What's the Scoop on Protein Supplements during Pregnancy and Breastfeeding?

Do you enjoy protein shakes, adding protein powder to your smoothies, or using pre-workout mixes with protein? My friend, Emily, is currently in her first trimester and loves getting extra protein. Before she got pregnant, she started power lifting, which also came with extra protein supplementation. Once she got pregnant, Emily asked me, like so many others in her position, if she could continue her protein supplementation during pregnancy and when breastfeeding.

With any pregnancy, there is a 3% chance of developing a birth defect. So I looked into protein supplementation to see if it changes the risk for birth defects, side effects during breastfeeding, or any other issues. That way, Emily could make a well-informed decision for her health and the health of her family.

Many of these protein products contain types of protein that are also found in everyday foods and even in breast milk. Everyone needs a certain amount of protein every day as a part of a balanced diet. However, there are certain reasons why someone might have a specific daily protein intake goal. Like Emily, many people are interested in having more protein to build muscle. There are other health conditions, like phenylketonuria (PKU), that affect how much protein you should get in your diet. Ultimately, it is very important for you to review your personal daily protein intake goals with your healthcare team to make sure your health is supported.

Not every protein supplement has been well studied, so information on using them during pregnancy or breastfeeding is limited. In addition, many protein powders and drinks also include other ingredients, such as added vitamins or herbal products. For more information on herbal products, check out our fact sheet on here: https://mothertobaby.org/fact-sheets/herbal-products-pregnancy/.

Supplements are regulated differently than prescription drugs. Even though the United States Food and Drug Administration (FDA) regulates supplements, the FDA doesn't check every product for safety or effectiveness before it goes on the shelf. This means some protein powders might contain some unknown or unlisted ingredients.

So before adding that extra scoop of protein powder, take some time to figure out if protein supplementation is right for you.

How Much Protein Do You Need?

How much protein you need depends on different factors, such as age, activity level, and health. Some proteins have a daily recommended dietary allowance (RDA). The RDA depends on a person's weight. You, most likely, get some amount of protein from your diet naturally. It's important to take your diet into consideration when trying to figure out how much protein you should be having. Because there are so many things to consider, it's recommended to talk with your healthcare team to make sure you are meeting your nutritional needs. Getting the right amount of protein for you is not expected to increase the risk for issues during pregnancy or side effects during breastfeeding.

What are the typical amino acids in protein supplements?

Most protein powders contain many amino acids. Amino acids are the building blocks of protein. The list below may not include everything that might be found in your protein powder. Since not every amino acid has an RDA, here is a list of the known amino acids with an RDA. It's always a good idea to double check with your healthcare team on what your specific protein intake goals are.

- **Cysteine & Methionine***
  - RDA during pregnancy: 25 mg/kg
  - RDA during breastfeeding: 26 mg/kg
- **Isoleucine**
  - RDA during pregnancy: 25 mg/kg
  - RDA during breastfeeding: 30 mg/kg
- **Leucine**
  - RDA during pregnancy: 56 mg/kg
  - RDA during breastfeeding: 62 mg/kg
- **Lysine**
  - RDA for adults: 12 mg/kg
- **Threonine**
  - RDA during pregnancy: 26 mg/kg
  - RDA during breastfeeding: 30 mg/kg
- **Tryptophan**
  - RDA for adults: 3.5 mg/kg
- **Valine**
  - RDA for pregnancy: 31 mg/kg

- RDA for breastfeeding: 35 mg/kg

*Note: The RDA for methionine and cysteine is combined.

What About Other Ingredients?

Often, protein powders can have other ingredients in addition to the protein. Again, check the label on your specific products, as they can vary.

- **Caffeine**: For more information on caffeine, check out our fact sheet: https://mothertobaby.org/fact-sheets/caffeine-pregnancy/
- **Collagen:** There aren't any studies that look at the use of collagen as a supplement during human pregnancy or breastfeeding.
- **Creatine**: Creatine is naturally found in the body and in breastmilk. There aren't any studies that look at the use of creatine as a supplement during human pregnancy or breastfeeding.

So What Now?

Emily realized that since there is not a lot of information on protein supplementation during pregnancy and breastfeeding. The best next step for her was to chat with her healthcare team about what would best support her health and pregnancy. Some providers on her healthcare team include her primary care provider, her nurse-midwife, her nutritionist, and her endocrine specialist. Emily decided that she's even going to talk to a lactation consultant now so she can have time to prepare for breastfeeding. She knew how to measure how much protein she was getting in her protein powder, but she needed help estimating how much protein she naturally gets in her diet as well.

