

New study indicates that exercise prevents fatty liver disease

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It's easy to go to the gym on a regular basis right after a person buys the gym membership. It's also easy to skip the gym one day, then the next day and the day after that. A new University of Missouri study indicates that the negative effects of skipping exercise can occur in a short period. The researchers found that a sudden transition to a sedentary lifestyle can quickly lead to symptoms of nonalcoholic fatty liver disease (hepatic steatosis), which affects at least 75 percent of obese people.

"We found that the cessation of daily exercise dramatically activates specific precursors known to promote hepatic steatosis," said Jamal Ibdah, professor of medicine and medical pharmacology and physiology in the MU School of Medicine. "This study has important implications for obese humans who continually stop and start exercise programs. Our findings strongly suggest that a sudden transition to a sedentary lifestyle increases susceptibility to nonalcoholic fatty liver disease."

Nonalcoholic fatty liver disease is a reversible condition that causes fat to accumulate in liver cells of obese people. As Westernized societies are experiencing a weight gain epidemic, the prevalence of the disease is growing, Ibdah said.

In the study, researchers gave obese rats access to voluntary running wheels for 16 weeks. Scientists then locked the wheels, and transitioned the animals to a sedentary condition. After 173 hours, or about seven days, the rats began showing signs of factors responsible for promoting hepatic steatosis. In the animals tested immediately at the end of 16

weeks of voluntary running, there were no signs of hepatic steatosis.

"Physical activity prevented fatty liver disease by 100 percent in an animal model of fatty liver disease," said Frank Booth, a professor in the MU College of Veterinary Medicine and the MU School of Medicine and a research investigator in the Dalton Cardiovascular Research Center. "In contrast, 100 percent of the group that did not have physical activity had fatty liver disease. This is a remarkable event. It is rare in medicine for any treatment to prevent any disease by 100 percent."

The study, "Cessation of Daily Exercise Dramatically Alters Precursors of Hepatic Steatosis in Otsuka Long-Evans Tokushima Fatty (OLETF) Rats," was published in *The Journal of Physiology*.

Source: University of Missouri-Columbia

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