

## Marc Bloom's Peak Performance: Tired Blood

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Marc Bloom's Peak Performance: Tired Blood and the ABCs of Iron Deficiency  
Get past this major cause of runners' fatigue to regain strength and speed

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If you're not getting enough sleep, especially if you're female, you could be imperiling your running prowess in more ways than one.

It's not just that you'd be dog tired at practice or when you suit up for competition. That's obvious. It's also that when you don't sleep well, certain liver hormones are increased, leading to a decrease in the body's ability to absorb iron. When you don't get enough iron into your system, that deficiency can lead to anemia and a drastic drop in running ability.

Iron facilitates the production of red blood cells that carry oxygen to the working muscles. Without enough iron, your active body will not function properly. While well-trained, you'll tire profusely and feel like you're out of shape. You'll become frustrated and wonder, "What's wrong with me?"

This new understanding of the effects of sleep deprivation is among the latest findings in the continuing research into iron deficiency and athletic performance. And it comes at a time when two trends in high school runners' life-styles already intersect with potentially damaging results. First, teen-agers are over-booked with sports and other activity and may be doing homework and studying until late at night; and, second, teens are also busy with texting and other techno-habits that eat into sleep time. Many track and cross-country athletes are already drooping with fatigue—and when you add a lack of iron absorption, you have a disaster waiting to happen.

### Developing Girls Need Their Sleep

"If you're a young adolescent female," says Dr. Delmas Bolin, a family medicine and sports medicine specialist in Salem, Virginia, "and you're in the process of getting your periods, you have iron losses from that. And if on top of that you're sleep-deprived, you are not optimizing your body's ability to absorb the iron that you do have. This is a combination that can be quite serious."

With the high school and college athletes that he counsels, Dr. Bolin is at the nexus of what

appears to be an epidemic of iron deficiency, especially among female runners. Almost every high school coach can recite examples from his or her team. “Whenever I see a tail-off in performance,” said Jim Mitchell, long-time girls’ coach at Bronxville High in New York, “the first thing I do is tell the girl to get blood work to determine iron levels.” One tail-off from Mitchell’s team last year came from a marquee runner who’d been a vegetarian at Bronxville. With iron supplements, the girl’s high school running returned to normal and she is now competing in college.

Many top-performing high school runners talk about their iron counts as they would their PRs. This past winter, when I spoke with Long Island junior **Samantha Nadel** of North Shore High after she won the Millrose Games girls’ mile in Madison Square Garden, she recounted her iron deficiency from the 2010 cross-country season that had exhausted her. Soon after, when I happened to speak with Foot Locker finalist **Mattie Webb**, a senior from Western Albemarle High in Virginia, she recounted her iron deficiency from the 2009 cross-country season.

### **National Stars Confront Iron Issues**

Fortunately, there are dietary and other measures to address iron loss and both girls have rebounded with great success. In addition to her Millrose victory, Nadel had a terrific indoor season overall and will anchor her North Shore foursome in the Penn Relays girls’ distance medley later this month in Philadelphia. In addition to making Foot Locker, Webb raced to PRs last month in the two-mile and 5,000 at New Balance Indoor Nationals in New York. She is entered in the 3,000 at Penn.

Another top Virginia girl, Hidden Valley senior **Haley Cutright**, state 2A cross-country runner-up, one place ahead of Webb, was seen by Dr. Bolin for an iron problem in her sophomore season, according to her coach Daniel King. Since Cutright’s iron issue had followed other, similar cases on the team, a few years ago King had asked Dr. Bolin to come to the school prior to the start of every cross-country season and speak to athletes and parents about iron deficiency.

Since the first sign of iron loss is usually fatigue--and fatigue is multi-faceted, taking in training, diet and life-style--Dr. Bolin saw his mission as one of presenting a holistic viewpoint. Healthy iron levels are dependent on overall wellness.

Dr. Bolin and other sports medicine specialists emphasize that at the gateway of iron analysis, with your family doctor, you may not be well served. Many family physicians are unfamiliar with runners’ issues, said Dr. Bolin. “They will often order a complete blood count and if there’s no evidence of anemia they’ll tell the athlete, ‘You’re doing fine, there’s no problem with your blood,’” he said.

However, in such cases, it is common, said Dr. Bolin, for an athlete “to be **on the way** to developing anemia.” He meant that even if you are not yet anemic, you may still have a decrease in ferritin, the “storage” form of iron. Ferritin is a protein that binds to iron in order to

store it in the liver. A low ferritin level can precede anemia and is related to decreased performance. And, most critically, lower ferritin levels do not show up in typical blood work, said Dr. Bolin.

