

Folic Acid and the Prevention of Spina Bifida and other Neural Tube Defects

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What is spina bifida?

The central nervous system is one of the first parts of the body to develop and the neural tube, from which the spinal cord and brain develop, is formed within the first 25 days of pregnancy. Spina bifida happens when the neural tube doesn't develop properly, and that is why it is called a 'neural tube defect' (NTD). In spina bifida, one or more of the bones in the spine fails to develop properly leaving a gap and the spinal cord and nerves can be damaged.

Other neural tube defects include anencephaly (the absence of a brain) and encephalocele (a malformation of the brain and skull). For more information on the different types of NTDs see ASBAH's information sheets: What is spina bifida? Spina Bifida Occulta and Anencephaly.

What is the risk of having a baby with spina bifida?

If a couple have already had a child with spina bifida (or have had a pregnancy affected by spina bifida) the risk of it happening in another pregnancy is about 1 in 35.

For the general population the risk varies from 1 in 300 to 1 in 1,000.

Can spina bifida be prevented?

Research has shown that women who have had a pregnancy affected by a neural tube defect can greatly reduce their chances of it happening again, simply by taking a daily vitamin supplement (tablet) of folic acid, before pregnancy and for the first 12 weeks of pregnancy. Folic acid is a B vitamin.

The clinical trial, which produced these results, was carried out by the Medical Research Council. The trial was conducted in seven countries and the results were announced in 1991.

The women, who took part in the trial, and each child born during the trial, were checked for possible adverse effects. The infants continued to be monitored until their third birthday. No ill effects caused by folic acid supplements have been reported in either the mothers or their babies.

What does this mean in practice?

Women at higher risk of having a baby with an NTD should take a daily 5mg tablet of folic acid for at least one month before conception and then throughout the first 12 weeks of pregnancy. These 5mg tablets have to be obtained on prescription from a doctor.



Women considered to be at higher risk of having a neural tube defect pregnancy include those who:

- have had a previously affected pregnancy
- have an NTD themselves (or their partner has an NTD)
- have a family history of NTD or whose partner has a family history of NTD.
- have diabetes mellitus
- are very overweight
- have the "significant" form of spina bifida occulta (*see the spina bifida occulta leaflet*)

Women in families where there has been spina bifida or another NTD in other relatives, may wish to receive genetic counselling. In these cases, they should ask their doctor to refer them to a genetic counsellor.

Women who may become pregnant but who have not been identified as being in a high-risk group should also take the vitamin, folic acid. The Department of Health recommends a lower daily dosage for these women of 0.4mg (400mcg). These tablets can be found among the vitamin displays in pharmacies; health food shops and supermarkets. Again, these should be taken for at least one month before conception and then until the end of the 12th week of pregnancy.

A healthy diet can help

Women who are planning to become pregnant should also make sure that their diet includes foods which contain folate (this is folic acid in its natural form found in food).

Foods in which folate naturally occurs include baked beans, chick peas, green leafy vegetables, lentils, orange juice, oranges, peas, rice, soya beans, split peas and sprouts. Vegetables should be lightly cooked or steamed as over-boiling destroys their vitamin content.

Although it contains folate, liver should not be eaten: liver contains high levels of vitamin A, which could harm the unborn baby. Additional vitamin A supplements (tablets) should not be taken.

More information about folate in the diet can be found on the Food Standards Agency website at: www.eatwell.gov.uk

Recently (June 2007) the Food Standards Agency has decided to recommend to the Department of Health that the vitamin folic acid should be added to bread, to help prevent NTDs. However, if this recommendation comes into force, folic acid fortification will be at a low level and women planning a pregnancy will still need to take a daily supplement (tablet) of folic acid to provide the best protection against NTDs.

Some substances may affect the absorption of folic acid so women taking any medication should check this out with their doctor. Those with epilepsy and on anti-convulsant medication should consult their neurologist before taking folic acid, as folic acid and some anti-convulsants can be antagonists (i.e. work against each other).

Further information

More information about diet and vitamin supplementation can be obtained by contacting ASBAH's helpline service, GPs, health visitors, hospital doctors, dieticians and pharmacists.

If you have any questions about this leaflet please contact ASBAH helpline on Tel. No: 0845 450 7755 or e-mail helpline@asbah.org

Link magazine

The essential magazine for people with hydrocephalus and spina bifida.

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