1. **Purpose of taking a prenatal vitamin**
   A healthy balanced diet is the best way to get all the vitamins and minerals you need in pregnancy. However, a prenatal vitamin supplements with the key vitamins and minerals in the event that you don't get what you need daily in your diet alone. The purpose of a PNV is NOT to cover ALL the extra vitamin and mineral needs in pregnancy. That is why any one prenatal vitamin will have a portion of any specific vitamin and mineral that is needed. Very few will have everything you need.

2. **How many PNV do you need a day?**
   Take only one serving of your prenatal supplement each day. Read the bottle to see how many pills make up one daily serving. If your obstetrician–gynecologist (ob-gyn) or other obstetric care provider thinks you need an extra amount of a vitamin or mineral, he or she may recommend it as a separate supplement.

3. **What vitamins and minerals are important specifically for pregnancy?**

Nutrient (Daily Recommended Amount)	**Why You and Your Fetus Need It**	**Best Sources**
Calcium (1,300 milligrams for ages 14 to 18 years; 1,000 milligrams for ages 19 to 50 years) *Calcium is a mineral that builds your fetus's bones and teeth. Women who are age 18 or younger need 1,300 mg of calcium per day. Women who are 19 or older need 1,000 mg per day. Milk and other dairy products, such as cheese and yogurt, are the best sources of calcium. If you have trouble digesting milk products, you can get calcium from other sources, such as broccoli, fortified foods (cereals, breads, and juices), almonds and sesame seeds, sardines or anchovies with the bones, and dark green leafy vegetables. You also can get calcium from calcium supplements.*	Builds strong bones and teeth	Milk, cheese, yogurt, sardines, dark green leafy vegetables
Iron (27 milligrams)	Helps red blood cells deliver	Lean red meat, poultry, fish, dried beans and peas,

Iron is used by your body to make the extra blood that you and your fetus need during pregnancy. Pregnant women need more, 27 mg per day. This increased amount is found in most prenatal vitamins. In addition to taking a prenatal vitamin with iron, you should eat iron-rich foods such as beans, lentils, enriched breakfast cereals, beef, turkey, liver, and shrimp. You also should eat foods that help your body absorb iron, including orange juice, grapefruit, strawberries, broccoli, and peppers. Ie take extra iron with a small glass of oj	oxygen to your fetus	iron-fortified cereals, prune juice
Iodine (220 micrograms)	Essential for healthy brain development	Iodized table salt, dairy products, seafood, meat, some breads, eggs
Choline (450 milligrams) *Choline plays a role in your fetus's brain development. It also may help prevent some common birth defects. Experts recommend that pregnant women get 450 mg of choline each day. Choline can be found in chicken, beef, eggs, milk, soy products, and peanuts. It's important to get choline from your diet because it is not found in most prenatal vitamins.*	Important for development of your fetus's brain and spinal cord	Milk, beef liver, eggs, peanuts, soy products

Vitamin A (750 micrograms for ages 14 to 18 years; 770 micrograms for ages 19 to 50 years) *Avoid taking high levels of vitamin A. Very high levels of vitamin A have been linked to severe birth defects. You should consume no more than 10,000 international units of vitamin A per day.*	Forms healthy skin and eyesight Helps with bone growth	Carrots, green leafy vegetables, sweet potatoes
Vitamin C (80 milligrams for ages 14 to 18 years; 85 milligrams for ages 19 to 50 years) *Vitamin C is important for a healthy immune system. It also helps build strong bones and muscles. During pregnancy, you should get at least 85 mg of vitamin C each day if you are older than 19, and 80 mg if you are younger than 19. You can get the right amount of vitamin C in your daily prenatal vitamin, and also from citrus fruits and juices, strawberries, broccoli, and tomatoes.*	Promotes healthy gums, teeth, and bones	Citrus fruit, broccoli, tomatoes, strawberries
Vitamin D (600 international units) *Vitamin D works with calcium to help the fetus's bones and teeth develop. Vitamin D also is essential for healthy skin and eyesight. All women, pregnant or not, need 600 international units of vitamin D a day. Good sources of vitamin D include fortified milk and breakfast cereal, fatty fish (salmon and mackerel), fish liver oils, and egg yolks.*	Builds your fetus's bones and teeth Helps promote healthy eyesight and skin	Sunlight, fortified milk, fatty fish such as salmon and sardines

Vitamin B6 (1.9 milligrams) *B vitamins, including B1, B2, B6, B9, and B12, are key nutrients during pregnancy. Your prenatal vitamin should have the right amount of B vitamins that you need each day. Eating foods high in B vitamins is a good idea too, including liver, pork, chicken, bananas, beans, and whole-grain cereals and breads. These vitamins: Give you energy, Supply energy for your fetus's development, Promote good vision, Help build the placenta.* ● *B1 (thiamine)* ● *B2 (riboflavin)* ● *B3 (niacin)* ● *B5 (pantothenic acid)* ● *B6 (pyridoxine)* ● *B7 (biotin)* ● *B12* ● *Folic acid*	Helps form red blood cells Helps body use protein, fat, and carbohydrates	Beef, liver, pork, ham, whole-grain cereals, bananas
Vitamin B12 (2.6 micrograms)	Maintains nervous system Helps form red blood cells	Meat, fish, poultry, milk (vegetarians should take a supplement)
Folic acid (600 micrograms) *(More info below)*	Helps prevent birth defects of the brain and spine Supports the general growth and development of	Fortified cereal, enriched bread and pasta, peanuts, dark green leafy vegetables, orange juice, beans. Also, take a daily prenatal vitamin with 400

	the fetus and placenta	micrograms of folic acid

4. **Specifics on choline**
   Choline is available in dietary supplements containing choline only, in combination with B-complex vitamins, and in some multivitamin/multimineral products. Typical amounts of choline in dietary supplements range from 10 mg to 250 mg. 200-300mg daily supplement is recommended in pregnancy. The forms of choline in dietary supplements include choline bitartrate, phosphatidylcholine, and lecithin. No studies have compared the relative bioavailability of choline from these different forms.

