

Understanding Your Liver Elastography (Hepatoscope) Results

About Liver Elastography and Hepatoscope

Liver elastography is a non-invasive test provided to patients at Citrus Valley Gastro to learn about your liver's health. Non-invasive means nothing is put inside your body.

A Hepatoscope is a type of liver elastography and a special ultrasound technology that measures liver stiffness (hardness) and fatty changes in your liver. These measurements help us learn more about your liver disease.

Here are some helpful terms to know related to your Hepatoscope results:

- **Fibrosis (fy-BROH-sis):** Scarring in your liver.
- **Liver stiffness:** Hardness of the liver related to liver scarring.
- **Fatty change:** An abnormal buildup of fat in your liver.
- **Steatosis (STEE-uh-toh-sis):** A condition caused by having too much fat in your liver.
- **CAP score:** The way the percentage of fatty change in your liver is measured.

Fibrosis and steatosis are measured separately from one another. Our providers at Citrus Valley Gastro will talk with you about your results during your appointment.

The rest of this resource explains your Hepatoscope results in more detail.

About Your CAP score

The providers at Citrus Valley Gastro will use your CAP score to find out your steatosis grade. Your CAP score is measured in decibels per meter (dB/m). This score will range from 100 dB/m to 400 dB/m. Your CAP score and steatosis grade can go up or down over time.

The following table shows ranges of CAP scores, and the matching steatosis grades. It shows how much of your liver is affected by fat buildup. Normal livers can have up to 5% of fatty changes in them. A score below 238 dB/m means the amount of fatty change in your liver is not higher than normal.

Understanding your CAP Score

Understanding Your CAP Score



CAP Score	Steatosis Grade	Amount of Liver with Fatty Change
238 to 260 db/m	S1	11% to 33%
260 to 290 db/m	S2	34% to 66%
Higher than 290 db/m	S3	67% or higher

About Your Liver Stiffness Result

Your liver stiffness result is measured in kilopascals (kPa). Normal results are usually between 2 and 7 kPa. Your result may be higher than the normal range if you have liver disease. The highest possible result is 75 kPa.

Testing Options

	Liver Biopsy	Imaging Tests	Blood Tests
Description	<ul style="list-style-type: none">• Small tissue sample taken with a needle• Sample examined under microscope by a pathologist	<ul style="list-style-type: none">• Fibroscan or transient elastography measure liver stiffness• Others Ultrasound, CT or MRI Scan	<ul style="list-style-type: none">• Common tests include FibroSure , FIB-4, APRI• Enter routine lab values into a calculator tool
Advantages	<ul style="list-style-type: none">• "Gold Standard"• Helpful in deciding between two different diagnoses	<ul style="list-style-type: none">• Noninvasive• Highly accurate• Rapid results	<ul style="list-style-type: none">• Convenient and low cost• Can determine if someone has cirrhosis
Disadvantages	<ul style="list-style-type: none">• Invasive• Sample may not represent entire liver• Sample can be interpreted or staged differently	<ul style="list-style-type: none">• Equipment not always available• Reduced accuracy in people who are obese• Other conditions may cause liver stiffness	<ul style="list-style-type: none">• Most advanced blood tests only effective in people with HCV• Cannot determine specific fibrosis stage• Can over or under estimate fibrosis

Using Your Liver Stiffness Result to Find Your Fibrosis Score

Your healthcare provider at Citrus Valley Gastro will use your liver stiffness result and medical history to find out your fibrosis score. Your results can range from normal to advanced.

- **Normal:** This means your liver has no scarring, or mild scarring.
- **Moderate and severe:** This is liver scarring that can be reversed (undone) by treating your liver disease. Good nutrition and healthy lifestyle changes can also slow down or reverse the buildup of scarring in your liver. You may not have any symptoms of moderate liver scarring.
- **Advanced:** Cirrhosis (seh-ROH-sis) is a late form of advanced liver scarring. This

happens over time in chronic (long-term) liver disease.

You can use the following table to look up your liver's health. This is based on your diagnosis, liver stiffness, and fibrosis scores. Not all diseases are listed in the table. If you do not see your disease listed, ask your healthcare provider to go over your results with you. If you have more than one liver disease, this table may not apply to you.

1. Find the liver disease you have in the first column on the left.
2. Find your liver stiffness result in the second column from the left. Follow the row that has your results. **The ranges of liver stiffness scores in the table are estimates (not exact).**
3. Read across the rest of that row from left to right. You will find your fibrosis score in the third column from the left. The last column tells you how much scarring is in your liver.

