

What Is Ferritin

(and Why Should You Care)?

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If you have spent any time running or with runners you may have heard the term ferritin being used and wondered what it means. Even in the medical community there is ongoing discussion and debate as to what significance this blood level has with respect to endurance athletes. Simply put ferritin is the protein bound iron stored in your body (liver, spleen and bone marrow in particular). The not so simple part is identifying what a low ferritin level means, and if it is important what level does it need to be. Let me say this right off the bat: ferritin is important in endurance athletes; knowing your number may be as important as any training plan you are following; and ferritin should be checked at least yearly.

First a few definitions:

HEMOGLOBIN – the oxygen carrying component of blood.

SERUM IRON – the active iron in the blood stream.

FERRITIN – the storage form of iron.

Each of these is important for the endurance athlete, but ferritin seems to be the key.

Iron is important as a key part of hemoglobin, the oxygen carrying component in blood. Endurance athletes need to get oxygen to working muscles while training and racing. It stands to reason that when hemoglobin levels are low there will be an issue with oxygen transport. When iron levels are low, hemoglobin levels may be low as well, but sometimes are not. What is not so clear is whether or not normal hemoglobin levels with low iron levels is a problem, and if so is it the active iron only that is important, or the ferritin as well. One thing we do agree on – hemoglobin levels do NOT directly assess iron levels. If you are told your iron levels are normal but only the hemoglobin was tested you are not getting the complete story.

For many years this has been a discussion in the medical community. Most physician who work with endurance athletes feel that hemoglobin, iron and ferritin levels are all important, and anecdotally when athletes were found to have normal hemoglobin and iron levels, but low ferritin levels iron supplementation helped. One other confounding factor is that ferritin levels are considered “normal” down to levels of 10 or 12 even though this is too low for the endurance athlete (more on levels later). It makes sense, though, that different levels are “normal” for different people – even if a good chunk of the general population is somewhat active (and this is open to debate as well), what is normal for that group may not be normal for those who push their bodies on a regular basis.

Recent studies have begun to show that those with normal hemoglobin levels but low ferritin levels feel better, perform better, and have better treadmill test results after taking iron and getting the ferritin level up. This is not surprising to any of us who treat endurance athletes regularly. Symptoms of this will include fatigue, having trouble keeping up during workouts, plateau in performances, injuries, and even GI discomfort/issues. If you develop any of these, getting blood work done (CBC, chemistry panel, serum iron, ferritin and possibly thyroid tests) would be a good idea. There are other problems that can lead to the above symptoms, but the labs are an easy way to get the work-up underway. One problem with waiting until there are symptoms, however, is that by the time the blood is tested the ferritin level may be very low and it takes a little time to get the levels up. That is why we recommend if at all possible that endurance athletes get it checked at least once a year, and more frequently if a problem is identified. The caveat is without symptoms, screening ferritin levels may or may not be covered by insurance. In my experience, most if not all endurance athletes do experience fatigue at some point in training so checking a level is not just screening at that point.

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So what is a prudent plan for checking and treating this issue? Here are some guidelines I use with my athletes. These may need to be adjusted slightly as high school, college, and recreational “seasons” are not all the same:

- 1. Assess serum ferritin levels** (as well as CBC and serum iron) in the “pre-season” if at all possible. For the recreational athlete this may be as they embark on a new training cycle, and for the high school or college cross country runner at the beginning of the summer ramp up period. I may recheck these athletes early in the season as well (September/early October), particularly if they are having any issues. It should be noted that this issue appears to affect females more than males, but it does affect males as well, so checking all athletes makes sense. Hemoglobin alone is NOT iron testing. For track athletes another check in Feb or early March (before spring break) as either an initial check or recheck is also a good idea.
- 2. If the ferritin is low (less than 30)** even if hemoglobin and serum iron are normal, I would recommend supplementing with two over the counter iron pills per day (there is typically 65 mg of active iron in each tablet), with Vit C (which helps absorption) and folate (a deficiency in this can also inhibit absorption). Do NOT take at the same time as calcium as this will inhibit absorption. Increasing iron containing foods can help as well, but vegetable sources of iron are not nearly as well absorbed as meat sources, and with the varied types of diets athletes have these days, tablets seem to work the best. There is no evidence that liquid forms are absorbed better than tablets, but in someone who has trouble swallowing tablets, or if the level is not rising this is an option.
- 3. Recheck levels in 6 weeks.** For most athletes the target is a level of 50 or more. Once the athlete is in the mid 30's they often feel a lot better, and if they top out in the 40's most will do fine. Higher level athletes should use 60 as the goal. I check every 6 weeks until a level of 45 or more is achieved, and then usually 1-3 times a year thereafter – for high schoolers and collegians at the beginning of each season.
- 4. DO NOT just start iron** as 1 in 250 may have something called hemochromatosis that can cause a toxic build-up of iron in the liver. While not common, monitoring levels will help stay away from this problem, and help guide ongoing treatment.

- 5. When the desired level is achieved** I usually have the athletes cut down to one tablet a day. While the endurance training is going on there is a good chance the levels will drop again if the supplementation is stopped completely.
- 6. Talk to your doctor about this.** If they agree with testing and understand that for an endurance athlete “normal” is 35 or more, not just barely inside the normal range of 10 or 12 for the normal population – make sure you get the actual number from your doc, not just “everything looks fine.” If your physician is not as up on ferritin as needed, find a sports med doc or come and see us. While I have presented a very basic science lesson here, sometimes interpreting all of the values can be a little confusing, especially as the treatment is starting – this is where seeing a sports medicine specialist can help. I have seen too many seasons or races affected by low ferritin levels – this is something that is easy to test and easy to treat.
- 7. If for some reason an athlete has an exceedingly low ferritin level** (single digits) or has problems with absorption we have utilized iron infusions. There are often a few other tests that need to be run to ascertain if at all possible the reason for the issues, but infusions when used at the right time in the right athlete can be very helpful. Considering this would warrant a thorough evaluation and discussion with a sports medicine physician who deals with endurance athletes.

If you have any questions about ferritin, or other issues, you can find us all over West Michigan. Go to metrohealth.net and search “sports medicine” for more information. We treat all types of sports injuries, and while we have experience treating professional athletes like the Griffins and Drive, as well as the runners of Gazelle Elite, we use our expertise to help athletes and active individuals of all ages get going again. You don't need to be on a team to be an athlete! Call 616.252.7778 for more information. You can also find us weekly at our Injury Wise Clinic at Gazelle Sports in Grand Rapids every Wednesday night from 6-7:30 pm – again all active individuals are welcome on a first-come first-served basis.

Be Active!