

## PRODUCT INFORMATION

# Ferrochron®

*Ferrochron® is a chronobiological dietary supplement that combines three different iron salts in a multi-layered tablet, for controlled release with improved tolerability compared to iron preparations consisting purely of iron sulphate. Ferrochron® was developed to protect against iron deficiency in children, pregnant women and the general population.*

### Basic Facts

Iron is an essential microelement that plays a role in many metabolic processes, particularly those associated with transporting oxygen and regulating cell growth and differentiation. In fact, iron is involved in well over 100 metabolic processes. Because the body cannot produce iron, it must be obtained from food.

Iron deficiency is the most common nutrient deficiency worldwide. Iron deficiency develops gradually; it begins with a negative iron balance when dietary intake is insufficient to meet the body's daily needs.

When an iron deficiency exists, the oxygen supply to cells is reduced, which can lead to impaired physical performance accompanied by tiredness and a weakened immune system. Other typical signs of iron deficiency are paleness, dry skin, brittle fingernails and a tendency to become overweight.

High-risk groups include women in general, children and pregnant women; an estimated 22 percent of women in industrialized countries are affected. Up to 47 percent of all school-age children worldwide also develop some form of anemia, 25 percent of whom suffer from iron-deficiency anemia, the most severe kind of iron deficiency.

### Effects

Iron, or more specifically iron salt, can exist in two forms: heme iron and non-heme iron. The former is derived from hemoglobin and is found in foods of animal origin. The latter is found in plant products, and is the form contained in nearly all dietary supplements or enriched foods. Unfortunately, non-heme iron is often more difficult for the body to absorb.

There are a multitude of factors that influence the body's absorption of non-heme iron; for example, many foods and drinks contain ingredients that interfere with iron uptake. Therefore, it is always best to take iron supplements between meals. Some

diseases and certain drugs can also inhibit iron absorption. Furthermore, different iron salts are more readily absorbed in different sections of the gastrointestinal tract.

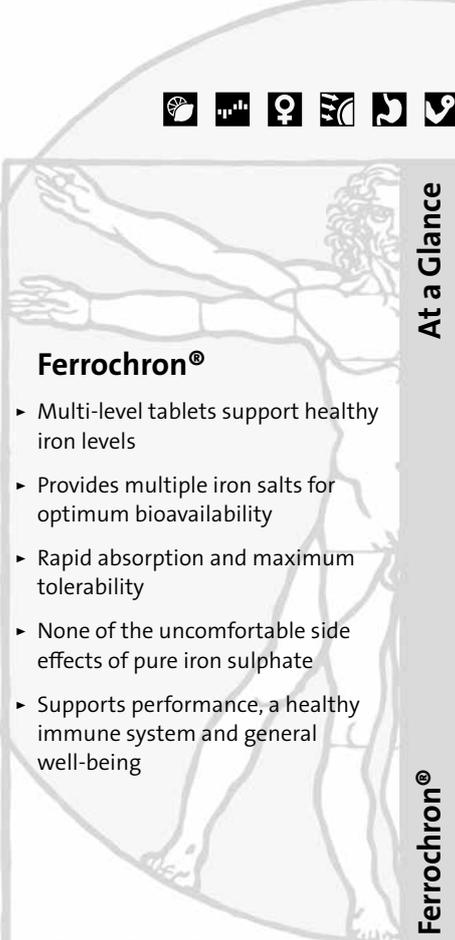
**Unlike conventional food supplements which usually contain only one iron salt – typically iron sulphate – Ferrochron® is a unique formula that largely replaces iron sulphate with other more tolerable and bioavailable iron salts. By utilizing a triple-layer technology, the three iron salts in Ferrochron® are released in different sections of the gastrointestinal tract. This maximizes the advantages of each iron salt while also reducing side effects and greatly increasing bioavailability.**

**Ferrochron® tablet composition is as follows:**

- ▶ An initial outer layer immediately releases one-third of the iron in the upper digestive tract, starting in the stomach. This layer contains iron bis-glycinate to guarantee an initial, rapid uptake in the upper digestive tract with maximum tolerability; these are properties that have been confirmed in various research studies.
- ▶ After a short delay, an intermediate layer releases one-third of the iron in the form of iron sulphate. This occurs approximately one to two hours after taking the tablet, while it is being transported through the duodenum. At this state, vitamin C is also released to increase the bioavailability of this iron salt even further in this part of the intestine. The addition of vitamin C also helps to minimize any of the side effects that can occur from high doses of iron sulphate.
- ▶ A third, extended-delay layer only starts to release its iron two to four hours after the tablet is ingested, when the tablet is passing through the small intestine (from jejunum to ileum). This layer contains highly bioavailable, microen-

capsulated iron pyrophosphate coated with lecithin. This ensures maximum uptake of the remaining one-third of the iron as it passes through this part of the digestive tract.

