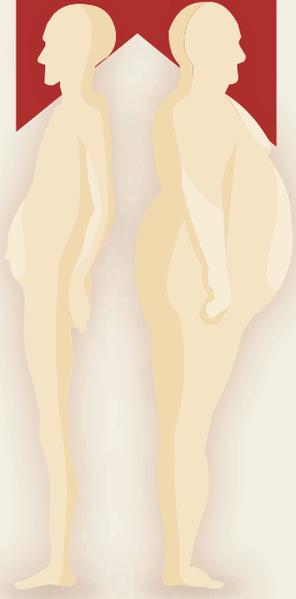


1 Chapter

Malnutrition*

What is it and why is it so important?



Malnutrition means the body is not receiving enough nutrients to perform necessary bodily functions. Over time, the malnourished body begins losing important functions and symptoms appear:

- **Muscle weakness and fatigue, general tiredness**
- **Longer time needed to heal small wounds or bruises**
- **Skin, hair, and nails become brittle, dry, and may break easily**
- **More frequent infections**
- **Slowed or foggy thinking**

Malnutrition can occur rapidly (within a week) or gradually over many weeks. Each person is different!



Patients with cirrhosis can be:

- Well nourished
- Moderately malnourished
- Severely malnourished



Signs of malnutrition are:

- Unexpected weight loss
- Loss of muscle mass in the face, upper arms, chest, and thighs
- Muscle weakness (e.g., unable to climb stairs)
- Loss of appetite and eating less food

Healthcare practitioners will ask about changes in body weight and eating habits.

Losing weight when not trying to is a good indicator of malnutrition. Feeling full and skipping meals or avoiding certain foods are also indicators that a person may be malnourished.

A healthcare practitioner may examine muscles in the upper arm or thigh at each appointment. Measuring muscle mass or strength is another way of monitoring malnutrition.

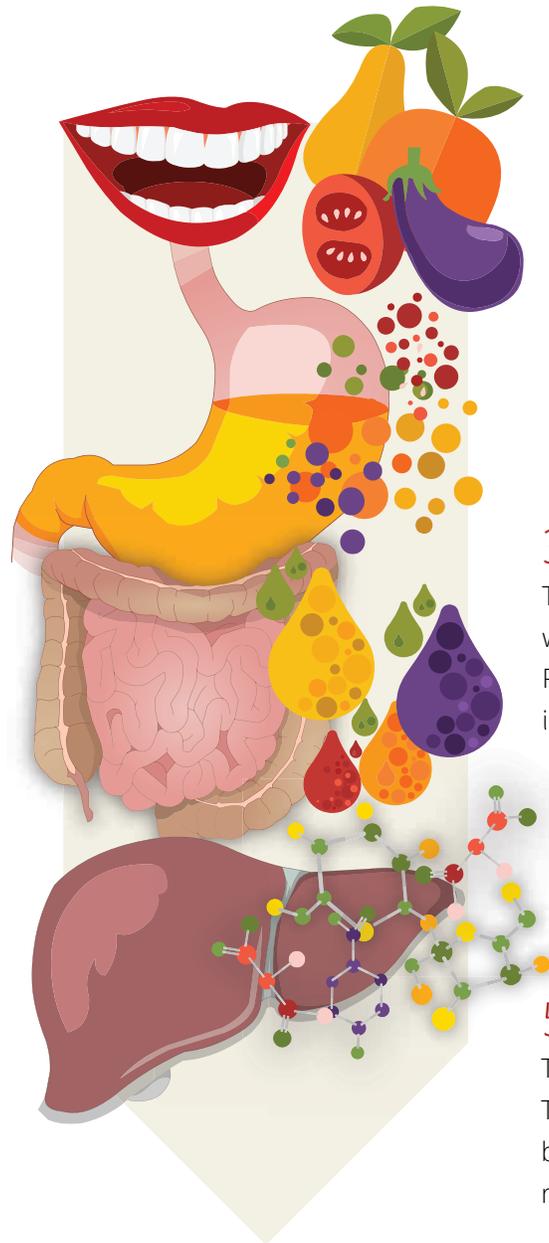
Why does malnutrition matter?

Patients with malnutrition have worse health outcomes, such as:

- More severe liver disease
- Higher risk of infections
- Higher chance to be hospitalized
- Higher risk of death

* **Malnutrition** in the Guide refers to “under nutrition” or lack of adequate nutrition.

What is the role of the liver in digestion?



1.

Food is broken into small pieces by biting and chewing. Swallowing helps the food travel to the stomach.

2.

In the stomach, acids and enzymes continue to break the food into smaller and smaller pieces.

3.

The food travels to the small intestine where the digestion process continues. Proteins, fats, and sugars are absorbed into the bloodstream.

4.

The liver filters the proteins, fats, and sugars from the blood and converts them into simple building blocks.

5.

The liver stores extra sugars as **glycogen**. The liver releases the glycogen into the blood stream between meals providing a regular supply of energy to the body.



In many cultures, the liver is believed to be the most important organ, not the heart!



The liver is the second largest organ in the body. The largest organ is the skin.



The liver performs over 500 functions in the body!

