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Nutrition Update Newsletter July 2023

A NEWSLETTER FOR PROFESSIONALS

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Prenatal Nutrients of Concern

Eating well is critical for those who are of childbearing age to ensure the best possible outcomes for them and their infants.

A fetus and an infant are both dependent on maternal stores of micronutrients. Therefore, preconception to postnatal time is seen as a continuum. Nutrients worth special attention during these critical periods include: iron, folate, vitamin B12, calcium, and vitamin D. There is also emerging evidence in the importance of omega-3 fatty acids, choline and iodine.

Because half of all pregnancies are unplanned, any nutrient deficiencies need to be prevented or treated preconception. Nutrient stores need to be maintained throughout pregnancy and lactation.

Iron—Pregnant women during their second and third trimesters, require more iron to support the increase of red blood cells. Iron is essential for this process to happen. Many will find it difficult to consume this amount of dietary iron. Not getting enough iron can affect fetal brain development and function resulting in lifelong deficits. In addition, iron deficiency is linked to preterm birth, low birth weight and perinatal mortality. Heme iron found in animal sources such as beef, poultry and pork is most easily absorbed. Non

heme found in plant sources and supplements are best paired with vitamin C containing sources such as tomatoes and tomato juice, red and green peppers, strawberries and oranges. To meet iron needs throughout pregnancy a daily multivitamin containing 16-20 mg iron is recommended.

Folate - Diets low in folate can result in poor pregnancy outcomes such as placental abruption, stillbirths, low birth-weight infants, preeclampsia, preterm deliveries and neural tube defects. Foods such as legumes and leafy green vegetables are rich in folate, however, most pregnant people do not get enough folate from food. A low daily dosage of folic acid is recommended before conception and throughout pregnancy and lactation to support healthy growth of an infant's spine, brain and skull. High-risk individuals (those who have had a previous pregnancy affected by a neural tube defect, have had a neural tube defect themselves, or have a first-degree relative with a neural tube defect) may need to speak with their health care provider about a higher dose.

B12— Vitamin B12 is required for healthy red blood cell formation, synthesis of DNA, and development of the central nervous system. It is found in foods of animal origin, including

meat, fish, poultry, milk, and eggs. Unless fortified, plants and plant-based products are not good sources of vitamin B12. It is suggested to choose a multivitamin that has vitamin B12. Vegetarian and vegan diets must be well planned to ensure nutrient needs during pregnancy are met. For vegans, vegetarians and those with gastric disorders, routine testing and additional supplementation may be required.

Calcium & Vitamin D—Adequate calcium and vitamin D intake supports fetal skeletal development and bone health. Dietary sources of calcium include dairy, calcium-fortified plant-based beverages and orange juice, dark green vegetables like broccoli, kale, and bok choy, and fish with edible, soft bones (e.g. canned salmon). In Canada, most dietary sources of vitamin D come from fortified foods because few foods naturally contain this nutrient. Vitamin D is converted from sunlight in the skin. Mothers at risk for vitamin D deficiency include those with darker skin, those with limited sun exposure and/or those with a poor intake of vitamin D containing or fortified foods (eg. milk and margarine).

Omega-3 Fatty Acids—A diet rich in omega-3s is needed during pregnancy and lactation. It is vital for the fetal

neural and retinal development. Fatty fish including salmon, anchovies, sardines, Arctic Char and rainbow trout are excellent sources of omega-3. Other sources include walnuts, ground flax seeds, chia and canola oil. Fortified foods such as omega-3 enriched eggs and margarine are good sources too. Health Canada recommends women eat at least 150 g (5 oz) of fish each week. Some types of fish contain environmental contaminants such as methylmercury. To learn more about Mercury in Fish visit <http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/envIRON/mercur/cons-adv-etud-eng.php>.

