



## **Ironing Out The problems**

### **Iron Deficiency - Anaemia**

Iron deficiency affects a high % of women, especially female athletes. Studies reveal that many athletes consume less than the RDA of iron due to a lower calorie intake for weight control or for sports requiring low body fat levels.

#### **Function**

Iron forms part of haemoglobin, the red pigment that carries oxygen in the bloodstream from the lungs to the muscles and brain. About 1/3 of iron is in storage form as ferritin and hemosiderin, stored mainly in the bone marrow and liver. It is the loss of this store that plagues many athletes, mostly women. The greater the amounts of haemoglobin per cell, the greater the possible amount of oxygen delivered to the muscles, so even a small % drop in haemoglobin levels can have a negative effect on performance, as it reduces the oxygen carrying capacity of the blood, lowering endurance, energy levels and increasing fatigue. Iron also stimulates bone marrow production of haemoglobin and forms part of several enzymes & proteins in the body and supports the immune system.

#### **Possible Causes of Deficiency**

- Athletes that consume less than the RDA. A low food or calorie intake due to lower body fat levels and weight required for specific sports.
- The destruction of the red blood cells during heavy exercise sessions.
- Repeated pounding by abdominal contents during running (endurance athletes) bruises the bladder lining resulting in blood losses in the urine.
- Menstruation ( biggest loss of around ½ mg each day)
- Poor iron absorption
- Bleeding into the digestive system
- Everyday bodily functions
- Sweating
- Lack of red meat in the diet

#### **Symptoms**

- Fatigue – feeling excessively tired despite getting lots of rest
- Headaches
- Light headedness / dizziness
- Above normal breathlessness during exercise – obvious effects on performance
- Feeling of weakness & difficulty recovering

Fatigue and tiredness can also be associated with stress & many other illnesses, making iron deficiency anaemia difficult to diagnose without blood tests.

Iron stores can be virtually exhausted before haemoglobin or serum iron registers any abnormal level. A significant amount of athletes have iron deficiency without apparent anaemia, which should not have a great effect on performance levels, however this should also be treated to return iron stores to normal as there is still a risk of it developing into anaemia.



### **Sources of Iron**

Red meat, poultry, fish, offal, pulses, whole grains, dark green leafy veg, eggs, fortified foods and dried fruit.

There are problems absorbing iron from certain foods from which it is not bioavailable, and is significantly more easily absorbed through animal sources, than plant sources. Vitamin C rich foods such as oranges, tomatoes and potatoes are known to enhance the absorption. Calcium, fiber, antacids, coffee and tea are known to inhibit the absorption. Vegetarians may find it difficult to absorb iron through solid food sources as it is difficult for the digestive system to absorb sufficient amounts from plant food.

### **RDA**

The recommended allowance for women per day is approx. 15mg and 10mg for men. Athletes have been recommended to take slightly higher doses due to the increased loss through training. It is preferred that iron sources be replenished through consuming foods rather than supplementation to avoid excess levels, however in order to get sufficient amounts through food source alone would mean consuming far too many calories. Because of this it is easy to over dose on iron supplementation risking side effects such as constipation, increased risk of infection, stomach cramps, reduced bowel mobility, nausea and multiple toxic side effects, inhibited absorption of important nutrients, and promotion of free radicals from induced oxidative stress.

### **Treatment**

You should consult with your GP in view for a blood test to measure your iron levels through a haemoglobin or serum ferritin test. Haemoglobin levels of below 12g /dL may indicate the need for medical or dietary help. Readings may vary however, as what may appear to be a perfectly normal reading of 12-16g /dL for one female, may in fact be a deficient reading for another, depending on levels of activity. Endurance runners tend to have lower readings than normal, as the regular exercise dilutes the blood stream, watering down the blood, increasing blood plasma, even though their red blood count is normal.

If you exercise regularly it is important to monitor your haemoglobin levels regularly. The answer is not to take extra doses of iron supplementation due to the possible side effects, but to take the RDA over a long period of time to bring iron levels to normal. It may be difficult to over-come anaemia through diet changes alone. Supplementation levels prescribed by a doctor/dietician should show 1g/dL increase in a short period. Iron deficiency cannot be treated over night. Ensure that you follow a well balanced diet at all times to eliminate the risk of iron deficiency.



### **Iron Content in Foods**

<b>Food Source</b>	<b>Serving Size</b>	<b>Iron mg</b>
Chicken Breast	3oz	0.9mg
Tuna in Water	3oz	0.8mg
Turkey	3oz	1.3mg
Baked Beans	250g	2.9mg
Broccoli	90g	1.0mg
Walnuts	40g	1.2mg
Greens	1 cup	1.9mg
Raisins	1oz	0.6mg
Strawberries	1 cup	0.6mg
Oatmeal	1 cup	8.2mg
Bran Flakes	1 bowl	10.0mg
Apple Juice	1 cup	0.9mg
Eggs	2 medium	1.3mg