

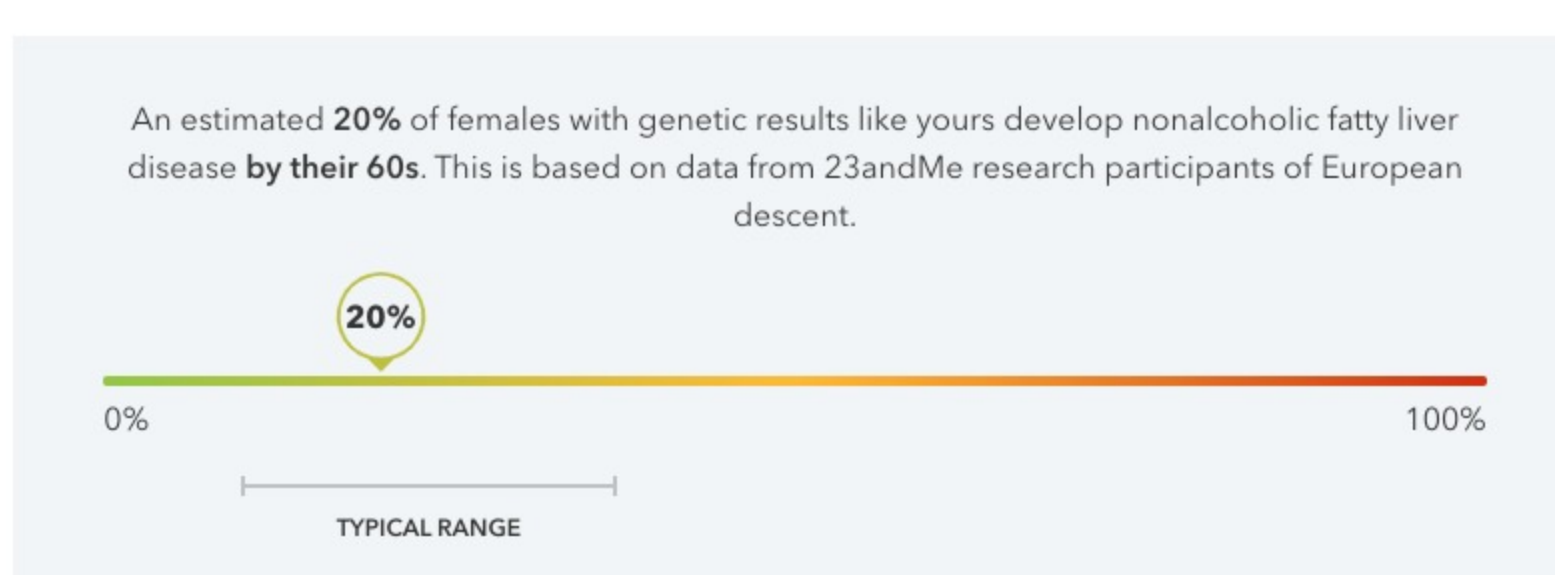
## Nonalcoholic Fatty Liver Disease

POWERED BY 23ANDME RESEARCH

Nonalcoholic fatty liver disease (NAFLD) is a condition that is characterized by the buildup of fat in the liver. Typically, NAFLD does not cause any noticeable symptoms but if not managed properly may lead to complications such as liver failure.



Jamie, your genetic result is associated with a **typical likelihood** of developing nonalcoholic fatty liver disease.



This estimate is based on currently available data and may be updated over time.

### Ways to take action

Your overall likelihood of developing nonalcoholic fatty liver disease also depends on other factors, including lifestyle. Experts agree that healthy lifestyle habits can help lower the chances of developing this condition.

- Maintain a healthy weight
- Eat a healthy diet
- Exercise regularly

As the name suggests, nonalcoholic fatty liver disease is not caused by excessive alcohol consumption. However, alcohol consumption can also cause fat buildup and damage in the liver, which is one reason it's important for everyone to avoid excessive alcohol consumption. For people with NAFLD, experts especially recommend limiting alcohol consumption and encourage other healthy lifestyle choices to help manage the condition.

