

Exercise reduces clotting risk in patients with nonalcoholic fatty liver disease

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Exercise may help certain patients with nonalcoholic fatty liver disease (NAFLD) reduce their risk of developing blood clots, according to a new study by Penn State College of Medicine researchers. While diet and physical activity have always been recommended treatments for these patients, the researchers said their results confirm that exercise has a multitude of benefits, including many that extend outside the liver, and

should be included as a routine part of NAFLD treatment.

The condition, NAFLD, where too much fat accumulates in liver cells, affects nearly 1 billion adults worldwide. Patients with NAFLD have an increased risk of heart disease, stroke, cancer and blood clots. At this time, there is no approved drug treatment or cure for this common condition.

Dr. Jonathan Stine, associate professor of medicine and public health sciences at the College of Medicine and a transplant hepatologist at Penn State Health Milton S. Hershey Medical Center, conducted a clinical trial to study how [exercise programs](#) affect the health of patients with nonalcoholic steatohepatitis (NASH)—an aggressive form of NAFLD. Twenty-four patients completed the study, which required two-thirds of the participants to complete a 20-week aerobic exercise training program and dietary counseling.

At the end of the trial, participants who completed the exercise program—which consisted of five moderate-intensity, 30-minute exercise sessions per week—had a significantly reduced amount of plasminogen activator inhibitor 1 (PAI-1), a protein that helps blood clots remain formed, compared to participants in the control group who received standard clinical care.

"NAFLD and NASH patients have an increased risk of developing blood clots in the veins of the legs, lungs or liver," said Stine, who noted that [blood clots](#) affect nearly 900,000 Americans annually. "If these occur, they can have serious consequences including an increased risk of hospitalization or death. The findings from our study illustrate the importance of prescribing physical activity to NAFLD and NASH patients as a way to improve their overall health."

In addition to measuring clotting risk, the researchers also found exercise

led to a greater decrease in liver fat, a greater increase in the body's ability to supply oxygen to skeletal muscles during exercise (cardiorespiratory fitness), changes in blood sugar and insulin levels, reduction in body fat and improvement in quality of life. The research team noted these benefits appeared to be independent of weight loss or dietary change. The results were published in *Hepatology*.

To build off the findings, Stine, a Penn State Cancer Institute researcher, is conducting another clinical trial, sponsored by the National Institutes of Health, to study how different exercise 'doses' affect metabolic function and health in NAFLD patients. Stine plans to launch the trial in May 2022.

"There's no cure or effective drug therapies for NAFLD," Stine said. "With this research, we hope to develop further guidance for clinicians on how much exercise is optimal for these patients and explore the biology behind why [physical activity](#) is an effective therapy."

More information: Jonathan G. Stine et al, NASHFit: A randomized controlled trial of an exercise training program to reduce clotting risk in patients with NASH, *Hepatology* (2021). [DOI: 10.1002/hep.32274](https://doi.org/10.1002/hep.32274)

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