

Grape intake may protect against metabolic syndrome-related organ damage

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Consuming grapes may help protect against organ damage associated with the progression of metabolic syndrome, according to research presented Monday at the Experimental Biology conference in Boston. Natural components found in grapes, known as polyphenols, are thought to be responsible for these beneficial effects.

The study, led by investigator E. Mitchell Seymour, Ph.D., of the University of Michigan Health System, studied the effects of a high fat, American-style diet both with added grapes and without grapes (the [control diet](#)) on the heart, liver, kidneys, and fat tissue in obesity-prone rats. The grapes – a blend of red, green and black varieties – were provided as a freeze-dried grape powder and integrated into the animals' diets for 90 days.

Specifically, the results showed that three months of a grape-enriched diet significantly reduced [inflammatory markers](#) throughout the body, but most significantly in the liver and in abdominal fat tissue. Consuming grapes also reduced liver, kidney and abdominal fat weight, compared with those consuming the control diet. Additionally, grape intake increased markers of antioxidant defense, particularly in the liver and kidneys.

Metabolic syndrome is a cluster of conditions that occur together – increased blood pressure, a high [blood sugar level](#), excess body fat around the waist or low HDL (the [good cholesterol](#)) and increased blood triglycerides – significantly increasing the risk for heart disease, stroke

and Type 2 diabetes. Intake of [fruits and vegetables](#) is thought to reduce these risks, and grapes have shown benefits in multiple studies. Metabolic syndrome is a major public health concern, and is on the rise in the U.S.

"Our study suggests that a grape-enriched diet may play a critical role in protecting against metabolic syndrome and the toll it takes on the body and its organs," said Seymour. "Both inflammation and oxidative stress play a role in cardiovascular disease progression and organ dysfunction in Type 2 diabetes. Grape intake impacted both of these components in several tissues which is a very promising finding."

This work extends and reinforces the findings of Seymour's previously published research which demonstrated that a grape-enriched diet reduced risk factors for heart disease and diabetes in obesity-prone rats.

Provided by University of Michigan Health System

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