IronDeficiency.com

KEEPING AN EYE ON YOUR Iron Levels

Iron is an essential nutrient the body needs to maintain energy levels[1] and concentration[2]

Iron deficiency is one of the leading risk factors for disability and death worldwide.[3,4] Yet it is commonly underdiagnosed.[5]

Treating iron deficiency can improve health and well being[6,7]

Should You Get Your Iron Levels Checked?

Signs that you may have iron deficiency include:

FATIGUE
Feeling mentally tired, irritable, dizzy or losing concentration quickly[7,8]

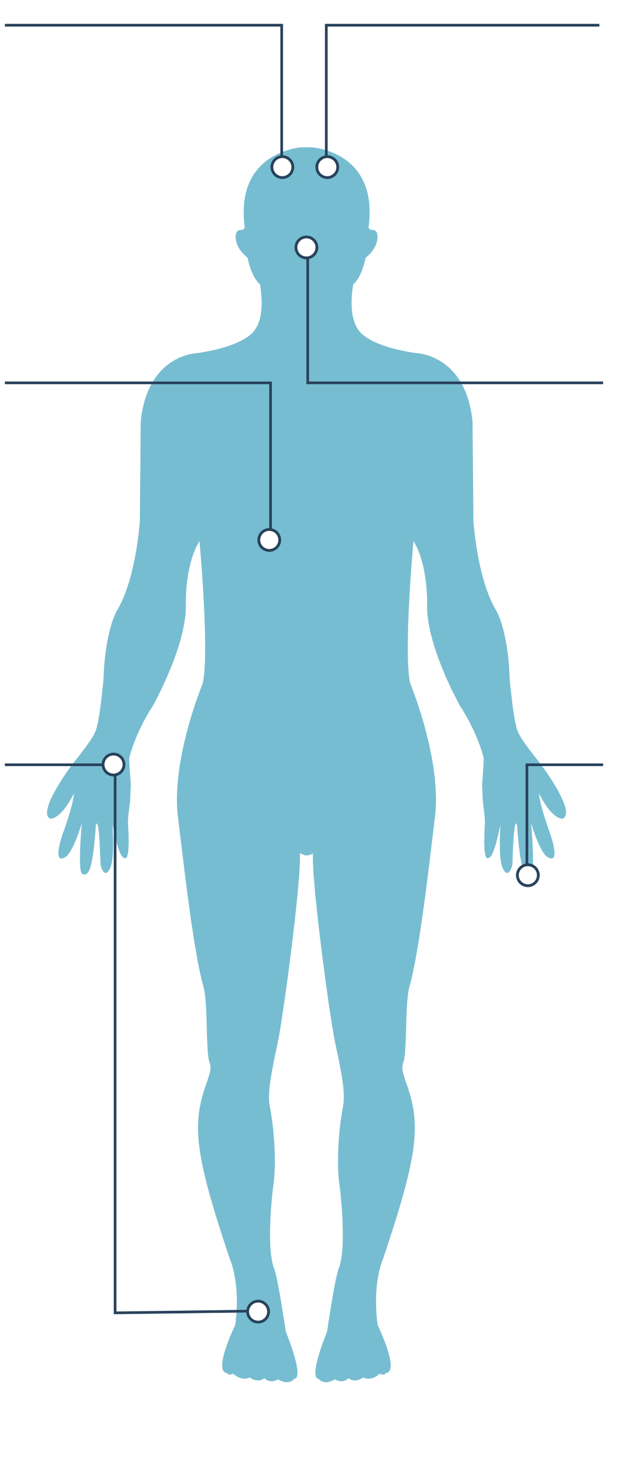
HAIR LOSS
Losing clumps of hair or more hair than normal[9]

SHORTNESS OF BREATH
Can't be as active as you would like[14,15]

PALENESS
Most noticeable on the face, nails, inner mouth, and lining of eyes[10]

COLD INTOLERANCE
Cold hands and/or feet may mean that there is not enough oxygen being delivered in the blood[11,12]

BRITTLE NAILS
Nails that chip and crack easily[13]



There are also things that can make you more likely to be iron deficient:

If you suffer from a **chronic disease**, for example heart failure,[16] inflammatory bowel[17] and kidney disease[18]

If you experience **heavy menstrual bleeding**[19]

If you are **pregnant**[20] or have **recently given birth**[21]

How are My Iron Levels Measured?

A **blood test** is used which can provide information about your iron and red blood cell levels.

Always talk to your doctor about your blood test results and what they mean.

