Study finds certain liver disease related to cardiovascular fitness

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Patients with nonalcoholic fatty liver disease (NAFLD) have suboptimal levels of cardiovascular fitness, muscle strength, body composition and physical fitness, according to a new study. The findings appear in the April issue of *Hepatology*, a journal of the American Association for the Study of Liver Diseases (AASLD).

About one-in-four U.S. adults suffers from NAFLD, which describes a range of liver disease characterized by excessive fat in the liver. NAFLD is the most common cause of abnormal liver enzymes, and the leading reason for referrals to hepatology clinics. It is considered by many to be a manifestation of the metabolic syndrome which is less prevalent among physically fit people, but little is known about the relationship between fitness and NAFLD severity.

To address this question, researchers led by Joanne Krasnoff of the University of California San Francisco recruited 37 adult patients with a spectrum of NAFLD severity as measured by liver biopsy. Across the spectrum of NAFLD severity, patients had suboptimal cardiorespiratory fitness, muscle strength, body composition and physical activity participation. More than 97 percent had a body fat percentage that put them at increased risk for morbidity and mortality and less than 20 percent currently met recommended guidelines for physical activity.

The study did demonstrate lower cardiorespiratory fitness in subjects with increasing NAFLD severity. “This provocative finding raised the question of a cause-or-effect phenomenon—does cardiorespiratory

fitness attenuate NAFLD or does increasing NAFLD severity result in a decline in cardiorespiratory fitness"" the authors ask.

“Despite our study limitations,” the authors conclude, “we believe the objective demonstration of low cardiorespiratory fitness and muscle strength with a high incidence of obesity illustrates the potential clinical relevance of these measures both before and after interventions.” Moreover, the finding that specific measures of NAFLD severity may be associated with cardiorespiratory fitness and past physical activity raises the possibility of a defined therapeutic role for prevention and exercise intervention.

Future studies should include a randomized controlled trial of exercise training that can reveal its direct effects on NAFLD histopathology, they suggest. “In the meantime, it would appear rational and prudent for healthcare providers to recommend exercise training to improve health-related fitness as an integral role in the care of patients with NAFLD,” they conclude. This work was conducted as an ancillary study of the NAFLD Clinical Research Network, a national research consortium funded by the National Institutes of Health.

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