

Iron Deficiency in the Endurance Athlete: Tips for Prevention and Recognition

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Some endurance athletes experience bouts of exhaustion, fatigue, and poor performance as they prepare for competition. While these symptoms can often be attributed to overtraining, there may be other underlying physiological causes for these issues. If you have been experiencing any of these symptoms, you may be suffering from a condition known as iron deficiency.

What is Iron Deficiency?

Iron is a mineral found within all of our cells and serves several vital physiological functions within the body. Athletes, especially females, who participate in endurance sports are at risk for iron deficiency (3,4). One epidemiological study reported up to 45% of adolescent female cross-country runners suffering from iron deficiency by the end of their cross-country season (3).

Athletes who are iron deficient have an impaired ability to deliver oxygen to the body's tissues. Several factors may contribute to the onset of this condition including a diet low in red meat

Table 1. Recommended Food Sources of Iron (2,7)

Red Meats	Eggs
Lentils	Nuts
Dark Green Leafy Vegetables	Fortified Breakfast Cereals
Legumes	Dried Beans
Soy Foods	

(or other sources of dietary iron), consumption of medications that impair iron absorption, drinking caffeinated and carbonated beverages, gastrointestinal tract disorders, abnormal menstrual bleeding, exercise, and iron loss via sweat (1,2,3,5).

The main symptoms athletes with iron deficiencies experience include fatigue, weakness, poor performance, and pale skin color (2). The iron deficient athlete who continues to train will not be able to perform at an optimal level and is at an increased risk of developing musculoskeletal injuries (6). If an injury occurs, many anemic athletes may find it very difficult if not impossible to fully recover until the iron deficiency is recognized and has been effectively treated.

When to Seek Medical Attention

It is important for any athlete experiencing these symptoms to schedule an appointment with their medical provider as soon as possible. The medical provider will typically order a complete blood count test (4). If an athlete presents with low values on these tests, his or her physician will likely conduct monthly follow-up tests until appropriate levels are established (4).

Simple Steps You Can Take

Not all athletes are at risk for iron deficiency anemia, but for those who are there are several simple measures that may be taken to help prevent this condition. First and foremost, one must eat a healthy, nutrient balanced diet that

includes foods rich in iron (table 1). This will help boost the amount of iron stored in the body. It is also recommended that one should eat foods rich in vitamin-C (tomatoes, citrus fruits, broccoli) (2,7). Vitamin C enables the body to convert iron into a bio-usable form (2,7). Second, avoid food and drinks, such as coffee or pure bran, that may impair the body's ability to appropriately utilize iron (7). Finally, schedule an appointment with your physician prior to the start of your sports season to discuss your individual risk factors.

References

1. Balaban EP, Snell P, Stray-Gundersen JS, Frenkel EP. (1995). The effect of running on serum and red cell ferritin: a longitudinal comparison. *International Journal of Sports Medicine*, 16: 278 – 282.
2. Landry GL, Bernhardt DT. (2003). *Essentials of Primary Care Sports Medicine*. Champaign, IL: Human Kinetics.
3. Rowland TW, Stagg L, Kelleher JF. (1991). Iron deficiency in adolescent girls. Are athletes at increased risk? *Journal of Adolescent Health*, 12(1): 22 – 25.
4. Schnirring L. (2002). Screening athletes for low iron: questions surface about ferritin. *The Physician and Sportsmedicine*, 30(9): 5 – 6.
5. Schumacher YO, Schmid A, Konig D, Berg A. (2002). Effects of exercise on soluble transferrin receptor and other variables of the iron status. *British Journal of Sports Medicine*, 36: 195 – 200.
6. Strakowski JA, Jamil T. (2006). Management of common running injuries. *Physical Medicine and Rehabilitation Clinics of North America*, 17: 537 – 552.
7. Venderley AM, Campbell WW. (2006). Vegetarian diets; nutritional considerations for athletes. *Sports Medicine*, 36(4): 293 – 305.

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