

Fatty Liver Disease



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Canadian Liver Foundation
Fondation canadienne du foie

*Bringing liver research to life
Donner vie à la recherche sur le foie*

What is a fatty liver?

Fat in the liver typically develops when a person consumes more fat and sugars than his or her body can handle. This is more common in people who are overweight or obese, but can also occur in adults with healthy body weights. If the fat builds up to more than 5% of the liver, then the liver is considered to be a fatty liver. Although having this condition may not cause any immediate harm, there is a concern that the extra fat in the liver might make the liver vulnerable to further injury such as inflammation and scarring.



How does fat get into the liver?

Fat and sugars from a person's diet are usually broken down by the liver and other tissues. If the amount of fat or simple sugar intake exceeds what is required by the body, fat is stored in the fatty tissue.

Other reasons for accumulation of fat in the liver could be the transfer of fat from other parts of the body or the inability of the liver to change it into a form that can be eliminated.



What is NAFLD?

Non-alcoholic fatty liver disease (NAFLD) is a liver disease affecting people who drink little to no alcohol. As the name implies, the main characteristic of NAFLD is too much fat stored in liver cells. NAFLD is the most common liver disease in Canada affecting about 20% of Canadians.

It tends to develop in people who are overweight or obese, particularly if they have a lot of fat around the middle of their body (waist). It can also develop in a person whose body weight is in the healthy weight range, but who typically eats a lot of sugary and fatty foods and who has extra fat around the waist.

What is NASH?

NASH stands for non-alcoholic steatohepatitis and is the more serious form of NAFLD. In this condition, the liver becomes inflamed and has scarring (fibrosis). NASH can lead to severe scarring in the liver and up to 11% may experience liver related deaths. Some people who have NASH may need a liver transplant due to chronic liver failure.

What are other causes of fatty liver disease?

Besides obesity, nutritional causes of fatty liver disease are:

- Starvation and protein malnutrition.
- Long term use of total parenteral nutrition (a feeding procedure that involves infusing nutrients directly into the blood stream).
- Intestinal bypass surgery for obesity.
- Rapid weight loss.

Certain conditions often accompany and may contribute to fatty liver disease:

- Diabetes mellitus.
- Hyperlipidemia (elevated fat levels in the blood).
- Insulin resistance and high blood pressure.

Other causes include:

- Genetic factors.
- Drugs and chemicals.

How do we define “Overweight” and “Obese”?

Although many people feel they could lose some weight, few would consider themselves obese. A widely-used measure to define “overweight” and “obese” is the Body Mass Index (BMI). A BMI is a calculation based on your height and weight that gives a number that reflects either a healthy or unhealthy weight.

What is my BMI?

You can use the following formula to calculate your BMI:

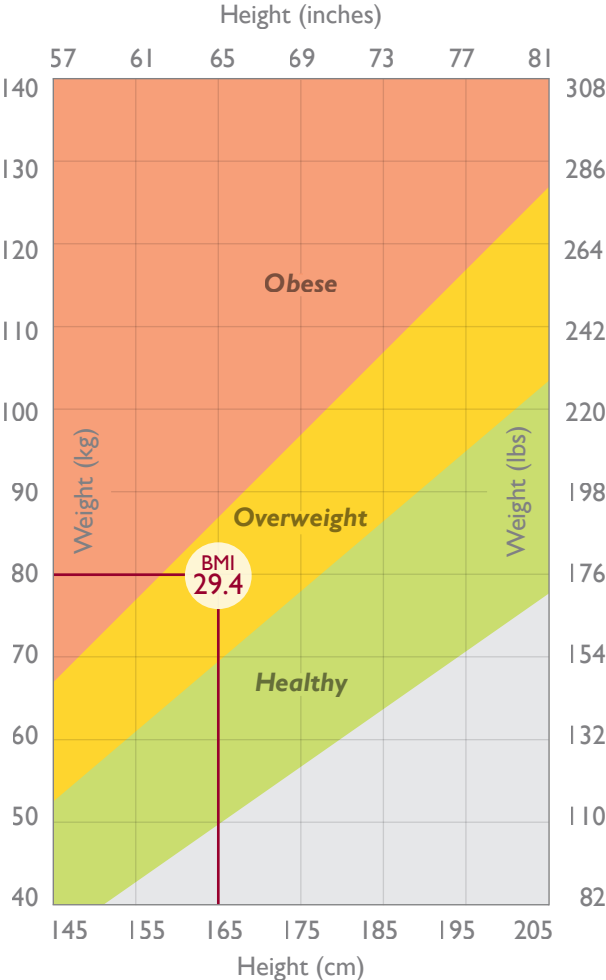
$$\text{BMI} = \frac{\text{weight}}{\text{height} \times \text{height}}$$

**Ensure that weight is in kilograms and height is in meters for this formula.*

Example: for someone who is 1.65 meters tall who weighs 80 kilograms:

$$\text{BMI} = \frac{80}{1.65 \times 1.65} = 29.4$$

A BMI of 19–25 is within the healthy range for most people, 25–30 is classified as overweight, and over 30 is obese. Different ethnic groups may differ slightly – for example, in Asian populations the healthy BMI is lower, ranging from 18–22.



