

Liver Function Blood Test Interpreter

KLINIKA
DLHOVEKOSTI
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Interpret best liver health indexes and biomarkers against optimal ranges, automatically generating differential diagnoses and pinpointing the source of enzyme abnormalities. It offers recommendations informed by clinical guidelines and optional AI-driven detection of rare conditions beyond conventional screenings.

Male | BMI: 29 • Overweight | Waist-to-Height: 0.58 • High

Fatty liver

• High Risk

There is a **high likelihood** of steatosis. Steatosis is fully reversible.

It's most likely NAFLD / metabolic (being overweight, insulin resistance, etc.).

Liver fat (steatosis) is the accumulation of triglycerides within liver cells (hepatocytes). It's very common and is often driven by obesity, insulin resistance, or alcohol use.

Liver scarring

• Low Risk

There is a **low likelihood** of fibrosis (F2 or higher).

Liver fibrosis is the excessive build-up of scar tissue in response to chronic liver injury. It's most often driven by long-standing inflammation from causes such as viral hepatitis, persistent alcohol use, or severe NAFLD.

RECOMMENDED ACTIONS

1

Confirm with imaging

High risk of steatosis or fibrosis should be confirmed by FibroScan, ultrasound (USG), MRI, or biopsy.

2

Consult with AI (Optional)

Liver biomarkers are within normal range, but some values are suboptimal. Consult the AI for possible causes.

[Consult AI](#)

▼ Show the [guidelines](#) decision tree

DIFFERENTIAL DIAGNOSIS CALCULATIONS

ANI: -2.57 f_x

• **NAFLD**



ALD/NAFLD Index is used for distinguishing Alcoholic from Nonalcoholic Fatty Liver Disease.



- < -2.2 - **NAFLD**
- $-2.2 - 2.2$ - Mixed
- > 2.2 - ALD

Probability of Alcoholic Liver Disease: 7%

ANI is useful if patient's alcohol consumption history is unclear or deemed unreliable. Short-term abstinence (few months) does not significantly alter the ANI.

It is crucial to exclude other potential causes of liver disease before applying the ANI.

R-Factor: 1.5 fx

• Cholestatic



R-Factor is used for distinguishing acute liver injury (Hepatocellular from Cholestatic). Often used when drug induced liver injury (DILI) is suspected.



- < 2 - **Cholestatic**
- 2 - 5 - Mixed
- > 5 - Hepatocellular

YOUR INTERPRETATION - CHOLESTATIC

FOR MIXED

FOR HEPATOCELLULAR

Cholestasis is seen in: Gallstones; Malignancy (pancreatic, cholangiocarcinoma); Primary Biliary Cholangitis (PBC); Primary Sclerosing Cholangitis (PSC), often associated with IBD;

Drugs associated with cholestasis: Amoxicillin-clavulanate; macrolides (erythromycin); trimethoprim-sulfamethoxazole; anabolic steroids; combined oral contraceptives; chlorpromazine.

Pre-hepatic Hepatocellular Cholestatic

0 0.2 0.5 1

- Bilirubin breakdown:

	Total	Unexposed	Exposed	% Conception
Healthy (HPLC) ^a	5.2 (3.36)	3.8 (3.03)	5.2 (2.012)	33
Reference Range (HPLC) ^a	23.1 (3.1) - 30.7	2.0 (0.1) - 3.0	0.04 (0.03) - 0.50 (0.1)	
Reference Range (Dioxin) ^a	33.5 (3.0) - 38.5	13.0 (1.5) - 15.0	0.31 (0.2) - 4.00 (0.30)	
Gilbert's (HPLC) ^a	32. (0.8)	31.3 (0.84)	0.28 (0.07)	0.9
Conc-Hsp (HPLC) ^a	314 (10.8)	314 (10.8)	0.7 (0.04)	0.2
Hemolysis (HPLC) ^a	24 (3.52)	23 (3.1)	1 (0.008)	3.8
Oral alkoxide (dioxin) (Dioxin) ^a	101 (9.5)	49 (4.29)	51 (4.01)	51
Oral fat vapors (Dioxin) ^a	73 (4.6)	27 (4.6)	0 (0.0)	64
Dioxin-Hsp (HPLC) ^a	49 (10.8)	38 (4.6)	0.0 (3.36)	59
Fat vapors (Dioxin) ^a	102 (4.6)	34 (2.20)	68 (4.6)	64
Conc-Hsp (HPLC) ^a	102 (10.8)	10 (0.38)	0 (0.0)	64
Biliary Aroclor (HPLC) ^a	240 (20)	85 (5)	240 (15)	64
Cholesterol of pregnancy (Dioxin) ^a	142 (8.0)	74 (4.0)	6.8 (0.4)	64
Primary lipid Aroclor (Dioxin) ^a	170 (10)	31 (5.0)	120 (7)	70

