



Folic Acid and Folate

What are “Folate” and “Folic Acid?”

Folic acid and folate are different terms for the same B vitamin.

- **Folic acid** is the synthetic form that is added to fortified foods and used in vitamin supplements. The body absorbs folic acid better than natural folate
- **Folate** is frequently used as the word to describe the vitamin found naturally in foods

Folic acid is necessary for the growth and repair of every cell in the body. Folic acid is needed for the growth and repair of hair, skin and nails.

Folic acid is important for the development of the human embryo. It is critical for the cell growth that occurs when fetal tissues and organs (brain, spinal cord) begin to develop very early in pregnancy.

Adolescence is a critical time in the life course to target for folic acid intake because 1) adolescents’ nutritional needs tend to increase and 2) overwhelmingly their pregnancies are unplanned and may not occur in the most optimal of circumstances. Additionally, habits that are formed during the adolescent period may continue throughout their reproductive years.

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California Nutrition and Physical Activity Guidelines for Adolescents

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What are the Consequences of Insufficient Folic Acid/Folate Intake?

Because of its relationship to DNA production and cell growth, adequate folic acid/folate intake is essential to all females of reproductive age and can reduce the risk of neural tube defects by up to 70%. In the United States, 3,000 pregnancies are affected by neural tube defects annually.¹

Many organizations, such as the Institute of Medicine,² recommend that all females capable of becoming pregnant --whether or not they are planning a pregnancy—consume 400 mcg of folic acid daily from fortified foods and/or a supplement, in addition to eating folate-rich foods.

Why not start folic acid when one is already pregnant?

Most neural tube defects that could have been prevented occur in the earliest weeks following conception, before women and teens realize they are pregnant and begin prenatal care.

Why not just target those who are planning a pregnancy?

Many pregnancies and repeat pregnancies are unplanned, particularly so among adolescents. By just targeting those who are planning a pregnancy, many opportunities to prevent birth defects will be missed.

How Much Folic Acid/Folate is Enough?

Adolescents need folic acid/folate due to their rapid growth and sexual maturation. See Table FA-1 for specific recommendations.*

Age	Females	Males
9-13	300	300
14-18	400	400
19-30	400	400
Pregnancy	600	
14-18		
19-30		
Lactation	500	
14-18		
19-30		

Source: Institute of Medicine, Food and Nutrition Board, 1998²

Individuals between 9 and 13 years of age should get 300 mcg of folic acid/folate daily. Individuals ages 14 years and older should consume at least 400 mcg per day. 600 mcg is needed during pregnancy and 500 mcg during lactation.

Individuals who have already had a baby with a birth defect may need more than 400 mcg of folic acid/folate each day before and during pregnancy. They should talk to their healthcare provider for the specific amounts needed, especially while planning a future pregnancy.

* Note: The recommendation is for Dietary Folate Equivalents, which takes into consideration that folate is not absorbed as well as folic acid. Many find this distinction confusing. For more information, see the [Institute of Medicine Dietary Reference Intake tables](#).

What is the Status of Folic Acid Intake among Teens?

According to 2010 data from California's Maternal and Infant Health Assessment, only 23.9% of adolescents aged 15-19 years reported consuming folic acid in the month before pregnancy compared to 31.1% of those aged 20-34 and 44.6% of those aged 35 and older.³

How Can Teens Consume Enough Folic Acid?

There are two ways to consume 400 mcg of folic acid each day:

- A. Eating a serving of a breakfast cereal that contains 100% of the recommended daily value (DV) of folic acid:** One serving of [these cereals](#) provides 400 mcg of folic acid.

or

- B. Taking a folic acid supplement:** Most over-the-counter multivitamins contain 400 mcg of folic acid, the amount recommended for the prevention of neural tube birth defects before pregnancy. For teens that prefer not to swallow pills, chewable vitamins with 400 mcg folic acid may be available.

Clients who are pregnant or breastfeeding their children have higher folic acid/folate requirements (Table FA-1). Prenatal vitamins may have the extra folic acid needed for pregnancy.

Remind clients that supplements should not replace a diet that includes foods such as fruits, vegetables, whole grains, and beans. A vitamin supplement can provide 400 mcg of folic acid, but also eating folate-rich foods is important.