Have more questions about supplements or other exposures during pregnancy or breastfeeding? Talk to a teratogen-information specialist at MotherToBaby.org.

References

Elango R. & O Ball, R. 2016. Protein and amino acid requirements during pregnancy. Advances in Nutrition, 7(4): 839-844. https://doi.org/10.3945/an.115.011817.

Food and Nutrition Board. 2005. Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids. Washington, DC: The National Academies Press.

National Research Council. 1989. ***Recommended dietary allowances: 10th Edition.*** Washington, DC: The National Academies Press. https://doi.org/10.17226/1349.

U.S. Food & Drug Administration. 2025. Infant formula. https://www.fda.gov/food/resources-you-food/infant-formula

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at MotherToBaby.org.

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, July 14, 2026.

What's the Scoop on Protein Supplements during Pregnancy and Breastfeeding?

Ever wonder if you're getting the right amount of vitamins and minerals during pregnancy or breastfeeding? Like Goldilocks, you don't want too little or too much — you want ***just right***. Even though it took Goldilocks multiple tries to find the right size chair and the right bowl of porridge, it doesn't have to take you that long to find the right amount of vitamins and minerals for you!

Everyone has a 3% chance of developing a birth defect during pregnancy. Getting the right amount of vitamins and minerals FOR YOU is not expected to increase the risk for issues during pregnancy and it is not expected to increase

the risk for side effects during breastfeeding.

Most people in the United States get some vitamins and minerals in their diet. However, your healthcare provider might have specific goals for you to get certain amounts of a vitamin or mineral, particularly during pregnancy or breastfeeding. One way to get that extra support during pregnancy is to take a prenatal vitamin that has at least 600 mcg of folic acid (for more information on folic acid, check out our fact sheet: https://mothertobaby.org/fact-sheets/folic-acid/.

If you also take other supplements, or drink juices and shakes that list vitamins on the nutrition label, you could be getting more than you need. Reading nutrition labels help you track how many vitamins and minerals you are getting into your body.

DRIs: What Are They?

DRI stands for Dietary Reference Intake. DRIs are a list of nutritional values that are used to guide people to make sure they are getting a well-balanced diet that supports their health. There are a couple different DRIs, but the ones that are used in this blog are called RDA and UL.

- **RDA (Recommended Dietary Allowance):** The average daily amount of a vitamin or mineral that most people need.
- **UL (Tolerable Upper Limit):** The maximum safe amount you can take in a day without raising the risk of side effects.

Not every vitamin and mineral has an RDA or UL. For the vitamins and minerals that do have DRIs, it's typically recommended to aim for the RDA every day, unless your healthcare provider tells you differently. For the ones that do have DRIs, they can change based on age or when pregnant or breastfeeding. You will also get many nutrients from your regular diet, so supplements are intended to help fill in gaps — not overload your system.

Why Supplement Safety Matters

Supplements are regulated differently than prescription drugs. Even though the United States Food and Drug Administration (FDA) regulates supplements, the FDA doesn't check every product for safety or effectiveness before it goes on the shelf. This means labels may not always tell the whole story, and some products could include unknown or unlisted ingredients.

Talk to your healthcare provider before taking a supplement to make sure you are getting the right amount of vitamins and minerals to support your health. You can contact MotherToBaby to get more information on a supplement you are considering.

Have more questions about supplements or exposures during pregnancy or breastfeeding? You can reach a teratogen-information specialist at MotherToBaby.org.

DRIs for Vitamins and Minerals During Pregnancy and Breastfeeding:

Name	RDA-pregnancy	UL-pregnancy	RDA-lactation	UL-lactation
Biotin	14+ years old: 30 mcg	Unknown	14+ years old: 35 mcg	Unknown
Boron	Unknown	14-18 years old: 17 mg 19+ years old: 20 mg	Unknown	14-18 years old: 17 mg 19+ years old: 20 mg
Calcium	14-18 years old: 1,300 mg 19+ years old: 1,000 mg	14-18 years old: 3,000 mg 19+ years old: 2,500 mg	14-18 years old: 1,300 mg 19+ years old: 1,000 mg	14-18 years old: 3,000 mg 19+ years old: 2,500 mg
Choline	14+ years old: 450 mg	14-18 years old: 3,000 mg 19+ years old: 3,500 mg	14+ years old: 550 mg	14-18 years old: 3,000 mg 19+ years old: 3,500 mg