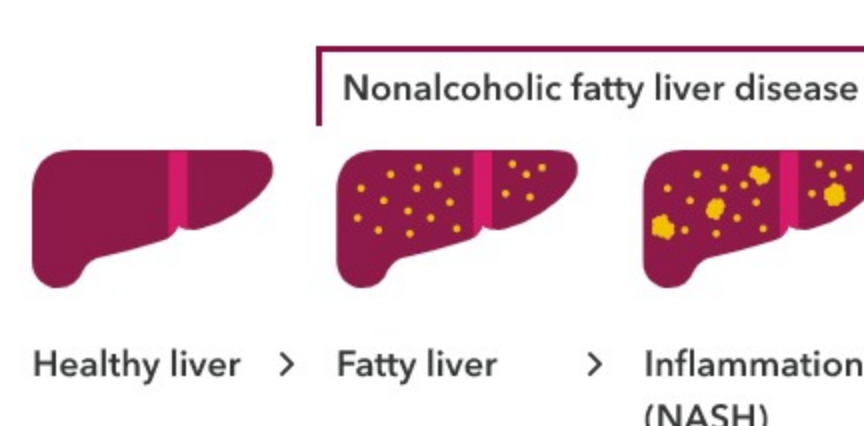


[Learn more from the National Institutes of Health](#)

### About nonalcoholic fatty liver disease

#### What is nonalcoholic fatty liver disease?

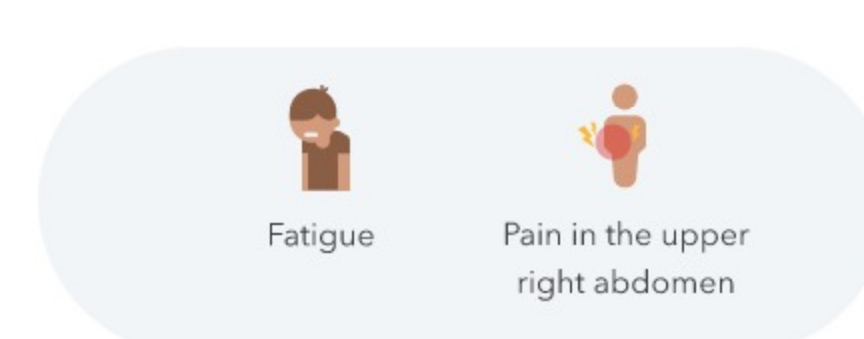
Nonalcoholic fatty liver disease (NAFLD) is a condition that is characterized by the buildup of fat in the liver. For many people with NAFLD, this accumulation of fat does not cause serious liver damage. However, some people may have a more severe form of NAFLD called nonalcoholic steatohepatitis (NASH) where the buildup of fat results in inflammation and liver damage.



#### How can NAFLD impact your health?

Most people with NAFLD do not have any noticeable symptoms, though some people experience fatigue or pain in the upper right abdomen. However, even in people without symptoms, fat buildup in the liver can cause inflammation that can lead to areas of scarring (fibrosis).

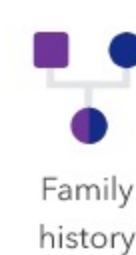
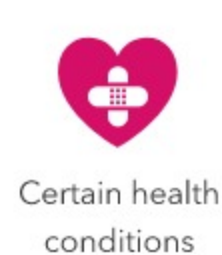
If NAFLD is not managed properly, continued inflammation can result in more and more scarring, which can lead to cirrhosis (late-stage scarring of the liver). This scarring can prevent the liver from working properly, which can lead to liver failure and increase the risk of liver cancer.



#### Other factors that can impact your chances of developing NAFLD

NAFLD is one of the most common causes of liver disease. It is estimated that 20-40% of adults in the U.S. have NAFLD. Besides genetics, some factors that can increase a person's chances of developing NAFLD include:

- Being overweight or obese (especially when fat is concentrated in the abdomen)
- Being of Hispanic or Latin American descent
- Certain health conditions (including type 2 diabetes and high cholesterol)
- Family history (especially if a [first-degree relative](#) has NASH)
- Age (this condition becomes more common as people get older but can also occur at an early age)



### Keep in mind

This report **does not diagnose** nonalcoholic fatty liver disease. **Consult with a healthcare professional** if you are concerned about your likelihood of developing nonalcoholic fatty liver disease, have a personal or family history of nonalcoholic fatty liver disease, or before making any major lifestyle changes.

If you have already been diagnosed with nonalcoholic fatty liver disease by a healthcare professional, it is important to **continue any treatment plans** that they prescribe, including medications and lifestyle modifications.

The likelihood of developing nonalcoholic fatty liver disease also depends on **other factors**, including lifestyle, family history, age, and other health conditions.

This report **does not account for every possible genetic variant** that could affect your likelihood of developing nonalcoholic fatty liver disease.

