

ORAL IRON SUPPLEMENTATION

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IRON

Iron is a mineral that the body needs for growth and development

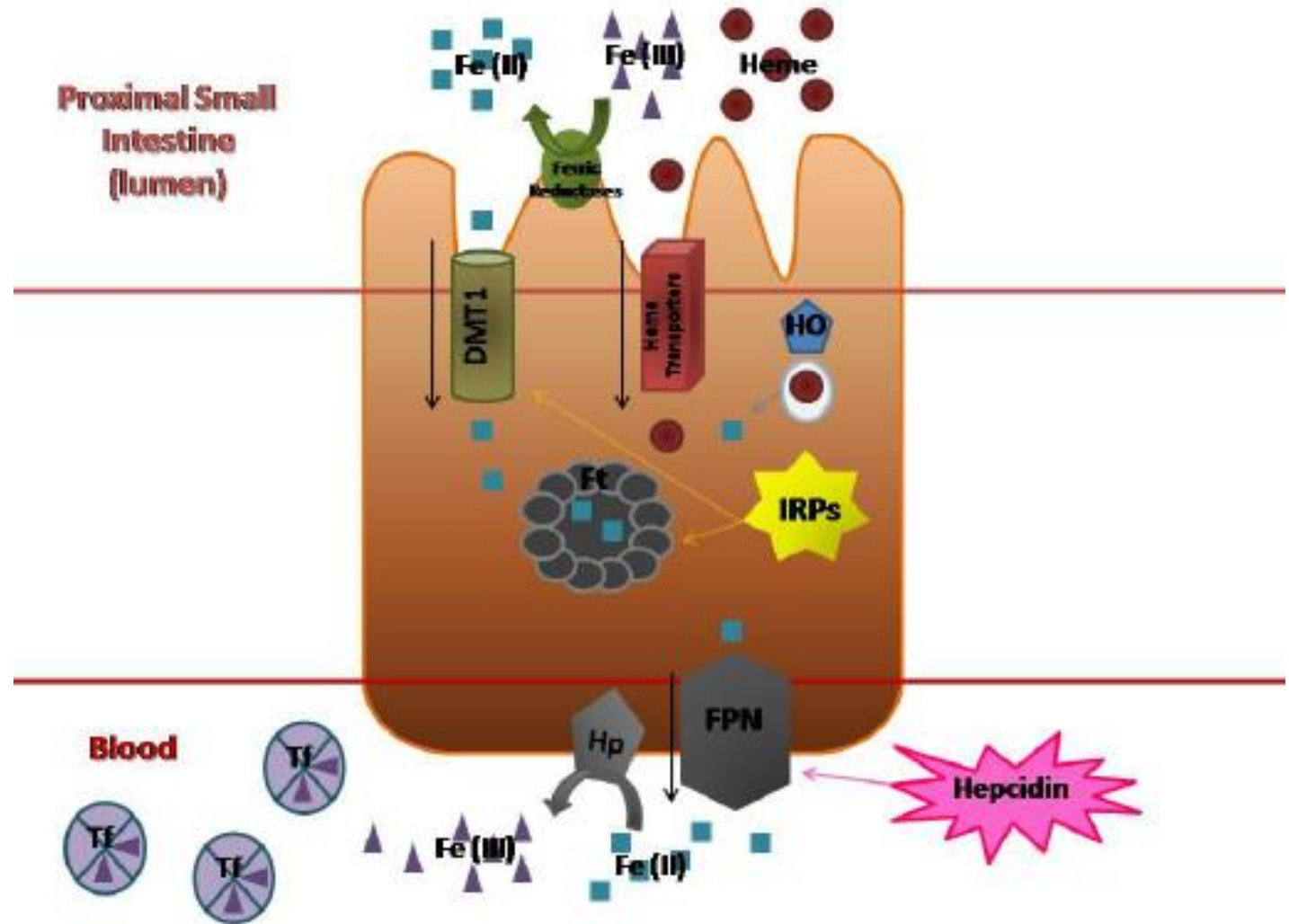
Our body uses iron to make **haemoglobin**, a protein in the red blood cells that carries oxygen from the lungs to all parts of the body and **myoglobin**, a protein that provides oxygen to muscles.

Our body also needs iron to make some hormones.