What are Good Sources of Folate?



In addition to consuming 400 mcg of folic acid from a fortified cereal or vitamin supplement, a healthy diet also includes foods rich in folate.

Foods rich in folate include dark green, leafy vegetables (e.g., spinach, broccoli, asparagus, and romaine lettuce), beans, lentils, grains, and citrus and other fruits (e.g., kiwis and strawberries). Because folate is destroyed by the heat used in cooking and canning, adolescents should be encouraged to eat fresh fruits and vegetables. Farmers markets often have fresh, local-grown fruits and vegetables. [Use this tool to find nearby markets.](#) Payment options are also described (cash, card, WIC).

The body can absorb folic acid (the synthetic form of folate found in vitamin supplements and fortified cereals) better than natural folate. The amount of folate (the form that occurs naturally in food) absorbed from individual foods varies; overall absorption from food is estimated to be 50% of the folate available in an individual's diet. It is important to consume a variety of folate-rich foods every day.

Screening

Screen for adequate folic acid intake by first asking the client what she knows about folic acid and then asking whether she is doing one of the following daily:

- A. Eating a cereal that has 100% of the daily value of folic acid
- B. Taking a vitamin with folic acid

If she is not doing A or B or is not sure, be sure to talk about folic acid as described in the "Interventions" section.

Interventions

As adolescents rarely are planning to become pregnant, traditional folic acid messages about birth defects prevention may not be effective. Focus on their interests, such as the beauty and overall health benefits of folic acid, specifically the benefits of healthy skin, hair and nails. Encourage them to make folic acid a part of their daily beauty regimen.

Print handouts back-to-back to save paper.

- Review the [Folic Acid is a B-Vitamin Your Body Needs Every Day](#) handout with the client. Talk about the importance of folic acid for healthy skin, hair and nails. Talk with her about how she can use food labels to find out how much folic acid is in cereal or a vitamin
- Use the [My Action Plan for Pretty Skin, Hair and Nails](#) handout to help the client achieve the recommended folate/folic acid intake

Follow-Up

Review the [action plan](#) with the client to determine if she achieved her goal(s) for behavior change.

If the client did not make any changes, talk with her about what prevented her from doing so. Review the benefits of folic acid and see which (if any) are important to her. Validate her feelings. Work with her to identify strategies for removing any barriers.

If the client made changes but still falls short of the recommended intake, praise her for the changes that she made. Work with her to revise her action plan (change or add goals).

If the client has made changes and achieved the recommended intake, praise for the changes that she made. Help her consider a new action plan from another section in the Guidelines.

Web Links Referenced/Additional Resources

Title	Resource Type	URL
Institute of Medicine Dietary Reference Intake tables	Document (PDF)	www.iom.edu/Activities/Nutrition/SummaryDRIs/~media/Files/ActivityFiles/Nutrition/DRIs/5_SummaryTableTables1-4.pdf
Cereals that contain 100% of the daily value (DV) of folic acid	Webpage	www.cdc.gov/ncbddd/folicacid/cereals.html
Farmers market locator	Interactive tool	http://search.ams.usda.gov/farmersmarkets/default.aspx
Folic Acid is a B-Vitamin Your Body Needs Every Day	Document (PDF)	www.cdph.ca.gov/programs/NutritionandPhysicalActivity/Documents/MO-NUPA-FolicAcidisaBvitamin.pdf
My Action Plan for Pretty Skin, Hair and Nails	Document (PDF)	www.cdph.ca.gov/programs/NutritionandPhysicalActivity/Documents/MO-NUPA-FolicAcidActionPlan.pdf
CDC folic acid resources	Webpage	www.cdc.gov/ncbddd/folicacid/index.html
Go Folic! Project – comprehensive folic acid website	Webpage, blog	http://gofolic.org/
Comprehensive preconception health website with folic acid resources	Website	www.everywomancalifornia.org Spanish version: www.cadamujercadadia.org

