



MILLER-KEYSTONE BLOOD CENTER

YOUR IRON AND COMMUNITY DONATIONS

Introduction

Thank you very much for participating in our community blood program. The information which follows makes recommendations about maintaining adequate iron stores. However, it is important to remember these recommendations should be taken with regards to your health.

Most of the iron in your body is found in the hemoglobin (Hgb) molecule of the red blood cell, responsible for carrying oxygen to the body. When you donate blood, you temporarily give up a part of this valuable resource until the body has time to replace it. During the medical history interview, a drop of blood from your fingertip is collected to measure your hemoglobin. To be a community donor, your hemoglobin must be 12.5g/dL, or higher.

Two types of dietary iron:

Heme Iron: Heme iron, the organic kind, is found in animal products, especially red meat, liver, and also in poultry and fish. The body can readily absorb approximately 15% of the iron from these sources. Although the absorption of iron from this food group is not affected by other foods in the diets, eating these foods can greatly enhance iron absorption from other sources.

Non-Heme Iron: Non-Heme iron is found in vegetables, fruits, breads and cereals, eggs, nuts, and oral iron supplements. Only about 3% of the iron from these sources can be absorbed. How well your body does absorb the iron in these food groups depend on what else is on the menu. Some foods increase iron absorption, while others interfere.

What can you do to improve iron absorption:

Iron Friends: On the plus side are foods, which enhance iron absorption when combined with foods that are non-heme iron sources:

- Beef, poultry, fish, lamb and veal, are on the top of the list, multiplying iron absorption fourfold.
- Foods high in vitamin C, such as citrus fruits, cantaloupe, strawberries, and vegetables such as cabbage, green peppers, tomatoes, and broccoli.
- Food containing folate, a B vitamin, such as vegetables, citrus fruits, liver, beans, and seafood.
- Food cooked in iron cookware, especially acidic foods such as tomato based sauces, soups and stew, are boosted in iron by three or four times.

Some dietary components interfere with iron absorption and utilization, such as foods with tannins and polyphenols (coffee, tea, and red wine), phytates (whole grains, bran, and soy products), and oxalates (spinach, chard, beet greens, rhubarb, and sweet potato). When one is trying to improve their iron status, intake of some iron inhibitors, such as coffee and tea, should be limited or served at separate times from iron-containing foods.

Iron Enemies: Avoid combining the following food with foods that are non-heme iron sources:

- Dairy products such as cheese, yogurt, ice cream, milk.
- Eggs, which contain an anti-iron factor that binds iron up not only in eggs but also in foods eaten with eggs such as toast.
- Whole-grain breads and cereals, baked goods, and candy bars.
- Foods high in oxalates, such as spinach.
- Tea, coffee, wine, beer, and soft drinks.
- Canned and processed food containing EDTA.

A sufficient quantity of iron is needed in the diet to prevent the development of iron deficiency anemia. Iron requirements are determined by the demands for tissue growth and hemoglobin accretion.

DISCUSSION:

Iron Supplementation: If iron depletion or iron deficiency anemia is present, iron supplementation is recommended. The iron-rich diet can be used with iron supplementation as well as after iron supplementation is discontinued to maintain adequate iron status. Iron supplements come in a variety of forms. To replace iron, the preferred form of iron tablets is ferrous salt (usually ferrous sulfate), with the ferrous form being absorbed approximately three times more readily than other forms.

Other forms of iron, such as gluconate, fumarate, lactate sulfate, glycine sulphate, and glutamate, are absorbed in similar amounts, but each contains varying amounts of iron. Iron supplements are available in liquid and tablet forms; some contain laxatives or vitamin C, and some are available in sustained-release preparations. Individual needs should be considered when selecting the most appropriate supplement. For maximum absorption, an iron supplement should be taken on an empty stomach with a full 8 oz. (240 ml) of fluid. However, side effects of constipation, diarrhea, or stomach upset are common when iron is taken on an empty stomach. When taken with a meal, absorption is 1/3 or less than when taken on an empty stomach. To improve tolerance, the dose can be increased gradually or the supplement can be taken after a meal.

Minimum Daily Dietary Iron Requirements

| | |
|---------------------------------|---------------|
| Men (age 19-50+): | 10 mg per day |
| Adolescents (age 11-18): | 10 mg per day |
| Women (age 15-50): | 18 mg per day |
| Women (age 50+): | 10 mg per day |

DIETARY SOURCE OF IRON (BASED ON USUAL SERVING SIZE)

Excellent Sources of Iron (3.5 mg or more)

Heme Iron

| | |
|---------|---------|
| clams | beef |
| oysters | chicken |
| liver | |

Non-Heme Iron

| | |
|---------------------------------------|--------------|
| cooked beans such as white beans | sesame seeds |
| soybeans | squash seeds |
| lentils | tofu |
| chickpeas | pumpkin |
| breakfast cereal (enriched with iron) | |

Good Sources of Iron (2.1 mg or more)

Heme Iron

| | |
|------------------------|--------------------|
| beef (ground or steak) | turkey (dark meat) |
| cooked blood pudding | |

Non-Heme Iron

| | |
|-----------------------------|----------------|
| canned lima beans | split peas |
| red kidney beans | dried apricots |
| cooked enriched egg noodles | chickpeas |

Sources of Iron (0.7 mg or more)

Heme Iron

| | |
|---------|--------------------------|
| chicken | haddock |
| ham | perch |
| lamb | salmon (canned or fresh) |
| pork | shrimp (canned or fresh) |
| veal | sardines |
| halibut | tuna |
| eggs | |

Non-Heme Iron

| | |
|-----------------|------------------------|
| peanuts | pumpernickel bagel |
| pecans | bran muffin |
| walnuts | cooked oatmeal |
| pistachios | wheat germ |
| roasted almonds | canned beets, drained |
| roasted cashews | drained canned pumpkin |
| sunflower seeds | dried seedless raisins |
| cooked pasta | peaches |
| egg noodles | prunes |
| bread | apricots |