   Approximately 90%–95% of pregnant women consume less choline than the Adequate Intake (AI). Prenatal dietary supplements typically contain little if any choline. The risk of inadequate choline status might be greater in pregnant and lactating women who do not take folic acid supplements, those with low vitamin B12 status, and those with a common variant in methylenetetrahydrofolate dehydrogenase (an enzyme that can affect folate status), all of which reduce the body's pool of methyl groups needed for metabolism.

   Some evidence indicates that lower plasma or serum choline levels (e.g., serum concentration of 2.77 mmol/L in midpregnancy) are associated with an increased risk of neural tube defects. However, other research found no relationship between plasma choline concentrations during pregnancy and neural tube defects in offspring .

5. **Specifics on Omega-3 fatty acids**
   Omega-3 fatty acids are a type of fat found naturally in many kinds of fish. Omega-3s may be important for brain development before and after birth.

6. **Specifics on DHA**
   Is an Omega 3 fatty acid. Important for brain development of fetus and baby. Can also get DHA in flaxseed (ground or oil), broccoli, cauliflower, kidney beans, cantalope, spinach, and walnuts. Can add a supplement of 200-300 mg a day.

7. **Specifics on fish**
   You do not have to avoid all fish during pregnancy. In fact, fish and shellfish are nutritious foods with vital nutrients for a pregnant woman and her fetus.

   ACOG encourages pregnant women, women who may become pregnant, and breastfeeding mothers to follow the FDA and EPA's revised advice to:
   -Eat 2-3 servings a week (serving size is 4oz; 8 to 12 ounces in total) of a variety of fish (see Figure 1 Best Choices)
   -Eat only 1 serving a week (no more than 6 ounces) of some fish, such as albacore (white) tuna and fish with similar mercury concentrations to albacore (white) tuna (see Figure 1 Good Choices)
   -Limit your exposure to mercury by not eating bigeye tuna, king mackerel, marlin, orange roughy, shark, swordfish, or tilefish.
   -Check for advisories for fish caught by family and friends and where no advisories exist, limit eating those fish to one serving a week and do not eat other fish that week.

Although not mentioned in the revised 2017 advice, it is important that pregnant women avoid all raw and undercooked seafood, eggs, and meat (see ACOG's patient education information and ACOG's clinical guidance on *Listeria* for more information).

8. Specifics on Vitamin D

During pregnancy, severe maternal vitamin D deficiency has been associated with biochemical evidence of disordered skeletal homeostasis, congenital rickets, and fractures in the newborn. At this time, there is insufficient evidence to support a recommendation for screening all pregnant women for vitamin D deficiency. For pregnant women thought to be at increased risk of vitamin D deficiency, maternal serum 25-hydroxyvitamin D levels can be considered and should be interpreted in the context of the individual clinical circumstance. When vitamin D deficiency is identified during pregnancy, most experts agree that 1,000–2,000 international units per day of vitamin D is safe. Higher dose regimens used for treatment of vitamin D deficiency have not been studied during pregnancy.

9. Specifics on folate

The terms "folate" and "folic acid" are often used interchangeably, even though they are different. Folate is a general term to describe many different types of vitamin B9.

Types of folate can include

Folic acid
•Dihydrofolate (DHF)
•Tetrahydrofolate (THF)
•5, 10-methylenetetrahydrofolate (5, 10-Methylene-THF)
•5-methyltetrahydrofolate (5-Methyl-THF or 5-MTHF)

Natural folate can be found in foods such as leafy green vegetables, citrus fruits, and beans. A woman should eat a balanced diet rich in natural folate from food. However, it is very difficult for most women to get the daily recommended amount of folate through food alone.

Food fortification is a way to add vitamins or minerals, or both, to foods. Some rice, pasta, bread, and breakfast cereals are fortified with folic acid. These foods are labeled "enriched." Folic acid is a specific type of folate that does not generally occur naturally.

Folic acid is synthetic and is ideal to use for food fortification. It is more stable than types of natural food folate. Heat and light can easily break down types of natural food folate. Folic acid is better suited for food fortification because many fortified products, such as bread and pasta, are cooked.

Supplements containing forms of folate other than folic acid (such as 5-MTHF) should not be confused with the natural food folate found in fruits and vegetables. The effectiveness of these supplements in preventing neural tube defects has not been studied.

Intake recommendations for folate and other nutrients are provided in the Dietary Reference Intakes (DRIs) developed by an expert committee of the Food and Nutrition Board (FNB) at the National Academies of Sciences, Engineering, and Medicine. DRI is the general term for a set of reference values used for planning and assessing nutrient intakes of healthy people. These values, which vary by age and sex, include:

Recommended Dietary Allowance (RDA): Average daily level of intake sufficient to meet the nutrient requirements of nearly all (97%–98%) healthy individuals; often used to plan nutritionally adequate diets for individuals.

Adequate Intake (AI): Intake at this level is assumed to ensure nutritional adequacy; established when evidence is insufficient to develop an RDA.

