

Short-chain fatty acids in diet stimulate fat utilization

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roles," the authors write. "Our findings indicate that SCFAs may be used therapeutically as cheap and selective PPAR α modulators."

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(HealthDay)—Short-chain fatty acids (SCFAs), the main products of dietary fiber fermentation, induce a peroxisome proliferator-activated receptor (PPAR) α -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 α 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 α , SCFA-induced reduction in body weight and stimulation of insulin sensitivity were absent. In mice lacking hepatic PPAR α , SCFA-induced reduction of [hepatic steatosis](#) was absent.

"These results demonstrate that adipose and hepatic PPAR α are critical mediators of the beneficial effects of SCFA on the metabolic syndrome, with clearly distinct and complementary

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