Chromium	14-18 years old: 29 mcg 19+ years old: 30 mcg	Unknown	14-18 years old: 44 mcg 19+ years old: 45 mcg	Unknown
Copper	14+ years old: 1,000 mcg	14-18 years old: 8,000 mcg 19+ years old: 10,000 mcg	14+ years old: 1,300 mcg	14-18 years old: 8,000 mcg 19+ years old: 10,000 mcg
Folic Acid	14+ years old: 600 mcg DFE	14-18 years old: 800 mcg 19+ years old: 1,000 mcg	14+ years old: 500 mcg DFE	14-18 years old: 800 mcg 19+ years old: 1,000 mcg
Iodine	14+ years old: 220 mcg	14-18 years old: 900 mcg 19+ years old: 1,100 mcg	14+ years old: 290 mcg	14-18 years old: 900 mcg 19+ years old: 1,100 mcg

Iron	14+ years old: 27 mg	14+ years old: 45 mg	14-18 years old: 10 mg 19+ years old: 9 mg	14+ years old: 45 mg
Magnesium	14-18 years old: 400 mg 19-30 years old: 350 mg 30+ years old: 360 mg	9+ years old: 350 mg*	14-18 years old: 360 mg 19-30 years old: 310 mg 30+ years old: 320 mg	9+ years old: 350 mg*
Manganese	14+ years old: 2.0 mg	14-18 years old: 9 mg 19+ years old: 11 mg	14+ years old: 2.6 mg	14-18 years old: 9 mg 19+ years old: 11 mg
Molybdenum	14+ years old: 50 mcg	14-18 years old: 1,700 mcg 19+ years old: 2,000 mcg	14+ years old: 50 mcg	14-18 years old: 1,700 mcg 19+ years old: 2,000 mcg
Niacin	14+ years old: 18 mg NE	14-18 years old: 30 mg 19+ years old: 35 mg	14+ years old: 17 mg NE	14-18 years old: 30 mg 19+ years old: 35 mg

Omega-3 fatty acids	14+ years old: 1,400 mg	Unknown	14+ years old: 1,300 mg	Unknown
Pantothenic acid	14+ years old: 6 mg	Unknown	14+ years old: 7 mg	Unknown
Phosphorus	14-18 years old: 1,250 mg 19+ years old: 700 mg	14+ years old: 3,500 mg	14-18 years old: 1,250 mg 19+ years old: 700 mg	14+ years old: 4,000 mg
Potassium	14-18 years old: 2,600 mg 19+ years old: 2,900 mg	Unknown	14-18 years old: 2,500 mg 19+ years old: 2,800 mg	Unknown
Riboflavin	14+ years old: 1.4 mg	Unknown	14+ years old: 1.6 mg	Unknown
Selenium	14+ years old: 60 mcg	14+ years old: 400 mcg	14+ years old: 70 mcg	14+ years old: 400 mcg
Thiamin	14+ years old: 1.4 mg	Unknown	14+ years old: 1.4 mg	Unknown

Vitamin A	14-18 years old: 750 mcg RAE 19+ years old: 770 mcg RAE	14-18 years old: 2,800 mcg 19+ years old: 3,000 mcg	14-18 years old: 1,200 mcg RAE 19+ years old: 1,300 mcg RAE	14-18 years old: 2,800 mcg 19+ years old: 3,000 mcg
Vitamin B6	14+ years old: 1.9 mg	14-18 years old: 80 mg 19+ years old: 100 mg	14+ years old: 2.0 mg	14-18 years old: 80 mg 19+ years old: 100 mg
Vitamin B12	14+ years old: 2.6 mcg	Unknown	14+ years old: 2.8 mcg	Unknown
Vitamin C	14-18 years old: 80 mg 19+ years old: 85 mg	14-18 years old: 1,800 mg 19+ years old: 2,000 mg	14-18 years old: 115 mg 19+ years old: 120 mg	14-18 years old: 1,800 mg 19+ years old: 2,000 mg
Vitamin D	14+ years old: 15 mcg (600 IU)	14+ years old: 100 mcg (4,000 IU)	14+ years old: 15 mcg (600 IU)	14+ years old: 100 mcg (4,000 IU)

Vitamin E	14+ years old: 15 mg	14-18 years old: 800 mg 19+ years old: 1,000 mg	14+ years old: 19 mg	14-18 years old: 800 mg 19+ years old: 1,000 mg
Vitamin K	14-18 years old: 75 mcg 19+ years old: 90 mcg	Unknown	14-18 years old: 75 mcg 19+ years old: 90 mcg	Unknown
Zinc	14-18 years old: 12 mg 19+ years old: 11 mg	14-18 years old: 34 mg 19+ years old: 40 mg	14-18 years old: 13 mg 19+ years old: 12 mg	14-18 years old: 34 mg 19+ years old: 40 mg

(This chart has last been updated on 9/29/2025)

Note: The UL for magnesium only applies to supplements. You can safely get more from food since the RDA includes dietary magnesium.

