

# Cracking the code on health benefits of calorie restriction

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Scientists at UW-Madison are cracking the code for how calorie restriction can delay the effects of aging and aging-related diseases.

“We knew that restricting calories helps monkeys to live longer, healthier lives, but we did not understand the basis for this extraordinary finding,” says Rozalyn Anderson, a UW-Madison associate professor of medicine and corresponding author for the study. “We are now at the beginning of a very exciting journey to discover how calorie restriction works on the molecular level.”

The article, “Caloric Restriction Engages Hepatic RNA Processing Mechanism in Rhesus Monkeys,” was published recently in the journal *Cell Metabolism*.

The authors examined a group of monkeys participating in another study on calorie restriction and aging led by Anderson and Ricki Colman, an assistant professor at the Wisconsin National Primate Research Center.

Researchers examined two separate groups of monkeys over a two-year period. One group was fed normally, while the experimental group had calories reduced 30 percent. To measure the effects of this restriction, they examined the monkeys’ livers, which process nutrients and play a major role in metabolism.

Using advanced data-gathering techniques like genetic sequencing and mass spectrometry, they catalogued over 20,000 molecules in the liver cells. With help from machine learning software — which can analyze data much more effectively than humans — the team found calorie restriction leads to “a massive reprogramming of metabolism” in the liver.

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