

# Iron Deficiency Anemia

A plain-English guide for you and your family

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## WHAT IS HAPPENING

Iron is a metal the body needs to build hemoglobin, the part of red blood cells that grabs oxygen in the lungs and carries it everywhere. You absorb iron from food in the duodenum (the first bend of the small intestine right after the stomach). The body stores extra iron as ferritin (a storage protein) in the liver and recycles most iron from old red blood cells when they die. When something disrupts this cycle — chronic bleeding (hidden gut bleeding in older adults, heavy periods in younger women), poor absorption (celiac disease damages the duodenum lining), not enough iron in the diet, or a sudden jump in demand during pregnancy — iron runs low. Without enough iron, the bone marrow cannot make normal hemoglobin, so new red blood cells come out small (microcytic) and pale (hypochromic) and cannot carry enough oxygen. Your body tries to cope: the heart beats faster to push what little oxygen you have around faster, skin looks pale because blood is shunted to vital organs, fingernails become thin and spoon-shaped (koilonychia) from chronic low oxygen in the nail bed, you crave ice or dirt or starch (pica) as the brain misfires hunting for minerals, and legs twitch at night (restless legs) because low iron disrupts dopamine signaling in the brain. You feel exhausted because every cell is starving for oxygen. The danger is missing the bleeding source — especially colon cancer in older adults — so guidelines say always investigate the gut and periods before simply prescribing iron pills.

## What you might feel

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- Feeling very tired and weak all the time
- Pale skin, especially inside the eyelids, under the nails, and on the palms
- Shortness of breath, especially when active
- Fast or pounding heartbeat
- Headaches and trouble concentrating or remembering things
- Cold hands and feet
- Craving ice or non-food items like dirt or starch (called pica)
- Sore, smooth, or swollen tongue

- Brittle nails that crack or spoon inward (koilonychia)
- Lab results showing small, pale red blood cells (microcytic hypochromic anemia), low ferritin (the body's iron storage protein — most specific test), low serum iron, and high TIBC (total iron-binding capacity, meaning your blood is hungry for iron)

## **Call the doctor right away if...**

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- Blood in your stool (black, tarry stools or bright red blood) or vomiting blood — can mean bleeding in your stomach or intestines
- Sudden, severe chest pain or trouble breathing — your heart may be struggling because of very low oxygen
- Ongoing heavy menstrual bleeding that soaks through a pad or tampon every hour — can lead to dangerous iron loss
- Unintended weight loss, belly pain, or trouble swallowing — could signal a hidden source of bleeding like cancer or an ulcer
- Signs of severe anemia: confusion, fainting, extreme weakness, or very fast heartbeat at rest — means your organs aren't getting enough oxygen

## **What the care team will do**

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- Check hemoglobin, blood pressure, and heart rate before and after position changes to assess severity and hemodynamic stability
- Verify ferritin, serum iron, TIBC, and transferrin saturation labs are drawn before giving any iron supplementation
- Educate patient to take oral iron (ferrous sulfate 325 mg) every other day on an empty stomach, one hour before breakfast
- Teach patient to take iron with vitamin C (orange juice or 250 mg tablet) and avoid calcium, antacids, or tea within two hours
- Warn patient their stools will turn black and not to stop iron therapy thinking they have bleeding
- Schedule follow-up hemoglobin check in four weeks and monitor for reticulocyte rise in seven to ten days as first sign of response
- Coordinate colonoscopy referral for men and postmenopausal women with new iron deficiency even without GI symptoms
- Arrange IV iron infusion (ferric carboxymaltose 750 mg) if patient has inflammatory bowel disease, chronic kidney disease, or cannot tolerate oral iron after two weeks

## Medicines you may be given — and why

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### **Ferrous sulfate (oral iron)**

Ferrous sulfate gives your body iron—the metal your bone marrow needs to build hemoglobin (the oxygen-carrying protein inside red blood cells). When you don't have enough iron, your marrow can't make enough hemoglobin, so your red cells stay small and pale and can't carry enough oxygen. Taking iron every other day (rather than every day) actually helps your gut absorb more of each dose and causes less nausea, because your gut lining needs a day to reset its iron-import machinery.

### **Intravenous iron (ferric carboxymaltose, iron sucrose, iron dextran, ferumoxytol)**

IV iron delivers a large dose of iron straight into your bloodstream, skipping your gut entirely. This is the go-to choice when your intestine can't absorb oral iron well (celiac disease, Crohn's, gastric bypass), when oral iron makes you too sick to take it, when you need your iron stores refilled fast (severe anemia, upcoming surgery, third trimester of pregnancy), or when you are on dialysis for kidney failure (dialysis pulls iron out, and the kidneys stop making erythropoietin, the hormone that tells your marrow to make red cells).

## Where this information comes from

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- American Gastroenterological Association (AGA) Clinical Practice Update on Evaluation and Management of Iron Deficiency Anemia, 2020
- CDC guideline on Iron and Iron Deficiency
- American Society of Hematology (ASH) clinical guidelines
- World Health Organization (WHO) guideline on iron supplementation

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