Where Can I Find More Information?

MotherToBaby has fact sheets on a couple of the common vitamins and minerals that might be found in a multivitamin or a prenatal vitamin. For more detailed information on a specific vitamin or mineral, check out our fact sheets below:

- **Folic acid** – https://mothertobaby.org/fact-sheets/folic-acid/

- **Iodine** – https://mothertobaby.org/fact-sheets/iodine-pregnancy/
- **Iron** – https://mothertobaby.org/fact-sheets/iron/
- **Vitamin A** – https://mothertobaby.org/fact-sheets/vitamin-a/
- **Vitamin B12** – https://mothertobaby.org/fact-sheets/vitamin-b12/
- **Vitamin C** – https://mothertobaby.org/fact-sheets/vitamin-c/
- **Vitamin D** – https://mothertobaby.org/fact-sheets/vitamin-d/
- **Vitamin E** – https://mothertobaby.org/fact-sheets/vitamin-e/
- **Vitamin K** – https://mothertobaby.org/fact-sheets/vitamin-k/
- **Zinc** – https://mothertobaby.org/fact-sheets/zinc/

References

National Academies of Sciences, Engineering, and Medicine. 1998. Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline. Washington, DC: The National Academies Press. https://doi.org/10.17226/6015.

National Institutes of Health Office of Dietary Supplements. 2025. Dietary Supplement Fact Sheets. U.S. Department of Human and Health Services. https://ods.od.nih.gov/factsheets/list-all/

Office of Disease Prevention and Health Promotion. 2023. Dietary Reference Intakes. U.S. Department of Human and Health Services.
https://odphp.health.gov/our-work/nutrition-physical-activity/dietary-guidelines/dietary-reference-intakes

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, July 14, 2026.

What's the Scoop on Protein Supplements during Pregnancy and Breastfeeding?

"I just found out I'm pregnant. Can I keep drinking my energy shake in the mornings?"
"My doctor gave me the go-ahead to work out. Okay to have a protein shake after the gym?"
"My immunity-boosting drink is a life-saver. Can I keep using it while I'm pregnant?"

These are common questions during pregnancy, and ones that we hear a lot at MotherToBaby. Perhaps you've wondered the same thing yourself. As teratogen information specialists, we provide facts about how a woman's exposure in pregnancy might affect her developing baby. So, when we get questions about shakes, powders and other nutritional supplements in pregnancy, we look to the research. And that research, or lack of it, leads us to caution women against drinking that favorite nutritional shake while they're pregnant. Here's why:

Lack of FDA approval
Nutritional shakes and powders fall under the category of "supplements." Supplements aren't approved by the U.S. Food and Drug Administration (FDA) in the way that food and medicines are. The FDA does set out safety requirements for supplements, but the manufacturers are responsible for ensuring that their own products meet those requirements (kind of like a home builder inspecting their own house.) This means that shake makers and other manufacturers can put their products on the market without proving their safety, or even showing that the products actually do what they claim they will. Once a supplement is on the market, the FDA relies mostly on consumers' reports to alert them of side effects or other problems that could lead to warnings or recalls.

This is not to say that all supplement makers are unscrupulous or careless. Many manufacturers go above and beyond the FDA requirements for safety, and stand behind the purity and efficacy of their products. But the lack of oversight has allowed supplements to wind up on shelves despite being contaminated with bacteria, pesticides or heavy metals (such as lead), or having mislabeled ingredients or amounts of those ingredients. These inconsistencies can be dangerous, especially for people who take medications that might interact with unknown ingredients, or for pregnant women who need to avoid potentially harmful additives that can affect the baby.

Lack of studies in pregnancy
Nutritional shakes often contain vitamins, herbs, plant derivatives and other goodies intended to boost energy, strengthen immunity or have other positive health effects. But these additives are often listed on the label as "herbal blends" or "proprietary blends," meaning that the individual ingredients are not revealed. And even if they are listed individually, some of those ingredients may have been studied in pregnancy, while others have not. The lack of studies means we don't know if they might have harmful effects on a developing baby or otherwise increase risks in pregnancy.

For example, some ingredients may be "generally recognized as safe (GRAS)" when eaten in the amounts usually found in food, but they could increase the risk of miscarriage when used at high concentrations in pregnancy. The concentration of a plant-derived ingredient can vary from batch to batch, depending on the growing and harvesting conditions of the plant. So in the end, you can't be sure what you and your developing baby are getting with that shake.

