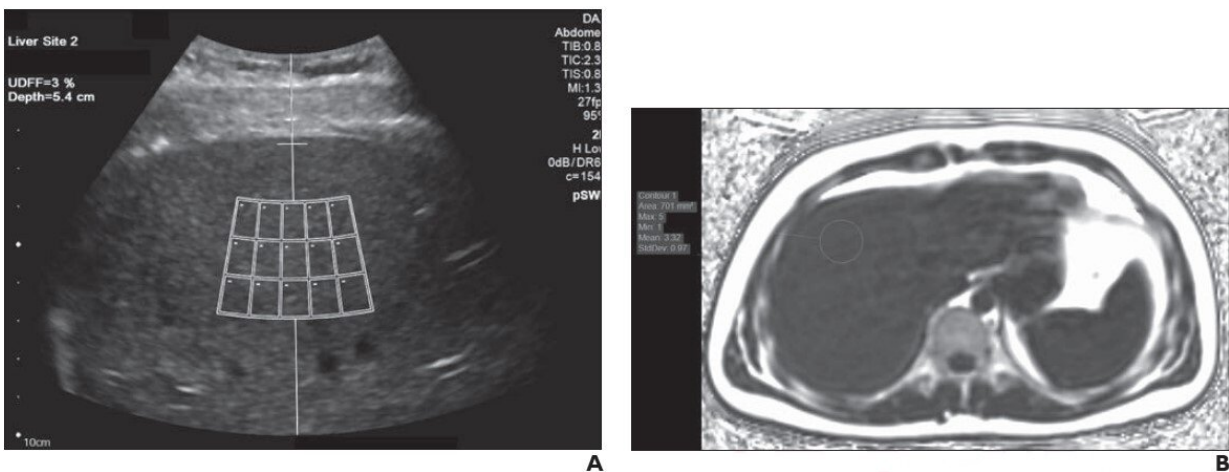


Hepatic steatosis detection by ultrasound versus MRI proton-density fat fraction

June 6 2022



Left: UDFF operator places crossbar at liver capsule, with sample ROI fixed 1.5 cm deep from crossbar, to ensure measurement obtained sufficiently deep to liver capsule. Overall UDFF was 3%. Right: Median MRI PDFF from three acquisitions was 3%, demonstrating agreement. Credit: American Roentgen Ray Society (ARRS), *American Journal of Roentgenology (AJR)*

According to ARRS' *American Journal of Roentgenology (AJR)*, ultrasound-derived fat fraction (UDFF) is strongly associated with MRI proton-density fat fraction (PDFF) and provides high sensitivity for detecting hepatic steatosis.

Noting that a reduced number of [measurements](#) is sufficient for

determining overall UDFF (i.e., median value of the median of the five measurements for each of three acquisitions), "a UDFF cutoff of $>5\%$ provides high AUC and [sensitivity](#), albeit low specificity, for detection of MRI PDFF $\geq 5.5\%$," clarified corresponding author Andrew T. Trout of Cincinnati Children's Hospital Medical Center in Ohio.

Trout and team's cross-sectional study registered 56 overweight and obese adolescents and adults (≥ 16 years) who underwent investigational [ultrasound](#) (ACUSON Sequoia; deep abdominal transducer) and MRI examinations of the liver during a single visit from August to October 2020. Ultrasound examinations included three UDFF acquisitions of five measurements each. MRI examinations included three PDFF acquisitions with calculation of an overall median PDFF.

Ultimately, UDFF was positively associated with MRI PDFF ($\rho=0.82$ [95% 0.71-0.89]; p

"In clinical practice, the authors of this *AJR* article concluded, "three measurements are likely sufficient for determining UDFF."

More information: Quantification of Hepatic Steatosis by Ultrasound: Prospective Comparison to MRI Proton-Density Fat Fraction as Reference Standard, *American Journal of Roentgenology* (2022). [DOI: 10.2214/AJR.22.27878](#)

Provided by American Roentgen Ray Society

Citation: Hepatic steatosis detection by ultrasound versus MRI proton-density fat fraction (2022, June 6) retrieved 27 April 2024 from <https://medicalxpress.com/news/2022-06-hepatic-steatosis-ultrasound-mri-proton-density.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.