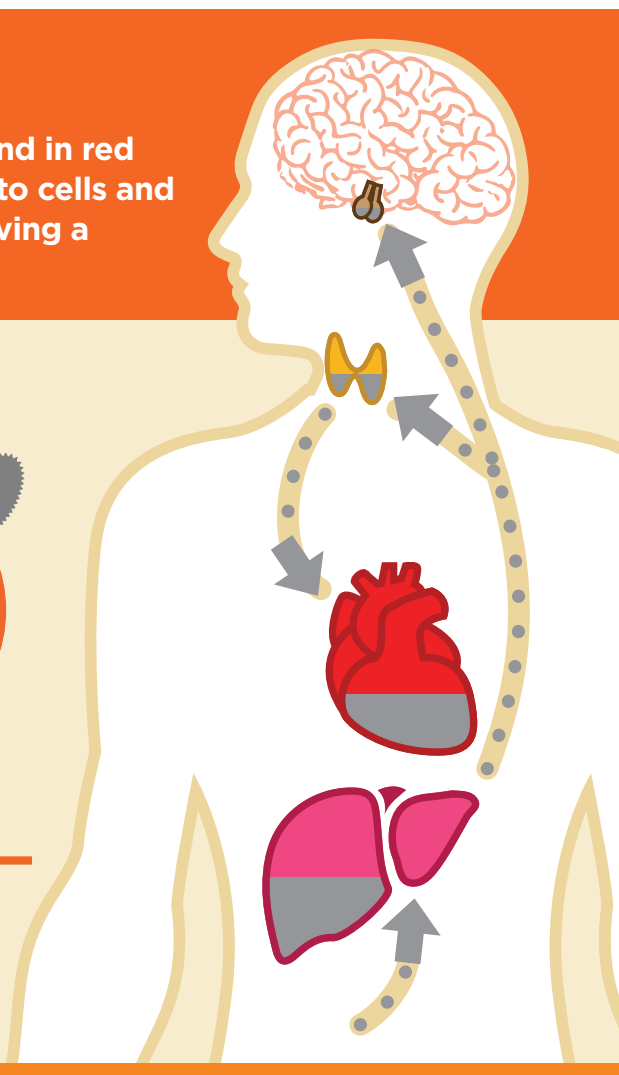
Iron: Is Too Much Harmful?

IMPACT OF EXCESS IRON IN THE BODY

IRON IN THE BODY

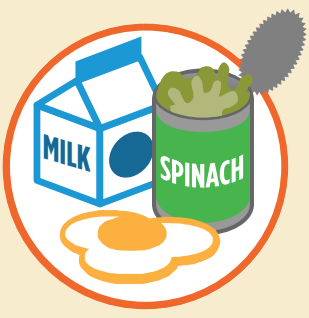
Iron is an essential element in the human body mostly found in red blood cells. Iron helps cells "breathe" by carrying oxygen to cells and tissues, and is essential to giving the body energy and having a properly functioning immune system[1].



Most people get iron from the food they eat[2].

ANIMAL SOURCES

FORTIFIED PRODUCTS



OTHER SOURCES

Iron circulates through the body continuously and any unused iron is stored for future use[3].

- People with too little iron in their body can develop iron deficiency, which causes anemia[1].
- People who accumulate too much iron in their body can develop iron overload[3].

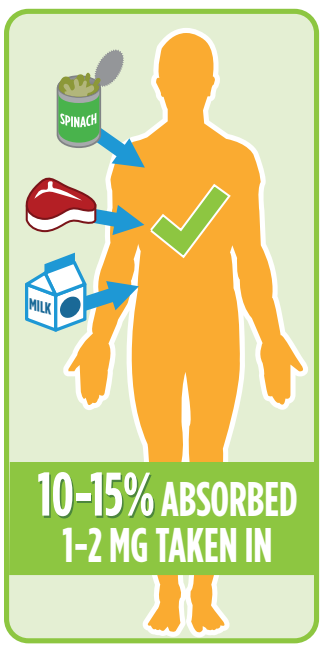
When the body's iron capacity is exceeded and the body cannot get rid of it, iron builds up—first in the liver, and then in hormonal organs like the thyroid and pituitary glands, and eventually in the heart. This condition is called chronic iron overload[3].

