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Folic acid is a B vitamin. If a woman gets enough folic acid before and during early pregnancy, it can help prevent neural tube defects (major defects of the baby's brain or spine). Women need 400 micrograms of folic acid every day. Women can get folic acid by taking a vitamin with 400 micrograms of folic acid in it or eating food that is fortified with folic acid (such as some breakfast cereals and foods made with flour enriched with vitamins). Neural tube defects are serious birth defects of the brain and spine. They develop very early in pregnancy when the neural tube, which becomes the brain and the spine, does not close properly. Folic acid is needed for the neural tube to close properly. Starting folic acid intake after the time in development that the neural tube should have closed (after 6 weeks of pregnancy) will not prevent neural tube defects. The two most common neural tube defects are spina bifida (affects the spine) and anencephaly (affects the brain). CDC urges all women capable of becoming pregnant to take 400 micrograms of folic acid every day to help prevent neural tube defects (major birth defects of the baby's brain or spine). The terms 'folic acid' and 'folate' are often used interchangeably. However, folate is a general term used to describe vitamin B9 which comes in different forms. These include: folic acid, dihydrofolate (DHF), tetrahydrofolate (THF), 5'-10' methylenetetrahydrofolate (5'-10' MTHF), and 5' methyltetrahydrofolate (5-MTHF) [1]. Folic acid is the synthetic (man-made) form that is used in vitamin supplements and in fortified foods such as rice, pasta, bread and some breakfast cereals. Folic acid has been shown to be effective in preventing neural tube defects in many scientific studies and in countries around the world [2-6]. Folate can be found in foods such as leafy green vegetables, citrus fruits, and beans. Women should eat a balanced diet of food rich in natural folate. However, it is very difficult for most women to get the daily recommended amount of folate through food alone [7]. The effectiveness of supplements containing some form of folate other than folic acid (such as 5-MTHF, or labeled "Natural Folate") for preventing neural tube defects has not been studied. Folate in food is easily broken down by heat and light. Folic acid is the more heat-stable form of vitamin B9 and is, therefore, better suited for food fortification since many fortified products, such as bread, are baked [8]. Folic acid has been shown to be effective in preventing neural tube defects in randomized control trials, community intervention programs, and food fortification programs. [2-6] Folic acid is easily absorbed in the body and studies have shown that it can increase blood folate concentrations across populations (including those with the MTHFR TT variant-see below for addition information) [9, 10]. Blood folate concentration is the amount of folate measured in the blood. When a woman gets folic acid through foods or supplements, her blood folate concentration increases. When blood folate concentration is too low, there can be medical issues. Very low blood folate concentrations can cause a form of anemia called megaloblastic anemia. Having enough folate in the blood can help improve a woman's health and can reduce her risk of having a pregnancy affected by a neural tube defect [11]. Once a woman starts taking 400 micrograms of folic acid every day it can take several months to reach a blood folate concentration that is high enough to help prevent neural tube defects. The amount of folic acid and/or food folate and the length of time it is consumed before pregnancy are the most important factors in achieving a blood folate concentration that is high enough to help prevent neural tube defects. Yes. All women, including those who have the MTHFR TT or CT genotype, can benefit from getting 400 micrograms of folic acid each day, especially before and during early pregnancy. MTHFR (methyltetrahydrofolate reductase) is an enzyme that plays a role in how people process folate. A common variant of the MTHFR enzyme (also known as the MTHFR TT or CT genotypes) determines how fast certain people can process folate. Even though women with the MTHFR TT or CT genotype process folate more slowly, they can increase their blood folate concentrations enough to help prevent neural tube defects by taking the recommended daily amount (400 micrograms) of folic acid [11]. Research studies have shown that in populations with high levels of the MTHFR TT or CT genotype, getting 400 micrograms of folic acid daily before and during early pregnancy can reduce the risk of neural tube defects by up to 85% [5, 11]. Many studies have shown that consuming folic acid increases blood folate concentrations. For example a research study showed that after three months of consuming 400 micrograms folic acid, blood folate concentrations increased over 250% among women with the MTHFR TT genotype [9]. Crider, K.S., L.B. Bailey, and R.J. Berry, Folic acid food fortification-its history, effect, concerns, and future directions. *Nutrients*, 2011. 3(3): p. 370-84. De Wals, P., et al., Reduction in neural-tube defects after folic acid fortification in Canada. *N Engl J Med*, 2007. 357(2): p. 135-42. De Wals, P., et al., Spina bifida before and after folic acid fortification in Canada. *Birth Defects Res A Clin Mol Teratol*, 2008. 82(9): p. 622-6. Czeizel, A.E. and I. Dudas, Prevention of the first occurrence of neural-tube defects by periconceptional vitamin supplementation. *N Engl J Med*, 1992. 327(26): p. 1832-5. Berry, R.J., et al., Prevention of neural-tube defects with folic acid in China. 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