Exercise does not improve lipoprotein levels in obese patients with fatty liver disease

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New research found that moderate exercise does not improve lipoprotein concentrations in obese patients with non alcoholic fatty liver disease (NAFLD). Results published in the June issue of *Hepatology*, a journal of the American Association for the Study of Liver Diseases, report that moderate physical activity produces only a small decrease in triglyceride and alanine transaminase (ALT) levels.

Obesity is a rampant health concern worldwide. In fact, the World Health Organization (WHO) reported in 2008 that 1.5 billion people, age 20 and older, were overweight, and of these, 200 million men and roughly 300 million women were considered obese. One common complication of obesity is NAFLD, which causes metabolic abnormalities that can lead to severe liver disease. Previous research found that weight loss and regular exercise improved metabolic disturbances associated with NALFD.

Evidence of the effects of regular physical activity on NAFLD, independent of weight loss, is limited. To further investigate, Dr. Samuel Klein and colleagues from the Washington University School of Medicine in St. Louis, Mo. evaluated the impact of physical activity programs recommended by the Department of Health and Human Services on ALT, cholesterol and triglyceride levels in obese NAFLD patients.

This single-center trial included 18 obese participants with NAFLD who were randomized to 16 weeks of 30 to 60 minutes of moderate exercise

at 5 days per week with 12 participating in physical activity and 6 in the control group. Researchers analyzed the impact of exercise on intrahepatic triglyceride (IHTG), very low density lipoproteins (VLDL), and apolipoprotein B-100 (apoB-100).

Analysis shows that exercise decreased IHTG content by 10%, but did not change total body weight or body fat percentage. Total body weight prior to exercise program was 103.1 kg and 102.9 kg after physical activity; body fat was 38.9 before and 39.2 after exercise training. The authors found no change in liver lipoprotein levels (VLDL or apoB-100) in obese NAFLD patients who engaged in physical activity training.

"Our data demonstrate that a moderate intensity exercise program followed by obese patients with NALFD causes a small decrease in IHTG content, even when body weight and total body fat mass are maintained," concludes Dr. Klein. "Current exercise recommendations seem to have only a modest effect on triglycerides and ALT levels, suggesting that improvement in lipoprotein metabolism and fatty liver (steatosis) may be due to weight loss and not increased physical activity." The authors suggest further study of the impact of moderate exercise on IHTG content in those with NAFLD.

More information: "Randomized Trial of Exercise Effect on Intrahepatic Triglyceride Content and Lipid Kinetics in Nonalcoholic Fatty Liver Disease." Shelby Sullivan, Erik P. Kirk, Bettina Mittendorfer, Bruce W. Patterson and Samuel Klein. *Hepatology*; April 25, 2012 (DOI: 10.1002/hep.25548); Print Issue Date: June 2012

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