This report is based on a genetic model **created using data from 23andMe research participants**. It has not been clinically validated and should not be used to make medical decisions.

#### [How we got your result](#)

##### Methods

This report is based on a statistical model that takes into account your genetic results at more than 1,400 genetic markers, along with the ethnicity and sex you reported in your account settings, to estimate the likelihood of developing nonalcoholic fatty liver disease. We used data from 23andMe research participants as well as data reported in the scientific literature to calculate this estimate. Results and estimates may be updated over time as the model or scientific understanding about this condition improves. Note that this report does not include genetic variants that individually have a large impact on the likelihood of developing nonalcoholic fatty liver disease.

##### About the result

People whose result is associated with odds of developing nonalcoholic fatty liver disease that are at least 1.5 times higher than average are considered to have an increased likelihood. Between 7% and 22% of individuals receive an "increased likelihood" result, depending on ethnicity. These results are based on many genetic markers, and random test error at one or more of these markers can lead to a small margin of error in your estimated likelihood of developing nonalcoholic fatty liver disease. For people whose estimates are near the boundary between typical and increased likelihood, this margin of error may introduce some uncertainty about whether their estimated likelihood is considered "typical" or "increased". Your genetic result is associated with a typical likelihood. Based on the available genetic markers used to calculate your result, there is a less than 1% chance your genetic likelihood estimate could fall on the other side of the boundary and be in the range that is considered increased.

##### Scientific validity across ethnicities

We verified that the model meets our scientific standards for individuals of European, Hispanic/Latino, East/Southeast Asian, South Asian, Sub-Saharan African/African American, and Northern African/Central & Western Asian descent.

##### How we may use ethnicity and sex to customize this result

- If you indicated in your account settings that you are of European, Hispanic/Latino, East/Southeast Asian, South Asian, Sub-Saharan African/African American, or Northern African/Central & Western Asian (Middle Eastern) descent, your result is tailored based on data from individuals of that ancestry.
- If you indicated in your account settings that you are predominantly of both Hispanic/Latino and another ancestry, your result will be based on data from individuals of Hispanic/Latino descent.
- If you indicated in your account settings that you are predominantly of both Sub-Saharan African/African American and European descent, your result will be based on data from individuals of Sub-Saharan African/African American descent.
- If there is not enough data from individuals of your ethnicity or combination of ethnicities at this time, your result may be based on data from individuals of European descent because the most data is available for this population.
- Your Nonalcoholic Fatty Liver Disease result also takes into account the sex you indicated in your account settings.

See our [white paper](#) to learn more about the science behind this report.

##### Read More:

Caussy C et al. (2017). "Nonalcoholic fatty liver disease with cirrhosis increases familial risk for advanced fibrosis." *J Clin Invest.* 127(7):2697-2704. \*

Chalasanani N et al. (2018). "The diagnosis and management of nonalcoholic fatty liver disease: Practice guidance from the American Association for the Study of Liver Diseases." *Hepatology.* 67(1):328-357. \*

George ES et al. (2018). "Practical Dietary Recommendations for the Prevention and Management of Nonalcoholic Fatty Liver Disease in Adults." *Adv Nutr.* 9(1):30-40. \*

Golabi P et al. (2019). "Prevalence and outcomes of non-alcoholic fatty liver disease (NAFLD) among Asian American adults in the United States." *Liver Int.* 39(4):748-757. \*

Lazo M et al. (2013). "Prevalence of nonalcoholic fatty liver disease in the United States: the Third National Health and Nutrition Examination Survey, 1988-1994." *Am J Epidemiol.* 178(1):38-45. \*

Leoni S et al. (2018). "Current guidelines for the management of non-alcoholic fatty liver disease: A systematic review with comparative analysis." *World J Gastroenterol.* 24(30):3361-3373. \*

Mayo Clinic. "Nonalcoholic fatty liver disease." Retrieved November 4, 2020, from <https://www.mayoclinic.org/diseases-conditions/nonalcoholic-fatty-liver-disease/symptoms-causes/syc-20354567>. \*

National Institute of Diabetes and Digestive and Kidney Diseases. (2016). "Nonalcoholic Fatty Liver Disease & NASH." Retrieved November 4, 2020, from <https://www.niddk.nih.gov/health-information/liver-disease/naflid-nash>. \*

Trovato FM et al. (2019). "Nonalcoholic fatty liver disease (NAFLD) prevention: role of Mediterranean diet and physical activity." *Hepatobiliary Surg Nutr.* 8(2):167-169. \*