



Healthy mum and baby

When you're pregnant, you should get most of the vitamins and minerals you need by eating a healthy, varied diet – but you also need to take folic acid, vitamin D and other supplements. Find out why, what to take and where to get them, as well as what to avoid.



Pre-conception and pregnancy are hugely important life stages as this is a time when the nutrition of one person can have lifelong impacts on the foetus that is also developing. Nutrient shortfalls and deficiencies which may only create minor, short-term symptoms in the mother, may have lasting effects on many aspects of health for the unborn child, potentially lasting into adulthood. Evidence from several studies have led to both UNICEF and the WHO stating that nutrition in the first 1,000 days of life, from the point of conception, can affect lifelong health, influence the development of disease, and may be associated with the development of cardiovascular disease and type 2 diabetes.

NUTRITIONAL DEFICIENCY

National Diet and Nutrition Surveys in the UK already indicate that many women have an insufficient intake of some

vitamins and minerals from their diets and these include folate, iron, choline, zinc. Given that the requirements for some of these nutrients increases during pregnancy, it is clear that some women are not starting pregnancy well prepared, nutritionally.

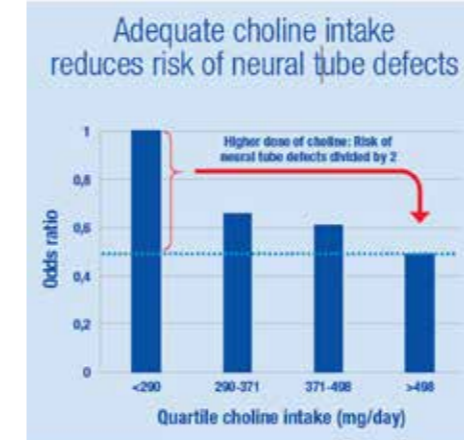
FOLIC ACID

One of the best-known vitamins linked to pregnancy is folate or folic acid. This nutrient is part of the B vitamin group and is also referred to as vitamin B9. There are several forms of this nutrient, with folate being the most common form found in foods and folic acid commonly used in supplements. Both forms require conversion to a biologically active compound called 5-methyltetrahydrofolate or 5MTHF before it can be used by the body. The process of this conversion is called methylation, and this is also the term used for the processes for which 5MTHF is needed for. Methylation is essential for

many, biologically essential processes in the body including gene expression, hormone, neurotransmitter and amino acid expression, detoxification and growth and development.

During pregnancy, cells divide rapidly, and those of the neural tube require a large number of nucleotides to aid DNA replication, and folate is involved in the synthesis of these molecules. Numerous studies have found that higher blood levels of folate, and therefore folic acid and folate supplementation, decreases the risk of neural tube defects developing during early pregnancy, with an optimal level being than 906nmol/L. Troublingly, NDNS indicate that 90% of women of childbearing age have folate levels low enough to increase the risk of NTDs.

Also concerning for those planning a pregnancy or who are already pregnant, is the data which suggests that 1 in 3 women cannot metabolise folic acid or folate from foods sufficiently, due to mutations in the gene which codes the



enzyme methyltetrahydrofolate reductase (MTHFR). This is essential for the conversion of folate to the body ready 5MTHF form and any issues in this conversion can prevent proper methylation and increase the risk of low folate status and NTDs.

Poor folate status and issues with methylation can also lead to higher levels of a compound called homocysteine in the blood. This compound is associated with a variety of pregnancy complications including early pregnancy loss, growth restriction, pre-eclampsia, pre-term delivery and placental abruption, due to effects on the formation of blood clots, increases on oxidants and issues with vascular function. High homocysteine is also associated with gestational diabetes. Given the importance of adequate folate in the red blood cells, following the government's advice of taking 400µg of folate a day, prior to and during pregnancy. Using the methylated form of this nutrient is advisable, as it raises folate levels 46% more than folic acid in a 12-week period.

CHOLINE

Another nutrient closely related to NTDs is choline, an essential nutrient most closely related to the B vitamins. Like folate, it plays a key role in the methylation cycle, allowing the body to convert any excess homocysteine to methionine.

Again, evidence suggests that even prior to pregnancy, choline intakes in women are below what is optimal and when asked, only 21% of people were aware of the importance of choline during pregnancy and breastfeeding. Choline requirements increase by 20% in pregnancy and 30% during breastfeeding and intakes fall 130-200mg short of this requirement. Increasing choline intake has been shown to decrease the risk of NTDs



by as much as 50%.

Choline is also a key nutrient in brain development and normal liver function in the foetus as well as in exclusively breast-fed babies, with evidence showing that memory, processing speeds and recognition are better in infants whose mothers have a higher intake of choline.

IODINE

Iodine is also of high importance at this time as requirements for iodine increase to meet higher maternal needs and foetal requirements. It is essential to produce thyroid hormones which then regulates brain and neural development. Iodine excretion also increases via the kidneys at this time. NDNS suggest that over 40% of women failed to meet the recommended intake of iodine in 2010, and more recent updates show that iodine intakes have decreased further in the decade since then. Low iodine status was associated with a lower IQ at the age of eight years and lower reading accuracy and comprehension at age nine years.