MAIN LABORATORY TESTS FOR THE ASSESSMENT OF IRON

Test	What it Measures	Normal* Levels
A **Complete Blood Count**	The number of red blood cells and amount of haemoglobin in your blood[22]	Haemoglobin[23, 24] Men over 15 yrs More than 13-17 g/dL Women over 15 yrs (not pregnant) More than 12-16 g/dL
TSAT, or serum transferrin saturation[25]	The amount of iron in your blood that is attached to a substance called transferrin	20-50%[24]
Serum ferritin	Represents the iron stores you have in your body[26]	30-300ng/mL[24]
Serum iron	The total amount of iron present in the serum of your blood[26]	50-180 μg/dL[24]
Serum iron **TIBC**, or **T**otal **I**ron-**B**inding **C**apacity (transferrin)	The amount of iron your blood can carry[22]	50-180 μg/dL[27]

*Normal values may differ depending on the assay used.

Why are My Iron Levels Low?

IT IS IMPORTANT THAT YOU DISCUSS THE REASON FOR YOUR IRON DEFICIENCY WITH YOUR DOCTOR:

The most common cause of iron deficiency anaemia in adult men and postmenopausal women is blood loss from the stomach or intestines[28]

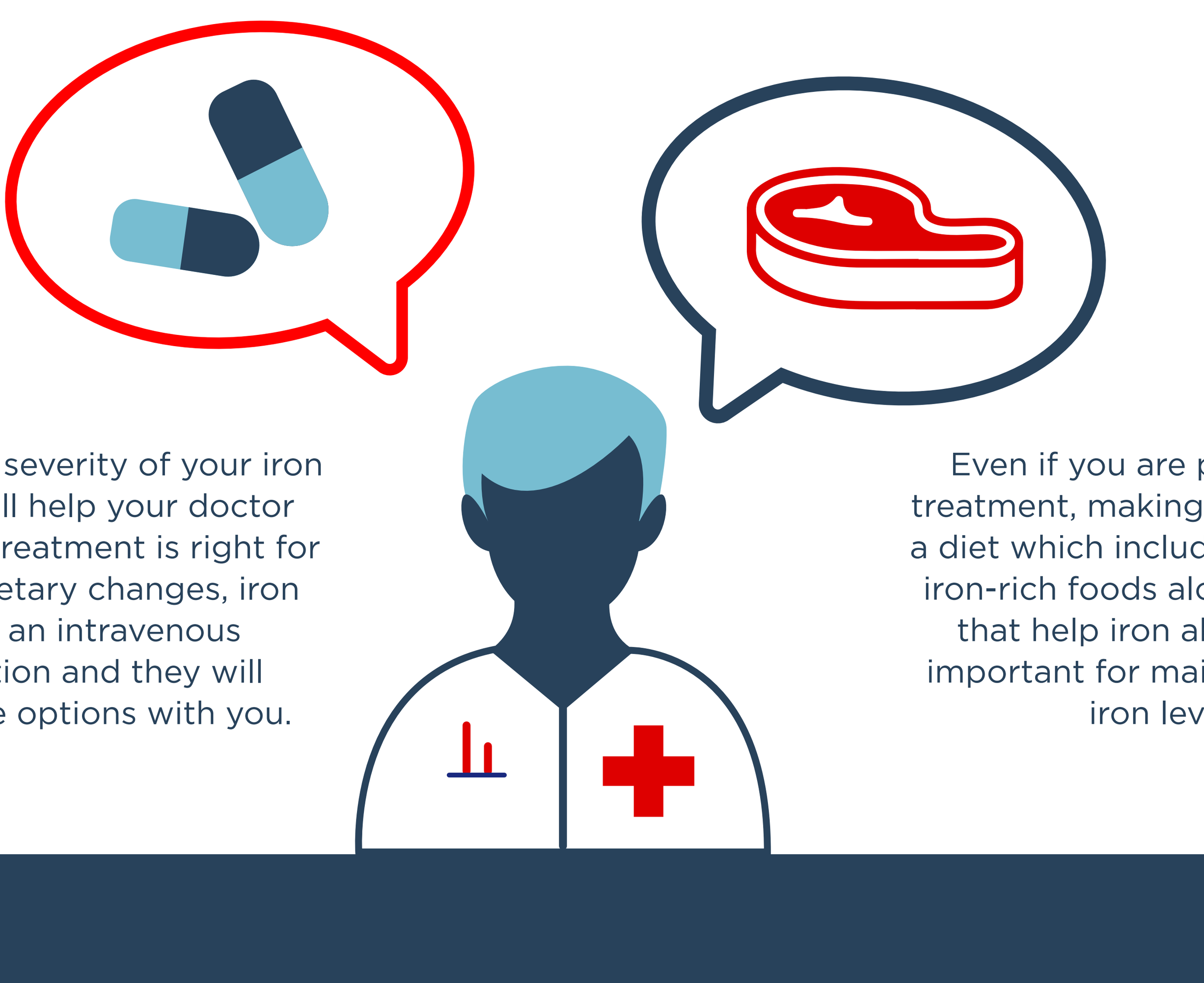
Coeliac disease is often diagnosed after signs such as iron deficiency anaemia are detected[29]