Estimated Average Requirement (EAR): Average daily level of intake estimated to meet the requirements of 50% of healthy individuals; usually used to assess the nutrient intakes of groups of people and to plan nutritionally adequate diets for them; can also be used to assess the nutrient intakes of individuals.

Tolerable Upper Intake Level (UL): Maximum daily intake unlikely to cause adverse health effects.

Table 1 lists the current RDAs for folate as mcg of dietary folate equivalents (DFEs). The Food and nutrition board developed DFEs to reflect the higher bioavailability of folic acid than that of food folate. At least 85% of folic acid is estimated to be bioavailable when taken with food and 100% when taken without food, whereas only about 50% of folate naturally present in food is bioavailable. Based on these values, the FNB defined DFE as follows:
1 mcg DFE = 1 mcg food folate
1 mcg DFE = 0.6 mcg folic acid from fortified foods or dietary supplements consumed with foods
1 mcg DFE = 0.5 mcg folic acid from dietary supplements taken on an empty stomach

Table 1: Recommended Dietary Allowances (RDAs) for Folate [2]

Age	Male	Female	Pregnancy	Lactation
19+ years	400 mcg DFE	400 mcg DFE	600 mcg DFE	500 mcg DFE

*Adequate Intake (AI)

10. **Specifics on folic acid**

Folic acid is the common type of folate found in many vitamins and supplements. The other types of folate found in some vitamins or supplements (such as 5-MTHF) are different from the folate found in fruits and vegetables, even if the nutrition label claims "natural food folate." These types of folate, just like folic acid, are not made from food but are man-made. You can find natural food folates in vegetables (especially dark green leafy vegetables), fruits and fruit juices, nuts, beans, peas, seafood, eggs, dairy products, meat, poultry, and grains. Spinach, liver, asparagus, and brussels sprouts are among the foods with the highest amounts of folate per serving. Common doses range from 680 to 1,360 mcg DFE (400 to 800 mcg folic acid) in supplements for adults.

In addition to eating foods with folate from a varied diet, women can get folic acid from:
-Taking a vitamin/dietary supplement that has folic acid in it:
- Most vitamins sold in the United States have the recommended daily amount of folic acid (400 mcg) that women need for the prevention of neural tube defects. Vitamins can be found at most local pharmacy, grocery, or discount stores.

-Eating fortified foods:
- You can find folic acid in enriched breads, flours, pastas, rice, cornmeal, corn masa flour, and certain breakfast cereals.

-Getting a combination of the two: taking a vitamin that has folic acid in it and eating fortified foods.

USPSTF, CDC, IOM: All women who are planning or capable of pregnancy should take a daily supplement containing 0.4 to 0.8 mg (400-800 µg) of folic acid
- Approximately 50% of pregnancies in the US are unplanned

ACOG, ACMG, CDC, AAFP, AAP, Health and Medicine Division of the National Academies (formerly the Institute of Medicine), US Public Health Service, American Academy of Neurology: women who are capable of becoming pregnant should take at least 0.4 mg (400 µg) of folic acid daily

ACOG, CDC, and several other organizations: women with a history of neural tube defects, or has a partner with an NTD or a partner who has had a child with an NTD or other high-risk factors take 4 mg (4000 µg) of folic acid daily
- While USPSTF focuses on prevention of NTD, other organizations also stress the prevention of other birth defects such as heart defects, urinary tract anomalies and oral facial clefts

WHY?
Neural tube closure occurs early in pregnancy, and at least one half of all pregnancies are unplanned. Thus, initiating folate supplementation at the time of missed menses is insufficient, as neural tube

formation is already underway. For these reasons, all women planning a pregnancy or capable of becoming pregnant should take 400 micrograms of folic acid supplementation daily. Supplementation should begin at least 1 month before pregnancy and continue through the first 12 weeks of pregnancy. It is well established that folic acid supplementation decreases the risk of a first occurrence and recurrence of isolated, nonsyndromic NTDs.

It has been estimated that between 16% and 58% of NTDs could be prevented by folic acid supplementation. A recent case–control study reported that prepregnancy folic acid supplementation resulted in a 79% reduction in risk of spina bifida and a 57% reduction in risk of anencephaly.

Women at high risk of NTDs should supplement with a higher dose of folic acid than 400 micrograms. This group includes those with histories of previous pregnancies affected with NTDs, women who are affected with an NTD themselves, those who have a partner who is affected, or those with a partner with a previous affected child. Women at high risk of NTDs should take 4 mg (4,000 micrograms) of folic acid daily. The daily supplement should be initiated 3 months before pregnancy and continued until 12 weeks of gestational age. Following the recommended supplementation in this high-risk group may reduce risk by as much as 70%.

The association between folic acid supplementation and decreased risk of NTDs is well established, and folate supplementation remains an important prepregnancy and prenatal recommendation. However, at least 30% of NTDs are not prevented by folic acid supplementation, which underscores the multifactorial etiology of NTDs. These folate-resistant NTDs include those associated with poor glucose control in the first trimester, hyperthermia, maternal obesity, and aneuploidy or genetic disorders. Although folic acid supplementation in diabetic patients may decrease the risk of NTDs, the risk is not eliminated, which emphasizes the importance of prepregnancy glycemic control. Similarly, prepregnancy folic acid intake in obese women may not decrease the risk of NTDs. Antiepileptic medication use during pregnancy, particularly valproate, also has been associated with folate-resistant NTDs. For these patients, the benefit of high-dose folic acid therapy has not been definitively proved, and recent guidelines for women on antiepileptic medications do not recommend higher doses of prepregnancy folate supplementation.

