
Calorie Restriction Slows Ageing



A first-of-its-kind randomised controlled trial led by the Butler Columbia Aging Center at Columbia University Mailman School of Public Health has shown that caloric restriction can slow the pace of ageing in healthy adults. The CALERIE™ intervention, which has been proven to slow ageing in animals, was tested on 220 healthy men and women over a period of two years. CALERIE™ is an acronym for 'Comprehensive Assessment of Long-Term Effects of Reducing Intake of Energy'. The results showed a 2-3% slowing in the pace of ageing, as measured by participants' blood DNA methylation using the DunedinPACE (Pace of **A**ging, **C**omputed from the **E**pigenome) algorithm, which can translate to a 10-15% reduction in mortality risk, similar to the effect of a smoking cessation intervention. The results are published in Nature Aging.

The CALERIE™ Phase-2 randomised controlled trial, which is funded by the U.S. National Institute on Aging, is the first-ever investigation of the effects of long-term [calorie restriction](#) in healthy, non-obese humans.

The researchers measured the pace and progress of biological ageing by analysing methylation marks on DNA extracted from white blood cells. DNA methylation marks are chemical tags on the DNA sequence that regulate the expression of genes and are known to change with ageing. The researchers focused on three measurements of the DNA methylation data, including two epigenetic clocks that estimate biological age and a dynamic measure called DunedinPACE that estimates the pace of ageing or the rate of biological deterioration over time.

The findings suggest that dynamic measures like DunedinPACE may be more sensitive to the effects of intervention than measures of static biological age. The study provides evidence that slowing human ageing may be possible and suggests the kinds of effects we might look for in trials of interventions that could appeal to more people, such as intermittent fasting or time-restricted eating.

A follow-up of trial participants is now ongoing to determine if the intervention had long-term effects on healthy ageing.

Source: [Columbia University's Mailman School of Public Health](#)

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