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Study Links Monthly Binge Drinking to Higher Risk of Advanced Liver Fibrosis in Women

Researchers using NHANES data found a dose-response pattern in women with alcohol-related liver disease or MetALD, unlike in men

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Women with alcohol-related liver disease or the form linked to metabolic dysfunction may face a higher risk of advanced liver fibrosis even if binge drinking happens only monthly, according to a study published Monday, November 9, in Alcohol, Clinical and Experimental Research.

The study focused on advanced fibrosis, a severe stage of liver scarring that is closely tied to illness and death in both alcohol-related liver disease, or ALD, and metabolic dysfunction-associated alcohol-related liver disease, known as MetALD. MetALD refers to liver disease in people who meet alcohol-use thresholds and also have metabolic risk factors.

Researchers analyzed data from the National Health and Nutrition Examination Survey, or NHANES, covering 1999 to 2018. They examined participants with MetALD and ALD who also had transient elastography measurements, a noninvasive test that estimates liver stiffness and can help identify advanced fibrosis. The study grouped binge-drinking frequency into three categories: none, monthly, defined as up to four times a month, and weekly, defined as more than four times a month.

According to the paper’s abstract, the fibrosis analysis included 4,000 participants. A monitoring summary of the research described the broader NHANES dataset as 43,447 U.S. adults, suggesting the larger survey population was narrowed for the final analysis.

The main finding was a clear sex difference. In women with MetALD and women with ALD, the frequency of binge drinking showed what researchers described as a dose-response association with advanced fibrosis. In practical terms, that means the risk signal rose as binge drinking became more frequent. The threshold for increased fibrosis risk in women appeared as low as monthly binge drinking.

The pattern was different in men. In men with MetALD, only weekly binge drinking was associated with increased fibrosis risk. In men with ALD, the study did not find a significant association between binge-drinking frequency and advanced fibrosis.

The researchers used logistic regression to estimate sex-specific odds ratios and to identify the drinking-frequency thresholds linked to higher fibrosis risk. The abstract did not include the full numerical estimates, but it said the results point to different risk thresholds for men and women rather than a single cutoff that applies to everyone.

The study does not prove that binge drinking caused advanced fibrosis. It was based on observational survey data, which can show associations but cannot establish cause and effect on its own. Even so, the findings add to a growing body of evidence that drinking pattern may matter alongside total alcohol intake when doctors assess liver risk.

That point could have implications beyond the clinic. For beer, wine and spirits companies, as well as regulators and public health agencies, the results may strengthen the case for responsible-drinking messages that address how often people binge drink, not only how much they consume over time. Any such changes would depend on further research and on how health authorities interpret the evidence.

The researchers said the findings support sex-specific public health interventions and clinical assessments in alcohol-related liver disease. If confirmed in future studies, the results could influence how clinicians screen patients with ALD or MetALD and how they counsel women whose drinking may fall below thresholds that have often drawn more attention in men.

The study comes as liver specialists continue to sort out the overlap between alcohol exposure and metabolic disease in a large share of patients. By separating results for women and men and by looking at binge-drinking frequency rather than alcohol volume alone, the research highlights a question that may become more important in both medical practice and prevention policy: whether the timing and pattern of heavy drinking episodes can signal serious liver risk earlier than broader consumption measures do.