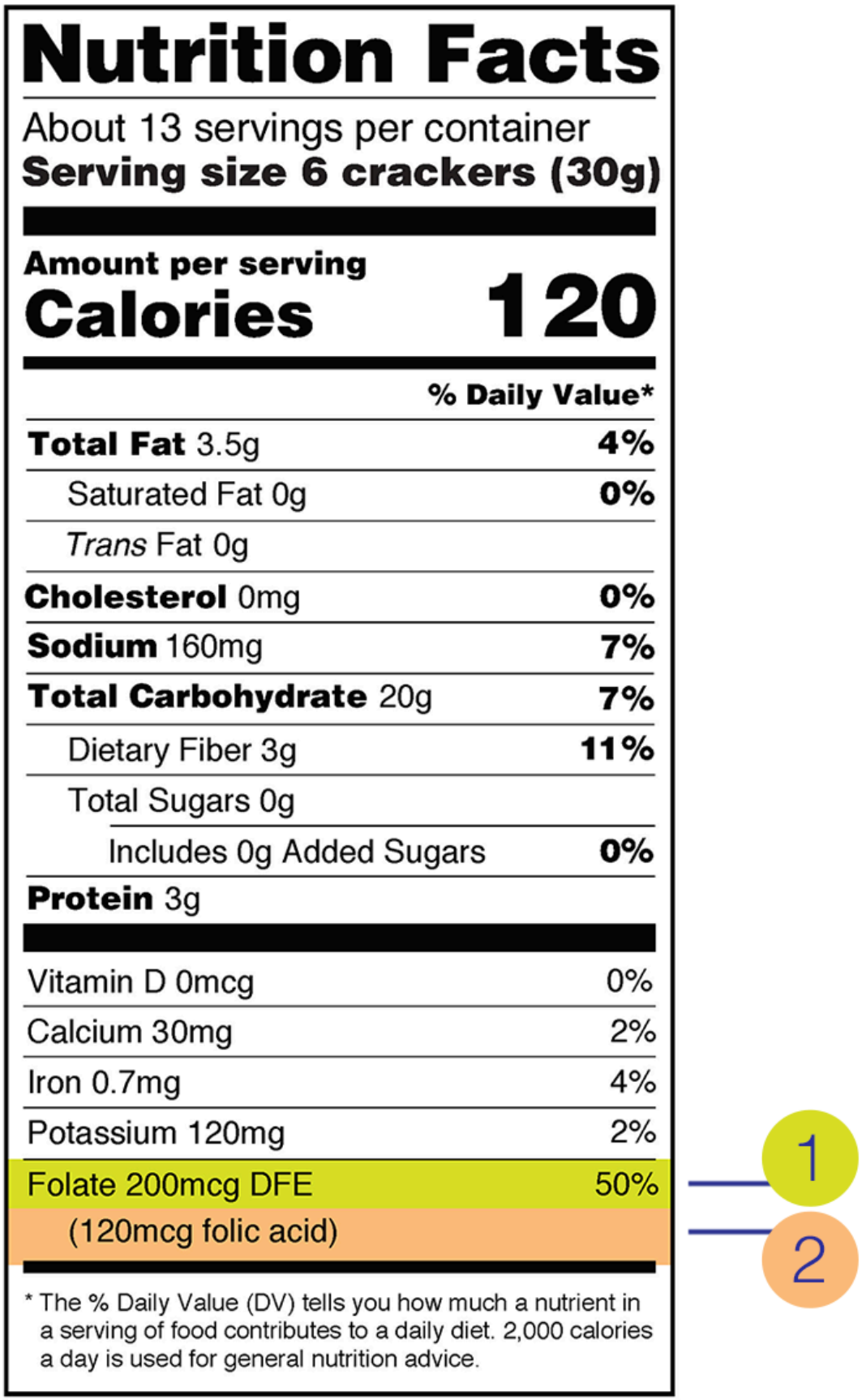
11. Folate and folic acid and nutrition label

The mcg DFE is the unit of measure for folate on the new Nutrition Facts or Supplement Facts label. The measure of mcg DFE is used because the body has an easier time absorbing folic acid than folate.

A %DV is shown for the total amount of folate in a product, and if any of the total folate comes from folic acid, that amount of folic acid is listed in mcg in parentheses.

1 – Folate is shown as mcg DFE and as a %DV

2 – Folic acid is shown in parenthesis and is important for individuals who could become pregnant


Nutrition Facts
About 13 servings per container
Serving size 6 crackers (30g)
Amount per serving
Calories 120
% Daily Value*
Total Fat 3.5g 4%
Saturated Fat 0g 0%
Trans Fat 0g
Cholesterol 0mg 0%
Sodium 160mg 7%
Total Carbohydrate 20g 7%
Dietary Fiber 3g 11%
Total Sugars 0g
Includes 0g Added Sugars 0%
Protein 3g
Vitamin D 0mcg 0%
Calcium 30mg 2%
Iron 0.7mg 4%
Potassium 120mg 2%
Folate 200mcg DFE 50%
(120mcg folic acid)
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.
1
2

12. **5-MTHF vs folic acid in prenatal vitamins**

Synthetic 5-methylTHF is either a calcium or a glucosamine salt of 5-methylTHF. It is absorbed by the intestine and enters the blood as plasma folate. Unlike dietary folates and folic acid, synthetic 5-methylTHF does not need the enzyme MTHFR to become plasma folate. Some people call this "natural food folate," but that term is inaccurate as it is not the folate found in food.

