

FOLIC ACID AND PREGNANCY

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Folic Acid & Pregnancy

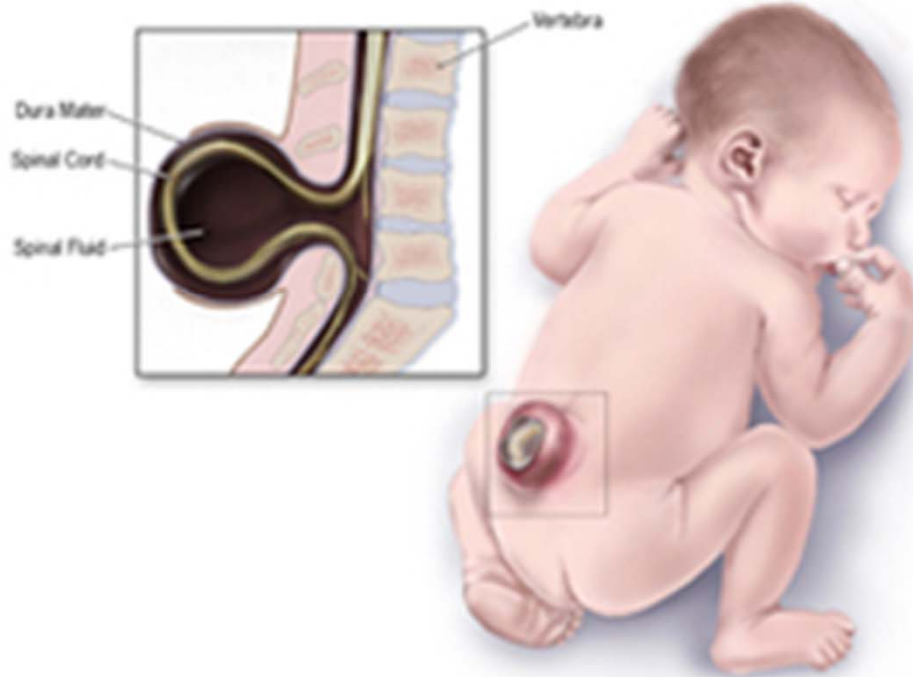
- Folic acid is a tablet form of a water-soluble vitamin B.
- Studies have shown that women who get 400 mcg (0.4 mg) of folic acid daily prior to conception and during early pregnancy reduce the risk that their baby will be born with a serious neural tube defect* by up to 70%.
- *A birth defect involving incomplete development of the brain and spinal cord.

Neural Tube Defects

- Occur during the first 28 days of pregnancy - usually *before* a woman even knows she's pregnant.
- That's why it's so important for all women of childbearing age to get enough folic acid - not just those who are planning to become pregnant.
- Remember, only 50% of pregnancies are planned, so any woman who could become pregnant should make sure she's getting enough folic acid.

Neural Tube Defects

Spina Bifida



Anencephaly



Source: Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities

Most common neural tube defects

- **Spina bifida:**
- An incomplete closure of spinal cord & spinal column; a condition in which the spinal cord is exposed, and causes a baby to be born with exposed nerves and damage to the vertebrae.
- If the vertebrae surrounding spinal cord do not close properly during the first 28 days after fertilization, the spinal fluid bulge through, usually in the lower back.

Data and Statistics (CDC, 2007)

- About 3,000 pregnancies affected by spina bifida or anencephaly
- An estimated 1,000 more babies are born healthy since fortification.
- 50% to 70% of these NTDs could be prevented if women took 400 mcg of folic acid daily, before and during pregnancy.

Another common neural tube defect

- **Anencephaly:**
 - severe underdevelopment of brain;
congenital absence of all or a major part
of the brain.

How much folic acid should you take?

- The U.S. Centers for Disease Control and Prevention (CDC) recommends that all women of childbearing age - and especially those who are planning a pregnancy - consume about 400 micrograms (0.4 mg) of folic acid *every day*.
- Sufficient folic acid intake is very important **1 month before conception and at least 3 months afterward** to potentially reduce the risk of having a fetus with a neural tube defect.

How much folic acid should you take?

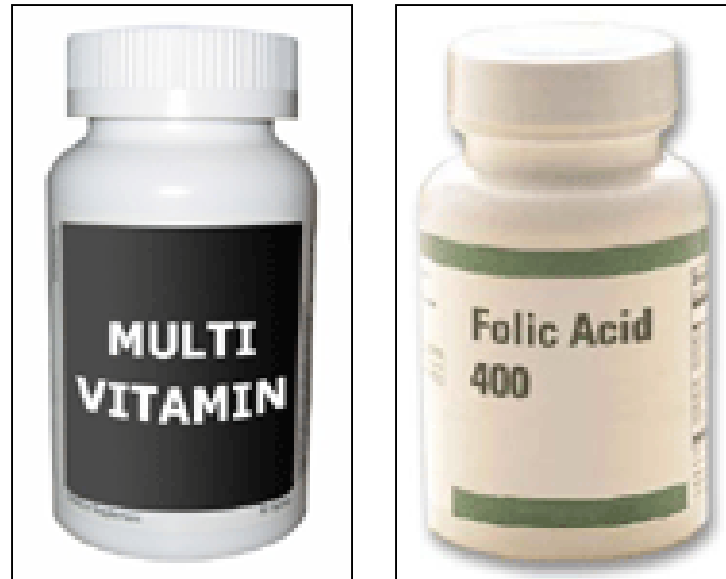
- If you are pregnant, take 600mcg of folic acid every day.
- If you are breastfeeding, take 500mcg of folic acid every day.
- If you have a family history of neural tube defects, and you are planning to become pregnant, you may need to take a higher dose of folic acid. Talk with your doctor.

