July 2025

perplexity

Bioavailability: Proferrin ES Heme Iron vs. Liposomal Iron

Proferrin ES Heme Iron

- **Type:** Heme iron polypeptide (derived from animal hemoglobin)
- **Bioavailability:** Heme iron is absorbed through a unique pathway in the intestine, resulting in very high absorption rates. Studies and manufacturer data indicate:
  - **Absorption is 10–24 times higher than non-heme iron** (such as ferrous sulfate or fumarate)[1] [2].
  - **Bioavailability typically ranges from 15–35%**[3].
  - **Absorption is not affected by food, vitamin C, caffeine, or calcium**, making it convenient for daily use[4] [1] [2].
  - **Clinical studies** have shown Proferrin ES can lead to a much greater increase in serum iron compared to traditional iron salts[4].

Liposomal Iron

- **Type:** Non-heme iron encapsulated in liposomes (phospholipid vesicles)
- **Bioavailability:** Liposomal encapsulation protects iron from degradation in the digestive tract and enhances absorption:
  - **Bioavailability is 2.7–4.1 times higher than traditional iron salts** (such as iron sulfate or gluconate)[5] [6] [7].
  - Some studies claim **up to 9 times higher bioavailability** than high-dose conventional iron with vitamin C[8].
  - **Absorption is also less affected by dietary inhibitors** (e.g., phytates, calcium) and is associated with fewer gastrointestinal side effects[5] [7] [9].

Direct Comparison

Supplement Type	Relative Bioavailability	Key Features
Proferrin ES (Heme)	10–24x higher than non-heme iron salts [1] [2]	Absorption unaffected by food, low GI side effects
Liposomal Iron	2.7–9x higher than non-heme iron salts [5] [6] [8] [7]	Enhanced absorption, fewer GI side effects

- **Proferrin ES heme iron generally has higher bioavailability than liposomal iron**, especially when compared to non-heme iron salts. Heme iron's unique absorption mechanism gives it a distinct advantage, allowing for effective absorption even in the presence of dietary inhibitors[1] [2].

- **Liposomal iron** also offers significantly improved bioavailability over standard iron salts and is well-tolerated, but the increase is not as pronounced as with heme iron polypeptide[5] [6] [7].

Summary

- **Proferrin ES (heme iron)** is likely the most bioavailable oral iron supplement available, with absorption rates substantially higher than both standard and liposomal non-heme iron.
- **Liposomal iron** is a strong alternative for those who cannot tolerate heme iron or prefer a vegetarian source, offering much better bioavailability than conventional non-heme iron, but generally not matching the absorption efficiency of Proferrin ES[1] [5] [2] [6] [7].

⁂

1. https://proferrin.com/physician-information/
2. https://proferrin.com/physician-information/?srsltid=AfmBOopXyFd6PR5on1hwZIvEsTQX1X7KlBfEteCiyaCtOqfZdHn5v8GO
3. https://proferrin.com/2023/06/23/iron-deficiency-and-infertility/
4. https://badgut.org/information-centre/product-reviews/proferrin-heme-iron-polypeptide/
5. https://essopenarchive.org/users/623375/articles/646400/master/file/data/Liposomal iron in anemia managementBJP/Liposomal iron in anemia managementBJP.docx
6. https://www.opastpublishers.com/open-access-articles-pdfs/oral-liposomal-iron-a-promising-new-strategy-for-anemia-management-in-clinical-practice.pdf
7. https://www.scirp.org/pdf/jbm_2020090811202222.pdf
8. https://actinovo.com/en/blogs/studien/liposomales-eisen
9. https://www.wbcil.com/blog/liposomal-iron-a-revolutionary-approach-to-iron-supplementation/