



# Non-Alcoholic Fatty Liver Disease

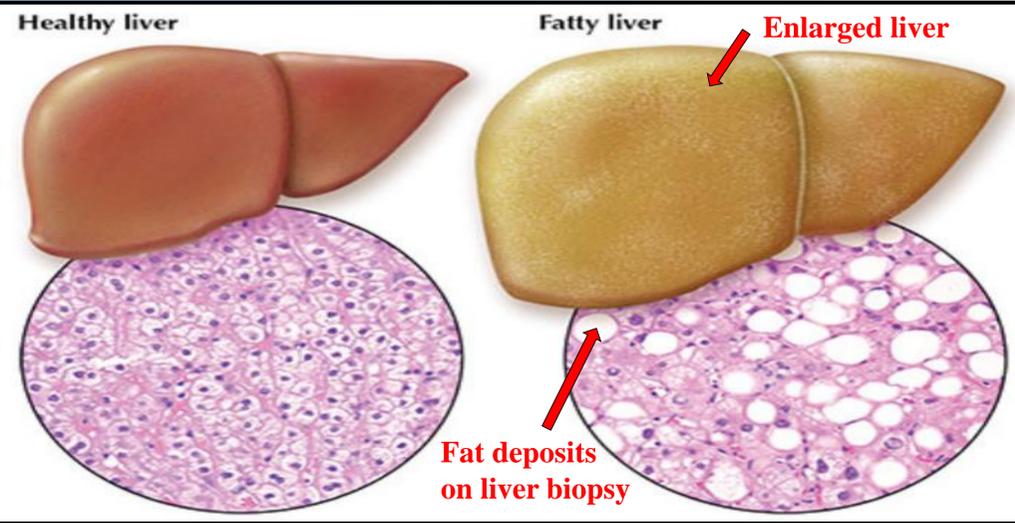


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## What Is Non-alcoholic fatty liver disease?

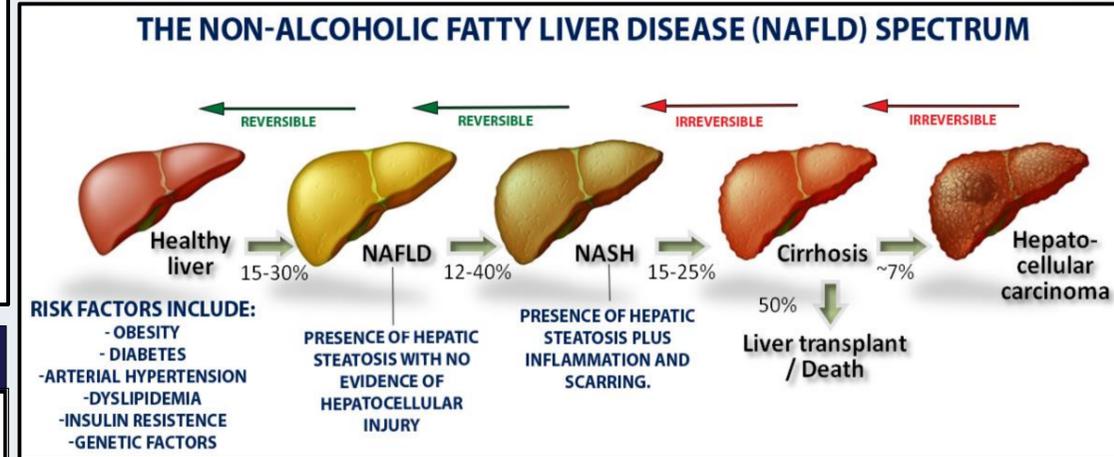
Non-alcoholic fatty liver disease (NAFLD) is a condition of **excessive fat deposits in the liver** not due to other causes of liver disease, including excessive alcohol consumption.



## Why is NAFLD important?

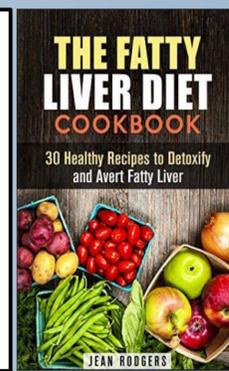
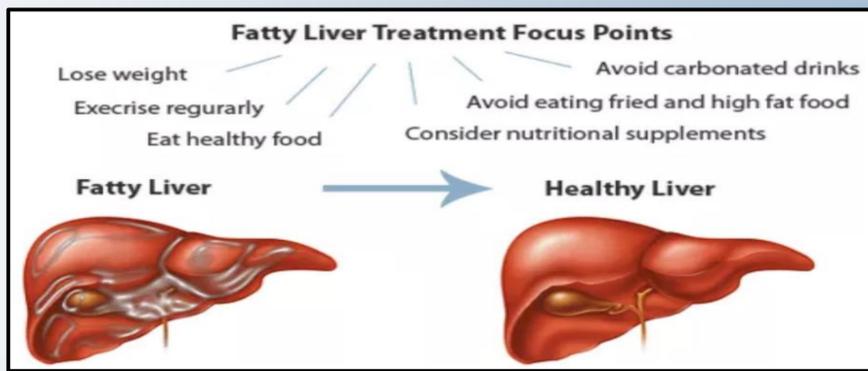
NAFLD is the leading cause of chronic liver disease in the U.S., **affecting 10-46% of the population**. The disease prevalence is expected to rise with increasing obesity<sup>2</sup>.