Nutritional needs in pregnancy
A varied, healthy diet along with a daily prenatal vitamin recommended by your healthcare provider should give you all the vitamins, minerals and other nutrients that you and your growing baby need during pregnancy. Adding the extra vitamins found in that shake to your diet might result in exceeding the daily recommended amounts for pregnancy. On the flip side, if you are using a nutritional shake as a meal substitute, you might be missing essential nutrients that you and your baby should be getting from food. Always talk to your healthcare provider about the best way to meet your specific nutritional needs during pregnancy.

So, what to do about that container of protein powder sitting in your pantry or those bottles of energy shake taking up space in the fridge? Our advice? Find a new home for them until after you've delivered and are no longer breastfeeding. After all, you want to give your pregnancy a "fair shake," right?

References:
• Natural Products Database, adapted from The Review of Natural Products. Facts & Comparisons (database online]. St. Louis, MO: Wolters Kluwer Health Inc.; 2012.
• U.S. Food and Drug Administration. ***FDA 101: Dietary Supplements.*** https://www.fda.gov/Food/DietarySupplements/UsingDietarySupplements
• U.S. Food and Administration. ***Daily Values for Infants, Children Less Than 4 Years of Age, and Pregnant and Lactating Women***. https://www.fda.gov/food/dietary-supplements-guidance-documents-regulatory-information/dietary-supplement-labeling-guide-appendix-c-daily-values-infants-children-less-4-years-age-and

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, July 14, 2026.

What's the Scoop on Protein Supplements during Pregnancy and Breastfeeding?

If you are researching prenatal vitamins, we are guessing that you might be considering a pregnancy, or you just found out that you are pregnant. How exciting! We're also guessing that you have some questions. Pregnancy does that to a woman: it makes us start questioning the safety of everything that we used to take for granted. At MotherToBaby, we

answer many types of questions about exposures during pregnancy and breastfeeding. But hands down, **the most common question I'm asked about involves *prenatal vitamins*.**

Many women ask me what brand of prenatal vitamins they should take or if the brand they are currently using is the right choice. With so many different prenatal vitamins available over-the-counter and by prescription, this is a very good question. We applaud you for doing your research. You are going to be a great Mom.

Prenatal Vitamin Tips

Before delving too much further, some basic tips. The **1st tip:** We recommend that you discuss your prenatal vitamin options with your healthcare provider, since she or he will know you and your health care needs the best. As mentioned, this will review prenatal vitamins for healthy women. Some women may have medical concerns that require a different nutrient intake.

The **2nd tip** that I always mention is that it may be easier ***and cheaper*** (depending on your healthcare insurance plan) to simply ask for a prescription for prenatal vitamins from your healthcare provider.

3rd tip: Do not buy a prenatal vitamin that contains herbal ingredients. Herbal products have not been well studied for use during pregnancy and breastfeeding. They are not regulated by the U.S. Food and Drug Administration (FDA) and there are no standard recommended amounts to take. In addition, purity of herbals found in over-the-counter products can be of concern. For more information on why herbals should be avoided, please see our MotherToBaby fact sheet on Herbal Products.

Prenatal vitamins are made up of vitamins and minerals. A healthy diet is the best way to get the vitamins and minerals that your body needs. But even if we eat a healthy diet, we might fall short on some nutrients during pregnancy. Prenatal vitamins help fill in the gaps and increased needs for vitamins and minerals during a pregnancy.

There are **Dietary Reference Intakes (DRI)** to help people know how much of each vitamin or mineral they should aim to get each day.

Some vitamins and minerals also have a recommended **Tolerable Upper Intake Level** (**UL**). The UL is designed to help us know the maximum recommended daily intake for a typical healthy person.

DRIs and ULs are there to help guide us in getting enough of a good thing but also to keep us from getting too much of a good thing.

As mentioned, vitamins should not be the only source of our nutrients. Therefore, your vitamin does not need to contain 100% of the DRI. Remember to take into account all sources of the vitamin or mineral when adding up your daily intake. This means including food sources as well as any other supplements you might take. DRI values can change by age, gender, and pregnancy and breastfeeding status. If you have a medical condition, talk to your healthcare providers/dieticians for your specific dietary needs.

Research on taking vitamins and mineral supplements at levels that are higher than the DRI and UL during pregnancy are limited. Because of the lack of information about taking high levels of vitamins and minerals in a pregnancy, it is generally recommended that pregnant women do not exceed the DRI unless your healthcare provider has prescribed it

for the medical management of a specific deficiency or medical condition.

Now, we come to the main question: **What are the basic vitamins / minerals generally suggested for prenatal vitamins for healthy women, and how much of each vitamin and mineral do women need for pregnancy?**

Vitamins and Minerals

For pregnant women 19 years old and older, the first 5 vitamins/minerals listed below are the basic supplements from which healthy pregnant women might benefit. The DRI and UL for pregnancy are listed. Not all items have an UL.

