

Study Shows Ferrochel™ Superior to Salts

A recent study conducted at INCAP compared the effects of Albion's Ferrochel to ferrous sulfate in 100 anemic adolescents. The adolescents (ages 10-18) were divided into four treatment groups: Group A received 120 mg of Iron as ferrous sulfate, Group B received 120 mg of iron as Ferrochel, Group C received 60 mg of iron as Ferrochel, and Group D received 30 mg of iron as Ferrochel.

Treatment was administered for four weeks. Each adolescent also received 250 mcg of folic acid per treatment.

Ferrochel, at doses of 120 mg, 60 mg, and 30 mg, and ferrous sulfate at the 120 mg dose increased

hemoglobin and serum ferritin values significantly. Ferrochel (120 mg and 60 mg) had about the same dynamic effect on hemoglobin as ferrous sulfate in the 120 mg dose, but these doses of Ferrochel scored a greater increase for serum ferritin (iron storage protein), with the greatest

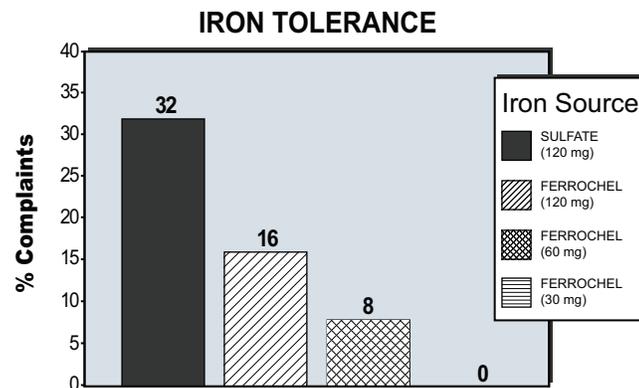
increase being seen for the 120 mg Ferrochel group.

KEY FINDING:

Ferrochel, in the 30 mg treatment group, restored hemoglobin in the anemic adolescents to the same level as the 120 mg ferrous sulfate group. Most Significantly, 32 % of the adolescents taking the ferrous sulfate complained of gastric side effects.

None of the adolescents taking 30 mg of iron as Ferrochel had any complaints. In fact, Ferrochel had a significantly lower incidence of complaints at all dose levels.

Obviously, Ferrochel is much easier to tolerate than iron salt forms, such as ferrous sulfate. The easier a supplement can be tolerated, the better the consumer compliance.



ALBION Newsletter

Starting with this issue, Albion Laboratories - World Leader in chelated mineral nutrition - will be providing a newsletter service. As you might expect, this newsletter will be devoted to providing timely, documented information from the field of clinical mineral nutrition. However, the field of nutrition is highly complex with myriads of biochemical inter-relationships.

Therefore relevant articles on other areas of nutrition and health will also appear from time to time. ALBION wants this new service to be a useful tool for it's readers. We welcome your feedback, and hope you will let us know if there are any topics that you would like to see reviewed in upcoming issues.

IRON ABSORPTION PITFALLS

Literature Review

Study after study has documented the fact that there are a host of substances that can interfere with the absorption of iron from inorganic iron salts; Following is a review of the conclusions from some classic studies on this subject.

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“Phytates and the Inhibiting Effect of Bran on Iron Absorption in Man.”

Hallberg, L, et al., *Am J Clin Nutr*, 1987; 45:988-96.

STUDY CONCLUSION:

The addition of bran to a meal greatly reduced the absorption of non-heme iron (inorganic iron salts).

The bran with its full phytate content had a greater inhibitory effect than the dephytinized bran, but both forms of bran inhibited the absorption of non-heme iron to some degree. This suggests that factors in bran other than phytates interfere with the absorption of non-heme iron. Whole bran was found to decrease non-heme iron absorption by 78% in this study.

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“The Cadmium Effect on Iron Absorption.”

Hueberg, HA, et al., *Am J Clin Nutr*, 1987; 45: 1007-12.

STUDY CONCLUSION:

This animal study demonstrated that the co-administration of cadmium and iron salts (ferrous

sulfate, ferric and ferrous ammonium sulfate) lead to a decrease in the absorption of iron. This effect was not seen with heme-iron and cadmium. Iron salt absorption was decreased by 50% when cadmium was given in two-fold molar excess. It appears that cadmium blocks the transferrin cycle within the mucosal cell.

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“Iron Absorption: No Intestinal Adaptation to a High Phytate Diet.”

Brune, M, et al., *Am J Clin Nutr*, 1989; 49:542-5.

STUDY CONCLUSION:

There is no intestinal adaptation for regular high phytate diets that leads to normal absorption rates in the presence of phytates. The study compared the rate of non-heme iron absorption for strict vegetarians on a regular high phytate diet to a control group receiving wheat rolls with and without phytate containing whole bran. The average reduction in non-heme iron absorption was 92% and 93% respectively for the two groups taking in phytates.

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“Effects of Calcium Carbonate and Hydroxyapatite on Zinc and Iron Retention in Postmenopausal Women.”

Dawson-Hughes, B, et al., *Am J Clin Nutr*, 1986; 44:83-88.

STUDY CONCLUSION:

The absorption of non-heme iron

was greatly reduced by the addition of calcium supplements to a meal. Zinc absorption did not seem to be affected by the additional calcium.

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As evidenced by the conclusions of these studies, as well as many factors that can cause a less than desirable absorption of inorganic iron salts.

