What would you be willing to sacrifice in order to extend your life? Taking a daily pill every day? Going for a 3 mile walk every day? What about eating less at every meal, every day? Not a lot less, but, enough to make a difference.

This concept, known as caloric restriction, is the only method that has been shown to extend lifespan. Up until now, it has been widely studied in many organisms from the roundworm *Caenorhabditis elegans* to mammals such as mice and rats.

Aging is typically studied in animals with short lifespans, as more experiments can be performed in a shorter amount of time. In addition, those experiments can analyze the entire life of an organism.

Now, this anti-aging technique is being studied in humans. Although the study was relatively small, it supported much of what the studies in other simpler animals have been saying for years.

The study, which appeared in the journal *Cell Metabolism*, highlighted the CALERIE (Comprehensive Assessment of the Long-Term Effects of Reducing Intake of Energy) trial. This is the first randomized controlled trial to test the effects of caloric restriction in non-obese humans.

The study included 53 healthy, non-obese men and women between ages 21 and 50. Thirty-four people in a test group reduced their calorie intake by an average of 15%, and 19 people in a control group ate as usual.
At the end of the two years, all of the participants underwent a range of tests to measure overall metabolism and analyze biological markers of aging. The information gathered included damage associated with oxygen free radicals released during metabolism - one of the key components of aging.

How is metabolism measured? The participants were placed in a state of the art metabolic chamber at the Pennington Biomedical Research Center in Baton Rouge, Louisiana for 24 hours. This chamber is able to measure the amount of oxygen that occupants use and how much carbon dioxide they exhale, allowing researchers to track energy utilization. The participants who restricted their calories used energy more efficiently while sleeping than the control group - a result that has been observed in lab animals for decades.

The group of people who calorically restricted also lost weight and showed no negative effects. Other, more unexpected results were an improvement in mood and health-related quality of life. Fifteen percent of calories is a lot - perhaps too much for those of us who love our burgers and desserts. The question of whether or not people not held to the confines of a study would opt to restrict to that extent remains yet to be seen. That said, perhaps a more relaxed restriction would have similar results, something that people are interested in understanding. In our culture that loves calories, it leaves us to wonder how many calories would people be willing to restrict in order to prevent aging?


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