References

- Centers for Disease Control and Prevention. Spina Bifida and Anencephaly Before and After Folic Acid Mandate --- United States, 1995--1996 and 1999--2000. *MMWR*. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5317a3.htm>.
- Institute of Medicine (U.S.). Standing Committee on the Scientific Evaluation of Dietary Reference Intakes., Institute of Medicine (U.S.). Panel on Folate Other B Vitamins and Choline., Institute of Medicine (U.S.). Subcommittee on Upper Reference Levels of Nutrients. *Dietary reference intakes for thiamin, riboflavin, niacin, vitamin B6, folate, vitamin B12, pantothenic acid, biotin, and choline*. Washington, D.C.: National Academy Press; 1998.
- 2010 MIHA County Report: A Summary Report of County Snapshots and Geographic Comparisons from the Maternal and Infant Health Assessment Survey. Sacramento: California Department of Public Health, Maternal, Child and Adolescent Health Program; 2012.

My Action Plan for Pretty Skin, Hair and Nails



Name: _____

For pretty skin, hair and nails, make sure you get 400 micrograms of folic acid every day. Make your folic acid beauty plan below.

Things that I can do for pretty skin, hair and nails

Choose A or B to get 400 micrograms of folic acid:



A. Eat cereal that has 100% of my daily value (DV) of folic acid. I will read the labels to be sure.

OR



B. Take a vitamin with folic acid every day.

Eat foods with natural folic acid:

- Lightly cooked or raw vegetables such as broccoli, spinach, asparagus, or romaine lettuce
- Fruits such as berries, oranges or bananas
- Beans such as black beans, pinto beans or lentils



Am Doing	Steps I Will Take
<input type="checkbox"/>	<input type="checkbox"/>

Useful Websites:

- Find out which cereals have 100% of your daily value of folic acid by visiting www.cdc.gov/ncbddd/folicacid/cereals.html
- Buy fresh fruits and vegetables with natural folic acid at a farmers' markets near you. To find the closest markets and those that accept WIC, visit <http://search.ams.usda.gov/farmersmarkets/default.aspx>

Signature: _____

Date: _____

Folic acid is a B-vitamin your body needs every day.



- **Why take folic acid?**

Folic acid helps every cell in your body. Taking folic acid will help your skin glow, your hair shine, and your nails stay healthy and strong. Make folic acid part of your beauty routine.

- **How much folic acid do I need?**

You need at least 400 micrograms (mcg) of folic acid every day.

- **How can I get enough folic acid every day?**

There are two ways to get the 400 micrograms (mcg) of folic acid your body needs every day.



Eat one serving of a cereal that has all the folic acid you need every day. Many cereals do not have enough folic acid, so read the nutrition label on the box.

OR



Take a vitamin that has all of the folic acid you need every day.

Nutrition Facts		
Serving Size: 1 cup (55g)		
Servings Per Container: About 12		
Amount Per Serving	Cereal	With 1/2 cup skim milk
Calories	170	210
Calories from Fat	10	10
	% Daily Value	
Total Fat 1g	1%	2%
Saturated Fat 0g	0%	0%
Polyunsaturated Fat 0g		
Monounsaturated Fat 0g		
Cholesterol 0mg	0%	1%
Sodium 240mg	10%	13%
Total Carbohydrate 41 g	14%	16%
Dietary Fiber 5g	20%	20%
Sugars 20g		
Other Carbohydrate 16g		
Protein 4g		
Vitamin A	10%	15%
Vitamin C	0%	0%
Calcium	100%	110%
Iron	100%	100%
Vitamin D	10%	25%
Vitamin E	100%	100%
Thiamin	100%	100%
Riboflavin	100%	110%
Niacin	100%	100%
Vitamin B6	100%	100%
Folic Acid	100%	100%
Pantothenic Acid	100%	100%

Supplement Facts		
Serving Size: One Tablet		
Amount Per Serving		% Daily Value
Vitamin A	5000 IU	100%
Vitamin C	60 mg	100%
Vitamin D	400 IU	100%
Vitamin E	30 IU	100%
Vitamin K	25 mcg	31%
Thiamin (B1)	1.5 mg	100%
Riboflavin (B2)	1.7 mg	100%
Niacin	20 mg	100%
Vitamin B6	2 mg	100%
Folic Acid	400 mcg	100%
Vitamin B12	0 mcg	100%