

## Iron

I chatted with a runner a few weeks ago who had just done a PB. Six months previously she could barely run a few kilometers. Exercise was a chore. Breathing was getting difficult. She was diagnosed with exercise induced asthma. She got an inhaler. Running did not get any easier. She considered overtraining and wondered if she was just not mentally tough enough to run harder. She went through a battery of medical tests. She finally had her iron levels tested, including her ferritin. It was 4ng/ml (while her haemoglobin was in the low-normal range). Last week it was up to 29 and she was running faster than ever and happily considering her next races. (Normal range is 50-150 for males and slightly lower for women.).

Most runners know the importance of adequate haemoglobin levels in the blood to transport oxygen to working muscles but many are not aware that ferritin, a stored form of iron is related to performance as well. It is used to manufacture aerobic enzymes which help the process of converting fuel to energy in the muscles. The training effect comes to a grinding halt when iron stores are inadequate. More training just leads to frustration as the efforts are not rewarded with expected improvements. Athletes struggle to find the reason and usually come to the wrong conclusions. Because the ferritin level is not a standard part of a medical check up, many people never get it tested but all athletes should.

It is difficult to do good research on trained athletes. Though I am usually all about the research, there is little to show the importance of ferritin to performance but there is plenty of anecdotal evidence. I think I'll believe the anecdotes this time. I have heard college coaches say that 98% of their female and 75% of their male athletes have lower than ideal ferritin levels. According to South Eugene coach Jeff Hess, low ferritin is linked to exhaustion, slow recovery, declining performances, higher than normal lactate levels, heavy legs, loss of motivation, muscular tightness and increased risk of injury. He claims that the rate of overuse injuries doubles when ferritin is below 20 and triples when it is below 12. As in our runner above, low ferritin can be mistaken for asthma, overtraining, lack of mental toughness and a myriad of other complaints.

Why do so many runners have low ferritin? The body tries to maintain its haemoglobin levels by robbing iron from the ferritin stores. Thus it is possible for haemoglobin levels to be normal while ferritin gets depleted. Why do runners lose iron in general? According to Dr David Martin, exercise physiologist to the USAT&F distance running stars, the average life of a red blood cell in a runner is just 90 days compared to 120 days for "normal" people. Blood cells are destroyed during each landing of the foot, in the squeezing of the blood vessels by working muscles, by the speed that blood cells move through the vessels and by the acid environment created by the byproducts of energy production. Most iron from damaged red cells is recycled but some is lost in sweat, urine and feces. Runners often do not have adequate iron to replace the losses. They tend to eat little red meat or may be restricting dietary intake all together. They often take too many non-steroidal anti-inflammatories which can cause blood loss in the digestive system and calcium supplements which inhibit the uptake of iron. It is very difficult to take in enough iron on a vegetarian diet - the iron in meat is absorbed much more readily than that in plant sources. Calcium, caffeine and alcohol inhibit iron absorption. Vitamin C enables it.

Restoring adequate iron levels can take time. Iron supplements in liquid or capsule form taken with orange juice several times a day over the course of months may be required to return the athlete to normal. (It would be wise to also look for more sinister reasons for blood loss if iron stores cannot be readily increased.) Performances may begin to improve in a few weeks but the athlete must be patient because it can take months.

No iron supplementation program should be undertaken blindly. There is a danger of haemochromatosis, a not-so-rare genetic disease in which too much iron is stored. If you have any notion that your running or walking is not what it should be, see your doctor and ask for a serum ferritin test. You may just be surprised.

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