Species	Number of sites	100 m ² area	Terrestrial biomass (g/m ²)	Beetle biomass (g/m ²)	Insect biomass (mg/m ²)	Ants (g/m ²)
<i>Drosophila</i>	4,300 (3,000-5,700)	50.75 (1.70-100)	10.83	8.42	18.11	108.23
Chrysomelids (chrysomelids)	3,000 (2,000-5,000)	30.70 (5.10-100)	5.70	3.18	16.18	10.18
Chrysomelids (other)	1,100 (700-1,700)	40.70 (10.10-100)	10.83	38.71	18.11	108.23
Other Hymenoptera	100 (50-200)	30.70 (10.10-100)	5.70	43.82	16.18	0.18
Other Diptera	200 (100-400)	50.75 (1.70-100)	10.83	17.73	18.11	108.23
Other Coleoptera	1,000 (500-2,000)	10.70 (1.00-100)	1.00	24.87	18.11	108.23
Other Arthropods	100 (50-200)	50.75 (1.70-100)	10.83	23.87	18.11	108.23
Non-arthropod invertebrates	100 (50-200)	10.70 (1.00-100)	1.00	24.87	18.11	108.23
Vertebrates (fish)	100 (50-200)	10.70 (1.00-100)	1.00	24.87	18.11	108.23
Vertebrates (amphibians)	100 (50-200)	10.70 (1.00-100)	1.00	24.87	18.11	108.23
Vertebrates (reptiles)	100 (50-200)	10.70 (1.00-100)	1.00	24.87	18.11	108.23
Vertebrates (birds)	100 (50-200)	10.70 (1.00-100)	1.00	24.87	18.11	108.23
Vertebrates (mammals)	100 (50-200)	10.70 (1.00-100)	1.00	24.87	18.11	108.23
Terrestrial plants	27 (10-50)	0.10	10.70	18.11	18.11	108.23

Not calculating. D/T ratio has little clinical relevance for bilirubin < 1.5 mg/dL.

HEPATIC STEATOSIS | FATTY LIVER DISEASE | NAFLD | NASH

- High

142



- Yellow - NAFLD possible
- Red - **NAFLD likely**

FLI: 83 f_x

• High



Fatty Liver Index is one of the best models to predict liver fat content.



- Yellow - Fatty liver possible
- Red - **Fatty liver likely**

Provided cutoffs are for **European men**. Cutoffs are widely different for other populations like Asian etc.

HEPATIC FIBROSIS | LIVER SCARRING

FIB-3: 0.37 f_x

• Optimal



The Fibrosis-3 Index is an improved version of the FIB-4, that does not include age. It outperforms both FIB-4 and APRI.



- Yellow - F2 or higher fibrosis possible
- Red - F3 or higher fibrosis possible

LSS: 5.94 f_x

• Optimal

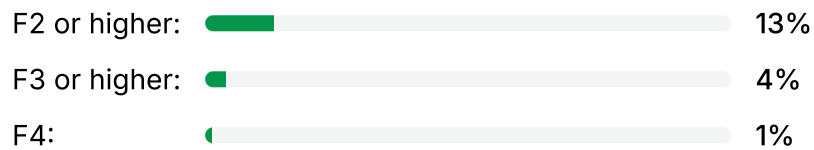


Liver stiffness score is currently one of the best models to predict liver fibrosis. Outperforms FIB-4, APRI and HSI. Trained on NHANES dataset.



- Yellow - F2 or higher fibrosis possible
- Red - F2 or higher fibrosis likely

Probabilities of having different fibrosis stages:



Stage F2 fibrosis is fully reversible, Stage F3 is partially reversible, and Stage F4 is largely irreversible.

— INDIVIDUAL BIOMARKERS —

Plots show optimal ranges; values above the ULN are displayed as multiples ($\times$ ULN), values below the LLN as percentage (% of LLN).

AST: 31 IU/L 0.62 $\times$ ULN

• Elevated

Transaminase released from hepatocytes and cardiac/skeletal muscle (with minor contributions from kidney, pancreas, brain, RBCs and gallbladder).



FOR LOW YOUR INTERPRETATION

Elevated AST levels are seen in **muscle injury** (e.g., strenuous exercise, seizures, myopathies, myocardial infarction or heart failure), **tissue damage** (severe burns, surgery), **liver injury** (fatty liver, viral or other infections, malignancy), **anorexia or rapid weight change** (e.g., >5 kg/week), **pancreatitis**, **gallbladder attack** and **hemolysis** (e.g., hemolytic anemia, splenomegaly).

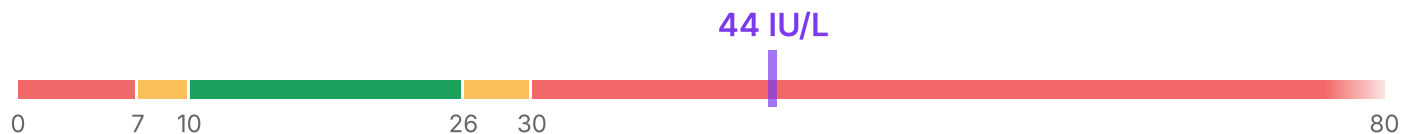
Several drugs can increase AST including: chronic alcohol, NSAIDs, acetaminophen, oral contraceptives, statins, certain antibiotics, corticosteroids, toxins like lead, mercury, and pesticides.