These include:

- phytates**
- Oxalates**
- Antacids**
- Calcium Supplements**
- Zinc**
- Divalent Anions**
- Phosphates**
- Tetracyclines**

Dietary constituents that are known to decrease the absorption of inorganic iron appear to have little or no effect on the absorption of heme-iron (1,2,3,4,5,6,7,8) Why is that? Inorganic iron must be ionized in order to be absorbed. Heme-iron contains iron bound to protein. All of the factors listed above interfere with inorganic iron absorption and have a negative influence on the ionized iron.

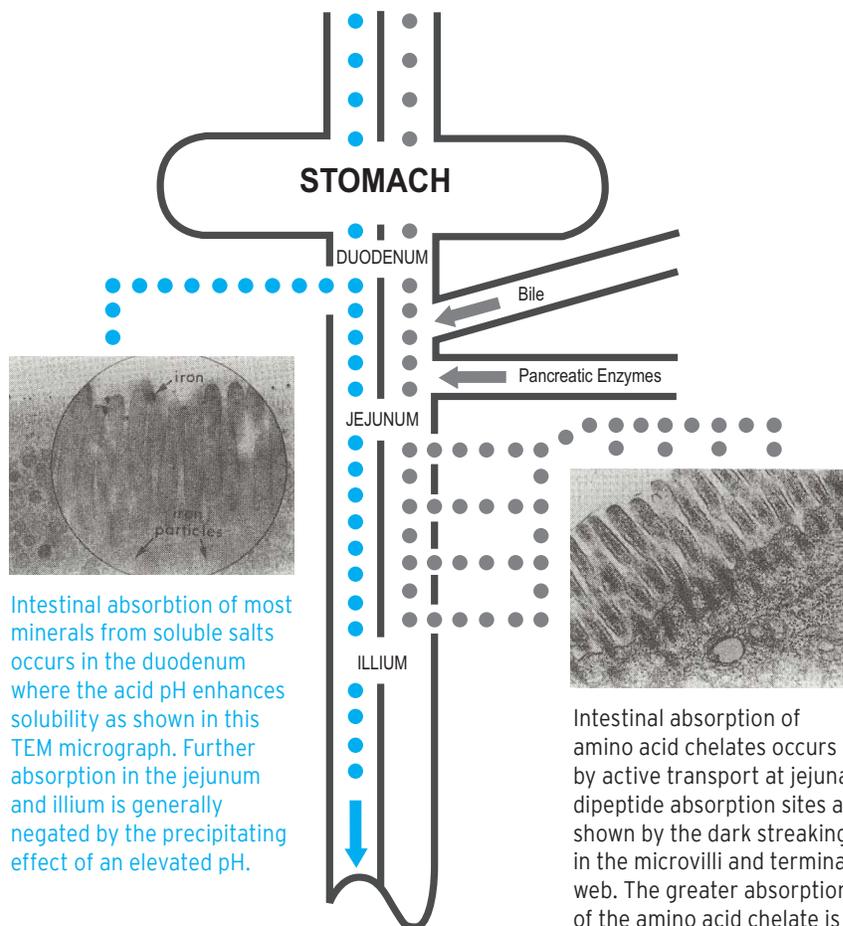
Ferrochel™ (ALBION's patented iron amino acid chelate) is a type of iron that does not ionize in the gut, and therefore, like heme-iron, is not affected by the dietary factors that inhibit inorganic iron salts. The Ferrochel molecule is believed to be absorbed in a manner similar to a dipeptide. A study at the Mount Sinai School of Medicine, Mount Sinai Medical Center, New York, New York, showed that this iron amino acid

chelate was absorbed at an average rate that was 59% greater than that of ferrous sulfate. Other studies have found that the iron amino acid chelate (Ferrochel) was absorbed at a rate that was 3.8 times that of ferrous sulfate.

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Absorption Comparison of Salts vs Amino Acid Chelates in the Intestine



Intestinal absorption of most minerals from soluble salts occurs in the duodenum where the acid pH enhances solubility as shown in this TEM micrograph. Further absorption in the jejunum and ileum is generally negated by the precipitating effect of an elevated pH.

Intestinal absorption of amino acid chelates occurs by active transport at jejunal dipeptide absorption sites as shown by the dark streaking in the microvilli and terminal web. The greater absorption of the amino acid chelate is due to the stability of the chelate and the fact that the metal is smuggled in as part of a dipeptide molecule.

"Recent INCAP (Institute of Nutrition for Central America and Panama) study shows Ferrochel to be effective and gentle."

Iron and Sensitivity to Cold

Medical World News reports that women who often feel cold may be deficient in iron. Lack of sufficient iron, research has shown, blunts the body's response to cooling.

Normally, when one is exposed to cold the thyroid gland immediately starts to produce more than usual amounts of thyroid hormone which acts as a stimulant and causes the tissues to produce more heat. Iron deficiency diminishes the thyroid response.

This effect of iron deficiency upon the thyroid is correctable; the responsiveness of the gland and of the body's response to cold returns to normal just as soon as the deficiency has been corrected by giving orally administered iron supplementation. Since women tend to lose iron with their monthly menstrual flow, they tend to become iron deficient more often than men. Furthermore, too many women consume less than US RDA levels of iron (18mg./day). Women who often feel "chilly" might try taking some extra iron to see if it

improves their tolerance to the cold. Before doing so, however, they should check with their doctor. ("Medical World News" 29, 11:113, 1998)

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