

Facts About Neural Tube Defects and its prevention

What is a neural tube defect?

The neural tube forms the baby's brain and spinal cord. The neural tube is completely formed at 26 to 28 days after conception. This is about the time most women find out they are pregnant. If the neural tube does not develop normally, the two most common defects that occur are Anencephaly and Spina Bifida.

Anencephaly

The infant may be born with anencephaly (no brain). It is caused by partial or complete absence of the baby's skull. The baby's brain is damaged without this protection and does not develop as it should. These babies die soon after birth.

Spina bifida

The infant may be born with spina bifida (an opening in the spine). A lump is present on the back that contains part of the spinal cord. The lump may be very small or as large as a grapefruit. Sometimes the defect does not have a skin covering. Spinal fluid may leak from the surface. Infection is always a danger until surgery and healing take place. Children with spina bifida can have problems such as paralysis (cannot walk), lack of bowel and bladder control and hydrocephalus (water on the brain).

Both genetics (inherited) and environment could cause neural tube defects. However, not enough is known to pinpoint one specific cause.

What can you do to prevent a neural tube defect in your baby?

The Centers for Disease Control and Prevention (CDC) want to prevent 50% to 75% of all neural tube defects. There is an easy way to do this. Childbearing age women (14 years to 40s) should take a multivitamin with 0.4 milligrams(400 micrograms) of folic acid before they become pregnant. If women wait until they find out they are pregnant to start taking a multivitamin, it is too late. The brain and spinal cord are already formed.

Almost half of all pregnancies are not planned. All women throughout their childbearing years should make it a part of their daily routine to take a multivitamin containing 0.4 milligrams (400 micrograms) of folic acid. They also need to eat foods high in folate. The amount of folic acid absorbed from foods is not enough to prevent birth defects. That is why women should do both: take a multivitamin with folic acid and eat foods high in folate. A list of foods high in folate is on the back of this brochure.

If you have had a baby with a neural tube defect, you can reduce the risk of it occurring in future pregnancies. Take a multivitamin with 0.4 milligrams of folic acid every day and eat foods high in folate. When you are trying to become pregnant, switch to 4 milligrams of folic acid every day. This level can only be given by a physician's prescription. Do not try to get this amount by taking more than one multivitamins.

Can neural tube defects be diagnosed during pregnancy?

A test that will detect most babies with neural tube defects can be done at 16 weeks of pregnancy. This prenatal blood test measures the level of the chemical alpha-feto-protein (AFP) in the mother's blood. AFP is a protein made by the baby's liver. An open area in the baby's spine causes AFP to leak into the amniotic fluid (the water surrounding the baby). The level of AFP in the mother's blood increases. This test is a screening test only. Ultrasound testing and amniocentesis (taking a sample of water surrounding the baby) can detect neural tube defects during pregnancy.

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Foods High in Folate

The list on the back of this brochure has foods that are good sources of folate (the natural form of folic acid found in foods). The list also has the amount of folate in micrograms (mcg.) by serving size. Folate from foods is not absorbed well by the body. Therefore, women should eat foods high in folate and take a multivitamin with 0.4 milligrams (400 mcg.) of Folic acid everyday. Example: 1 cup of orange juice and one cup of breakfast cereal would provide 200 mcg. of folate -- half the recommended amount. However, the body will not absorb the entire 200 mcg. Take a multivitamin to make sure you get enough folic acid. Folic acid -- make it a habit... everyday!

Food	Folate (mcg)
Chicken Liver, cooked (3 oz)	655
Product 19 Cereal (1 c)	400
Total Cereal (3/4 c)	400
Lentils, cooked (1 c)*	358
Brewer's Yeast (1 Tbsp)	313
Pinto Beans, cooked (1 c)*	294
Red Kidney Beans, cooked (1 c)*	229
Lima Beans, cooked (1 c)*	156
Spinach, cooked (1/2 c)	131
Broccoli, cooked (1 spear)	123
Asparagus, cooked (5 spears)	110
Orange Juice, frozen concentrate (1 c)*	109
Spinach, raw (1 c)	109
Most Breakfast Cereals (1 c)*	100
Wheat Germ, toasted (1/4 c)	100
Turnip Greens, cooked (1/2 c)	86
Chick-Peas, canned (1/2 c)	80
Romaine Lettuce, shredded (1 c)	76
Split Peas, cooked (1/2 c)	64
Cantaloupe (1 c)	48
Peas, cooked (1/2 c)	47
Brussel Sprouts, cooked (1/2 c)	47
Beets, cooked (1/2 c)	45
Cauliflower, cooked (1/2 c)	32

Source: USDA Handbook 8 and manufacturers. * Food items available on WIC Food Package

Recently, it has become clear that one of the throbophilic mutations (MTHFR) is associated with poor folate metabolism due to a defective enzyme. Such individuals are subject to folate deficiency problems. Inappropriate folate metabolism has been associated with defective DNA and RNA production. In fetuses, this leads to defective organ development and chromosomal defects such as Down Syndrome. In adults, defective DNA leads to increased risk for all kinds of cancers. A recently introduced nutritional supplement restores normal levels of folate in patients that suffer from the MTHFR gene mutation. This is called Metanx and can be obtained only by prescription. Ask your doctor to prescribe it for you.