Dietary supplements containing 5-methyl-THF (also called methylfolate), a reduced form of folate, are available. The bioavailability of 5-methyl-THF in supplements is the same as or greater than that of folic acid. However, conversion factors between mcg and mcg DFE for 5-methyl-THF have not been formally established. The FDA allows manufacturers to use either a conversion factor of 1.7 to be comparable to folic acid, or their own established conversion factors not to exceed 1.7.

The calcium form of 5-methylTHF is less stable than the glucosamine form and the stability of non-prescription synthetic methylTHF has not been tested. Meaning, if you buy a bottle the synthetic 5-methyTHF could be degraded (basically, you could be getting less drug than you think). We don't know as it has not been tested. This is an important consideration, as this could affect the amount of folate that makes it into the bloodstream.

Folic acid is more heat-stable than natural food folate, which is broken down easily by heat and light; therefore, folic acid is better suited for food fortification because many fortified products, such as bread, are baked.

Folic acid has been shown to be effective in preventing neural tube defects in randomized control trials and food fortification programs.

Folic acid is absorbed easily by the body, and studies have shown that it can increase blood folate concentrations (the amount in the blood) across populations (including those with the *MTHFR* TT genetic variant).

No scientific studies exist that show that supplements containing other forms of folate [such as 5-methyltetrahydrofolate (5-MTHF)] can prevent neural tube defects.

13. **Folic acid and MTHFR**

MTHFR (methyltetrahydrofolate reductase) is an enzyme that plays a role in how all people process folate. A common genetic variant of the MTHFR enzyme (also known as the *MTHFR TT* or *CT* genotypes) determines how rapidly some people can process folate. Even though women with the *MTHFR TT* or *CT* genotypes process folate more slowly, they can increase their blood folate concentrations enough to help prevent neural tube defects—some serious birth defects of the brain and spine—by consuming the recommended 400 mcg/day of folic acid.

- Research studies have shown that among populations in which more people have the MTHFR TT or CT genotypes, getting 400 mcg/day of folic acid before and during early pregnancy can reduce by 85% the risk of having a baby with a neural tube defect [5].
- Many studies have shown that consuming folic acid increases blood folate concentrations. For example, a research study among a population at high risk for neural tube defects showed that, after consuming 400 mcg/day of folic acid for three months, average blood folate concentrations increased to levels that would prevent neural tube defects among women with all MTHFR genotypes, including the MTFHR TT genotype.

People with *MTHFR* C677T variants can process all types of folate, including folic acid.

Folate is a general term for many different types of vitamin B9. Folate includes naturally occurring folates in foods, such as leafy green vegetables, citrus fruits, and beans, and several types of folate in dietary supplements, such as folic acid and 5-methyltetrahydrofolate (5-MTHF). The *MTHFR* C677T variant affects how your body processes folate. You might have read or heard that folic acid is not safe if you have one or two copies of the *MTHFR* C677T variant. This is not true. Even if you have one or two copies of the *MTHFR* C677T variant, your body can safely and effectively process the different types of folate, including folic acid.

You may have heard or read that if you have an *MTHFR* C677T variant, you should take other types of folate (such as 5-MTHF), but this is not true. Folic acid is the only type of folate shown to help prevent neural tube defects (severe birth defects of the brain or spine).

No scientific studies exist that show that supplements containing other types of folate (such as 5-MTHF) can help prevent neural tube defects.

14. **Is folic acid safe?**

The risks of higher levels of folic acid supplementation are believed to be minimal. Folic acid is considered nontoxic even at very high doses because it is water soluble and rapidly excreted in the urine. Theoretically, supplemental folic acid could mask the symptoms of pernicious anemia and, thus, delay treatment. However, pernicious anemia is an uncommon disorder in young women and there is no evidence that supports this or other concerns regarding potential folic acid toxicity.

Some vitamins (such as vitamin D and vitamin A) can collect in fat tissues in the body, so they can be toxic if someone consumes too much. Folic acid does not collect in fat, but instead dissolves in water. This means that any amount of folic acid that is not used by the body (also called “unmetabolized folic acid”) goes through the kidneys, into the urine, and out of the body.

15. **What does USP Verified mean?**

Seeing the USP Verified Mark on a dietary supplement label indicates that the product:

Contains the ingredients listed on the label, in the declared potency and amounts. Tests have shown that contents of some supplements don't match the label and some contain significantly less or more than the claimed amount of key ingredients. USP Dietary Supplement Verification helps assure customers that they are getting the value they expect from a product they are purchasing.

Does not contain harmful levels of specified contaminants. Some supplements have been shown to contain harmful levels of certain heavy metals (e.g., lead and mercury), microbes, pesticides, or other contaminants. At specific levels these contaminants can pose serious risks to one's health.

Will break down and release into the body within a specified amount of time. If a supplement does not break down properly to allow its ingredients to be available for absorption in the body, the consumer will not get the full benefit of its contents. USP Dietary Supplement Verification tests products against performance standards.

Has been made according to FDA current Good Manufacturing Practices using sanitary and well-controlled procedures. Assurance of safe, sanitary, well-controlled, and well-documented manufacturing and monitoring processes indicates that a supplement manufacturer is quality-conscious, and that the supplement will be manufactured with consistent quality from batch to batch.

