

Diet Recommendations for Hemochromatosis

Normally people absorb about 1 milligram of iron per day to meet body needs. Individuals with hemochromatosis can absorb from the small intestines as much as four times that amount. The body has no way of ridding itself of the extra iron. Over time the extra iron accumulates in vital organ such as the liver, joints, heart, pancreas and the pituitary resulting in disease.

For this reason, individuals with hemochromatosis must take steps to reduce the level of body iron with therapeutic phlebotomy and control iron absorption with diet modifications.

We consume two types of iron from the diet: iron in heme contained in meat and non-heme iron contained in plants and supplements. Heme iron is most easily absorbed, whereas non-heme is absorbed less well. Calcium is the only known substance that can impair the absorption of both heme and non-heme iron. Tannin (coffee, tea, chocolate), fiber, eggs and oxalates impair absorption of non-heme iron.

Ask for the Iron Disorders Institute recommendation guidelines for diagnosing, treatment inheritance patterns and DNA testing for individuals at risk for hemochromatosis.

The following recommendations are suggestions to modify the diet for individuals with hemochromatosis. Every person is unique, which must be taken into consideration before using some of these suggested diet modifications. People with liver disease especially need to be cautious about consumption of certain foods or substances.

- **Reduce consumption of red meat**
Red meat contains the most easily absorbable form of iron called heme iron.
- **Avoid foods high in animal fats**
Fats (lipids) when in combination with unbound iron can generate free radical activity, which is destructive to cells and can damage DNA.
- **Limit supplemental vitamin C to 200 milligrams/dose**
Vitamin C enhances iron absorption.
- **If alcoholic beverages are allowed, consume in moderation**
Alcohol enhances the absorption of iron
Too much alcohol can damage the liver
Red wine can be of benefit when consumed in moderation because of the tannins it contains.
Patients with elevated liver enzymes or liver damage such as cirrhosis should avoid alcohol completely.
- **Avoid sugary foods or beverages**
Sugar enhances the absorption of iron.
- **Consume plenty of fruits and vegetables, including spinach**
These foods contain fiber and antioxidants, which inhibit free radical production. Spinach contains oxalates which impair absorption of iron contained in this plant. Fruits and vegetables contain non-heme iron which is not absorbed well.
- **Eat nuts, grains, rice and beans**
These foods are high in fiber, which impairs the absorption of non-heme iron and promote healthy digestion.
- **Avoid raw shellfish if iron levels are elevated**
Shellfish can contain a bacterium called *Vibrio vulnificus*, which can be fatal to people with high body iron levels. Take care when walking barefoot on beaches where contaminated shells may be present.
- **Tea or coffee with meals can reduce the absorption of iron**
These beverages contain tannins which inhibit the absorption of non-heme iron. **Excessive consumption of tannins is not recommended for individuals with liver damage.**

IRON	per 3.2 oz serving			
	content in select types of meat & fish	total iron MILLIGRAMS	heme iron MILLIGRAMS	heme iron percentage of total iron
VENISON		4.5	2.3	51
LAMB		3.1	1.7	55
BEEF				
RUMP STEAK		2.9	1.5	52
SIRLOIN STEAK		2.5	1.3	52
ROUND STEAK		3.2	1.6	50
TOP ROUND		2.5	1.2	48
GROUND		2.5	1.0	40
BRISKET		2.0	0.5	25
VEAL				
PORK		1.3	0.3	23
PROCESSED MEATS				
SAUSAGE (VEAL)		0.7	0.0	0.0
BOILED HAM		0.7	0.0	0.0
LIVER PATE		5.0	0.8	16
CHICKEN		0.6	0.0	0.0
FISH				
COD		0.2	0.0	0.0
MACKEREL		0.7	0.0	0.0
SALMON		0.6	0.1	17
MUSSELS		4.6	2.2	48
LOBSTER		1.6	0.6	40
SHRIMP		2.6	1.0	40

Meat contains about 40-50% heme iron; the balance is non-heme. The iron in plant-based foods is nearly all non-heme iron, but some plants do have traces of heme iron. These plants are not commonly consumed by humans.

Sources: Hallberg L, Hulthen L, Prediction of Dietary Iron Absorption: An Algorithm for Calculating Absorption and Bioavailability of Dietary Iron. *American Journal of Clinical Nutrition* 2000, 71: 1147-60.
The American Dietetic Associations' Complete Food & Nutrition Guide, 2nd ed. 2002
USDA National Nutrient Database

For a complete list of iron content in foods visit www.irondisorders.org click on RESOURCES