Adult Human Iron Levels	4.5g
Haemoglobin (Hb)	1800mg
Macrophages (spleen, liver)	800mg
Bone marrow (Hb synthesis)	800mg
Myoglobin	300mg
Enzymes	300mg
Ferritin	400mg
E-transport proteins	200mg
Transferrin	3mg

ABSORPTION OF IRON

- Elemental iron is absorbed freely into the enterocytes in the duodenum. But to go from the enterocyte into the blood stream, the iron needs **Ferroportin**. This transporter is located in the basolateral membrane, and it moves iron out of the enterocyte and into the bloodstream.
- This transporter is inhibited by a hormone called **Hepcidin**. When hepcidin levels are high, iron is not effluxed from enterocytes.
- **Hepcidin** is a protein made by the liver, which binds onto ferroportin and then destroys it so that it cannot transport iron out of the cells and into the blood stream.
- If too much iron is coming in, levels of Hepcidin would increase. It is trying to protect us from over-absorbing iron by essentially closing the doors as the flood of iron is coming in.



RECENT BNF DOSE CHANGES

Iron-deficiency anaemia [treatment and prophylaxis]

By mouth using tablets

Adult

200 mg once daily, reduced if not tolerated to 200 mg once daily on alternate days.

By mouth using modified-release tablets

Adult

325 mg once daily, reduced if not tolerated to 325 mg once daily on alternate days.

Iron-deficiency anaemia [treatment and prophylaxis]

By mouth using tablets

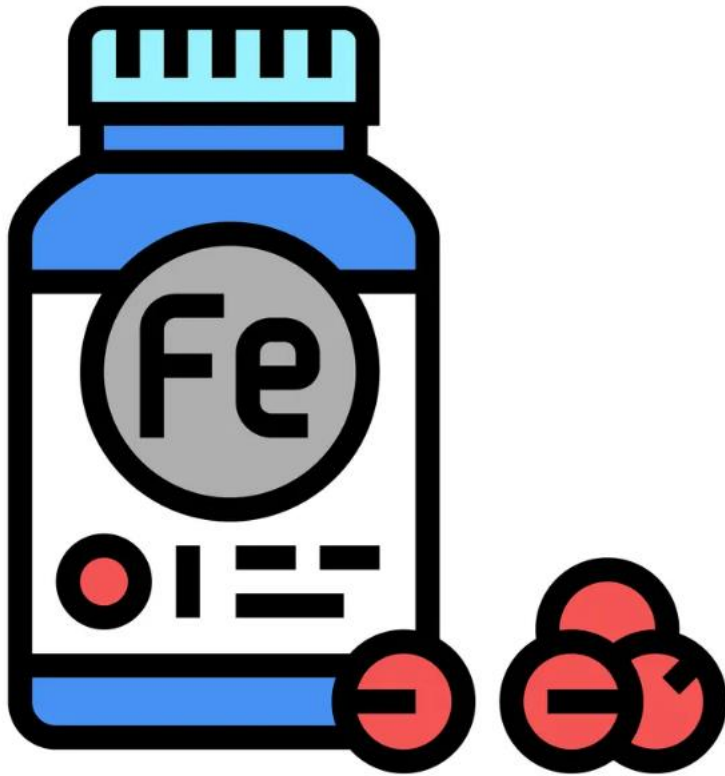
Adult

Initially 210 mg once daily, reduced if not tolerated to 210 mg once daily on alternate days, alternatively initially 322 mg once daily, reduced if not tolerated to 322 mg once daily on alternate days.

By mouth using capsules

Adult

305 mg once daily, reduced if not tolerated to 305 mg once daily on alternate days.



Lifetime of duodenal enterocytes is 3 days and so after this period the cells are sloughed into the lumen of gut and iron contained in these cells is lost to the body.

Studies show administration of **200mg oral ferrous sulfate on alternative days** result in almost twice the amount of iron absorption as that from taking 100mg on consecutive days.

This means fewer pills, and perhaps less gastrointestinal side effects.

REFERENCES

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- *Ferrous fumarate - BNF* (no date) *NICE*. Available at: <https://bnf.nice.org.uk/drugs/ferrous-fumarate/> (Accessed: 29 September 2023)
- *Ferrous sulfate - BNF* (no date) *NICE*. Available at: <https://bnf.nice.org.uk/drugs/ferrous-sulfate/> (Accessed: 29 September 2023).
- Stoffel NU; Zeder C; Brittenham GM; Moretti D; Zimmermann MB; (no date) *Iron absorption from supplements is greater with alternate day than with consecutive day dosing in iron-deficient anemic women, Haematologica*. Available at: <https://pubmed.ncbi.nlm.nih.gov/31413088/> (Accessed: 29 September 2023).