

VITAMINS and MINERALS IN PREGNANCY and LACTATION

Information in this leaflet is general in nature and should not take the place of advice from your health care provider. With every pregnancy there is a 3 to 5% risk of having a baby with a birth defect or developmental problem.

It is important to have a healthy diet during pregnancy and lactation to ensure your baby grows and develops well. The best way to meet your and your baby's nutritional needs is to eat a wide variety of nutritious foods. The vitamins and minerals discussed in this factsheet are of particular importance in pregnancy and lactation.

Folic acid

Folic acid (or folate) is a B vitamin. It is used to make new cells. The need for folic acid is higher when cell turnover is increased, such as in fetal development. If a woman has enough folic acid in her body before she is pregnant, it can help prevent major birth defects in her baby's brain and spine. These birth defects are called neural tube defects (NTDs). Folic acid can help reduce the risk of spina bifida by up to 70%¹ and may also reduce the risk of cleft lip and palate.

In Australia all wheat flour used for making bread has been fortified with folic acid since September 2009. (One standard slice of bread will supply approximately 40micrograms of folic acid.) Green leafy vegetables, whole grains and fruit are also good sources of folic acid. Women capable of, or planning pregnancy should consume at least 400micrograms per day of folic acid as a supplement for at least one month before and three months after conception, in addition to consuming folate from a varied diet². In Australia, supplementation is usually with at least 500micrograms (=0.5mg) per day of folic acid - as this is the tablet strength available on the market. Multivitamin preparations formulated for pregnant women will also contain sufficient folic acid.

A higher 5mg daily dose of folic acid should be used when there is an increased risk of neural tube defects³ (eg: women who had a neural tube defect themselves, women with a family history of neural tube defects, women taking some anticonvulsant medications, or with pre-pregnancy diabetes mellitus)

Women at increased risk of folate deficiency (eg: multiple pregnancies, haemolytic anaemia, overweight (with a BMI >30), malabsorption syndrome, inflammatory bowel disease) should take 5mg of folic acid throughout the pregnancy. Discuss with your doctor whether you need to take a higher dose.

Iron

In the second and third trimester of pregnancy, there are increasing iron demands due to an expanded red cell volume and demands of the developing foetus and placenta. Iron supplementation is not necessary in every pregnancy. Discuss with your doctor whether you are at risk of iron deficiency and need additional supplementation³. Iron does not have a critical role in the first trimester to prevent birth defects.

Iron supplementation may be necessary after the birth, and is safe in breastfeeding mothers, as iron passes very poorly into the breastmilk.



Calcium

Calcium is important in pregnancy and in breastfeeding for foetal growth and breast milk production. There is increased absorption of calcium from the gut during pregnancy, which reverts to normal during breastfeeding. During breast feeding, when 120 to 500 mg/day is secreted in breast milk, there is extra stress on the mother's bones⁴. Calcium may be mobilised from the maternal skeleton to meet the high demand for foetal growth towards the end of gestation and for breastmilk production during lactation. Calcium will be restored to the maternal skeleton in the later stages of lactation and after weaning⁵. Good sources of calcium include dairy foods or calcium supplements. (eg: 250mL of milk contains 285 mg of calcium, 200g tub of yoghurt contains 340mg of calcium)

Vitamin D

Vitamin D is needed for the body to absorb and use calcium. Some women may be at increased risk of vitamin D deficiency including those with reduced sun exposure (dark-skinned and veiled women may be at particular risk), inadequate dietary intake or gastrointestinal disease. Adverse health outcomes have been linked to low vitamin D levels during pregnancy and infancy. Discuss with your doctor whether you are at risk of vitamin D deficiency and need additional supplementation³. If additional supplementation is required, the dose recommended will depend on your blood level of Vitamin D.

Iodine

Iodine deficiency in the community is thought to be increasing due to reduced intake³. To address this problem, most bread in Australia and New Zealand contains added iodine⁶. Iodine intake in pregnancy of 220micrograms per day is recommended² (unless thyroid disease is present). The increased intake can be achieved by use of a pregnancy and lactation vitamin supplement containing iodine. If your doctor is concerned about iodine deficiency, thyroid function tests may be requested. Single urine tests for iodine do not provide useful information. If iodine deficiency is diagnosed, supplementation of iodine of up to 500 micrograms per day may be required.

