 percent increase in mortality from all causes. Those with the lowest scores were 5-6 times more likely to die during the study period lasting 6 years. The SRT test is described here.

4. **Chair rise:** For those less athletically inclined—or more debilitated—a simple stand up from a seated position provides a window on longevity. This is because the large quadriceps muscles of the legs are a good proxy for overall muscle strength. Studies suggest that inability to rise from a chair without using your arms for support is a major risk for premature death. Use a stop-watch to see how many times you can sit and rise from chair in a minute. The men with the lowest risk of early death did more than 39 of these movements in a minute. If you have trouble doing more than 20 reps, lose extra pounds, and practice this maneuver several times daily at home.

5. **Balance test:** A study of Japanese septuagenarians found that balance is just as important to longevity as agility and muscle strength. It's well-documented that balance deteriorates with age. Try standing barefoot on a hard, even surface. For those familiar with yoga it's called the "Tree" pose. Raise one foot about 6 inches from the floor. Bend your knee and place your foot against the leg you're standing on. Try closing your eyes and see how long you can hold this position. (It's hard!) Do the test three times and average your times. Young adults should be able to balance 30 seconds, but as you get older, it's normal for your time to decrease.

6. **Gait-speed:** Walking speed is a very good predictor of the risk of dying particularly in the age range 65-75. Gait speed was calculated for each participant using distance in meters and time in seconds over a distance of 8 feet to 6 meters. But, as you'll notice in the these graphs, everyone slows down by the time they're 90, and its relevance to survival is reduced.

7. **FIT Treadmill test:** This is less of a DIY test, since it involves a formula [FIT Treadmill Score = %MPHR + 12 (METS) − 4 (age) + 43 (if female)] that might require the input of a qualified physical trainer. It was highly predictive of long-term survival; those with the worst scores—lower than negative 100—had a 38 percent risk of dying during the ten-year study period.

8. **Get out the tape measure:** Research demonstrates that the Waist-to-Height Ratio (WHR) is more predictive of years of life lost than the vaunted Body-Mass-Index (BMI). A cut-off value of 0.5 (0.46 for females) has been proposed (e.g. a maximum waist circumference of 36 inches for a 6 foot male, or 29.5 inches for a 5'3" female). For 50 year olds of both sexes whose WHR is equal to or greater than 0.8, the estimated years lost is around 5.

9. **Check your 1040:** In this nation of income and health disparities, earnings and net worth are strong determinators of longevity; being poor in the U.S. is associated with adverse health outcomes. Among men the gap is an astounding 15 years; for women it's 10 years. There's no ceiling on the benefits of high income; conversely, the poorer you are, the more years are shaved off your life

expectancy.

10. **What's your zip code?** Perhaps reflecting wealth, the difference between average longevity in the healthiest zip codes (Colorado) vs. the lowest (Mississippi) could be as much as twenty years. Cultural and environmental conditions could play a role. Longevity differences could also parallel the known local disparities in obesity rates. Plot your life expectancy using the maps here.

11. **Count your diplomas:** Educational attainment is a robust predictor of longevity. Highly educated adults in the United States have lower yearly mortality rates than less-educatedpeople in every age, gender, and racial/ethnic subgroup of the population. I'd like to think that health literacy plays a role here.

For a sardonic look at your mortality, see the Death Clock. It may get you to value your remaining time as you watch the clock count down your additional allotted seconds.