Does the size of your waist matter?

Excess abdominal fat is associated with fatty liver disease and other health risks such as diabetes. Waist measurements – which differ according to gender – are used to identify the health risks associated with excess abdominal fat: For men, health risks increase if your waist circumference is more than 102 cm (40 in.). For women, the risks increase if your waist circumference is more than 88 cm (35 in.). It is important to measure your waist circumference in a consistent way. The best way to do this is to measure the circumference of your waist about 2 cm higher than your belly button.

Can children develop fatty liver disease?

Fatty liver disease is now becoming evident in children, due in large part to an alarming increase in childhood obesity. It is estimated that one in 10 Canadian children is overweight – a number that has almost tripled in the last decade. Fatty liver disease affects almost 3% of children and 25–55% of obese children. Fatty liver disease can be found in children as young as two years of age.





What are the symptoms of fatty liver disease?

In general, people with fatty liver disease have no symptoms. However, some people report discomfort in the abdomen at the level of the liver, fatigue, a general feeling of being unwell and vague discomfort.

How is fatty liver disease diagnosed?

Fatty liver disease is usually suspected in people who are overweight and obese (particularly those with large waist circumferences), who have evidence of dyslipidemia (high cholesterol and lipids in the blood), insulin resistance and/or abnormal liver tests.

An ultrasound or Fibroscan® of the liver can show the presence of a fatty liver. In some cases, your doctor may advise a liver biopsy, a procedure where the physician inserts a needle into the liver and extracts a sample tissue, which is then examined under a microscope.

How is fatty liver disease treated?

Once there is a buildup of simple fat, the liver becomes vulnerable to further injury, which may result in liver inflammation and scarring (NASH). The treatment of fatty liver disease is related to the cause. At this time, it is not possible to predict which patients will develop NASH.

Individuals who are obese are advised to achieve a gradual and sustained weight loss through proper nutrition and exercise. Those with diabetes and high lipids in their blood have to improve their sugar control and lower lipids levels. Usually, a lower fat, lower calorie diet with avoidance of sugary foods is recommended along with insulin or medications to lower blood sugar in people with diabetes. If you have diabetes, please see your healthcare provider who can advise you how to manage your diabetes.

For individuals with NASH who are not overweight and not diabetic, a diet with lower fat foods without a lot of added sugars is often recommended. It is also recommended that people avoid drinking alcohol and sugary sweetened foods since they can cause and contribute to fatty liver disease. Increasing physical activity is also recommended.

People with fatty liver disease should see their primary healthcare providers on a regular basis and seek out the advice of a dietitian regarding their diet.

Currently, there is no medication proven to effectively treat fatty liver disease. Since it is now such a common condition, it has raised a lot of interest in the scientific community. There are now a number of clinical trials looking at various treatments of fatty liver disease.

Several studies have shown that drinking coffee (2–3 cups per day) may slow the progression of liver damage and reduce the risk of liver cancer in people who have fatty liver disease.



Can fatty liver disease be prevented?

By adopting a healthy lifestyle, you may prevent obesity – the number one reason for fatty liver disease. Please remember that a healthy diet and exercise are important components of any weight-loss regimen. The following are some suggestions for preventing fatty liver disease:

- If you are overweight, strive for a gradual and sustained weight loss.
- Eat a well-balanced diet that is low in saturated fats and simple sugars and high in fibre.
- Introduce exercise into your routine, at least four times a week. You can enjoy walking, swimming, gardening, stretching.
- Avoid alcohol.





CANADIAN LIVER FOUNDATION

1 in 4 Canadians may be affected by liver disease, including everyone from newborn babies to older adults.

Founded in 1969 the Canadian Liver Foundation (CLF) is the only national charity in Canada focused on liver health, and the main source of non-profit funding for liver health research.

Today, we are *bringing liver research to life* by raising funds to promote liver health, improve public awareness, fund research and provide support to individuals affected by liver disease.

To support liver research visit **liver.ca/donate**

National Office

3100 Steeles Avenue East, Suite 801,
Markham, Ontario L3R 8T3

Tel: (416) 491-3353

Toll-free: 1 (800) 563-5483

Fax: (905) 752-1540

Email: clf@liver.ca

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