- **Iron**: DRI: 27 mg. UL: 45 mg.
- **Calcium:** DRI: 1,000mg. UL: 2,500mg.Supplements should have at least 250 mg, but all women should be getting at least 1,000 mg per day of elemental calcium.
- **Folic Acid (Folate)**: DRI: 600 mcg (0.6 mg) to 800 mcg (0.8 mg).At least 400 mcg (0.4 mg) should be in your prenatal vitamin.
- All women who could become pregnant should be getting enough folic acid / folate, even if they are not currently planning on a pregnancy.
- **Iodine:** DRI: 220 mcg to 290 mcg. UL: 1,100 mcg.At least 150 mcg should be in your prenatal vitamin.
- **Vitamin D (calciferol):** DRI: at least 15 mcg (600 IU). UL 100 mcg (4,000 IU).

In addition to the above suggested supplements for prenatal vitamins, pregnant women should make sure they are getting enough of the vitamins / minerals listed below. If they cannot manage this with diet, then a supplement might help.

- **Vitamin A**: DRI 770 mcg. UL 3,000 mcg.
  - Vitamin A is found in two primary forms: plant-based carotenes (**beta-carotene**) and animal-based retinoids (**retinol**, retinal, retinoic acid, retinyl palmitate, and retinyl acetate).
  - Look for vitamin A that is from beta-carotene. Beta-carotene is less likely to build up toxic levels in the body than with retinoids. In addition, high levels of retinoids (**retinol**, retinal, retinoic acid, retinyl palmitate, and retinyl acetate) have been linked to an increased chance for birth defects.
- **B Vitamins**
  - There are eight B vitamins:

- Vitamin B_1 / thiamine: DRI: 1.4 mg
- Vitamin B_2 / riboflavin: DRI: 1.4 mg
- Vitamin B_3 / niacin: DRI: 18 mg
- Vitamin B_5 / pantothenic acid: 6 mg
- Vitamin B_6 / pyridoxine: DRI 1.9 mg
- Vitamin B_7 / biotin: DRI: 30 mcg

- Vitamin B9 / folic acid (already mentioned above)
- Vitamin B_{12} / cobalamin: DRI: 2.6 mcg

- These are a group of water-soluble vitamins, which means that your body will not store them. Therefore, it would be unlikely to reach a toxic level in the body. If you and your healthcare provider feel that you are unable to meet your DRI of the B vitamins through diet, then you should look for a prenatal vitamin that includes them. All prenatal vitamins should include at least folic acid (Vitamin B_9), which I mentioned earlier as an essential vitamin for pregnancy.
- **DHA/ Omega-3 Fatty Acids:** There is no clearly defined DRI, but in 2000 it was suggested that pregnant women should aim for 300 mg/day. The best way to get these is to include fish in your diet. MotherToBaby has a blog on eating fish in pregnancy. The FDA also has a guide on which fish are the best options to eat in pregnancy by breaking the fish into categories of Best Choices, Good Choices, and Choices to Avoid. The guide can be found here. However, if you do not get enough in your diet, your healthcare provider might suggest including a supplement for DHA during your pregnancy.
- **Vitamin E**: DRI: 15 mg. UL: 1,000 mg.
- **Vitamin C**: DRI: 85 mg. UL: 2,000 mg
- **Zinc**: DRI. 11 mg. UL: 40 mg.

It is recommended to start taking prenatal vitamins before you try to become pregnant; at a minimum, take folic acid daily. If you are already pregnant, start as soon as you learn about your pregnancy.

Again, if you have a medical condition (including but not limited to diabetes, celiac disease, eating disorders, substance misuse, malabsorption, irritable bowel, inflammable bowel, or history of bariatric surgery), talk with your healthcare providers about your specific nutritional needs.

Now that you are an expert in reading your prenatal vitamin label, you can tackle (with the advice of your health provider) selecting the one that is best for you. MotherToBaby is always available to answer questions about all exposures during pregnancy and breastfeeding. Pregnancy will bring wonder-filled moments for you and your family. MotherToBaby is here to help you and your healthcare providers to make it as stress-free as possible with up-to-date information on medications and more.

