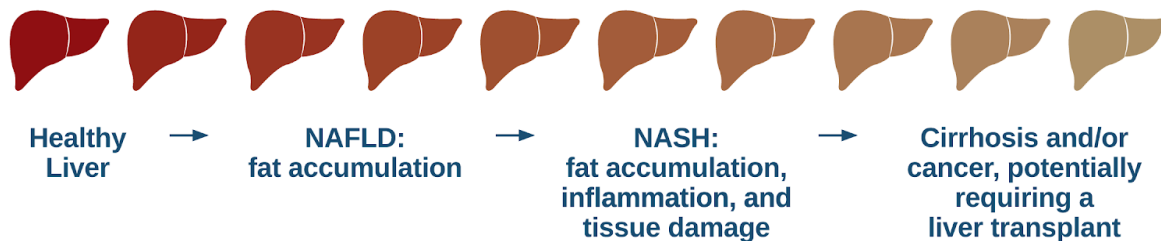


NAFLD/NASH 101: A Resource for Patients and Caregivers

What is NAFLD/NASH?

Nonalcoholic fatty liver disease (NAFLD) is a condition in which too much fat builds up in the liver. If left untreated, NAFLD can lead to serious liver problems.

Nonalcoholic steatohepatitis (NASH) is caused when that extra fat causes inflammation (swelling in the liver) and fibrosis (scarring) of the liver. If severe enough, NASH can lead to cirrhosis or liver cancer, potentially requiring a liver transplant, which presents a difficult situation. Livers for transplants usually come from deceased donors, or people who have recently passed away,¹ and the waiting period for these livers can be long, ranging from less than 30 days to five years in the United States².



How Common Are NAFLD and NASH?

Unfortunately, very common. Researchers estimate that about 25 percent of people worldwide have NAFLD with the highest rates in South America, the Middle East, Asia, the United States, and Europe.³ Moreover, the prevalence of NASH could increase by over 50% by 2030.⁴

NAFLD/NASH can affect people of any age, including children. It is more common in people who live with certain conditions, including obesity (Body mass index [BMI] > 30 kg/m²) and conditions that may be related to obesity, such as type 2 diabetes, high blood pressure, or high cholesterol.

What Happens If I Am Diagnosed with NASH?

Currently, only India has a medication approved specifically for NASH. Several medications, however, are being tested in clinical trials for approval around the world. In early stages, it is possible to stop NASH

¹ National Institute of Diabetes and Digestive and Kidney Diseases. (2017, March). *Definition & Facts of Liver Transplant*. <https://www.niddk.nih.gov/health-information/liver-disease/liver-transplant/definition-facts>

² National Institute of Diabetes and Digestive and Kidney Diseases. (2017, March). *The Liver Transplant Process*. <https://www.niddk.nih.gov/health-information/liver-disease/liver-transplant/preparing-transplant>

³ Younossi, Z., Anstee, Q., Marietti, M. *et al.* Global burden of NAFLD and NASH: trends, predictions, risk factors and prevention. *Nat Rev Gastroenterol Hepatol* 15, 11–20 (2018). <https://doi.org/10.1038/nrgastro.2017.109>

⁴ Estes, C., Razavi, H., Loomba, R., Younossi, Z., & Sanyal, A. J. (2018). Modeling the epidemic of nonalcoholic fatty liver disease demonstrates an exponential increase in burden of disease. *Hepatology (Baltimore, Md.)*, 67(1), 123–133. <https://doi.org/10.1002/hep.29466>

from progressing to severe liver damage through lifestyle change by focusing on physical activity and nutrition.

People with NASH are at a higher risk of developing other conditions such as metabolic disorders and cardiovascular disease. Cardiac-related deaths are one of the leading causes of mortality for people living with NAFLD or NASH.

If NASH is left untreated and the liver becomes damaged to the point of failure, a liver transplant may be required. NASH can progress into cirrhosis, liver cancer, or result in death and is expected to become the leading cause of liver transplant in the United States.⁵

What Are the Next Steps with My Health Care Provider?

Your health care provider will schedule you for regular evaluations to determine severity and provide consultation on treatment. This may include:

- Blood tests and/or imaging of your liver (e.g., ultrasound, magnetic resonance imaging [MRI]).
- Working with a nutritionist or recommended trainer for lifestyle changes.

What Are the Options for the Treatment of NASH?

For individuals with NASH, health care providers can provide a variety of options to treat the problems caused by inflammation and cirrhosis.