Labdoor, NSF verified, Consumerlab
NSF - meet standards for public health and safety (also certifies food, water, consumer products)
Labdoor and consumerlab - grades products to see if they have what they say they do
Links to these websites are on my post called “lost in the sea of supplements” where you can find a list and search for products

16. **Best overall OTC PNV**

First, start with a prenatal that has folic acid (needs to say folic acid in label). Then look for one that has rest of recommended vitamins/minerals above. Then look for one that has DHA. The choline will likely need to be separate.
Nature Made Prenatal Multivitamin with 200 mg DHA, Multivitamin to Support Baby Development and Mom, 110 Softgels, 110 Day Supply. ADD CHOLINE

One A Day Women's Prenatal 1 Multivitamin, Supplement for Before, During, and Post Pregnancy, Including Vitamins A, C, D, E, B6, B12, and Omega-3 DHA, 90 Count. ADD CHOLINE

Rainbow Light Prenatal One Daily Multivitamin, Non-GMO, Vegetarian and Gluten Free, 150 tablets ADD CHOLINE AND DHA

Nature Made Prenatal Gummy Vitamins with DHA + Folic Acid + Choline,

Garden of Life Raw Prenatal. ADD CHOLINE
This brand uses natural foods to make the vitamin, so you’re getting all your nutrients from food sources (not synthetics). Also highly ranked on Labdoor - meaning, it is true to its label. But $$.

Tend prenatal. Similar concept to Garden of Life in that nutrients come from whole food sources but Tend comes in a bar. Good for those who can’t swallow pills. Has DHA, has choline, has a good amount of calcium. And tasty too but $$ ($139/30 bars = $4.63/bar).

17. **Are gummy PNV OK?**

Typically don’t have iron and have less of what you need. Because of their design, they cannot carry enough of the ingredients necessary. It should be a last resort.

18. **Supplements for PP hair loss?**

19. **Vegan forms of DHA**

Garden of Life Dr. Formulated Prenatal Vegan DHA - Certified Vegan Omega 3 Supplement with 400mg DHA + DPA from Algal Omega 3 in Triglyceride Form, Non-GMO Algae Omega 3 for Vegans, 30 Softgels

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https://www.cdc.gov/ncbddd/folicacid/index.html

https://www.usp.org/verification-services/verified-mark#:~:text=Seeing%20the%20USP%20Verified%20Mark%20on%20a%20dietary,more%20than%20the%20claimed%20amount%20of%20key%20ingredients

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https://ods.od.nih.gov/factsheets/choline-healthprofessional/

POSTNATALS

1. **Importance of postpartum supplementation**
   Nutrient demands postpartum are inherently different from what you need while pregnant. While there is overlap and thus you may continue a prenatal, it is ideal to switch to a postnatal w/ specific ingredients and amounts that you need post delivery.

2. **Gap in postpartum care**
   There has been extensive research w/ prenatals and supplementation in general in pregnancy, but postpartum is lacking. Major organizations keep postpartum supplementation vague and say continuing prenatals is fine. This is b/c research is sparse in postpartum supplementation b/c as you all know, after baby is born, the focus shifts to the baby. I noticed this shift and gap in care personally after I had my baby and was diagnosed with Pregnancy Lactation Osteoporosis (PLO) 2 months postpartum after breaking my back from a small fall. New moms need the support and ease of access to information that will help them optimally recover from major trauma, giving birth. Which is why I decided to use my platform as a clinical pharmacist and new mom to educate and empower.

   So why are supplements so confusing? Why is it so hard to navigate? Supplements are not FDA regulated meaning they don't have to go through the extensive research and trials to make it on the shelf. At the same time, this doesn't mean they're all bad. There are trusted third party orgs that test these supplements to ensure that they actually contain what they say they contain.

3. **Prenatal vs postnatal**

   Prenatals literally means "before birth" so they have ingredients that are needed specifically during pregnancy to support a growing fetus and mama. Postnatals means "after birth" so they have ingredients needed during postpartum, focusing on replenishing your stores and ensuring baby gets their nutrients if you're breastfeeding. If you are not breastfeeding, you still need to make sure you're getting adequate nutrition.

   Most women will continue the same prenatal vitamin used throughout pregnancy during lactation, but there are different and unique nutritional needs during pregnancy.23 ACOG makes no definitive recommendation on how long prenatal supplements should be continued during the postnatal period or which vitamins should be supplemented and at what dose.24 Supplementation with DHA, vitamin D, folic acid, or iodine has been shown to improve the infant's visual acuity, hand/eye coordination, attention,

problem solving, and information processing.25 The WHO recommends continuation of prenatal vitamins for at least 3 months in the postpartum period in geographic regions with a high incidence (>40%) of anemia in pregnancy.26 It is recommended to increase choline intake to 550 mg daily during lactation.12 Continuation of prenatal supplements until the mother has completed breastfeeding may be worthwhile if the supplement is tolerable and affordable for the mother in light of these data.

4. **Postnatal must haves - check out my post!**

Iron	9 mg (compared to 27mg needed during pregnancy) → sometimes pills taste bad b/c of the high iron in prenatals so this is a good thing! **Breast milk contains highly bioavailable iron but in amounts that are not sufficient to meet the needs of infants older than 4 to 6 months (which is why things like cereal or oatmeal is fortified with iron)** Because of its higher solubility, ferrous iron in dietary supplements is more bioavailable than ferric iron	Prevents anemia (blood loss postpartum) Support neurological development of baby Iron is also necessary for physical growth, neurological development, cellular functioning, and synthesis of some hormones Take w/ vitamin C to increase absorption	Lean meat Seafood **Heme iron (lean meat, seafood) has higher bioavailability than nonheme iron (nuts, grains, beans), and other dietary components have less effect on the bioavailability of heme than nonheme iron**
Iodine Although critical for pregnant and lactating moms, a lot of postnatals don't contain it yet… more education	290 mcg A small study found that people absorb potassium iodide almost completely (96.4%)	Helps w/ thyroid health and development of baby's brain, bone, nervous system Linked to IQ *supplements most likely or rarely have iodine so watch out, if not ensure eating iodized foods (salt, fish, dairy) There is a lot of variation in iodine amounts in food - vary	Seaweed Seafood Eggs Dairy *varies by cow The American Thyroid Association recommends that women who are planning a pregnancy, currently pregnant, or lactating should supplement their diet with 150 mcg/day iodine in the form of potassium iodide [65].