Iron deficiency anaemia may be associated with chronic underlying disease which requires treatment[30,14] or even with some form of cancer[31]

For example, could your iron deficiency anaemia be due to any **medication** you are taking, **extensive exercise** increasing your iron requirements, a **diet** where iron can be limited (e.g. vegetarian, vegan) or are there signs of **inflammation** in your blood?

What Happens if My Iron Levels are Low?

Iron deficiency can be treated, reducing symptoms such as fatigue and improving quality of life[6,8]



The cause and severity of your iron deficiency will help your doctor decide which treatment is right for you, either dietary changes, iron tablets or an intravenous administration and they will discuss these options with you.

Even if you are prescribed a treatment, making sure you have a diet which includes a variety of iron-rich foods alongside foods that help iron absorption is important for maintaining your iron levels.

1. Haas JD, Brownlie IV T. Iron Deficiency and Reduced Work Capacity: A Critical Review of the Research to Determine a Causal Relationship. J Nutr. 2001;131(2):676S-690S. **2.** Lozoff B, Beard J, Connor J, Felt B, Georgieff M. Long-lasting Neural and Behavioral effects of iron deficiency in infancy. Nutr Rev. 2006;64:S34-S91. **3.** Peyrin-Biroulet L, Williet N, Cacoub P Guidelines on the diagnosis and treatment of iron deficiency across indications: a systematic review Am J Clin Nutr 2015 doi: 10.3945/ajcn.114.103366. **4.** Zimmermann MB1, Hurrell RF Nutritional iron deficiency Lancet. 2007 Aug 11;370(9586):511-. **5.** Thachil J. Iron deficiency: still under-diagnosed? Br J Hosp Med. 2015;76(9):528-532. **6.** Patterson a J, Brown WJ, Roberts DC. Dietary and supplement treatment of iron deficiency results in improvements in general health and fatigue in Australian women of childbearing age. J Am Coll Nutr. 2001;20(4):337-342. **7.** Patterson A et al. Iron deficieny, general health and fatigue: Results from the Australian Longitudinal Study on Women's Health. Qual Life Res. 2000;9:491-497. **8.** Favrat B, Balck K, Breymann C, et al. Evaluation of a single dose of ferric carboxymaltose in fatigued, iron-deficient women - PREFER a randomized, placebo-controlled study. PLoS One. 2014;9(4):3-12. doi:10.1371/journal.pone.0094217. **9.** Trost LB, Bergfeld WF, Calogeras E. The diagnosis and treatment of iron deficiency and its potential relationship to hair loss. J Am Acad Dermatol. 2006;54(5):824-44. Available at: http://www.jaad.org/article/S0190-9622(05)04745-6/abstract. Accessed November 8, 2013. **10.** Stoltzfus R, Edward-Raj A. Clinical pallor is useful to detect severe anemia in populations where anemia is prevalent and severe. J Nutr. 1999;129(May):1675-1681. Available at: http://jn.nutrition.org/content/129/9/1675.short. Accessed February 11, 2014. **11.** Miller JL. Iron deficiency anemia: a common and curable disease. Cold Spring Harb Perspect Med. 2013;3(7):1-13. doi:10.1101/cshperspect.a011866. **12.** World Health Organization. Iron deficiency anaemia. Assessment, prevention and control: A guide for programme managers.; 2001:1-114. **13.** Cashman MW, Sloan SB. Nutrition and nail disease. Clin Dermatol. 2010;28(4):420-5. doi:10.1016/j.clindermatol.2010.03.037. **14.** Clark S. Iron deficiency anemia. Nutr Clin Pr. 2008;23(2):128-141. **15.** McDermid J, Lönnerdal B. Iron. Adv Nutr. 2012;(1):532-533. doi:10.3945/an.112.002261.Table. **16.** Ebner N, von Haehling S. Iron deficiency in heart failure: a practical guide. Nutrients. 2013;5(9):3730-9. doi:10.3390/nu5093730. **17.** Goldberg ND. Iron deficiency anemia in patients with inflammatory bowel disease. Clin Exp Gastroenterol. 