



INTERNATIONAL
NASH DAY | 

PEDIATRIC NAFLD/NASH

What is NAFLD/NASH?

Nonalcoholic fatty liver disease (NAFLD)

NAFLD, nonalcoholic fatty liver disease, is a condition where there is too much fat builds up in the liver. If left untreated, it can lead to serious liver problems.

Nonalcoholic steatohepatitis (NASH)

NASH is caused when that extra fat turns into inflammation (swelling in the liver) and fibrosis (scarring) of the liver. If severe enough, that can lead to cirrhosis or liver cancer.



Pediatric NAFLD is the most common cause of liver disease in children in the United States

Researchers estimate that upwards of 10% of American children between 2 and 18 have fatty liver

Who is at risk for pediatric NAFLD/NASH?

Children with obesity are at the greatest risk for developing pediatric NAFLD and NASH. Other factors such as type-2 diabetes, insulin resistance, metabolic syndrome, or high cholesterol can increase a child's risk.



Pediatric NAFLD and NASH are more common in older children than in younger children and more common in boys than girls. For children with pediatric NAFLD, girls and boys are equally likely to get NASH.

While pediatric NAFLD/NASH occurs in all children, it is more common in Hispanic, Asian, and White children than African-American children. Further research supports that Hispanic children of Mexican origin have one of the highest incidences of NAFLD.



Children with obesity are at the greatest risk for developing pediatric NAFLD and NASH

Globally, 41 million children under the age of 5 have been found to be overweight or obese

More than 340 million children and adolescents ages 5–18 are overweight or obese

If these trends continue, more children and adolescents will be obese than underweight by 2022, according to the Imperial College London and the World Health Organization.



What are the signs and symptoms to look for in children?

Many children do not display symptoms in the early stages. Once prominent damage to the liver has occurred, signs of pediatric NAFLD/NASH may become more obvious.

Children can report:

- Fatigue
- Changes to skin color
- Abdominal pain

Cirrhosis is advanced liver disease and may be caused by NASH. If it develops in children, these symptoms may be observed:

- Jaundice (yellowing of the skin and whites of eyes)
- Itchy skin
- Swelling of the tummy
- Dark urine



How is pediatric NAFLD/NASH diagnosed?

Fatty liver and pediatric NASH can have very few observable symptoms in the early stages. There are, however, several tests to diagnose pediatric NAFLD/NASH in children. These tests include:

- 1 General clinical history/exam
- 2 Blood tests
- 3 Imaging tests (e.g., ultrasound, MRI)
- 4 Liver biopsy

What happens if my child is diagnosed?

Currently, there are no approved medications for pediatric NAFLD/NASH. However, in early stages, it is possible to stop it from progressing to liver damage or pediatric NASH through lifestyle change with a focus on physical activity and nutrition.

If left untreated and the liver becomes so damaged to the point of failure, a liver transplant may be required for the child.



How can pediatric NAFLD/NASH be treated?

The amount of fat in the liver can be reduced through diet, physical activity, maintaining a healthy weight, and adequate sleep. This can help treat and prevent pediatric NAFLD and NASH in children.

Post this on
your fridge as
a reminder



Nutrition



Switch sugary drinks and sodas for water or low-calories beverages



Don't use sugary sweets/foods as a reward



Read the nutrition labels to look for hidden fat, sugar, and sodium



Avoid oversized portions for children. Consider using child sized plates



Have a goal of 5 portions of fruit and vegetables a day



Stay away from fast food and fried food



Try not to eat processed foods



Activity



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



Sleep matters. Have a regular bedtime for your child to ensure enough sleep. Ask your child's doctor for the amount of sleep they require each night.



Reduce screen time by limiting media use and device type. Avoid screen time while eating and making sure screen time does not interfere with sleep and physical activity

What about clinical trials and my child?

Clinical trials are research studies, involving all ages, that look at novel ways to prevent, detect, treat disease, or improve quality of life. Research involving children helps scientists:

- identify care that is best for a child
- find the best dosage for medicines
- find treatments for conditions that affect children
- treat conditions that behave differently in children
- understand how treatment affects a growing child's body



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Sources

Schwimmer JB, Deutsch R, Kahen T, Lavine JE, Stanley C, and Behling C. Prevalence of fatty liver in children and adolescents. *Pediatrics*. 2006; 118(4):1388–1393.

Chalasani N, Younossi Z, Lavine JE, et al. The diagnosis and management of non-alcoholic fatty liver disease: practice guidance from the American Association for the Study of Liver Diseases [published online July 2017]. *Hepatology*. Doi:10.1002/hep.29367.

Tenfold increase in childhood and adolescent obesity in four decades: new study by Imperial College London and WHO 11 October 2017 News Release LONDON-<http://www.who.int/news-room/detail/11-10-2017-tenfold-increase-in-childhood-and-adolescent-obesity-in-four-decades-new-study-by-imperial-college-london-and-who>.

NASPGHAN Clinical Practice Guideline for the Diagnosis and Treatment of Nonalcoholic Fatty Liver Disease in Children: Recommendations from the Expert Committee on NAFLD and the North American Society of Pediatric Gastroenterology, Hepatology and Nutrition; Miriam B. Vos, et al.

Betancourt-Garcia M.M., Arguelles A., Montes J., Hernandez A., Singh M., Forse R.A. Pediatric Nonalcoholic Fatty Liver Disease: The Rise of a Lethal Disease among Mexican American Hispanic Children. *Obes. Surg.* 2017;1–9. doi: 10.1007/s11695-016-2440-5.

Symptoms & Causes of NAFLD & NASH in Children; National Institute of Diabetes and Digestive and Kidney Diseases - <https://www.niddk.nih.gov/health-information/liver-disease/naflid-nash-children/symptoms-causes>

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

The 2018 Physical Activity Guidelines for Americans, Physical Activity Guidelines Advisory Committee, U.S. Department of Health and Human Services - https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf

Clinical Trials for NAFLD & NASH in Children, NIDDK, NIH <https://www.niddk.nih.gov/health-information/liver-disease/naflid-nash-children/clinical-trials>