Lifestyle

The more serious NASH becomes, the more difficult it is to manage. The amount of fat in the liver can be reduced through nutrition (similar to a Mediterranean diet), physical activity, maintaining a healthy weight, and adequate sleep. This can help prevent and treat NAFLD and NASH.

Nutrition

- Read the nutrition labels to look for hidden fat, sugar, and sodium.⁶
- Have a goal of 5 portions of fruit and vegetables a day.
- Eat foods high in fiber including whole grains.
- Use extra virgin olive oil as your main added fat.
- Consume fish 2-3 times per week.
- Switch sugary drinks and sodas for water or low-calorie beverages.
- Avoid oversized portions. Different products have different serving sizes.
- Avoid processed food and fast food.
- Avoid saturated fatty acid.

Physical Activity

⁵ Wong, R. J., Aguilar, M., Cheung, R., Perumpail, R. B., Harrison, S. A., Younossi, Z. M., & Ahmed, A. (2015). Nonalcoholic steatohepatitis is the second leading etiology of liver disease among adults awaiting liver transplantation in the United States. *Gastroenterology*, 148(3), 547–555. <https://doi.org/10.1053/j.gastro.2014.11.039>

⁶ National Institute of Diabetes and Digestive and Kidney Diseases. (2016, December). *Just Enough for You: About Food Portions*. <https://www.niddk.nih.gov/health-information/weight-management/just-enough-food-portions>

- Aim for 60 minutes of physical activity a day.⁷ It does not have to be all at the same time. Walk more, exercise, and take the stairs whenever possible.

Medication

As shared above, currently, only India has a medication approved specifically for NASH. Several medications, however, are being tested in clinical trials for approval. If you have NASH, work with your health care provider on possible medications for diabetes, high blood pressure, or other conditions that may complicate NASH.

Transplant

If cirrhosis leads to liver failure, you may need a liver transplant.

Are Clinical Trials for Me?

If you are at risk or diagnosed with NAFLD or NASH, you may consider being a part of a clinical trial. Clinical trials are research studies that look at different, new ways to prevent, detect, treat disease, or improve quality of life.⁸ This research helps scientists:

- Identify care that is best
- Find the best dosage for medicines
- Find treatments for conditions
- Treat conditions that behave differently in different people
- Understand how treatment affects the individual or other conditions

Additional Sources:

Sayiner, M., Koenig, A., Henry, L., & Younossi, Z. M. (2016). Epidemiology of Nonalcoholic Fatty Liver Disease and Nonalcoholic Steatohepatitis in the United States and the Rest of the World. *Clinics in liver disease*, 20(2), 205–214. <https://doi.org/10.1016/j.cld.2015.10.001>

Lindenmeyer, C. C., & McCullough, A. J. (2018). The Natural History of Nonalcoholic Fatty Liver Disease-An Evolving View. *Clinics in liver disease*, 22(1), 11–21. <https://doi.org/10.1016/j.cld.2017.08.003>

This resource is produced by Global Liver Institute in collaboration with Clinical Care Options, LLC. It is supported by educational grants from Gilead Sciences and Novo Nordisk Inc as part of the program, *NASH Core Curriculum: A Comprehensive Online Resource Center*. Learn more at www.clinicaloptions.com/hepatitis/programs/nash-core-curriculum.

⁷ U.S. Department of Health and Human Services. (2018). *Physical Activity Guidelines for Americans, 2nd edition*. https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf

⁸ National Institute of Diabetes and Digestive and Kidney Diseases. (2018, September). *Clinical Trials for NAFLD & NASH*. <https://www.niddk.nih.gov/health-information/liver-disease/naflid-nash/clinical-trials>

The mission of Clinical Care Options (CCO) is to improve clinical care and patient health outcomes through the delivery of clinically relevant, evidence-based educational activities that advance interprofessional practice. Learn more at www.ClinicalOptions.com.

The mission of Global Liver Institute (GLI), a 501(c)(3) tax-exempt not-for-profit organization, is to improve the lives of individuals and families impacted by liver disease through promoting innovation, encouraging collaboration, and supporting the scaling of optimal approaches to help eradicate liver diseases. Learn more at www.GlobalLiver.org.

This content is intended to provide helpful health information to the general public. This content is not intended as medical advice for individual problems. Global Liver Institute, including its board of directors and staff personnel, specifically disclaim all responsibility for any liability, loss, or risk, personal or otherwise, which is incurred as a consequence, directly or indirectly, of the use and application of any of the content."