2013;6:61-70. doi:10.2147/CEG.S43493. **18.** Mehdi U, Toto RD. Anemia, diabetes, and chronic kidney disease. Diabetes Care. 2009;32(7):1320-6. doi:10.2337/dc08-0779. **19.** Liu Z, Doan Q V, Blumenthal P, Dubois RW. A systematic review evaluating health-related quality of life, work impairment, and health-care costs and utilization in abnormal uterine bleeding. Value Health. 2007;10(3):183-94. doi:10.1111/j.1524-4733.2007.00168.x. **20.** Milman N. Prepartum anaemia: prevention and treatment. Ann Hematol. 2008;87(12):949-59. doi:10.1007/s00277-008-0518-4. **21.** Milman N. Postpartum anemia I: definition, prevalence, causes, and consequences. Ann Hematol. 2011;90(11):1247-53. doi:10.1007/s00277-011-1279-z. **22.** Dean L. 1. Blood and the cells it contains. Blood Groups Red Cell Antigens. 2005:1-6. Available at: http://www.ncbi.nlm.nih.gov/books/NBK2263/. **23.** WHO. Haemoglobin concentrations for the diagnosis of anaemia and assessment of severity. Vitamin and Mineral Nutrition Information System. Geneva, World Health Organization, 2011 WHO/NMH/NHD/MNM/11.1) (http://www.who.int/vmnis/indicators/haemoglobin. pdf, last 06-January-2016. **24.** Muñoz M, García-Erce, Remacha Disorders of iron metabolism. Part II: iron deficiency and iron overload. J Clin Pathol. 2011 Apr;64(4):287-96. doi: 10.1136/jcp.2010.086991. Epub 2010 Dec. **25.** Fishbane S, Pollack S, Feldman HI, Joffe MM. Iron indices in chronic kidney disease in the National Health and Nutritional Examination Survey 1988-2004. Clin J Am Soc Nephrol. 2009;4(1):57-61. doi:10.2215/CJN.01670408. **26.** Suominen P, Punnonen K, Rajamäki a, Irjala K. Serum transferrin receptor and transferrin receptor-ferritin index identify healthy subjects with subclinical iron deficits. Blood. 1998;92(8):2934-9. Available at: http://www.ncbi.nlm.nih.gov/pubmed/9763580. **27.** MedlinePlus U.S. National Library of Medicine, 2014. Available at https://www.nlm.nih.gov/medlineplus/ency/article/003489.htm. Last accessed 6-January-2016 **28.** Goddard AF, James MW, McIntyre AS, Scott BB. Guidelines for the management of iron deficiency anaemia. Gut. 2011;60(10):1309-16. Available at: http://gut.bmj.com/content/60/10/1309.full. Accessed August 12, 2015.35 **29.** Presutti RJ, Cangemi JR, Cassidy HD, Hill D a. Celiac disease. Am Fam Physician. 2007;76(12):1795-802. Available at: http://www.ncbi.nlm.nih.gov/pubmed/18217518. **30.** Camaschella C et al Iron deficiency: new insights into diagnosis and treatment.Hematology Am Soc Hematol Educ Program. 2015 Dec 5 ;2015(1):8-13. doi: 10.1182/asheducation-2015.1.8. **31.** Logan ECM, Yates JM, Stewart RM, Fielding K, Kendrick D. Investigation and management of iron deficiency anaemia in general practice: a cluster randomised controlled trial of a simple management prompt. Postgrad Med J. 2002;78(923):533-7. Available at: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1742500&tool=pmcentrez&rendertype=abstract. **32.** Ponikowski P, van Veldhuisen DJ, Comin-Colet J, et al. Beneficial effects of long-term intravenous iron therapy with ferric carboxymaltose in patients with symptomatic heart failure and iron deficiency. Eur Heart J. 2014:657-668. doi:10.1093/eurheartj/ehu385. **33.** Gisbert et al Oral and Intravenous Iron Treatment in Inflammatory Bowel Disease: Hematological Response and Quality of Life Improvement Inflamm Bowel Dis. 2009 Oct;15(10):1485-91. doi: 10.1002/ibd.20925. **34.** Lee TW, Kolber MR, Fedorak RN, Van Zanten SV. Iron replacement therapy in inflammatory bowel disease patients with iron deficiency anemia: A systematic review and meta-analysis. J Crohn's Colitis. 2012;6(3):267-275. doi:10.1016/j.crohns.2011.09.010.

Last update: 30 January 2016