

Novel lipid mediators may play role in omega-3 PUFA effects

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(HealthDay)—Novel lipid mediators may be involved in the beneficial

effects associated with omega-3 polyunsaturated fatty acids (PUFAs) in obesity, according to a study published online June 16 in *Diabetes*.

Noting that dysregulation of metabolic and endocrine functions of [white adipose tissue](#) (WAT), together with low-grade inflammation of the tissue in obesity, contributes to type 2 diabetes, Ondrej Kuda, Ph.D., from the Czech Academy of Sciences in Prague, and colleagues conducted experiments in mice and overweight/obese patients with type 2 diabetes. They elucidated the structures of novel members of fatty acid esters of hydroxy [fatty acids](#) (FAHFAs), derived from [docosahexaenoic acid](#) (DHA) and linoleic acid, which were identified in serum and WAT after supplementation with omega-3 PUFA.

The researchers found that the FAHFAs contained DHA esterified to 9- and 13-hydroxyoctadecadienoic acid (HLA) or 14-hydroxydocosahexaenoic acid (HDHA) (9-DHAHLA, 13-DHAHLA, and 14-DHAHDHA). Synthesis of these compounds by adipocytes occurred at concentrations comparable to those of protectins and resolvins derived from DHA in WAT. Anti-inflammatory and pro-resolving properties were seen for 13-DHAHLA, together with a reduction in macrophage activation by lipopolysaccharide and enhanced phagocytosis of zymosan particles.

"Our results document the existence of novel lipid mediators, which are involved in the beneficial anti-inflammatory effects attributed to omega-3 PUFA, in both mice and humans," the authors write.

More information: [Full Text \(subscription or payment may be required\)](#)

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