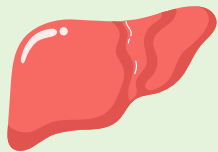


What you should know about choline if you're on parenteral nutrition (PN)

Why is choline important for health?

Choline is an essential nutrient, like vitamins. Your body needs choline to work as it should. Choline plays an important role in:



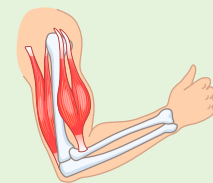
Liver health

Choline helps your liver break down and remove fat, like cholesterol. Your liver is a large organ inside your abdomen that helps to digest food, stores energy, and removes waste from your body.



Brain health

Choline helps your brain with memory, focus, and mood. Your body uses choline to make acetylcholine, which is a neurotransmitter (chemical messenger). It carries messages from your brain to your body through nerve cells.



Muscle and bone health

Choline helps your muscles move and supports how your body uses fat and protein for energy. It also helps keep important minerals in your bones.

Choline supports your overall energy, focus, and well-being. Most of the choline in your body comes from the food you eat.

Do I get enough choline from PN?

If you're fed through PN, it's likely that you do not get enough choline. The reason is because PN solutions contain very little choline.

Within 2 weeks of starting PN, your choline levels can go down by almost half.

Past studies have shown that **about 8 out of 10 people on PN have low levels of choline.**



How can low levels of choline affect my health?

Low levels of choline can affect your liver, brain, nerves, muscles, and bones.



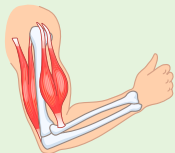
Low levels of choline can cause your **liver** to stop removing certain fats the way it should. These fats can build up and damage your liver over time. If this happens, it can cause symptoms that include:

- Abdominal pain
- Feeling weak or tired



Low levels of choline can make it harder for your **brain and nerves** to clearly send messages to each other. This can cause:

- Memory problems
- Mood changes
- Brain fog and confusion



Low levels of choline can lead to:

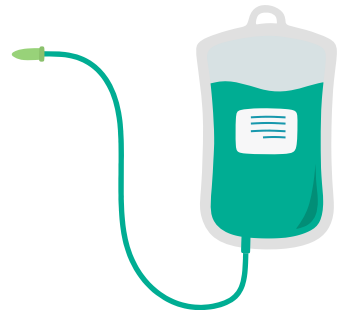
- Trouble controlling your **muscles**
- Muscles that slowly get weaker over time
- Weak **bones** (low bone density)

Making sure you have enough choline can help keep your liver, brain, nerves, muscles, and bones healthy.

How can I get more choline if I'm on PN?

Choline supplements taken by mouth are one way to get more choline. However, if you are on PN because of intestinal failure, your intestines may not absorb enough nutrients from supplements that you take by mouth. There is no available form of intravenous (IV) choline for people on PN.

Researchers are doing a clinical study to learn about adding choline to regular PN infusions. Study participants will add IV Choline Chloride (a study drug that is liquid choline) to PN.



How can I learn more and join the study?

If you (or your loved one) are age 12 years or older, you may be able to take part in this study.

For more information or to see if you can join, visit the website below or scan the QR code:

thrive3study.com