HOW IRON ENTERS THE BODY

People can develop chronic iron overload through:

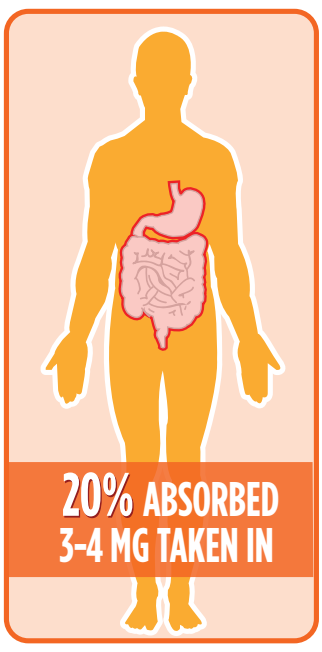
- **Blood transfusions** required for managing many health conditions such as **sickle cell disease, thalassemia,** and **myelodysplastic syndromes (MDS)**[3,4].
- **Increased absorption** through the stomach and intestines. This can happen even in patients who do not receive regular blood transfusions, such as non-transfusion-dependent thalassemia (NTDT) patients[3]. Increased iron absorption in NTDT patients is triggered by the body's need for more red blood cells.

FOOD



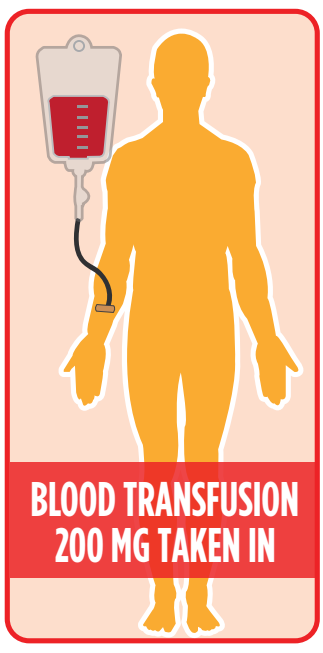
A healthy person absorbs and releases about 1–2 mg of iron each day, or about 10–15% of the iron in a normal diet[1,2].

INTESTINAL ABSORPTION



A person with non-transfusion-dependent thalassemia (NTDT) absorbs twice as much iron from their food as a normal person, amounting to 3-4 mg of iron each day, or about 20% of the iron in a normal diet[5,1].

BLOOD TRANSFUSION



A person who receives blood transfusions absorbs an average of 200 mg of extra iron from each unit of blood transfused[6].

As few as 20 units of blood (10 in children) can lead to chronic iron overload[3].

SYMPTOMS OF CHRONIC IRON OVERLOAD

Symptoms of chronic iron overload may not appear until organ damage has occurred[3]. This is why patients with thalassemia, sickle cell disease and myelodysplastic syndromes (MDS) should be aware of the risk.

EARLY SYMPTOMS[3,7]

FATIGUE

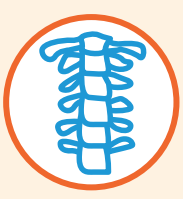
JOINT PAIN

WEIGHT LOSS

STOMACH PAIN

COMPLICATIONS (may vary by disease)[4,8]

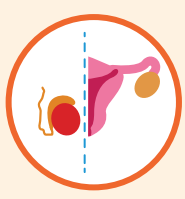
BLOOD CLOTS



BONE DISEASE (INCLUDING OSTEOPOROSIS)

PULMONARY HYPERTENSION

HYPOTHYROIDISM



HYPOGONADISM

LIVER FIBROSIS AND CIRRHOSIS

There are medicines available that remove iron from the body to treat chronic iron overload.

REFERENCES

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