



Why are people with cancer at risk of iron deficiency?

Iron deficiency can be exhausting even when you are at your best, let alone when you are undergoing cancer treatment.

Cancer itself, as well as some cancer therapies, can lead to anaemia, iron deficiency, or both. Anaemia occurs when you don't have enough healthy red blood cells to carry the normal amount of oxygen around your body. About 40% of cancer patients are found to have anaemia when they are first diagnosed with cancer and over 60% of cancer patients become anaemic at least once during the first six months after diagnosis.¹ One possible cause of this anaemia is iron deficiency and around 30% to 45% of people across all types of cancer are iron deficient.¹

How are cancer and iron deficiency related?

There are many reasons why you might be iron deficient if you have cancer, and some of these reasons depend on the type of cancer that you have.

- *If you have gastrointestinal or colorectal cancer, you might be losing blood, and therefore iron, from internal bleeding and may not be able to eat a diet high in iron.¹*
- *Some gynaecological cancers such as ovarian or cervical cancer, can lead to blood loss that is greater than normal.*
- *Cancer that starts in your bone marrow (called myeloma) or cancer that spreads to your bone marrow (a process called metastasis), can take up space in your bone marrow and disrupt the production of red blood cells that normally occurs there.¹*
- *Chronic inflammation can occur with all types of cancer, and this can lead to anaemia by blocking the release of iron from your body's iron stores. This reduces the amount of iron that is available for the production of new red blood cells.²*

Anaemia related to chemotherapy

Chemotherapy can also suppress the production of red blood cells in your bone marrow, and this effect can get worse with multiple rounds of chemotherapy.² To help with your anaemia during chemotherapy you might be given erythropoiesis stimulating agents (ESAs), which are injectable forms of erythropoietin. These treatments work by signalling for the production of red blood cells, which increases the number of red blood cells made in your bone marrow.³ For ESAs to work best your doctor may also prescribe extra iron. This is to ensure that you have enough iron to make haemoglobin for the new red blood cells.¹ ESAs and iron therapies should help you to feel less tired during your cancer treatment and should generally increase your feeling of well-being.

It is possible that once you have finished your treatment that

the iron in your body could return to normal, healthy levels. In the meantime, you may need extra iron to make you feel better. This iron may be prescribed in the form of oral or intravenous iron. Talk to your doctor if you are concerned about your cancer, your treatment, or if you are experiencing any of the warning signs of iron deficiency, such as persistent fatigue, weakness, headaches, or irritability.

Warning signs of iron deficiency in cancer

One of the main symptoms of iron deficiency is fatigue, a more extreme version of tiredness. If you are experiencing fatigue, you may feel physically and mentally exhausted, and lack energy for a number of days each week, even if you have not been doing any physical activities that are particularly tiring.⁴ You may be too exhausted to complete normal daily tasks such as getting dressed or going shopping, and you may often feel too tired to spend time with friends or family.

Fatigue is also a well known symptom of cancer and cancer treatments,⁵ so if you are feeling exhausted it is important to speak to your doctor so that they can find out what is causing this. Remember that if your fatigue is due to iron deficiency, this can be treated and your doctor can recommend the most suitable treatments for you.

There are also many other signs that may indicate that you have iron deficiency or iron deficiency anaemia. These include:

- *Looking pale.⁶*
- *Shortness of breath and a racing heart.⁷*
- *Sore tongue or dry mouth.⁸*
- *Cracks at the corners of your mouth.⁹*
- *Mouth ulcers.¹⁰*
- *Cold intolerance or cold hands and feet.¹¹*
- *Craving to eat non-food items (pica/ pagophagia).^{12,13}*
- *Restless leg syndrome (RLS).^{14,15}*
- *Hair loss.^{16,17}*
- *Brittle,¹⁸ or spoon-shaped nails.¹⁹*
- *Headache.²⁰*
- *Increased susceptibility to infections.²¹*
- *Dizziness,²² irritability,²³ and loss of concentration.²⁴*

In addition to fatigue, chemotherapy side effects and iron deficiency have some overlapping symptoms, for example weakness, mouth sores and mood swings.²⁵ It is therefore important that you discuss all of your symptoms with your cancer specialist so that they can determine the most likely causes.

Talking to your doctor

If you have been diagnosed with cancer it is likely that you will have regular follow up appointments with your specialist to check how you are feeling and to monitor the progress of your symptoms. You may also have regular blood tests which your doctor may use to check for anaemia.



Use our Symptom Browser to see the complete list of symptoms that iron deficiency can cause and to understand what each of these symptoms involves.

If you have been feeling fatigued or have any of the symptoms of iron deficiency such as paleness, faintness or a racing heart, you may want to make an extra appointment or speak to your doctor about your symptoms at your next scheduled visit. To get the most out of your visit, think in advance about the information that the doctor might need in order to work out what is causing your symptoms. You should also prepare any questions that you want to ask.

If previous tests showed that you are anaemic you may have already been treated with erythropoiesis stimulating agents (ESAs) to increase your production of red blood cells. To help ESAs work at their best, you may also have been given extra iron.¹ If you are being treated with an ESA but you still feel exhausted or dizzy, or have any of the other symptoms of iron deficiency anaemia, talk to your specialist as they will be able to carry out additional tests and recommend the best treatment option for you.

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