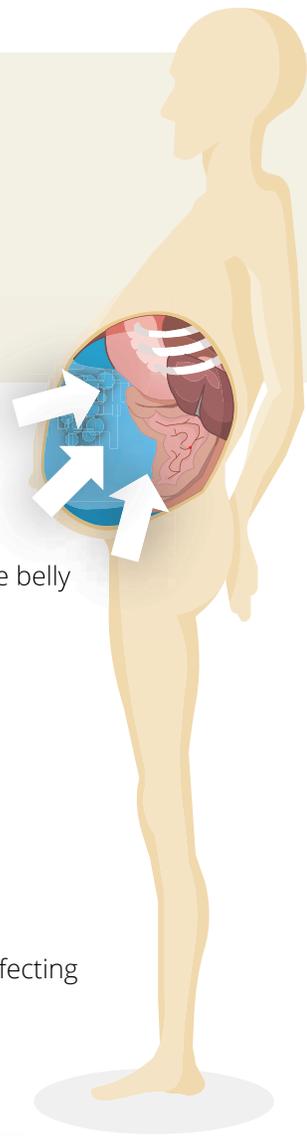




Ascites

Pronounced “**uh-SIGH-teez**”

Describes the situation when fluid accumulates in the belly. The belly can swell, be uncomfortable, and make it hard to breath.



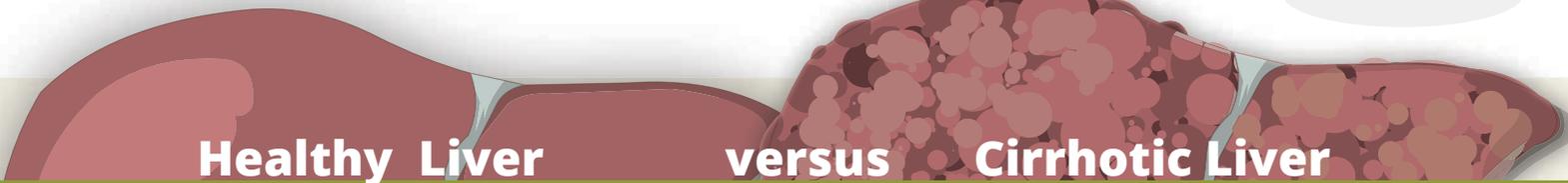
How can cirrhosis symptoms lead to malnutrition?

1. Cirrhosis can reduce the amount of food eaten.

- Feeling full after eating a small amount (“early satiety”), can be caused by fluid retention in the belly (“ascites”)
- Forgetting to eat meals or snacks due to mental confusion
- Side effects of some medications can cause nausea or vomiting
- Certain medications or nutrient deficiencies can change the smell or taste of food making it unpleasant to prepare or eat

2. Cirrhosis can cause functional changes in the damaged liver.

- In cirrhosis, the liver is no longer able to perform all of its many functions. Certain changes affecting digestion are presented below.



Healthy Liver

Most proteins, fats, and sugars are filtered from the blood stream

Most nutrients are converted into the necessary chemicals

Most excess sugars are formed into glycogen

Glycogen is released in response to the body's needs between meals

versus Cirrhotic Liver

Some proteins, fats, and sugars are filtered from the blood stream

Some nutrients are converted into necessary chemicals

Some excess sugars are formed into glycogen

Some glycogen is released between meals

The cirrhotic liver cannot store as much glycogen as a healthy liver. Without frequent replenishment from meals or snacks, the glycogen reserve is consumed quickly.

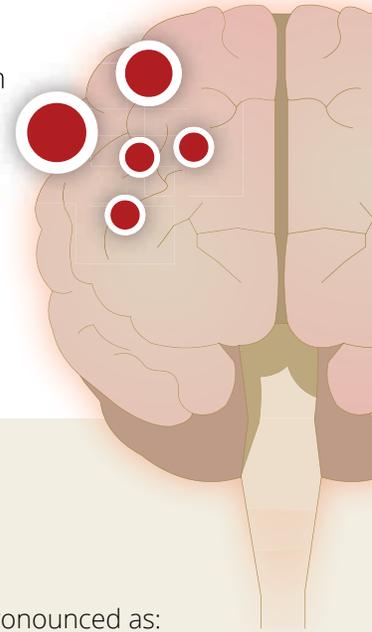
In desperation, the liver breaks down muscle tissues to fuel the cellular processes keeping the body alive.

After missing several meals or snacks, the body loses muscle mass, muscle strength, and body weight. All of these are characteristics of malnutrition.



3. Cirrhosis causes temporary episodes of confusion, known as hepatic encephalopathy.

- Ammonia is naturally produced by the body and is removed from the bloodstream by a healthy liver
- In cirrhosis, hepatic encephalopathy occurs when the liver cannot filter ammonia from the blood stream
- Symptoms of hepatic encephalopathy include changes in memory, sleep, and concentration. Some patients may have problems with writing, driving, maintaining their balance, or doing other daily activities.
- During hepatic encephalopathy, patients may forget to eat meals and snacks



Deficiencies in vitamin B12, folate, iron, and zinc can cause taste changes. A daily multivitamin may correct or prevent some deficiencies. Contact a healthcare practitioner, pharmacist, or dietitian for assistance.



Hepatic Encephalopathy

Hepatic encephalopathy is pronounced as: **“heh-PAT-ik en-SEF-uh-LAWP-uh-thee”**

hyper-metabolic



Pronounced:
“hy’per met’a’ball’ik”

4. Cirrhosis can cause higher than normal energy needs or “hypermetabolism”.

- 20% of patients with cirrhosis have **high** energy needs and must eat **more** food than others
- When diagnosed with hypermetabolism by a physician, one needs to eat **more** to prevent malnutrition

Nutrition is important in cirrhosis because it:

- helps the damaged liver perform its many functions
- lowers the risk of infections
- lowers the risk of bleeding complications
- lowers the risk of fluid retention (ascites)
- provides energy for daily activities and socializing!
- lengthens your life!



Tip: If your healthcare practitioner says that you are **hypermetabolic**, you now require more “fuel” (food) to power your “furnace” (body) than before. If you continue eating the same as before, you may have unwanted weight loss.



Caution:

Not every patient with cirrhosis is diagnosed as hypermetabolic. In fact, some patients may be asked to lose weight by their healthcare practitioner (see Chapter 6 for managing weight loss and fatty liver disease).