		based on soil, irrigation methods, fertilizer use Breast milk contains iodine, although concentrations vary based on maternal iodine levels. Infants who are exclusively breastfed depend on maternal iodine sufficiency for optimal development → if mom is not getting enough, baby is not Mainly concern if vegan or salt restricting or using kosher, Himalayan salt (not iodized)	Similarly, the American Academy of Pediatrics recommends that women who are pregnant, planning to become pregnant, or lactating take a daily supplement providing at least 150 mcg iodine and use iodized salt
Vitamin D	600 IU (15 mcg) 6400 IU if exclusively breastfeeding and do not want to supplement baby w/ drops *Consumption of human milk alone does not ordinarily enable infants to meet vitamin D requirements, because it provides less than 0.6 to 2.0 mcg/L (25 to 78 IU/L). The vitamin D content of human milk is related to the mother's vitamin D status; studies suggest that the breastmilk of mothers who take daily supplements containing at least 50 mcg (2,000 IU) vitamin D3 have higher levels of the nutrient [	Sun is best Some expert bodies and vitamin D researchers suggest, for example, that approximately 5–30 minutes of sun exposure, particularly between 10 a.m. and 4 p.m., either daily or at least twice a week to the face, arms, hands, and legs without sunscreen usually leads to sufficient vitamin D synthesis avoid sunscreen on where you want to soak up the vitamin D (arms, legs) Helps w/ Ca absorption In foods and dietary supplements, vitamin D has two main forms, D2 (ergocalciferol) and D3 (cholecalciferol), that differ chemically only in their side-chain structures. Both forms	Few foods naturally contain vitamin D. The flesh of fatty fish (such as trout, salmon, tuna, and mackerel) and fish liver oils are among the best sources Most people in the world meet at least some of their vitamin D needs through exposure to sunlight UVB radiation does not penetrate glass, so exposure to sunshine indoors through a window does not produce vitamin D

		are well absorbed in the small intestine.	
Vitamin B12	2.8 mcg No evidence indicates that absorption rates of vitamin B12 in supplements vary by form of the vitamin. These rates are about 50% at doses (less than 1–2 mcg) that do not exceed the cobalamin-binding capacity of intrinsic factor and are substantially lower at doses well above 1–2 mcg [23,24]. For example, absorption is only about 2% at doses of 500 mcg and 1.3% at doses of 1,000 mcg [24]. Most people are okay with vitamin b12, problem if have trouble absorbing it b/c of intrinsic factor in gut (so that's why some people get b12 inejctions to bypass the gut)	Keeps body's nerve and blood cells healthy, helps make DNA for baby *esp important to supplement if vegetarian or vegan b/c it's found in foods from animals (meat, fish, milk, eggs)	animal origin, including fish, meat, poultry, eggs, and dairy products
Choline Prenatal dietary supplements typically contain little if any choline → cause it's just catching on and new research, also it's a difficult ingredient to put in b/c it's so bulky	550 mg Humans can produce choline endogenously in the liver, mostly as phosphatidylcholine, but the amount that the body naturally synthesizes is not sufficient to meet human needs. As a result, humans must obtain some choline from the diet. *if deficient in folate,	Brain-building nutrient Helps regulate memory, mood, muscle control *esp important to supplement if vegetarian or vegan b/c it's found in foods from animals (meat, fish, milk, eggs) About half the dietary choline consumed in the United States is in the form of phosphatidylcholine	animal-based products that are particularly rich in choline—meat, poultry, fish, dairy products, and eggs [4,5,8-10]. Cruciferous vegetables and certain beans are also rich in choline, and other dietary sources of choline include nuts, seeds, and whole grains.

	the need for choline increases b/c they are linked (choline has to take over)	No studies have compared the relative bioavailability of choline from these different forms.	
DHA	250-375 mg of DHA + EPA DHA, in particular, is especially high in the retina, brain, and sperm	Helps w/ brain, eye, nervous system development *not made in the body so make sure you're eating enough (salmon, tuna, sardines) → if not, supplement	ALA is present in plant oils, such as flaxseed, soybean, and canola oils [3]. DHA and EPA are present in fish, fish oils, and krill oils, but they are originally synthesized by microalgae, not by the fish. When fish consume phytoplankton that consumed microalgae, they accumulate the omega-3s in their tissues

*** Notice that if you simply don't have the time or bandwidth to have a varied and nutritious diet postpartum b/c well, you have a million other things going on, then supplementation is a very good solution ***

*** Postpartum is not all about the baby. It's about you. Whether you decide to continue prenatal or switch to a tailored postnatal, just make sure you're getting the nutrition you need. B/c replenishing and restoring your stores that have been depleted from childbirth will set you up for long-term health ***

	RDA (lactating women)	Food source	Action	Toxicity	Misc
Fat soluble vitamins					
Vitamin A*	1300 mcg				
Vitamin D	600 IU (15 mcg)				
Vitamin E*	19 mg				
Vitamin K	90 mcg				