Other Benefits of Folic acid

- IN CVS, lowers homocysteine levels; high level homocysteine associated with an increased risk of cardiovascular diseases; it impairs blood vessels results in the plaque formation & atherosclerosis.
- Also helps other conditions such as depression and schizophrenia.

How can women get folic acid?

- Take daily folic acid supplements (vitamin) that contain at least 0.4 mg of folate.



How can women get folic acid?

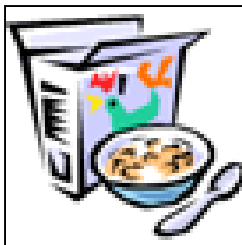
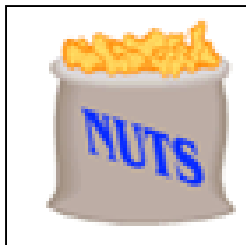
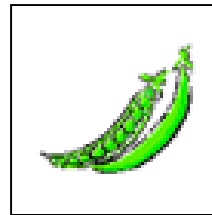
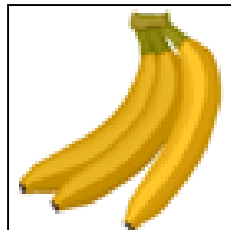
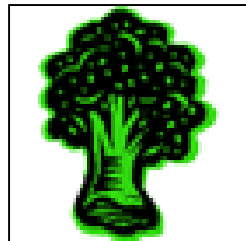
- Eat a serving of breakfast cereal that contains 100% of the daily value (DV) for folic acid each day.



Supplement Facts		
Serving Size: 1 tablet		
Amount Per Serving	% Daily Value	
Vitamin A	5000IU	100
Vitamin C	60mg	100
Vitamin D	400 IU	100
Vitamin E	30 IU	100
Thiamin	1.5mg	100
Riboflavin	1.7mg	100
Niacin	20mg	100
Vitamin B6	2mg	100
Folic Acid	400mcg	100
Vitamin B12	6mcg	100
Biotin	30mcg	10
Pantothenic Acid	10mg	100
Calcium	162mg	16
Iron	18mg	100
Iodine	150mcg	100
Magnesium	100mg	25
Zinc	15mg	100
Selenium	20mcg	100
Copper	2mg	100
Manganese	3.5mg	175
Chromium	65mcg	54
Molybdenum	150mcg	200
Chloride	72mg	2
Potassium	80mg	2

How can women get folic acid?

- Eat a healthy diet that contains lots of fruits and vegetables
 - broccoli, bananas, oranges, grapefruit, berries, peas, pastas, nuts, rice, bread, cereal, eggs



Conclusion

- The absence of folic acid increases the possibility of neural tube defects such as *Spina bifida* which is a defect in the development of spinal cord.
- The best way to prevent neural defects is to take the recommended 400 mcg of folic acid daily, for one month before conception and during the first three months of pregnancy.

How are neural tube defects diagnosed?

- They are detected through an Alpha-fetoprotein test (AFP).
- **AFP** is a blood test administered at 16-18 gestational weeks. It determine the probability that the fetus is at risk for certain birth defects.
- It measures alpha-fetoprotein, a substance produced by the fetus liver, secreted to the amniotic fluid, crosses the placenta into the maternal blood.
- The level of AFP in maternal blood peaks at about 30-32 weeks.

Elevated level of AFP

- Abnormally high amounts of AFP may indicate that a fetus has a neural tube defect.
- If the tube that becomes the brain and spinal cord does not close correctly during fetal development, AFP may leak through this abnormal opening and enter the amniotic fluid. This leakage creates abnormally high levels of AFP in amniotic fluid and in maternal blood.

What are other reasons for an elevated AFP?

- Mother is carrying twins
- A problem with placenta
- Birth defects such as severe kidney & liver disease, intestinal blockage, urinary obstruction, or osteogenesis imperfecta (fragility of baby's bones caused by defective or insufficient collagen).

Multiple Marker Test

- It measures the blood levels of three substances:
 - alpha-fetoprotein (AFP)
 - human chorionic gonadotropin (hCG)
 - unconjugated estriol (uE3)

Multiple Marker Test

- Sometimes referred to as the triple screen; can tell whether the baby is at an increased risk of having certain birth defects & genetic abnormalities.
- A low AFP, low estriol, and high hCG are associated with a higher risk for Down syndrome (trisomy 21).
- Low levels of all three mean the baby has an increased risk for trisomy 18, a more severe & less common chromosomal abnormality.
- It's important to understand that a "positive" or abnormal result doesn't necessarily mean that the baby has a problem.
- In fact, only 10% of women with abnormal results have babies with birth defects.

Clinical Relevance:

- An abnormal result means only that you may need additional testing, such as ultrasound or amniocentesis.