

# Low iron levels slow down female athletes

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(Medical Xpress) -- Female athletes with low levels of iron in their bodies, yet who are not anemic, may be at a disadvantage even before their competitive season starts, according to a new Cornell study. These athletes could benefit from early screening and monitoring for anemia and low iron reserves at the beginning of the training season, the authors found.

"Results from this study add to the evidence that iron status is an important issue facing female endurance athletes at the beginning of a training season," said Diane DellaValle, a recent Ph.D. graduate in the field of [human nutrition](#). She wrote the article with Jere D. Haas, the Nancy Schlegel Meinig Professor of Maternal and Child Nutrition.

The study, which will be published in the December issue of the *International Journal of Sport Nutrition and Exercise Metabolism*, examined the iron levels of college-age female rowers at the beginning of the training season. The study also sought to determine the link between iron deficiency without anemia and the athletes' rowing performance.

The authors studied iron levels in 165 non-anemic women rowers from five colleges in central New York state. Those who had lower iron levels were 21 seconds slower in a simulated 2-kilometer race than rowers with normal iron levels.

Iron deficiency is the most common nutrient deficiency in the world. In the United States, anemia affects 3 percent to 5 percent of the

population of [premenopausal women](#); iron depletion -- not at the level of anemia -- affects 16 percent, the authors write.

Compared with sedentary women, [female athletes](#) are more susceptible to low iron levels. And the consequences may hit female athletes harder. Low iron reduces their endurance and the efficiency with which they use energy, and it increases [muscle fatigue](#).

Iron is an essential component of blood hemoglobin and when a deficiency results in anemia it plays an important role in [oxygen transport](#) and use. When people consume iron-deficient diets or when other factors cause them to become iron deficient, they first deplete their iron stores in the liver; at the final stage of iron depletion, they become anemic due to insufficient iron to produce new red blood cells.

The researchers recommend female endurance athletes get early screening not only for anemia but also for low iron reserves; and they recommend athletes take iron supplements at the beginning of a season to prevent decreases in [iron levels](#) throughout the training and competitive periods. Other studies have shown that iron supplementation improves resistance to fatigue and endurance capacity in non-athletes with low levels of iron. [Athletes](#) with a history of anemia or iron deficiency should also regularly monitor their [iron](#) levels, the study said.

Provided by Cornell University

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