References:

[O'Connor DL, Blake J, Bell R, Bowen A, Callum J, Fenton S, Gray-Donald K, Rossiter M, Adamo K, Brett K, Khatri N. Canadian consensus on female nutrition: adolescence, reproduction, menopause, and beyond. Journal of Obstetrics and Gynaecology Canada. 2016 Jun 1;38\(6\):508-54.](#)

[Eating for a Healthy Pregnancy - Unlock Food \[Internet\]. Dietitians of Canada. \[cited 2023 JUN 08\].](#)

[Family-centred maternity and newborn care: National guidelines \[Internet\]. Public Health Agency of Canada; 2022 AUG 10 \[cited 2023 JUN 12\].](#)

[Wilson RD, O'Connor DL. Guideline No. 427: Folic Acid and Multivitamin Supplementation for Prevention of Folic Acid-Sensitive Congenital Anomalies. Journal of Obstetrics and Gynaecology Canada. 2022 Jun 1;44\(6\):707-19.](#)

[Healthy eating when pregnant and breastfeeding \[Internet\]. Health Canada Canada's Food Guide; 2022 MAY 02 \[cited 2023 JUL 06\].](#)

Ask a Nutrition Expert

What is important to consider when recommending a prenatal supplement?

Eating well, *combined with* taking a daily multivitamin, can help to obtain the nutrients needed to feel good, have energy, and support a healthy pregnancy. Recommend that those who could become pregnant or are pregnant carefully read labels to ensure they are taking a multivitamin containing:

- 400 mcg (0.4 mg) of folic acid
- 16 to 20 mg of iron
- 400 IU (10 µg) of vitamin D if they do not eat vitamin D containing foods daily

Consider each individual's needs, medical conditions and risk factors when advising on the multivitamin that is right for them.

If nausea or vomiting is a barrier to taking a multivitamin daily, here are some tips:

- Take supplements before bed.
- Split the supplement in half and take half in the morning and half in the evening.
- Take the supplement with a snack.
- Drink plenty of water.

If cost is a barrier to taking a multivitamin, inform clients that some health benefit programs will cover the cost and some pharmacies and prenatal programs provide them free of charge.

Are there any other nutrients to be concerned about?

Clinicians also should be aware of emerging evidence of the importance of choline and iodine in the promotion of a healthy pregnancy.

Choline – Metabolites of choline are required for fetal brain development and tissue expansion. Choline is not commonly found in prenatal supplements in Canada, so it is recommended that pregnant women consume choline-rich foods. The richest sources of dietary choline come from egg yolk, meat and fish but choline can also be found in a variety of plant sources in lower amounts, such as beans, peas and lentils.

Iodine— Iodine is a mineral mainly found in the thyroid gland, where it synthesizes thyroid hormone. This hormone is essential for various bodily functions, including metabolism, muscle contraction, bone development, heart rate, and nutrient absorption. The most common food source of iodine is iodized table salt. Other food sources include dairy, seafood, eggs, seaweed and spinach. There is increasing popularity of non-iodized salts, including sea salt. Given that the requirement for iodine is elevated in pregnancy, a supplement may be advisable. Currently available prenatal supplements in Canada contain sufficient amounts of iodine to meet the needs of a pregnant woman.

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Resources for you to use

1. [Your Guide to a Healthy Pregnancy – Health Canada](#): in this guide, you will find important facts and questions related to a healthy pregnancy on numerous topics including prenatal nutrition.
2. [Eating for a Healthy Pregnancy – Unlock Food](#): this article answers some common questions about eating for a healthy pregnancy.
3. [Alberta Health Services' Nutrition Guideline -Pregnancy \(Professional Reference Only\)](#) – provides care providers with an overview of evidence-based nutrition recommendations for pregnancy.
4. [My Saskatchewan Pregnancy App](#) – evidence-based app reviewed by healthcare professionals for pregnant women living in Saskatchewan.
5. [Family-centred maternity and newborn care: National guidelines Chapter 3: Care during pregnancy - Section 4.9 and Appendix C](#): provides information related to prenatal nutrition, food safety and nutritional supplements for nutrients of importance during pregnancy.