Selected References:

- ACOG Nutrition During Pregnancy FAQ001. 2018.
- ACOG Committee on Obstetric Practice. ACOG Committee Opinion No. 495: Vitamin D: Screening and supplementation during pregnancy. Obstet Gynecol 2011; 118:197. Reaffirmed 2019.
- Becker DV, et al. 2006. Iodine supplementation for pregnancy and lactation—United States and Canada: recommendations of the American Thyroid Association. Thyroid; 16:949–951.
- 2018. National Report on Biochemical Indicators of Diet and Nutrition in the U.S. Population. Center for Disease Control and Prevention.
- Council on Environmental Health. 2014. Iodine deficiency, pollutant chemicals, and the thyroid: new information on an old problem. Pediatrics 133: 1163-1166.

- 2005. Dietary Supplement Labeling Guide: Appendix C. Food and Drug Administration.
- Glinoer D. 2007. The importance of iodine nutrition during pregnancy. Publ Health Nutr; 10:1542–1546.
- Institute of Medicine (US) Food and Nutrition Board. 1998. Dietary Reference Intakes: A Risk Assessment Model for Establishing Upper Intake Levels for Nutrients. Washington (DC): National Academies Press (US).
- Natural Medicines Database. Available at naturalmedicines.com
- NIH: Nutrient Recommendations: Dietary Reference Intakes (DRI).
- Obican SG, et al. 2012. Teratology public affairs committee position paper: Iodine deficiency in pregnancy. Birth Defects Res A Clin Mol Teratol; 94(9):677-82.
- Segal K, et al. 2018. Recommending Prenatal Vitamins: A Pharmacist's Guide.
- The National Academies of Sciences, Engineering, and Medicine. Dietary Reference Intakes Tables and Application.
- Trumbo P, et al. 2001. Dietary reference intakes: vitamin A, vitamin K, arsenic, boron, chromium, copper, iodine, iron, manganese, molybdenum, nickel, silicon, vanadium, and zinc. J Am Diet Assoc 101:294-301.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at MotherToBaby.org.

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, July 14, 2026.

What's the Scoop on Protein Supplements during Pregnancy and Breastfeeding?

By Kurt Martinuzzi, MD, Asst. Professor in the Dept of Ob/Gyn at Emory University and Claire D. Coles, PhD, MotherToBaby Georgia Director

Aryan* and Shanaya had been married for two years and very much wanted to start a family. When they were not

successful at getting pregnant, they were tested for fertility (all tests came back as normal) and months of expensive medical treatments were tried without success. Emotionally and financially spent, the couple sought the counsel of friends and family. A childhood friend from India recommended an over-the-counter herbal fertility supplement called **vasantha kusumakaram**. The product is described as being "100% natural" so she was certain that it must be safe. Shanaya took this daily for 5 months and hoped for a baby.

In India, the traditional approach to medical care is referred to as **ayurvedic medicine**. In this 2000-year-old tradition, naturally occurring herbs are mixed with other substances and are prescribed for a range of symptoms. Vasantha kusumakaram is reported to be a treatment for many illnesses and problems including diabetes, lung, heart and kidney diseases as well as heavy periods, impotence and tuberculosis. It is also felt by some to be an aphrodisiac!

During the months that Shanaya took the herbal treatment she did not become pregnant. Eventually, her husband suggested checking in again with her primary health care provider because she had started to suffer from abdominal pain, constipation, fatigue and loss of appetite. At that return visit, her blood pressure was surprisingly elevated and her blood count was low (anemia)….the combination of symptoms was a dead ringer for lead poisoning.

After recognizing the symptoms of lead poisoning, her doctor took a detailed history.

- Renovating a home that was built prior to 1978 can expose occupants to high lead levels from old paint, but Aryan and Shanaya's apartment had been built in 2002.
- Some occupations such as construction, plumbing, and auto refinishing cause exposure to lead, but Aryan was an engineer and Shanaya was an accountant.
- Hobbies such as pottery, target shooting and working with stained glass involve lead, but Aryan and Shanaya mostly spent their free time hiking with their dog and watching movies on Netflix.
- Her doctor knew that 1 out of 5 ayurvedic medicines purchased over the internet contain heavy metals such as lead, mercury, and arsenic suggesting that the vasantha kusumakaram might be responsible.

Lead Shouldn't Be In Your Body At All
Lead levels greater than 5 micrograms/deciliter (ugm/dl) are considered harmful. Shanaya's level was 114 ugm/dl! Unfortunately, the lead in her body had become incorporated into her bones where it would be released over the next decade.

At Shanaya's next visit she reported that she had missed a period and had a positive home pregnancy test result. She and Aryan had thought that they would never be able to have children and now they had gotten pregnant on their own!

Lead + Babies = Not Good. Now what?
Lead is not good for babies. During pregnancy, calcium is released from bones to help form the baby's bones… bringing any lead along with it. Thankfully, prior to Shanaya's surprise pregnancy, she underwent chelation treatment in order to get lead out of her bones more quickly. This is a process in which a medication is given that sticks to the lead and allows the body to excrete it. The chelation worked and her lead levels came down to 70 and then 22 ugm/dl over 6 months of treatment.

