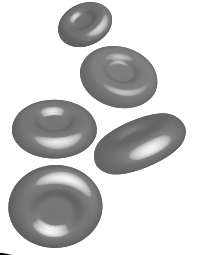


Iron deficiency anemia and you



What is iron deficiency anemia?

Iron plays many important roles in your health. You need iron to make hemoglobin, a part of red blood cells that carries oxygen throughout the body. When you have iron deficiency anemia, you don't have enough iron to make hemoglobin, so your body starts to make smaller and fewer red blood cells. Less hemoglobin and fewer red blood cells also means your cells can't get the oxygen they need.

Normal changes to blood volume in pregnancy

Pregnancy causes many changes in the body. One of the changes that happens in pregnancy is that the amount of blood in your body almost doubles. Blood is made up of red blood cells, white blood cells and fluid called plasma. The number of red blood cells doesn't increase as much as the plasma. This process is called "hemodilution" because the blood cells get diluted when the plasma increases. Hemodilution is a healthy response to pregnancy and a common cause of anemia. If your iron is low at the start of your pregnancy, this normal process of hemodilution can lead to anemia.

HEMOGLOBIN is a part of red blood cells. Hemoglobin carries oxygen throughout the body.

IRON is something your body needs in order to make hemoglobin. Iron is an essential nutrient, which means you have to get iron from your diet because your body can't make it.

HEME IRON (also called organic iron) is found in meat. The body easily absorbs this type of iron.

NON-HEME IRON (also called inorganic iron) is mainly found in leafy greens, but is also found in meat, poultry and fish. This type of iron is less easily absorbed by the body.

FERRITIN is a protein that stores iron in your body. Your body can use the "backup" iron that is stored in ferritin when it doesn't get enough iron from the food you eat.

What are signs and symptoms of anemia?

Some of the symptoms of anemia are common for anyone who is pregnant or who has just given birth (like feeling more out of breath or more tired than normal), so it can be hard to tell if you have anemia. It's a good idea to talk to your midwife if you are:

- feeling weak and/or getting tired more easily
- feeling dizzy or faint
- feeling especially grumpy or cranky
- having headaches
- having trouble focusing or concentrating

For someone who is anemic, exercising can also leave you feeling like your heart is beating faster than normal (palpitations). You may also notice that you look pale for your skin tone.

How do I know if I'm anemic?

Having a blood test is the only way to know for sure if you have anemia. Your midwife will offer you a blood test to check your hemoglobin levels in early pregnancy and again around 32 weeks of pregnancy. You may be offered another blood test after your baby is born. Your midwife may also offer testing more frequently in pregnancy if there are concerns you might be anemic.



What might increase my risk of having anemia?

Certain things can make it more likely that you become anemic.

- A vegetarian or vegan diet may put you at higher risk for anemia because the iron found in vegetarian food sources is non-heme iron and is harder for the body to absorb.
- Vitamin D deficiency may also increase the risk of anemia since vitamin D plays an important role in iron absorption. Your body produces vitamin D when your bare skin is exposed to sunlight. Anyone who keeps their skin mostly covered may be at higher risk of vitamin D deficiency. Because of our long winters, this can include most people who live in Canada!
- A multiple pregnancy (twins or triplets) may put you at higher risk for anemia because the demands for iron are even higher than during a pregnancy with one baby.
- It can take up to 18 months for the body to fully recover from a pregnancy, so two (or more) pregnancies less than a year apart can make it hard to maintain good iron stores.
- People who have very heavy menstrual periods often have low iron because they lose a lot of blood every month. If you had heavy periods before becoming pregnant, you may be at higher risk of becoming anemic during pregnancy.
- If you are anemic during pregnancy you are also more likely to be anemic postpartum.
- If you have a postpartum hemorrhage (losing too much blood after birth), you may be at higher risk for becoming anemic. For more information about postpartum hemorrhage, please see:
 - » *Life after postpartum hemorrhage: recovering from the unexpected* (print document)
 - » *Not what we planned: two stories of birth and postpartum hemorrhage* (video)

Available at: ontariomidwives.ca/care/client-resources

Why treat anemia?

It's important to treat anemia so that you feel better as quickly as possible and to maintain your overall health. It is also important to ensure that your iron levels are healthy if you are planning a future pregnancy.

Treating anemia is important for both you and your baby. If your iron levels are very low in early pregnancy, there is a slightly higher chance that your baby will be born early or could be born smaller than expected (also called, "small for gestational age").

It is also important to treat anemia before you give birth. It is normal to lose some blood during labour and birth, but low hemoglobin at the start of labour can put you at risk of worsened anemia after the baby is born. Depending on how severe your anemia is at the end of your pregnancy, your midwife may have recommendations about where you plan to give birth.

How is anemia treated?

If you are diagnosed with anemia your midwife will discuss your options for treatment. Iron pills or liquid preparations (oral iron supplements) are usually the first choice to treat anemia during and after pregnancy.

