

## Abnormal Liver Function Tests

Changes to enzymes responsible for liver function may be a sign of liver injury or disease. The enzymes alanine transaminase (ALT), aspartate transaminase (AST), alkaline phosphatase (ALP), and bilirubin are measured in blood tests.

When ALT and AST are a little above normal limits, ultrasound (US) abdomen (<https://www.radiologyinfo.org/en/info/abdominus>) and US duplex Doppler abdomen are usually appropriate. US shear wave elastography (<https://www.radiologyinfo.org/en/info/elastography>) abdomen (measures tissue stiffness), MR elastography abdomen, MRI abdomen (<https://www.radiologyinfo.org/en/info/mri-abdomen-pelvis>) without and with intravenous (IV) contrast with MR cholangiopancreatography (<https://www.radiologyinfo.org/en/info/mrcp>) (MRCP; special MRI for pancreas and liver), and CT abdomen/pelvis (<https://www.radiologyinfo.org/en/info/abdominect>) without IV contrast may be appropriate.

When ALT and AST are above limits by a large amount, US abdomen, US duplex Doppler abdomen, and CT abdomen/pelvis with contrast are usually appropriate. MRI abdomen without and with contrast with MRCP, MRI abdomen without contrast with MRCP, and CT abdomen/pelvis without contrast may be appropriate.

High ALP can result from liver disease (<https://www.radiologyinfo.org/en/info/fatty-liver-disease>) or other causes. When both ALP and gamma-glutamyl transpeptidase are high, the cause is usually liver disease. US abdomen, MRI abdomen without and with contrast with MRCP, and CT abdomen/pelvis with IV contrast are usually appropriate. US duplex Doppler abdomen, MRI abdomen without contrast with MRCP, and CT abdomen/pelvis with contrast may be appropriate.

High bilirubin levels (called hyperbilirubinemia) can result from a bile flow blockage, liver disease, or other causes. With hyperbilirubinemia, US abdomen, MRI abdomen without and with contrast with MRCP, MRI abdomen without contrast with MRCP, and CT abdomen/pelvis with contrast are usually appropriate. CT abdomen/pelvis without contrast may be appropriate.

For more information, visit the *Fatty Liver Disease and Liver Fibrosis* (<https://www.radiologyinfo.org/en/info/fatty-liver-disease>) page.

— By Emily Guernsey and Nina S. Vincoff, MD. This information originally appeared in the *Journal of the American College of Radiology*.

### Disclaimer

This information is copied from the RadiologyInfo Web site (<http://www.radiologyinfo.org>) which is dedicated to providing the highest quality information. To ensure that, each section is reviewed by a physician with expertise in the area presented. All information contained in the Web site is further reviewed by an ACR (American College of Radiology) - RSNA (Radiological Society of North America) committee, comprising physicians with expertise in several radiologic areas.

However, it is not possible to assure that this Web site contains complete, up-to-date information on any particular subject. Therefore, ACR and RSNA make no representations or warranties about the suitability of this information for use for any particular purpose. All information is provided "as is" without express or implied warranty.

Please visit the RadiologyInfo Web site at <http://www.radiologyinfo.org> to view or download the latest information.

**Note:** Images may be shown for illustrative purposes. Do not attempt to draw conclusions or make diagnoses by comparing these images to other medical images, particularly your own. Only qualified physicians should interpret images; the radiologist is the physician expert trained in medical imaging.

### Copyright

This material is copyrighted by either the Radiological Society of North America (RSNA), 820 Jorie Boulevard, Oak Brook, IL 60523-2251 or the American College of Radiology (ACR), 1891 Preston White Drive, Reston, VA 20191-4397. Commercial reproduction or multiple distribution by any traditional or electronically based reproduction/publication method is prohibited.

Copyright © 2025 Radiological Society of North America, Inc.