Water-soluble vitamins					
Vitamin C*	120 mg	Citrus fruits, tomatoes, potatoes, brussel sprouts, cauliflower, broccoli, strawberries, cabbage, spinach *oxidative conditions can destroy active vitamin C	Maintains activity of iron and copper, stabilizes vitamin E and folic acid Antioxidant Collagen synthesis Neurotransmitter synthesis	>grams of vitamin C can cause diarrhea and abdominal bloating	Men can form oxalate kidney stones Max absorption at 100 mg; if you take more, less is absorbed
Thiamin B1*	1.4 mg				
Riboflavin B2*	1.6 mg				
Niacin B3*	17 mg				
Vitamin B6*	2 mg				
Folate*	500 mcg				
Vitamin B12*	2.8 mcg				
Minerals					
Calcium	1000 mg				
Phosphorus	700 mg				
Iron	9 mg				
Zinc*	12 mg				
Iodine*	290 mcg				
Selenium*	70 mcg				
Copper					
Chromium					
Magnesium					
Misc					

Choline	550 mg	Egg yolk, soy flour, salmon	Role in neurotransmitter synthesis, metabolic processes		Deficiency associated w/ accelerated atherosclerosis, neural tube defects, neuro disorders, fatty liver
EPA + DHA	250-375 mg				
Biotin	30 mcg AI (no RDA)	Highest levels in liver, egg yolk, soybean, yeast	Essential cofactor for carboxylase enzyme complexes Protects against hair loss	No	

*Requirements of these are increased in lactating women

5. **Postnatal brand reviews (just a few)**

There aren't a lot of postnatals on the market compared to prenatals, again b/c we're only now slowly shifting the focus on moms.

Brand	Does it have all the necessary nutrients?	What is it missing?	Cost	Comments
Ritual Essential Postnatal	Most Not all are at the RDA (but this is normal→ means you should be eating enough foods to cover the rest) Has methylated folate → problem for prenatal more than postnatal, need FOLIC ACID *But even postpartum,	Thiamine (vitamin B1) Riboflavin (vitamin B2) Niacin (vitamin B3) Vitamin B6 Calcium (Ritual doesn't put calcium in their vitamins b/c they think you should get plenty in your diet they say, but may be b/c calcium is a bulk	$35/60 caps $0.58/cap for 1 month supply	Traceable ingredients (do your research to make sure that the source is actually good) Gluten free Vegan OK

	supplementation w/ folic acid (DHA, vitamin D, iodine) shown to improve infant's visual acuity, hand/eye coordination, attention, problem solving, info processing* 	ingredient and would not fit into their capsule-- so make sure you do, at least 1000 mg) Phosphorus Selenium Has Boron...why...not necessary		
Perelel Mom Multi Support Pack I like the concept of different supplements for each stage of pregnancy and beyond but it's not really necessary if you're taking an appropriate prenatal. For postnatal, it's basically a postnatal w/ a pill that may help with stress and hair loss but you can buy these separately for much cheaper.	Each pack: 2 multivitamins, 1 DHA+EPA, 1 beauty blend (biotin, collagen), 1 stress support blend (ashwagandha and l-theanine) Ashwagandha, l-theanine = insufficient reliable information, may help with stress may not (are DDIs w/ ashwagandha)	Calcium Phosphorus Choline	$48/pack of pills 1 month supply	Gluten free
Mamabird postnatal	Most Not all are at the RDA (but this is normal→ means you should be eating enough foods to cover the rest) Also has synthetic l-methylfolate	Phosphorus Choline DHA Biotin	$36.99/30 $1.23/cap for 1 month supply	Vegan OK 1 cap per day
Naturemade multi + DHA postnatal	Most Most at RDA	Phosphorus Selenium Copper	$16.99/60 $0.28/cap	1 cap per day

	Contains folic acid	Chromium Choline		
Rainbow light postnatal	Most Has a lot of the B vitamins Has postnatal blend (things to help with milk production), prebiotics and postbiotics	Chromium Choline DHA	$23.60/120 $0.2/cap	2 caps/day Gluten free
Pink Stork postnatal	Surprised it doesn't have iodine Does have DHA	Phosphorus Iodine Chromium Choline Biotin	$32/60 $0.53/cap	2 caps/day

*Not having phosphorus, selenium, copper is fine b/c deficiency is very rare, most people get adequate amounts in their diet through food (typical diet)

*Dietary supplements contain many forms of chromium, including chromium picolinate, chromium nicotinate, chromium polynicotinate, chromium chloride, and chromium histidinate [18,27]. The absorption of various forms of chromium is similar [6,9]. For example, research suggests that the proportion of chromium absorbed from chromium picolinate is about 1.2%, whereas that from chromium chloride is about 0.4% [1]. These values are similar to the proportion of chromium absorbed from food [5]. Deficiency is rare. Chromium amounts can vary by 50 fold based on where it was grown, the soil, processing - can be transferred if used stainless steel pots and pans.

OVERALL:

Most postnatals don't contain these key nutrients: choline, DHA, biotin, and iodine. These are the ones to pay attention to. In addition, most have small amounts of calcium which is super important postpartum especially if you're breastfeeding. Lactation is more demanding on your bones than pregnancy! Calcium is bulky and hard to put in these small pills so that's why there's less.

Misc comments

Food forms of nutrients are different from synthetic

Food > synthetic

Unfortunately, most vitamin brands are marketing companies that are not backed by science

They put in ingredients b/c that's what works for the convenience but not b/c that's what's actually needed for the pregnant mom or baby.

Sources

Morse NL. Benefits of docosahexaenoic acid, folic acid, vitamin D and iodine on foetal and infant brain development and function following maternal supplementation during pregnancy and lactation. Nutrients. 2012;4(7):799-840. doi: 10.3390/nu4070799.