



Oral Iron Supplements: A Review Feb 14, 2003

The most common oral iron salts are ferrous sulfate, ferrous fumarate and ferrous gluconate. The standard preparation used in the oral management of iron deficiency anemia is ferrous sulfate. Other salts, such as ferrous gluconate and ferrous fumarate, are as effective as ferrous sulfate when administered in equivalent amounts of elemental iron, but offer no therapeutic advantage and may be more costly.¹

Calculation of dosage for iron preparations should always be based on the amount of elemental iron to be administered. Ferrous sulfate salt contains 20% of elemental iron, ferrous gluconate contains ~12% and ferrous fumarate contains 33%. For iron deficient adults, 50 to 100mg of elemental iron given orally 3 times daily is usually adequate.²

Oral iron preparations may cause nausea, vomiting, dyspepsia, constipation, diarrhea or dark stools. These effects are generally dose-related and, with the exception of dark stools, usually subside with continued therapy.²

To minimize the intolerance, lower doses may be administered initially and the medication may be given with or after meals. A change to another iron salt may also be beneficial; ferrous gluconate and ferrous fumarate are less irritating than ferrous sulfate.³ Administration of a different dosage form, for example, syrup, can also decrease the gastrointestinal intolerance.⁴

Pill-induced esophageal injury is now considered to be a significant cause of esophageal disease. Usual doses of capsules or tablets that are inadvertently retained in the esophagus may result in an inflamed or ulcerated esophageal mucosa. Ferrous sulfate may injure the esophageal mucosa because it produces an acidic solution once it is dissolved (pH <3). It is still not known whether tablets and capsules differ in their ability to “stick” in the esophagus. Patients should be instructed to take tablets or capsules in an upright or sitting position with at least 100 ml of fluid and avoid lying down for at least 10 minutes after taking a dose.¹

Liquid formulations may be beneficial for small children, the elderly or bedridden patients who may have delayed esophageal transit times or esophageal compression due to age or disease. Liquid preparations may cause teeth staining, which can be avoided to a large extent by giving the preparation through a straw, first mixing it with water or fruit juice, and by following the dose with a drink of

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plain water or juice or by placing the drops on the back of the tongue and brushing the teeth after administration. Brushing the teeth with sodium bicarbonate or hydrogen peroxide 3% will remove existing stains. If taste is a problem, the liquid preparation can be mixed with milk or fruit juice to increase palatability.^{1,2}

In an attempt to decrease the gastrointestinal irritation that is often associated with iron administration, and to improve compliance, various sustained-release dosage forms have been designed. Enteric-coated or delayed-release products release the iron slowly as they pass through the gastrointestinal tract. However, maximal iron absorption occurs in the duodenum and proximal jejunum, and iron salts released distal to these areas are only minimally absorbed. Therefore, sustained-release products are generally about 1/4 to 1/6 as effective as ferrous sulfate solutions in providing absorbable iron and also are much more costly.^{1,3-7}

Dosage Forms Available in Canada:¹

Iron Salt	Formulation	Product	Elemental Iron/dose
Ferrous Sulfate	Tablet	Apo-Ferrous Sulfate	60 mg
		Ferrous Sulfate 300 mg	60 mg
		PMS Ferrous Sulfate Tablets	60 mg
		Sulfate Ferreux 300 mg	60 mg
	Enteric-Coated Tablet	Ferrous Sulfate 300 mg	60 mg
		Sulfate Ferreux 300 mg	60 mg
	Sustained-Release Tablet	Fero-Grad	105 mg
		Iron 50 mg Time Release	50 mg
		Slow-Fe	50 mg
	Liquid	Ferodan Infants Drops	15 mg/ml
		Fer-In-Sol Drops	15 mg/ml

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		PMS Ferrous Sulfate Solution	6 mg/ml
		PMS Ferrous Sulfate Infant Drops	15 mg/ml
		PMS Ferrous Sulfate Drops	25 mg/ml
	Syrup	Fer-In-Sol Syrup	6 mg/ml
		Ferodan Syrup	6 mg/ml
Ferrous Gluconate	Tablet	Apo-Ferrous Gluconate	35 mg
		Ferrous Gluconate 300 mg	35 mg
		Ferrous Gluconate 324 mg	38 mg
		Ferrous Gluconate 325 mg	38 mg
	Novo-Ferogluc	35 mg	
Sustained-Release Tablet	Iron 50 mg Timed Disintegrating	50 mg	
Ferrous Fumarate	Tablet	Ferrous Fumarate 300 mg	99 mg
		Iron	18 mg
	Capsule	Neo-Fer 300 mg	100 mg
		Palafer Capsules	100 mg
		Scheinpharm Ferrous Fumarate	100 mg
	Suspension	Palafer Suspension	20 mg/ml

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References available upon request.

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