VITAMIN D

Vitamin D is another nutrient vital for normal pregnancy and beyond, as it can

affect most cells of the body due the almost ubiquitous presence of vitamin D receptors. Whilst bone health in both mother and foetus is probably best understood, there is evidence linking low vitamin D status to an increased risk of hypertension, pre-eclampsia and gestational diabetes during pregnancy, as well as preterm birth and low birth weight. One study from 2023 showed that the link between low vitamin D status as a predictor for pre-term birth is particularly significant for black women, due to their lower ability to make vitamin D from sunlight. There are also associations between low maternal vitamin D and increased risks of developing conditions such as asthma, eczema and allergies in childhood.

MULTIVITAMINS

Choosing a multivitamin and mineral product which provides relevant nutrients during pregnancy, along with a good level of choline, is vital and Lamberts Multi-Guard Pregnancy is an excellent choice. Formulated with 400µg of methylfolate and 130mg choline, along with relevant levels of other vitamins and mineral, it is also free from vitamin A and suitable to use

IRON

Iron deficiency is one of the most common nutritional deficiencies in pregnancy, which is unsurprising as, according to NDNS, 90% of menstrual age women do not meet the daily requirement for this mineral from their diets. More iron is required during pregnancy to allow for a greater maternal blood volume to support the placenta and foetus. Ensuring an adequate iron intake during pregnancy is also important to counteract the losses which occur during and immediately after delivery and minimise the risk of any complications. Low iron status after birth can also lead to symptoms such as poor cognition and depression in the mother. Adequate iron status and intake is required for adequate growth as well as cognitive and motor development in the foetus. Iron status and intake in early pregnancy has also been shown to be inversely correlated with capillary surface area in the placenta, which may then have a role in gas exchange between mother and foetus.



“SEVERAL STUDIES ALSO INDICATE AN ASSOCIATION BETWEEN EXERCISE IN PREGNANCY AND COGNITIVE DEVELOPMENT”

prior to conception, during pregnancy and breastfeeding.

MAGNESIUM

Magnesium is another mineral which is of concern for women, as over 70% do not meet the daily requirement for this mineral. Magnesium contributes to over 300 processes in the body including normal muscle function, normal energy production and normal bones and teeth. Magnesium levels decrease during pregnancy and magnesium insufficiency has been linked to leg cramps, pre-term labour and pre-eclampsia. There is also evidence to suggest that low intakes and blood levels of magnesium during pregnancy may affect health of the child later in life. Lower magnesium in pregnancy has been correlated to SIDS and the development of abnormal fat metabolism and insulin resistance. A magnesium supplement, such as Lamberts Magasorb, should be considered alongside a multivitamin. This provides 150mg of elemental magnesium per tablet in the citrate form which has been shown to be better absorbed than some other magnesium salts.

FATTY ACIDS

A Mediterranean style diet has been shown to be one of the best diets to follow for many areas of health. It focuses on polyphenol, potassium and magnesium rich fruits and vegetables, foods such as nuts and seeds which contain both Omega-3 and -6 fatty acids,

EXERCISE

Exercise is also another important lifestyle consideration which can have a significant effect on health during pregnancy and pregnancy outcomes and should be of no risk to a normal, single pregnancy, at all. Exercising regularly is associated with:

- Up to a 90% reduction in the risk of developing gestational diabetes
- Reduction in urinary incontinence
- Reduced risk of C-section and increased chance of a normal delivery
- Lower risk of hypertension and pre-eclampsia
- Reduction of back and pelvic pain
- Fewer feelings of anxiety and decrease in pre-natal depression
- Shorter labour

Several studies also indicate an association between exercise in pregnancy and cognitive development, including increased IQ scores, language development, academic and sports performance and improved neuromotor skills, which can last well into childhood and adolescence.

olive oil and lean meats and oily fish, such as herring, mackerel, salmon, and sardines which are also rich in Omega-3 fats. Processed foods are discouraged, and the emphasis is on the consumption of fresh, unprocessed, or minimally processed foods which are naturally much lower in sugar, salt, and trans and hydrogenated fats. Recent evidence also shows that the Mediterranean diet can be useful for pregnancy, with studies showing that following it closely during pregnancy can reduce the risk of pre-eclampsia by 20% and improve the neurodevelopment of the child, when measured at two years old.

As the NHS advises that frequent intake of oily fish is avoided, due to concerns regarding environmental contaminants and as NDNS data shows that the intake of oily fish is low, a fish oil supplement

should be considered. Higher intakes of Omega-3 fatty acids have been associated with a lower risk of pre-term and premature delivery and low-birth weight infants. Choosing a fish oil supplement which is screened for toxins and undergoes an extensive purification process such as Lamberts Fish Oil 1100mg, will ensure an adequate intake of the important Omega-3 fatty acids.



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