

Short-chain fatty acids in diet stimulate fat utilization

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(HealthDay)—Short-chain fatty acids (SCFAs), the main products of dietary fiber fermentation, induce a peroxisome proliferator-activated receptor (PPAR) γ -dependent switch from lipid synthesis to lipid utilization, according to research published online Feb. 18 in *Diabetes*.

Gijs den Besten, Ph.D., of the University of Groningen in the Netherlands, and colleagues compared a high-fat semisynthetic diet, the SCFA diet, and a normal-fat diet (control group) in mice.

The researchers found that, in mice, [dietary supplementation](#) with SCFAs prevented and reversed [metabolic abnormalities](#) induced by a high-fat diet by decreasing PPAR γ expression and activity. As a result, expression of mitochondrial uncoupling protein 2 was increased and the AMP/ATP ratio was raised, stimulating oxidative metabolism in liver and adipose tissue via AMP-activated protein kinase. In mice with

adipose-specific disruption of PPAR γ , SCFA-induced reduction in body weight and stimulation of insulin sensitivity were absent. In mice lacking hepatic PPAR γ , SCFA-induced reduction of [hepatic steatosis](#) was absent.

"These results demonstrate that adipose and hepatic PPAR γ are critical mediators of the beneficial effects of SCFA on the metabolic syndrome, with clearly distinct and complementary roles," the authors write. "Our findings indicate that SCFAs may be used therapeutically as cheap and selective PPAR γ modulators."

More information: [Abstract](#)
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