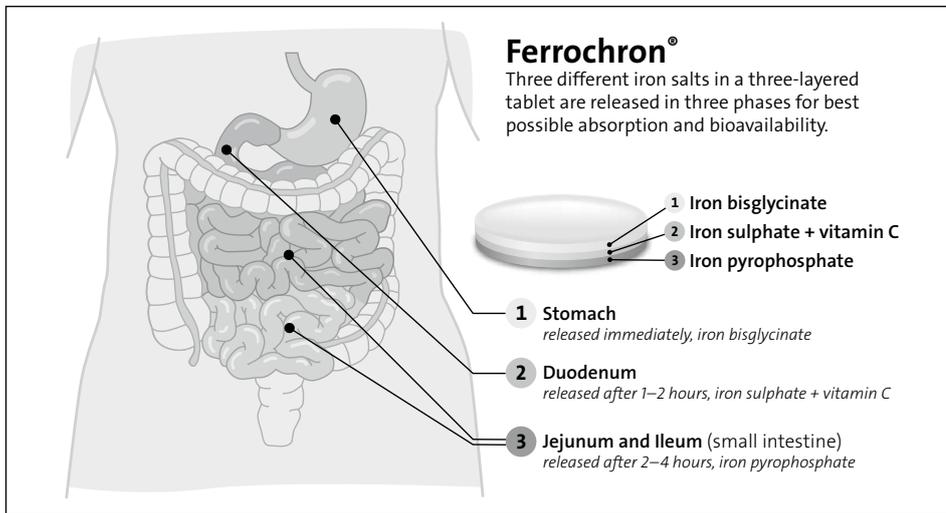
By combining three iron salts, the amount of iron sulphate in Ferrochron® is reduced to an absolute minimum, thereby maximizing tolerability while at the same time ensuring high bioavailability of the entire iron content.



The infographic features a Vitruvian Man figure in the background. At the top right, there are six icons: a globe, a signal tower, a female symbol, a person with a checkmark, a hand holding a pill, and a Twitter bird. The text 'At a Glance' is written vertically on the right side, and 'Ferrochron®' is written vertically on the left side of the infographic area.

### Ferrochron®

- ▶ Multi-level tablets support healthy iron levels
- ▶ Provides multiple iron salts for optimum bioavailability
- ▶ Rapid absorption and maximum tolerability
- ▶ None of the uncomfortable side effects of pure iron sulphate
- ▶ Supports performance, a healthy immune system and general well-being



## Uses

There are certain groups of people for whom iron deficiency is more common, and who could especially benefit from iron supplementation; for example, women who experience heavy menstruation. Pregnant and nursing women also tend to be iron-deficient. Nearly 18 percent of pregnant women in the United States suffer from iron-deficiency anemia; the consequences are often premature births or low birth weight. For this reason, supplementation is recommended during pregnancy, as it's difficult to meet the body's iron requirements through diet alone. Other groups at risk are women undergoing fertility treatments and children and adolescents whose iron requirements are higher during their growth phase. Men and women who suffer from Crohn's disease, inflammatory bowel disease or coeliac disease, dialysis patients, extreme athletes and vegetarians are also known risk groups.

In order to reduce the risk of progressive iron deficiency in healthy people, the recommended daily dose of dietary iron is around 11 mg for infants between seven and twelve months old, 7 mg for children between the ages of one and three, 8–11 mg for children 4 years and older, 8 mg for men, 15–18 mg for adult women of childbearing age and at least 27 mg for pregnant women. If these amounts are not obtained every day or if large amounts are excreted each day, an iron deficiency or anemia will develop sooner or later. In these cases, higher supplemental doses are recommended.

Adults with a confirmed or suspected iron deficiency should take at least 30–60 mg of iron per day in addition to their normal diet, or even higher doses in severe cases. This supplementation should continue until the hemoglobin or ferritin levels, both measurable in the blood, have returned to normal. Ideally, by taking a chronobiologically designed supplement, the levels may be restored after about 12–16 weeks. People with a low-iron diet (e.g. vegans) or with a permanently higher need for iron intake (e.g. women with heavy menstrual bleeding, extreme athletes or those with a gastrointestinal condition) often require longer periods of supplementation.

## Composition

### One tablet Ferrochron® contains:

	daily dose
Iron consisting of:	30 mg
10 mg immediately released iron (as bisglycinate within the stomach)	
10 mg slightly delay released iron (as sulphate within the duodenum after 1–2 hours)	
10 mg strongly delay released iron (as microencapsulated pyrophosphate within the jejunum ileum after 2–4 hours)	
Vitamin C (released in the duodenum after 1–2 hours)	70 mg

in pharmaceutical grade. Other ingredients: microcrystalline cellulose (including hydroxypropylmethylcellulose and sodium carboxymethylcellulose), dicalcium phosphate, SiO<sub>2</sub>.

## Dosage

In normal cases, take 1 tablet (elemental iron) per day 120–30 minutes before dinner. For acute iron deficiency or pregnancy, the dose can be increased up to 2 tablets per day.

Children aged 6 years or older may take one tablet per day after consultation with their physician. Take the tablets with plenty of fluid (but not with milk, coffee, alcohol or fruit juices).

## Instructions

Food supplements are no substitute for a well-balanced diet and a healthy lifestyle. The indicated recommended daily intake should not be exceeded. Persons under constant medical care should consult a physician before taking the supplements. Product information is not to be considered a statement regarding cure; in general, we advise against self-medication without proper consultation of a doctor. Subject to mistakes and print or typographical errors.

Store in a cool and dry environment, out of reach for children.

Manufacturer:



**VitaBasix®**

by LHP Inc.

www.vitabasix.com | uk@vitabasix.com

Tel.: 00800-7030 7060 | Fax: 00800-1570 1590

### Important information:

Our products are manufactured in accordance with the GMP (Good Manufacturing Practice) standard. Their quality, purity and concentration are regularly tested in independent test laboratories, in keeping with the FDA (Food and Drug Administration) guidelines.

Our products should be regarded as preventive measures or measures to enhance the individual's general wellbeing. Patients must consult a doctor before using the products for the treatment of diseases.

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