Vitamin A

Vitamin A is a fat-soluble nutrient, essential for normal cell development, embryonic development, and vision and immune function. Vitamin A comes in a number of forms. Preformed vitamin A is found in animal - derived food. Vegetables and fruit provide carotenoids, the most common of which is beta-carotene. Beta-carotene is converted to retinol in the body. The conversion of beta-carotene to retinol is regulated by the vitamin A needs of the individual therefore excessive ingestion of beta-carotene does not give rise to excess levels of vitamin A. Supplements provide vitamin A as retinyl esters, which are readily converted to retinol. Care should be taken to ensure there is not excessive intake of vitamin A in this form (retinol), as this may increase the risk of birth defects in pregnancy.

Multivitamins

Multivitamin preparations designed for pregnancy and lactation will cover the majority of vitamin needs. Formulations vary so check the label to ensure you will be getting adequate intake. Not all formulations contain iodine and the amount of iron also varies.

*For more information call MotherSafe: NSW Medications in Pregnancy and Breastfeeding Service
on 9382 6539 (Sydney Metropolitan Area) or 1800 647 848 (Non-Metropolitan Area) Monday -Friday 9am-5pm
(excluding public holidays)*



NHMRC RECOMMENDED Dietary Intake ²

| | Pregnancy (RDI) | Lactation(RDI) |
|----------------------------------|--|--|
| folic acid | 600micrograms/day | 500micrograms/day |
| iron | 27mg/day | 9mg/day |
| calcium | 1000mg/day | 1000mg/day |
| vitamin D | 5micrograms/day = 200IU | 5micrograms/day = 200IU |
| iodine | 220micrograms/day | 270micrograms/day |
| vitamin A (retinol equivalents) | 800micrograms/day (750micrograms = 2500IU) | 800micrograms/day (750micrograms = 2500IU) |

What does recommended daily intake (RDI) mean? ²

The Recommended Daily Intake (RDI) is defined as the average healthy dietary intake that is sufficient to meet the nutrient requirements of nearly all (97-98%) healthy individuals in a particular life stage or gender group.

Consider consulting a dietician for further advice if you have specific issues you wish to discuss or any additional concerns.

References:

1. Folic Acid. Centers for Disease Control Available at <http://www.cdc.gov/ncbddd/folicacid/index.htm> Accessed 19/11/10
2. Nutrient Reference Ranges for Australia and New Zealand Including Recommended Dietary Intakes. National Health and Medical Research Council. Commonwealth of Australia 2006. Available at http://www.nhmrc.gov.au/files_nhmrc/file/publications/synopses/n35.pdf Accessed 19/11/10
3. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists: College Statement. Vitamin and Mineral Supplementation in Pregnancy .C-Obs 25. Oct 2013 (C-Obs 25) Vitamins and Mineral Supplements in Pregnancy http://www.ranzcog.edu.au/component/docman/doc_download/958-c-obs-25-vitamin-and-mineral-supplementation-in-pregnancy.html?Itemid=341
4. Endocrine disorders and pregnancy. Endocrinology Expert Group. Therapeutic Guidelines: endocrinology. Version 4. Melbourne. Therapeutic Guidelines Limited; 2009.
5. Sanders KM et al. Calcium and Bone Health: position statement for the Australian and New Zealand Bone and Mineral Society, Osteoporosis Australia and the Endocrine Society of Australia. MJA 2009; 190: 316-320
6. Food Standards Australia New Zealand. http://www.foodstandards.gov.au/code/userguide/documents/Rewrite%20Mandatory%20Iodine%20Fortification%20User%20Guide%20Formatted%20Master_.pdf

Additional Information

- <https://www.thewomens.org.au/health-information/pregnancy-and-birth/a-healthy-pregnancy/food-nutrition-in-pregnancy/>
- NSW Food Authority. Food Safety During Pregnancy available at http://www.foodauthority.nsw.gov.au/Documents/consumer_pdf/pregnancy-brochure.pdf
- Food Standards Australia and New Zealand <http://www.foodstandards.gov.au/consumer/generalissues/pregnancy/folic/pages/default.aspx>
- <http://www.foodstandards.gov.au/consumer/safety/listeria/documents/listeria-1.pdf>
- http://www.foodstandards.gov.au/consumer/chemicals/mercury/documents/mercury_in_fish_brochure_lowres.pdf
- Joshi, D et al. Vitamin D deficiency in adults. Aust Prescr 2010;33:103-6. Available at <http://www.australianprescriber.com/magazine/33/4/103/6>
- <http://www.genetics.edu.au/Publications-and-Resources/Genetics-Fact-Sheets/FactSheetELSI>
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