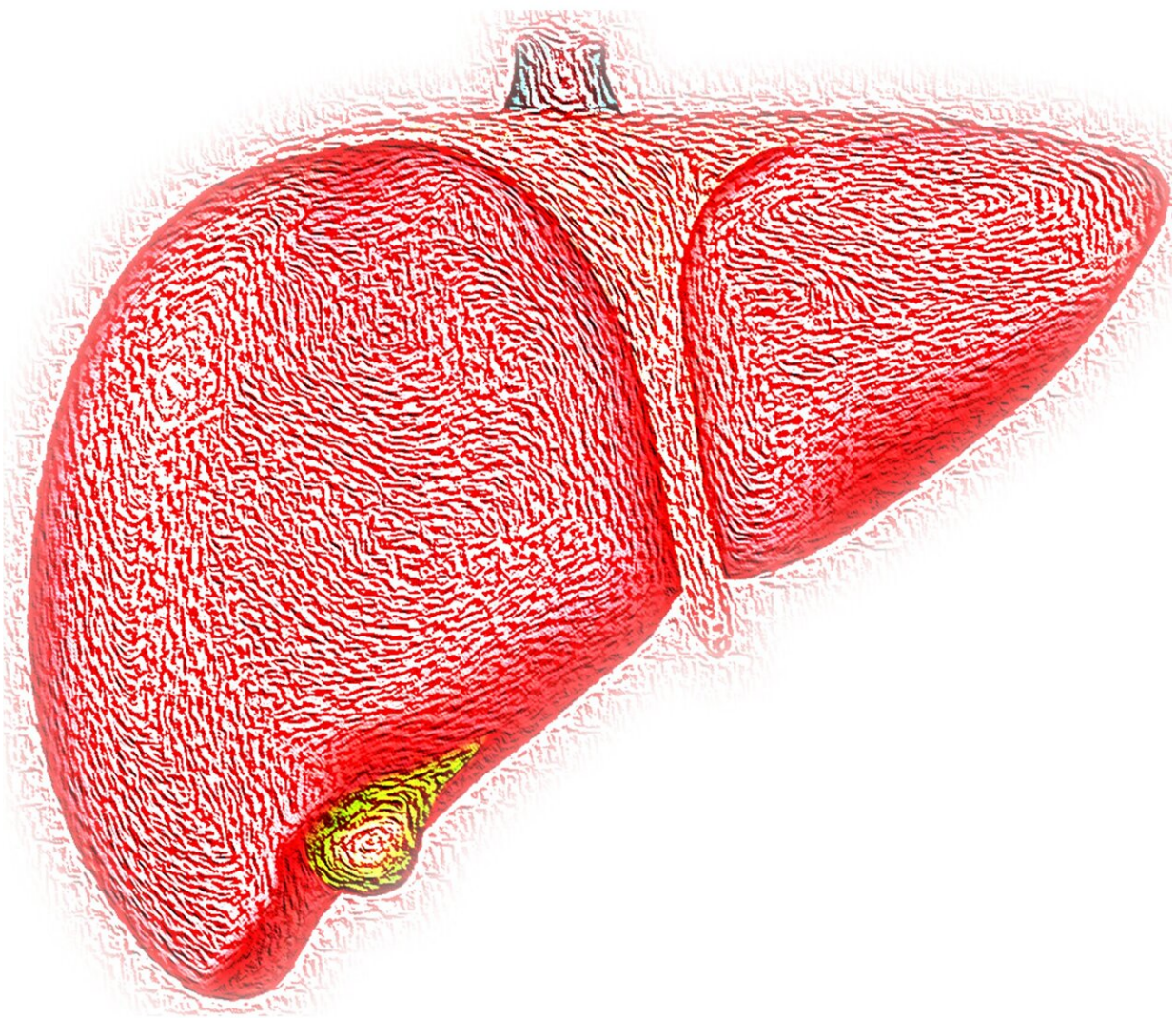


New research explores non-invasive MR elastography as an alternative to liver biopsy in obese patients

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Credit: Pixabay/CC0 Public Domain

Three-dimensional MR elastography (MRE) scans have demonstrated the potential to assess both liver fibrosis and inflammation simultaneously. However, researchers face challenges in that current 3D MRE approaches typically require multiple sequences, each with its own breath-hold by the patient, which reduces the precision of geometric alignment of the liver and hampers clinical acceptance.

This is further complicated in obese patients where the challenge of a high body mass index (BMI) can preclude adequate penetration of the mechanical waves.

In his paper published in the journal *Investigative Radiology*, Omar Darwish has tested the viability of an approach that uses one single breath-hold rather than the more usual four to six consecutive breath-holds that can be easily tolerated and reproduced by [obese patients](#).

His technical development study demonstrates how a single 17 second breath-hold was successfully used to reduce the total MRE sequence acquisition time including multiple slices, wave offsets and motion encodings.

"Non-alcoholic fatty liver disease is a health crisis across the globe and evaluating patients in a time efficient fashion is becoming of high importance in medicine. Liver biopsy is invasive, costly, and accompanied with complications. These could be mitigated by a successful proof of concept in 3D MRE sequencing and warrants a larger clinical study to further evaluate diagnostic accuracy and

performance," says Darwish.

More information: Omar Isam Darwish et al, Single Breath-Hold 3-Dimensional Magnetic Resonance Elastography Depicts Liver Fibrosis and Inflammation in Obese Patients, *Investigative Radiology* (2023).

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