Calorie restriction rewire metabolism, immunity for longer health span

10 February 2022

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Biomedical's CALERIE 2 (Comprehensive Assessment of the Long-Term Effects of Reducing Intake of Energy), the longest-running calorie restriction trial in humans. The new study is published in the journal Science.

The study found that people who cut their calorie intake by about 14 percent over two years generated more T cells, which play a key role in immune function and slow the aging process.

"As people age, their thymuses shrink and produce fewer T cells. As a result, older people have a harder time fighting off infections and certain cancers," said Eric Ravussin, Ph.D., Associate Executive Director for Clinical Science at Pennington Biomedical Research Center. "Calorie restriction helps prevent the thymus from shrinking so the person generates more T cells."

In addition to improving immunity, an increase in T cells is associated with an improved ability to burn stores of fatty acids for energy, Dr. Ravussin said. That's important because if a person doesn't burn this fuel, the fat may build up in organs such as the muscle and liver, leading to insulin resistance, obesity, type 2 diabetes and aging.

The study had another important finding: a potential treatment to reduce age-related inflammation and improve metabolic health.

Studies have shown that restricting calories by 40 percent in rodents extended their lives. But there were tradeoffs in growth, reproduction, and immunity.

However, calorie restriction also reduces the levels of gene encoding platelet activating factor acetyl hydrolase (PLA2G7). Reducing PLA2G7 produces health benefits that include lowering age-related inflammation and improving metabolic health.

"If researchers can find a way to harness PLA2G7,
they could create a treatment to extend a person's health span, the time an individual experiences good health," said Pennington Biomedical Executive Director John Kirwan, Ph.D.


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Provided by Pennington Biomedical Research Center


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