Dear Doctor,

The runner you are seeing is requesting that serum ferritin be tested to assess total body iron stores. In my experience, there are many distance runners who are iron deficient without being anemic or microcytic and these runners are not able to perform optimally when their serum ferritins are below 30. Iron deficiency for runners is not simply an issue of having adequate hemoglobin. At least one muscle enzyme involved in lactate metabolism, alpha glycerol phosphatase, is an iron containing enzyme and inadequate levels of this enzyme make runners incapable of racing and doing hard training. The listed lower limits of "normal" for ferritin values vary from lab to lab, and are sometimes listed as low as single digits. Runners with serum ferritins below 30 do not perform well. I encourage distance runners who are running year round to test their ferritin twice a year. Testing at the end of fall cross country season and after outdoor track season is over in late spring will allow identification of runners who are deficient in total body iron stores in time to allow replenishment of those iron stores by supplementation prior to the next season of hard running. Many runners require iron supplementation while running in order to prevent the development of iron deficiency.

While iron deficiency is more common in female distance runners, male distance runners experience it as well. Hard running and racing lead to transient ischemia of distal colon and rectal mucosa with proven increased losses of iron in stool compared to sedentary controls.

In my experience, testing for the development of anemia is testing for the last thing that occurs in iron deficiency. Testing ferritin is much more helpful in detection of iron deficit in runners than testing hemoglobin alone. Certainly, testing hemoglobin, HCT, and MCV may be useful in discovery of anemia that is due to factors other than iron deficiency.

If I can clarify my opinion regarding iron in runners please feel free to contact me at coltmenk@hotmail.com.

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Am J Dis Child. 1988;142(2):165-169. doi:10.1001/archpedi.1988.02150020067030
study showing that adolescent runners with normal hemoglobin and low ferritin demonstrate improved running performance with correction of iron deficiency as measured by serum ferritin concentration.

Finch CA, Miller LR, Inamdar AR. Iron deficiency in the rat. Physiological and biochemical studies of muscle dysfunction. J Clin Invest. 1976;58:447–552.
rat study in which rats with normal hemoglobin and reduced total body iron stores have poorer exercise tolerance and higher rate of lactate production during treadmill exercise than iron replete group of rats with the same hemoglobin concentration.

Int J Sports Med. 1996 Oct;17(7):473-9.
Iron deficiency in distance runners. A reinvestigation using Fe-labelling and non-invasive liver iron quantification.
Study demonstrating the increased loss of iron in stool in runners who are racing and performing quality training.