

# Iron: The Nutrient, Supplement or Medicine

A nutrient is any substance which is used by a living system in order to survive and grow.

## Iron the nutrient:

Iron is essential to all living things. In humans, iron is involved in oxygen and carbon dioxide transport, cell growth and cell differentiation. A deficiency of iron limits oxygen delivery to cells, resulting in fatigue, poor work performance, and lowered immunity. On the other hand, excess amounts of iron can result in fatigue, poor work performance and lowered immunity but additionally, excess iron is poisonous and can cause death. In children, death has occurred from ingesting 200 mg of iron.

The tolerable upper intake level (TUIL) is established to protect us from consuming harmful levels of a nutrient. The TUIL is the highest amount of a vitamin or mineral we can consume without causing toxicity. For iron, these limits are:

Age	Males (mg/day)	Females (mg/day)	Pregnancy (mg/day)	Lactation (mg/day)
7 to 12 months	40	40	NA	NA
1 to 13 years	40	40	NA	NA
14 to 18 years	45	45	45	45
19 + years	45	45	45	45

According to the US Centers for Disease Control and Prevention (CDC), the average American diet provides 10–15 milligrams (mg) of iron daily in the form of heme (any food that contains blood, such as meat) and non-heme iron. Further, the CDC provides the recommended daily allowance (need) for iron based on gender and age.

## Recommended Dietary Allowance (RDA) for iron by age and sex.

Age/Group	Life Stage	Iron (mg/day)
Infants	0–6 months	0.27*
	7–12 months	11
Children	1–3 years	7
	4–8 years	10
Males	9–13 years	8
	14–18 years	11
	19–>70 years	8
Females	9–13 years	8
	14–18 years	15
	19–50 years	18
	51–70 years	8
	>70 years	8
Pregnant	14–50 years	27
Lactating	14–18 years	10
	19–50 years	9

\*This value is an Adequate Intake (AI) value. AI is used when there is not enough information known to set a Recommended Dietary Allowance (RDA). \*\*See Iron Disorders Institute guidelines for iron needs during pregnancy.

Supplements can correct a deficiency for most who do not consume enough iron to address needs and who become iron deficient as a result.

A supplement is “anything added” to food or pills to correct a deficiency; Iron supplementation is indicated when diet alone cannot restore deficient iron levels to normal within an acceptable timeframe. Food fortification is the public health policy of forced supplementation by adding micronutrients (essential trace elements and vitamins) to foodstuffs to ensure that minimum dietary requirements are met. Continued on next page....



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Supplemental iron is available in different forms such as: ferric or ferrous and heme iron. Ferrous iron salts (ferrous fumarate, ferrous sulfate, and ferrous gluconate) are the most commonly used forms in food fortification and iron supplements. Each of these types deliver different amounts of elemental iron, which is the amount of iron in a supplement that is available for absorption. For example the amount of elemental iron in ferrous fumarate is 33%, in ferrous sulfate, it is 20% and in ferrous gluconate, it is 12%.

**Medicine:** The art of diagnosing, treating, or preventing disease and other damage to the body, mind or spirit.

People with Iron-Out-of-Balance™ may be unwell without knowing. Too often people wait for symptoms before they are prompted to see a doctor. Severe symptoms associated with an iron imbalance warrant emergency medicine; some of these include shortness

of breath, dizziness, fainting, nausea, vomiting, fever, headache, or seizure. Other symptoms associated with an iron imbalance range from mild to severe; some of these are chronic fatigue, weakness, loss of interest, heart rhythm abnormalities, shortness of breath, cravings, pain, and depression.

An iron panel can reveal the type of iron imbalance: iron deficiency (with or without anemia), iron overload or defense anemia (anemia associated with inflammation). An iron panel includes hemoglobin, fasting serum iron, iron binding capacity and serum ferritin. Once the iron imbalance is defined, therapy can be determined

**Sources:**

US Centers for Disease Control & Prevention Recommendations to prevent and control iron deficiency in the United States. MMWR October 11, 2002 / 51(40);897-899

National Institutes of Health Office of dietary Supplements  
<http://ods.od.nih.gov/>

Iron Deficiency Anemia: Recommended Guidelines for the Prevention, Detection, and Management Among U.S. Children and Women of Childbearing Age Committee on the Prevention, Detection, and Management of Iron Deficiency Anemia Among U.S. Children and Women of Childbearing Age  
Food and Nutrition Board Institute of Medicine  
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## **OPINION:** Iron the nutrient, supplement or medicine

Gaps in clinical practice related to iron are widespread. Many healthcare providers do not order a sufficient iron panel. When equipped with only partial iron status information, the risk of inappropriate therapy is increased, which in some cases could be prove fatal.

In general the public has a low level of knowlege about iron. Mistakenly many believe that iron is a cure for fatigue. In today's do-it-yourself environment, a person can order his or own tests online and begin treatment without any benefit of medical advice. These individuals can obtain over-the-counter iron preparations that far exceed the tolerable upper limits and quite possibly do harm to themselves or their unborn child.

Iron deficiency is not a healthy state; neither is excess iron. Given the knowledge gaps that exist about iron and how easily iron is available without prescription, the following is the opinion of the Iron Disorders Institute Scientific & Medical Advisory Board: that the **iron panel (hemoglobin, fasting serum iron, iron-binding capacity, serum ferritin)** be part of routine blood chemistries, especially for women; that warnings should appear on all products containing iron with resources listed to guidelines for tests needed to confirm Iron-Out-of-Balance™.