There are lots of different iron supplements available in Canada. Iron is often included in multivitamin and mineral supplements, including prenatal vitamins. Elemental iron is the form of iron that your body absorbs easily. Different formulations of iron supplements contain different amounts of elemental iron. The amount of elemental iron a supplement contains is usually listed on the package. It is recommended that people who are diagnosed with iron deficiency anemia take supplements that provide about 50-100 mg of elemental iron each day.

There isn't strong evidence showing that one brand of iron is more effective or causes less side-effects than any other. It can be confusing to choose which iron supplement to buy, especially since prices vary. See the chart below for more information and ask your midwife or pharmacist if you have more questions about choosing an iron supplement.

Common iron formulations	Examples of brands:	Price range for a month of treatment (at 100 mg of elemental iron each day)*†	Information
Ferrous salts <i>ferrous gluconate</i> <i>ferrous sulfate</i> <i>ferrous fumarate</i>	- Life - Euro-fer - Ferodan - Nutrichem - Palafer	Most brands available for \$5-\$20/month Some brands can cost as much as \$240 to \$700	The higher concentration of the elemental iron in these formulations means you may be able to take a lower dose to get the iron you need. But because the concentration of elemental iron is higher, these formulations can sometimes cause more stomach upset than other formulations.
Ferric salts <i>ferric pyrophosphate</i>	- IRONsmart - Ortho Iron - Nu-Life - Hemoplex	\$12 to \$140/month	These formulations have less elemental iron. This means you may need to take a larger dose to get the iron you need.
Chelated iron/iron bisglycinate	- Sisu Gentle Iron - Life Mild Iron	\$16 to \$90/month	These supplements may have fewer side-effects. But you may need a higher dose.
Carbonyl iron	Ferro-C	\$30 to \$40/month	
Polysaccharide-iron complex	FeraMax	\$20 to \$45/month	
Heme iron food-based supplements	Proferrin	\$150 to \$200/month	These supplements provide iron that's similar to the iron you get from food sources.
Non-heme food-based supplements	Mega Food Blood Builder	\$45 to \$60/month	

*Talk to your midwife about the iron dose that is right for you.

†Approximate. Based on in-store prices in 2015



Access to iron supplements

Some health-care plans and Ontario Works will pay for over-the-counter medications (like iron) if a health-care provider writes a prescription. Check with your health plan or your Ontario Works caseworker to see if your iron supplements will be free or cost less with a prescription from your midwife.

Dos and don'ts for taking iron

Iron is best absorbed on an empty stomach. Sometimes iron supplements can give you a stomach ache, make you constipated or give you diarrhea. If you are having unpleasant side-effects from taking iron, you can try taking iron right after meals instead of on an empty stomach, or try taking it before you go to bed. You can also talk to your midwife about starting at a lower dose and gradually increasing the dose. Slow-release (enteric-coated) forms of iron are usually not recommended because they aren't absorbed as well by the body. It is normal to notice dark coloured bowel movements when you are taking oral iron.

When taking iron: some DOs and DON'Ts

DO take your iron with vitamin C (citrus fruits like oranges, strawberries, tomatoes, or a 500-mg vitamin C tablet). Your body needs vitamin C in order to absorb iron.

DO keep taking iron supplements for at least three months even if you start to feel better, unless your midwife gives you different instructions. Your symptoms might improve quickly, but taking iron for the full three months ensures that you replenish your iron stores (ferritin).

DO talk to your midwife if the side-effects of iron are bothering you.

DO make sure that iron supplements are kept out of the reach of children. Iron can be toxic.

DON'T drink coffee or black teas at the same time you take iron. Tannins in coffee and tea stop your body from absorbing iron. Wait at least one hour after taking iron to have tea or coffee.

DON'T take your iron along with calcium. Avoid eating dairy (milk, yogurt, cheese), or taking calcium pills, or antacids (like Tums) within about an hour of taking iron supplements. Try to avoid combining iron-rich foods with foods rich in calcium (like dairy products). Calcium gets in the way of your body's ability to absorb iron.

Follow-up testing

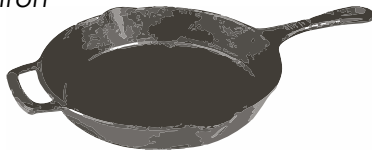
If your midwife recommends iron supplements, you may be offered another blood test (usually about two weeks after you begin taking the supplements) to make sure they are working. Another blood test may be offered by your care provider after you have been taking supplements for about three months to confirm that your iron levels (both your hemoglobin and your ferritin stores) are back to normal so you can stop taking supplements.