NAFLD can worsen to a condition that is still reversible called non-alcoholic steatohepatitis (NASH) described as inflammation in the liver, and then ultimately to an **irreversible scarring of the liver called cirrhosis**<sup>3</sup>.



## How is NAFLD managed?

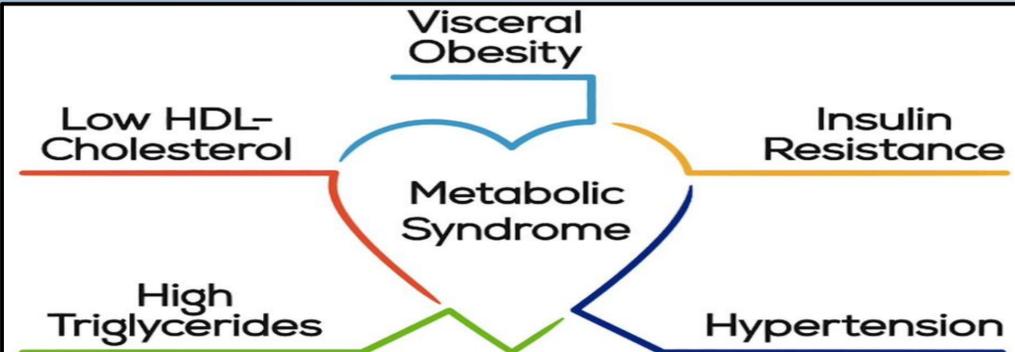
- **Weight loss if BMI > 25 – Goal loss 5-10% of body weight** at a rate of 1-2 lbs per week by lifestyle interventions of diet modification (with help of nutritionist) and exercise.
- Bariatric surgery for additional weight loss may be considered in individuals with NASH or liver fibrosis if liver enzymes don't improve after 6 months.
- Treatment of other risk factors of cardiovascular disease (diabetes, high blood pressure, cholesterol) is very important and should be addressed with your primary care physician.
- Abstain from alcohol – can cause disease progression
- Immunizations – vaccinate for Hepatitis A and B



## What are risk factors for developing NAFLD?

**Metabolic syndrome** - A collection of risk factors that increase the chance of developing fatty liver disease as well as heart disease, stroke, and diabetes. Age ≥ 50 years old is an additional risk factor to metabolic syndrome<sup>1</sup>.

- Central obesity - Waist ≥ 40 in (men) or ≥ 35 in (women)
- Insulin resistance (Type 2 diabetes)
- High blood pressure
- High cholesterol and triglyceride levels



## What are symptoms of NAFLD?

Most patients are asymptomatic in early stages.

NAFLD progressed to advanced disease may have symptoms:

- Vague right upper abdominal discomfort or swollen abdomen
- Jaundice (yellowing of the skin and whites of the eyes)
- Easy bruising or bleeding

## How is NAFLD diagnosed?

- Blood tests (elevation in liver enzymes)
- Radiographic imaging (ultrasound, CT scan, or MRI)
- Exclusion of significant alcohol consumption, viral hepatitis, and other causes of fatty liver disease or chronic liver disease
- Liver biopsy – needed only if diagnosis remains unclear

## What is the prognosis of NAFLD?

- Prognosis is highly variable among individuals with NAFLD.
- A NAFLD fibrosis score (NFS) is a predictive model of possible morbidity and mortality by measuring age, BMI, blood glucose, and other blood tests assessing liver function<sup>4</sup>.
- **Weight loss is critical** for reversal of NAFLD to normal liver.

## References

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2. Williams CD, Stengel J, Asike MI, et al. Prevalence of nonalcoholic fatty liver disease and nonalcoholic steatohepatitis among a largely middle-aged population utilizing ultrasound and liver biopsy: a prospective study. Gastroenterology 2011; 140:124.
3. Matteoni C, Younossi Z, Gramlich T, et al. Nonalcoholic fatty liver disease: a spectrum of clinical and pathological severity. Gastroenterology 1999; 116:1413.
4. Treeprasertsuk S, Björnsson E, Enders F, et al. NAFLD fibrosis score: A prognostic predictor for mortality and liver complications among NAFLD patients. World Journal of Gastroenterology. 2013 Feb 28; 19(8): 1219-1229.