After discovering her pregnancy, a repeat lead level showed a slight climb in lead levels to 30 ugm/dl. While Shanaya and Aryan's developing baby was at an increased risk for problems such as miscarriage, brain and kidney development issues, and the potential for learning and behavior issues and decreased IQ, chelation was not an option to reduce lead levels. It is potentially harmful in pregnancy and unless lead levels climb above 45 ugm/dl, it is not recommended.

Essential Supplements Are Musts
As her OBGYN, I saw Shanaya and Aryan at 7 weeks along in their pregnancy. We were all relieved to see a healthy fetus with a normal heart rate! I made recommendations to improve chances for a healthy baby, including taking in 2,000 mg of calcium through diet and supplements to provide the calcium that the baby's bones would need. Green leafy vegetables, almonds and dairy products are excellent sources of calcium. Because of her anemia, we had her start to take iron twice a day. Vitamin D is also involved with bone development so this was the final supplement that we added. At 7 weeks into her pregnancy, her lead level was 17 ugm/dl and by the second part of pregnancy it was stable at 13 ugm/dl.

We performed an ultrasound scan at 20 weeks and their healthy daughter is developing perfectly with no signs of birth

defects. While it appears that all will turn out well for this couple, they are already investigating ways to enrich their daughter's early years to make up for any possible small decrease in IQ as a result of the lead exposure.

Avoiding Lead Exposure
Lead is a metal that doesn't belong in any of us, but especially in pregnant women. Sadly, though, the only two states that require pregnant women to have lead levels checked are New York and Minnesota. Here's what you can do to avoid lead:

- Avoid natural or herbal supplements unless your doctor tells you that they are 100% safe.
- Don't be misled by advertisements that are designed to sell products that haven't been evaluated for safety and quality.
- Doctors should consider screening all women (not just those who are pregnant) exposed to lead through work or hobbies, who are recent immigrants, live in homes built before 1978, or who have cravings to eat non-food items (pica).

For more information, visit MotherToBaby's Lead Fact Sheet, or contact a MotherToBaby expert via phone, text, live chat, or email. In addition, MotherToBaby has a whole section dedicated to lead exposure education including videos and brochures here.

****The names and some of the details of this couple have been changed to protect their identity.***

About the Authors

Kurt Martinuzzi, MD, is an assistant professor and specialist in Obstetrics and Gynecology at Emory University in Atlanta, Georgia. His interests include resident and medical student education, recurrent pregnancy loss, premature ovarian failure and polycystic ovary syndrome. He has been an active member of the Region 4 Pediatric Environmental Health Specialty Unit since 2015. Over his 25 plus year career he has been awarded multiple teaching awards and presented at many national and regional Ob/Gyn meetings.

Claire D. Coles, PhD, is Professor of Psychiatry and Behavioral Sciences and Pediatrics at Emory University, Director of the Maternal Substance Abuse and Child Development Laboratory, and Director of MotherToBaby Georgia. Her expertise is in the developmental and behavioral effects of prenatal exposure to drugs and alcohol and the interaction of these effects with the postnatal environment. She was among the first to describe the behavioral effects of prenatal alcohol exposure and to investigate the effects of cocaine exposure on child development. Dr. Coles established the only multidisciplinary clinic in the Southeastern United States that provides specialized services to individuals prenatally exposed to drugs and alcohol. Her team also designed interventions for those affected, including the Math Interactive Learning Experience and the GoFAR intervention.

About MotherToBaby

MotherToBaby is a service of the Organization of Teratology Information Specialists (OTIS), suggested resources by many agencies including the Centers for Disease Control and Prevention (CDC). If you have questions about exposures, like lead, during pregnancy and breastfeeding, please call MotherToBaby toll-FREE at 866-626-6847 or try out MotherToBaby's new text information service by texting questions to (855) 999-3525. You can also visit MotherToBaby.org to browse a library of fact sheets about dozens of viruses, medications, vaccines, alcohol, diseases, or other exposures during pregnancy and breastfeeding or connect with all of our resources by downloading the new MotherToBaby free app, available on Android and iOS markets.

References

Saper RB, Russell SP, Sehgal AS et al. Lead, Mercury, and Arsenic in US- and Indian-manufactured Medicines Sold via the Internet. JAMA 2008; 300(8):915-923.

Guidelines for the identification and management of lead exposure in pregnant and lactating women. https://www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at MotherToBaby.org.

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, July 14, 2026.