

Grape polyphenols counteract fructose-induced effects

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Grape polyphenol supplementation prevents fructose-induced oxidative stress and insulin resistance in healthy volunteers with high metabolic risk, according to research published online Dec. 28 in *Diabetes Care*.

(HealthDay)—Grape polyphenol (PP) supplementation prevents fructose-induced oxidative stress and insulin resistance in healthy volunteers with high metabolic risk, according to research published online Dec. 28 in *Diabetes Care*.

Marie Hokayem, of the University of Montpellier in France, and colleagues conducted a randomized, double-blind, placebo-controlled trial to study the efficacy of grape PP supplementation in counteracting the metabolic changes that occur with a high-fructose diet, specifically

oxidative stress and [insulin resistance](#) (IR), in 38 healthy overweight/[obese adults](#) with first-degree family members with type 2 diabetes.

The researchers found that, when given fructose, placebo-treated patients experienced a 20 percent reduction in hepatic [insulin sensitivity](#) index, an 11 percent reduction in glucose infusion rate, an increase in systemic and muscle oxidative stress, and a downregulation of [mitochondrial genes](#) and decreased mitochondrial respiration. None of these deleterious effects of fructose were reported in those who received grape PP supplementation.

"In conclusion, nine weeks of grape PP supplementation secures an unwavering metabolic state in healthy overweight/obese first-degree relatives of type 2 diabetic subjects faced with a six-day fructose overload, preventing liver and muscle IR while bearing no adverse effects," the authors write. "Future studies should investigate the effects of grape PP coadministration with processed food rich in fructose and their potential role in counteracting the metabolic syndrome."

More information: [Abstract](#)
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