Boosting the iron in your diet

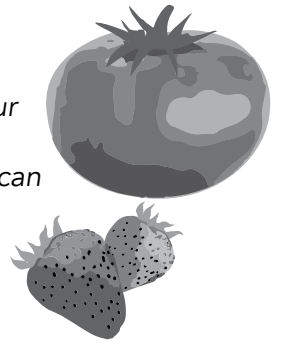
If your midwife has diagnosed you with anemia, then food sources alone probably won't be enough to improve your anemia. But it still helps to try to eat iron-rich foods as much as you can along with any supplements you may be taking. Dietitians of Canada has good information about iron and iron-rich foods. Please see: www.dietitians.ca/Your-Health/Nutrition-A-Z/Minerals/Food-Sources-of-Iron.aspx.

Some tips for eating an iron-rich diet

Cooking meals in a cast iron pan is an easy way to boost the iron content in your food.



Add foods with vitamin C to your iron rich meal to help your body absorb iron. Tomatoes, strawberries, or orange slices can be added to a salad or eaten for dessert.

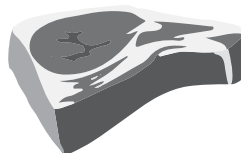


When eating an iron-rich meal, avoid high-calcium foods. Calcium makes it harder for your body to absorb iron.

Some seafood like octopus, oysters and shrimp are rich in iron. Oysters should be cooked if you are eating them during pregnancy.



If you eat meat, darker meats like beef, duck, moose, venison and lamb have the most iron.



Try a salad with dark leafy greens like spinach or kale instead of lettuce. Add pumpkin or sesame seeds, chickpeas and nuts to salad to make an iron-rich meal. You could also add beets and beet greens to your salad. Beet roots and beet tops are both full of iron!

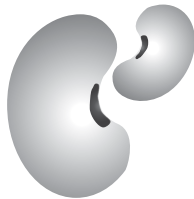


Tomato sauce is rich in iron. A pasta dinner with a leafy green salad is a simple, iron-rich meal.

Cream of wheat, oatmeal and many cereals are often fortified with iron.



Legumes such as lentils, lima, soy, kidney, pinto and black beans are all rich in iron. Add legumes to soups or stews to boost iron content.



Boiling some frozen edamame (baby soybeans) makes for a quick and easy iron-rich snack.



Tomato puree has almost as much iron as a serving of spinach. Add tomato puree to sauces or stews.

Try almond butter instead of peanut butter. Two tablespoons of almond butter have as much iron as a serving of chicken.



Tofu is an iron-rich alternative to meat that can be added to many dishes.

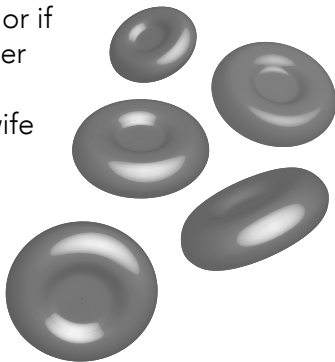


Access to healthy food

If you are pregnant or have just had a baby and are receiving Ontario Works, you are eligible for an extra \$40 a month through the Pregnancy/Breastfeeding Nutritional Allowance. Midwives can complete forms provided by Ontario Works caseworkers to access this funding for you.

Other treatment

If your anemia is severe, or if it's not getting better after you have tried oral iron supplements, your midwife may discuss referral to a doctor to discuss other treatment options like getting iron through an IV (a needle in your arm).



Anemia and chest or breastfeeding

Fatigue is often a reason new parents stop nursing earlier than planned. If you are feeling overwhelmed by nursing because you are struggling with fatigue, talk to your midwife about checking your iron levels to see if you need treatment for anemia.



Exclusive chest or breastfeeding (meaning your baby has only human milk) can help prevent anemia by delaying the start of monthly menstrual periods following pregnancy. Delaying the start of regular periods keeps blood in your body that you would otherwise lose every month.

Even if you are anemic, your body will adjust the level of iron in your milk so that your baby gets enough. This is good for your baby, but can affect your long-term health if your anemia isn't treated. It is safe to take iron supplements while you are nursing.

Anemia and depression

The symptoms of anemia can sometimes be similar to symptoms of depression. If you are anemic either during your pregnancy or after your baby is born, you may feel like you are depressed. Anemia can also lead to depression. If you have any concerns about the symptoms below, talk to your midwife.

IRON DEFICIENCY ANEMIA-Some symptoms	DEPRESSION-Some symptoms
• Feeling extremely weak and tired all the time • Feeling grumpy and cranky • Having trouble concentrating • Headaches • Feeling dizzy • Unusual hunger and cravings for different foods • Frustration with loss of ability to do basic tasks	• Feeling low (depressed mood) most days • Loss of interest in activities that you used to enjoy • Having trouble concentrating • Anxiety and excessive worry • Loss of confidence or self-esteem • Loss of appetite • Recurrent thoughts of suicide or death

Questions

If you have any concerns or questions after reading this pamphlet, talk to your midwife. If it helps, you can write your questions or ideas here and bring this paper with you to your next appointment.