

# Beyond the Prenatal: A Pharmacist's Guide for Taking Choline During Pregnancy



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## Key takeaways:

- Choline is an essential nutrient found in plant and animal food sources. It's especially important during pregnancy.
- Higher choline levels during pregnancy may be protective against certain birth defects — like spina bifida. And they may also result in improved memory scores in children.
- Most sources recommend 450 mg to 900 mg of choline daily while pregnant.

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It's likely that taking a [prenatal vitamin](#) is one of the first steps you'll take after finding out you're [pregnant](#). Even with a balanced diet and exercise, [supplementing vitamins and nutrients](#) can improve the health of you and your baby.

But you may be wondering about what's in your prenatal vitamin. Or if there are other vitamins and supplements you should take when pregnant. Choline is one of the important nutrients recommended during pregnancy as it may be protective against certain birth defects.

## What is choline?

[Choline](#) is an essential nutrient found in both plant and animal-based foods. Some choline is also made by your liver, but not enough to meet your daily needs. It can also be taken as a supplement.

Choline has a number of different jobs in the body. One of these jobs is to transport fat out of the liver. Because of this, low levels of choline can lead to [fatty liver](#) disease.

Choline is also important for [memory, mood, and the nervous system](#). It also plays a role in muscle function.

## Why is choline important during pregnancy?

If you're not pregnant, low levels of choline are very rare. But during pregnancy, your body's [need for choline](#) increases. Many mothers — [more than 90%](#) — don't get enough choline in their diet. You need enough choline to support both you and your baby during pregnancy.

### Benefit to mom

During pregnancy, a large amount of choline is [shifted to the placenta](#) and growing infant. This can lower the amount of choline in the mother's system. Without enough choline, pregnant mothers may be at risk for [muscle and liver damage](#).

Choline is also important for [keeping the placenta healthy](#). If the placenta isn't healthy, there's a higher risk for high blood pressure ([preeclampsia](#)) during pregnancy. By getting enough choline during pregnancy, you can lower your risk for these complications.

### Benefit to baby

Choline intake during pregnancy has an effect on several different systems as the baby develops. Not only does choline itself have an effect, but it's also used to make [acetylcholine](#) (ACh) in the body. ACh plays an important role in brain development.

Taking choline during pregnancy [has been associated](#) with the following in the growing baby:

- Attention
- Vision sharpness
- Memory
- Brain development

- Lowered risk of chronic disease

## Choline and memory

Choline plays an important role in the development of an area of the brain called the hippocampus. This part of the brain has a role in learning, memory, and attention.

Some research has found that there's [a positive link](#) between the mother's blood levels of choline and intelligence test scores of children. The higher the level of choline, the better the child did on testing performed by researchers.

A [second study](#) found similar results. Children who were 7 years old had better scores on visual memory tests if their mother had higher levels of choline during pregnancy.

## Choline and birth defects

Making sure you take in enough choline may prevent some common birth defects, including [neural tube defects](#) (NTD), which involve the brain and spinal cord. Spina bifida is the most common example. Choline is needed in order for the [neural tube to properly close](#) as the baby develops. And [some research has found a link](#) between low blood levels of choline and NTDs.

But other research [suggests there is not a strong link](#) between blood levels of choline and NTDs. So more research is needed in this area.

## Choline and attention

A [groundbreaking study](#) found a possible link between choline levels during pregnancy and the development of [ADHD](#) (attention-deficit hyperactivity disorder) later in the life of the child. Adding choline during pregnancy seems to [lower the risk](#) of attention-related disorders, although more research is needed.

## Choline and autism

You may have heard that choline can be helpful in preventing autism. There are a few studies that show that giving choline (along with [donepezil](#)) to people with autism may [improve their symptoms](#).

[Animal studies](#) suggest that high doses of choline during pregnancy may reduce or even prevent certain symptoms of autism. But animals are not the same as humans, so more human research is needed before a definite link can be made.

## When should you start taking a choline supplement?

You should start taking choline, or adding choline-rich foods to your diet, as soon as you suspect you're pregnant. If you're planning to start a family, it's also fine to start adding choline to your routine as soon as you begin trying to conceive. The need for [choline increases as pregnancy progresses](#). So you may need to take increasing amounts of choline throughout your pregnancy. Your healthcare provider can help you decide how much choline you need to take.

## What is the best source of choline?

Choline is available in many common foods. It's also available as an OTC supplement. One isn't better than another, as long as you're sure to get the recommended amount every day.

### Food sources

[Foods that are high in choline](#) include meats, eggs, and milk. If you're a vegetarian or vegan, you may be at a [higher risk](#) of low levels of choline. In this case, choose plant-based foods that are high in choline, like soy or peanuts.

A few examples of the typical amount of [choline in mg](#) per serving size is:

- 3 oz lean ground beef = 112 mg choline
- 1 whole fried egg = 146 mg choline

- 1 cup cooked pork shoulder = 108 mg choline
- 1 cup lima beans = 75 mg choline
- 1 cup soybeans = 39 mg choline
- ¼ cup peanuts = 24 mg choline

## Supplements

[Prenatal vitamins](#) do not always contain choline. And if they do, it's usually [not enough](#). It may also be hard for you to plan your diet to be sure you get enough choline every day. So a choline supplement (in addition to your prenatal vitamin) may be your best bet.

Choline supplements may be found in different forms. The [most common](#) are choline bitartrate, phosphatidylcholine, and lecithin. Each form provides a different amount of actual choline, as seen in the table below. We'll talk more about choosing the right supplement later.

Supplement types	Choline provided
1,000 mg choline bitartrate	About <a href="#">400 mg of choline</a>
1,000 mg phosphatidylcholine	About <a href="#">130 mg of choline</a>
1,000 mg lecithin	About <a href="#">30-40mg of choline</a>

## What dose of choline is best during pregnancy?

The [American College of Obstetricians and Gynecologists](#) and the [National Institutes of Health Office of Dietary Supplements](#) recommend at least 450 mg of choline each day for pregnant women. Other research suggests that taking up to [900 mg of choline](#) each day when pregnant may be more beneficial.

This amount can be from food, supplements, or a combination of the two. Your healthcare provider can help you figure out the best way to get the choline you need.

It's not recommended to take more than 3,500 mg of choline per day during pregnancy. [Too much choline](#) can lead to:

- Fishy body odor
- Extra sweating
- Vomiting
- Low blood pressure

If you notice any of these side effects while taking choline, talk to your healthcare provider. You may need a change to your choline dose.

## How to choose an OTC supplement

It's important to read the [supplement label](#) to determine how much choline is inside. Especially since choline can be found in different forms. Be sure to look for "mg of choline" to determine how much you'll need to meet your daily goal. And don't be afraid to ask your pharmacist or healthcare provider for help — these labels can be tricky!

Look for supplements that are [verified by the U.S Pharmacopeia \(USP\)](#). This will appear as a designation on the label. It indicates that the supplement meets quality and safety standards. You can also search for a USP-verified product directly from their [website](#).

## Can I take choline with other medications?

Choline doesn't seem to have [any interactions](#) with other medications. But it's still important to add it to your [medication list](#) if you decide to start taking it. You should also talk to your healthcare provider before starting any new medications or OTC supplements while pregnant.

## The bottom line

Choline is an essential nutrient found in plant and animal food sources. Pregnant women need more choline to help their baby grow and develop. Higher choline levels may be protective against certain birth defects and increase memory test scores in children.

Many pregnant women will need a choline supplement. Choose a supplement with at least 450 mg of choline per day. Talk to your healthcare provider before starting any new medication while pregnant.

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