Sources: [wikipedia](#) [optimaldx](#) [selfdecode](#)

ALT: 44 IU/L 0.92× ULN

• High

Highly liver-specific transaminase, but with minor contributions from skeletal and cardiac muscle, pancreas, and gut.



FOR LOW YOUR INTERPRETATION

ALT is highly specific to **liver injury** (Fatty liver, Viral hepatitis, Autoimmune hepatitis, Liver cancer, Alcohol liver damage, Mononucleosis, Hemochromatosis).

Muscle damage – strenuous exercise, trauma, myocardial infarction, congestive heart failure.

Gallstones; Biliary disease; pancreatitis; both obesity and anorexia; rapid weight change; celiac disease; hemolysis.

Many toxins and drugs can increase ALT, but most notable are: Paracetamol, NSAIDs, statins, phenytoin, allopurinol, and antibiotics, especially amoxicillin.

Sources: [wikipedia](#) [optimaldx](#) [selfdecode](#)

ALP: 88 IU/L 0.68× ULN

• Optimal

Alkaline phosphatase is primarily released from the bile ducts and bone. Minor sources include the intestinal mucosa, kidneys, and placental tissue (during pregnancy).



FOR LOW YOUR INTERPRETATION FOR HIGH

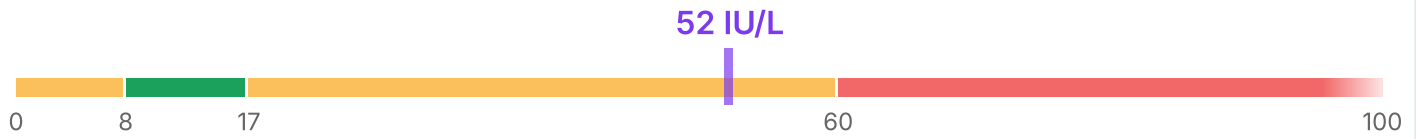
ALP is optimal

GGT: 52 IU/L 0.84× ULN

• Elevated



Serum Gamma-glutamyl transferase usually originates from hepatocytes and cholangiocytes (plus pancreas).



FOR LOW YOUR INTERPRETATION

Major serum GGT contributors: Liver (both hepatocytes and cholestasis), gallbladder, pancreas and kidneys. Also increased in insulin resistance, toxin exposure, oxidative stress and increased antioxidants (glutathione) need etc.

Drugs that can increase GGT: Alcohol, anti-seizure medications and more.

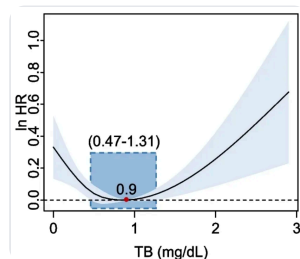
Sources: [optimaldx](#) [selfdecode](#)

Bilirubin (Total): 0.7 mg/dL 0.64× ULN

• Optimal



Heme-catabolism end-product processed by the liver and excreted in bile, reflecting hemolysis and hepatic clearance.



FOR LOW YOUR INTERPRETATION FOR HIGH

Bilirubin (Total) is optimal

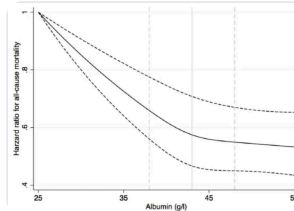
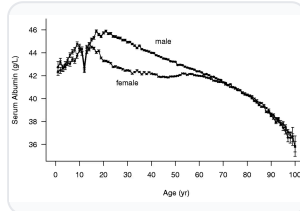
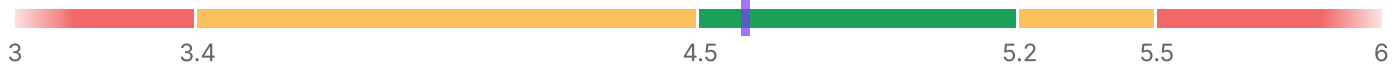
Albumin: 4.6 g/dL 0.85× ULN

• Optimal



Principal liver-synthesized plasma protein maintaining oncotic pressure and ferrying hormones, drugs and nutrients.

4.6 g/dL



FOR LOW YOUR INTERPRETATION FOR HIGH

Albumin is optimal

Other biomarkers used in this tool

Values as entered, the biomarkers interpreted above are not repeated. An arrow marks a value outside the optimal range.

Gender: **Male**; History of diabetes: **No**; Bilirubin (Direct): **0.14** mg/dL ; Triglycerides: **178** mg/dL ↑;
Glucose: **101** mg/dL ↑; PLT: **235** ×10⁹/L ; MCV: **88** fL ; Weight: **92** kg ; Height: **178** cm ;
Waist circumference: **104** cm