Understanding your CAP Score

A Hepatoscope is a special ultrasound for your liver. This imaging test is not invasive. By measuring the stiffness of the liver your doctor can detect both scarring and fatty change in the liver. Here, we have explained the information you may receive from your doctor if you have a Hepatoscope.

Your CAP score is a measurement of fatty change in your liver. Fatty change (steatosis) is when fat builds up in your liver cells. This fat can impact your liver's ability to function. Your doctor will use your CAP score to grade how much fatty change has happened in the liver. A CAP score is measured in decibels per meter (dB/m) and ranges from 100 to 400 dB/m. The table here shows ranges of CAP scores, the matching steatosis grade, and the amount of liver with fatty change.

Reliability of Test Scores

	F0-F1 No or Mild Liver Scarring	F2 Moderate Liver Scarring	F3 Severe Liver Scarring	F4 Cirrhosis
Hepatitis B	2 - 7 kpa	8 - 9 kpa	8 - 11 kpa	18 kpa or higher
Hepatitis C	2 - 7 kpa	8 - 9 kpa	9 - 14 kpa	14 kpa or higher
HIV/HCV Coinfection	2 - 7 kpa	7 - 11 kpa	11 - 14 kpa	14 kpa or higher
Cholestatic Disease	2 - 7 kpa	7 - 9 kpa	9 - 17 kpa	17 kpa or higher
Nonalcoholic Fatty Liver Disease (NAFLD or NASH)	2 - 7 kpa	7.5 - 10 kpa	10 - 14 kpa	14 kpa or higher
Alcohol related Liver Disease	2 - 7 kpa	7 - 11 kpa	11 - 19 kpa	19 kpa or higher

Certain conditions can cause a liver stiffness result that's too high, which makes it incorrect.

You may have less scarring than your results suggest. This can happen if you have:

- **Liver inflammation (swelling):** This can be caused by a recent liver illness. It can also be caused by long-term, heavy alcohol use.
- **Benign (not cancer) or cancerous (cancer) tumors in your liver.**
- **Liver congestion:** This means that your liver is too full of blood or other fluids. This is usually caused by heart failure.

Hepatoscope may give less accurate results, or no results at all if you have:


- **Obesity:** This means your body mass index (BMI) is higher than 30 (a high, unhealthy amount of body fat).

- **Ascites:** Fluid building up in your belly.
- **Biliary obstruction:** A blockage that does not let enough bile flow out of your liver.
- **Scar tissue:** Tissue from surgery or radiation built up near your liver.

Until recently, liver biopsy was the only way doctors could determine the stage and degree of liver damage. Today, there are both blood and imaging tests that can determine liver damage. This is a brief overview of different types of tests your doctor may discuss with you.

Understanding Liver Biopsy Results

Understanding Your Biopsy Results



Metavir <i>"Common for biopsy results"</i> <i>Assigns two scores</i>	Ishak <i>More complex</i> <i>Stages broken down further</i>	Batts-Ludwig <i>*Most common in U.S.*</i>
<p>1. Activity or prediction of progression</p> <ul style="list-style-type: none"> ● A0: no activity ● A1: mild activity ● A2: moderate activity ● A3: severe activity <p>2. Fibrosis level</p> <ul style="list-style-type: none"> ● F0: no fibrosis ● F1: portal fibrosis without septa ● F2: portal fibrosis with infrequent septa ● F3: numerous septa but no cirrhosis ● F4: cirrhosis <p>Last stage before cirrhosis: A3F3</p>	<ul style="list-style-type: none"> ● 0: no fibrosis ● 1: an expansion of some portal areas, possibly with short, fibrous septa ● 2: an expansion of most portal areas, possibly with short, fibrous septa ● 3: an expansion of portal areas with sporadic portal-to-portal bridging ● 4: an expansion of portal areas with significant portal-to-portal and Portal-to-central bridging ● 5: significant portal-to-portal and portal-to-center bridging with sporadic nodules ● 6: Likely or definite cirrhosis <p>Last stage before cirrhosis: Stage 5</p>	<ul style="list-style-type: none"> ● 0: no fibrosis ● 1 : portal fibrosis ● 2 : rare portal-to-portal septa ● 3 : fibrous septa ● 4 : definite or likely cirrhosis <p>Last stage before cirrhosis: Stage 3</p>

Understanding the results of these different tests can be a challenge. Healthcare providers use different scales to define the stages of liver damage. Different scales are used when a biopsy is done versus an imaging test, like a Hepatoscope.

Common scales used to grade a liver biopsy are explained here. Most scoring systems examine the impact of fibrosis on the portal vein (which brings blood from the intestines) and the location and number of septa (connecting bands of scars).