

This fact sheet is intended to help women who plan to have children understand what folic acid is, why it is important and how to get their recommended daily intake of this essential nutrient.

## What is folic acid?

'Folate' is a naturally occurring, water-soluble vitamin. It was first identified in spinach leaves and was named 'folate' because of its presence in foliage (green leaves).

'Folic acid' is the manufactured version of folate that is used in most supplements and in fortified food.

It is used by the body to make red blood cells and the genetic material DNA. Your cells also need it to be able to divide.

## Why is folic acid important?

As early as 1931 folic acid was thought to prevent certain types of anaemia, particularly in pregnancy. In 1965 it was suggested that folic acid might help prevent neural tube defects (NTDs) such as Spina Bifida and Hydrocephalus. It was not until 1991, sixty years after the first suggestion that folic acid might be needed for a healthy pregnancy, that research proved low folic acid was a cause of NTDs.

Folic acid and folate are measured in micrograms. The symbol for micrograms looks like this:  $\mu\text{g}$ . These days the World Health Organisation and most governments advise women who are planning to become pregnant to take 400 $\mu\text{g}$  (micrograms) of folic acid for three months before pregnancy, and for at least the first three months of pregnancy. This helps to protect the unborn child from birth defects which are caused by the neural tube not forming correctly. The recommended dose is higher for several groups of people (see later, under 'recommended intakes').

The neural tube is where the brain and spinal cord develop, it starts as an open tube in the first four weeks of pregnancy when most women don't even know they are pregnant. Without enough folic acid the neural tube cannot close properly. The open tube can leave the baby's brain and spinal cord exposed to the open air at birth and this can only be closed with surgery.

NTDs cannot be diagnosed until the 20 week scan (five months pregnant). Around 700 pregnancies a year in the UK are affected by these serious birth defects. Around 500 of these pregnancies result in late stage termination and 200 go on to live birth. A child born with NTDs will have serious lifelong disabilities and need a lifetime of medical care, probably including multiple operations. It is estimated that the average lifetime cost of NTDs to the NHS is around £500,000 per person.

## Where is it found?

Folate is found in all green leafy vegetables as well as beans and legumes such as chick peas and lentils, oranges and orange juice, fortified breakfast cereals, yeast extract and some organ meats such as liver.

Folic acid can also be found in food supplements; many products contain 200 $\mu\text{g}$  of folic acid which is the recommended intake for most of the population. Products formulated for women of childbearing age often contain 400 $\mu\text{g}$  of folic acid.

Food supplements containing folic acid are widely available from pharmacies, supermarkets and health food shops.

## Recommended intakes

There are different recommended intakes for folic acid.

Everyone is advised to consume at least 200µg of folic acid a day from their diet. Eating a varied well-balanced diet with plenty of fruit and vegetables every day should provide this.

Women planning a pregnancy should take an additional daily food supplement containing 400µg of folic acid, over and above the 200µg recommended daily intake from the diet, for at least three months before pregnancy and for the first 12 weeks of pregnancy. Supplements are recommended because it can be difficult to get this much extra folate from diet alone.

People who take the drug methotrexate also take a regular dose of folic acid. If this is you, speak to your GP or specialist about when to stop your methotrexate if you are planning a pregnancy.

### Higher-dose folic acid

Some women have a greater risk of having a baby with a neural tube defect and are advised to take the much higher dose of 5 milligrams (mg) of folic acid each day - more than ten times the usual dose - until they're 12 weeks pregnant, or throughout pregnancy in a few cases.

You may have greater risk if:

- ♦ you or the baby's biological father have a neural tube defect or a family history of neural tube defects
- ♦ you have had a previous pregnancy affected by a neural tube defect
- ♦ you have diabetes
- ♦ you take anti-epilepsy medicine
- ♦ you take anti-retroviral medicine for HIV
- ♦ you have sickle-cell disease, thalassaemia or thalassaemia trait (in which case you should take 5mg throughout your pregnancy)
- ♦ you have a BMI of over 30
- ♦ you have inflammatory bowel disease

If any of these applies to you, talk to your GP soon. They can prescribe the higher dose of folic acid.

## Folic acid deficiency

The UK government runs an ongoing survey of the nation's diet called the National Diet and Nutrition Survey (the NDNS). The NDNS looks at what people are eating, the levels of vitamins and minerals in the foods being eaten, and whether people are getting enough of what they need. The NDNS also measures blood levels for some nutrients, including folic acid.

NDNS data show that 91% of women of childbearing age in the UK have blood levels of folate that are too low to protect against NTDs. If these women do not take supplements of 400µg of folic acid before becoming pregnant, their unborn children may be at risk of developing a neural tube defect.

As approximately half of all pregnancies in the UK are unplanned, NICE recommends that health care professionals should direct any woman who *could become* pregnant to take at least 400µg of supplemental folic acid every day.

## Safety and Risks

Because folic acid is a water soluble vitamin it is a very safe substance. It is safe with a daily intake of up to 1,000µg (or 1 milligram).

Deficiency of both folic acid and vitamin B12 can cause forms of anaemia and very high intakes of folic acid may mask vitamin B12 deficiency anaemia. Long term intake of more than 5mg would only be prescribed by a doctor, who would use regular blood testing to make sure the patient remains healthy. In the rare instances where women may be advised to take very high dose folic acid, for example if there is a family history of NTDs, it is worth considering taking a vitamin B12 supplement at the same time.

## Coronavirus

It is still important to be mindful about coronavirus (COVID-19) symptoms, which are the same for adults and children and can include : a high temperature, a new and continuous cough, a loss or change to your sense of smell or taste, feeling tired, shortness of breath, headache, sore throat, diarrhoea, feeling sick or being sick, aching muscles, a blocked or runny nose. These are similar to symptoms of illness such as colds and flu.

You should consult the advice specific to your area in the UK.