### **Blood Work Requires Ferritin Test**

Former Pennsylvania high school champion **Frances Koons**, now a professional runner, found this out for herself when she battled an iron deficiency in her freshman year at Villanova. She told me then that it was important to distinguish between a standard CBC blood test for hemoglobin, which might show a normal reading, and another test for serum ferritin, which at the same time could show a low ferritin level accounting for a runner's fatigue.

Dr. Bolin likened a runner's ferritin reserves to that of a car's gas tank. Just as iron reserves stored in ferritin gradually deplete, to the point of ultimately impacting performance, your car will run fine until you're out of gas. So, he urges, try to fill up with iron **before** you run out of gas.

What all this means is that high school athletes--or, rather, their parents--must be pro-active in insisting that their doctors order a ferritin test along with regular blood work. Also request that your physician provide a diagnosis with the ferritin prescription; otherwise, health insurance may not cover it.

In addition, parents should be aware of the differences between "average" kids and their running offspring when it comes to ferritin levels, said Dr. Erhard Bell, family practice physician in Indianapolis as well as boys' cross-country coach at state power Carmel High. A ferritin measure of, say, 18, would be fine for a typical non-running youngster, and with that reading the unknowing doctor might send you on your way. But, says Dr. Bell, high school runners, both male and female, should have ferritin levels of 30 or above.

### **Being Pro-active With Your Doctor**

It is not easy to be insistent with physicians, who may have an imperious manner with patients and, for some of us, are still regarded as "God." Parents must learn to speak up on their youngsters' behalf. Remember the pro-active agenda: request a ferritin test and diagnosis and look for results that match a runner's needs.

In fact, according to Dr. Bell, even without symptoms of fatigue, it would be wise for runners to get blood and ferritin work as a preventive measure. But, as Coach Mitchell of New York points out, doctors performing pre-season physicals rarely test for iron. They should.

And not just for girls. While female runners going through puberty account for most iron issues, boys can also be affected. Some years ago, for example, a top high school runner from

Tennessee, **Todd Smalling**, experienced severe fatigue in summer training. He'd been training every day, up to 90 miles a week, and his physician, Dr. Todd Fowler of Johnson City, told me then that Smalling's high mileage, together with a diet lacking in iron-rich meat, had conspired to cause iron deficiency.

Dr. Fowler explained that every time your foot strikes the ground in running, you "kill" little blood vessels in the bottom of the feet, a condition worsened if you run in worn shoes. After Smalling reduced his mileage, made sure he ran in proper footwear and added red meat to his diet, his iron levels shot up and he went on to have an outstanding senior season.

### **Raising Iron Levels with Diet and Other Means**

While the fatigue caused by iron deficiency can seem hard to overcome, there are many measures to raise iron levels and restore energy.

**Training:** Dr. Fowler said that mileage up to 50 a week is within his comfort zone for high school runners, and that if you run more and do not take time off you can affect your iron count. If you are a high-mileage runner, it would be wise to at least take a few breaks throughout the year. Also, try to run on soft surfaces, which can reduce impact and lessen the killing off of blood vessels in the feet.

**Footwear:** Most trainers last from 300 to 500 miles. High-mileage runners may need two pairs per season (including summer), as many as eight pairs per year. The expense is worth it. Check your shoes regularly for wear.

**Diet:** Red meat oftentimes is the best solution for iron loss (along with poultry and fish). Meat has "heme" iron, which is iron in its natural form that is readily absorbed. To help correct her iron problem, Samantha Nadel ate steak and hamburger regularly. In Mattie Webb's case, she had experimented with being a vegetarian, but stopped and started eating red meat and turkey. Strict vegetarians (vegans) will have to make do with plenty of green-leafy vegetables like spinach and other iron-rich plant sources.

**After practice:** To help keep iron levels high, re-fuel after practice with a high-carbohydrate drink and/or snack, says Dr. Bolin. Don't wait till you get home. Studies have found that 15 to 30 minutes after running is a critical window for restoration of muscle glycogen, a major energy source. Pack your workout bag with proper nourishment.

**Supplements:** Many runners lacking in iron are prescribed iron supplements (with or without a change in diet). This can take the form of liquid iron or pills, which have "non-heme" iron. Washing down the iron with orange juice helps absorption.

**Sleep:** While individuals' sleep needs vary, the familiar rule of 8 hours a night still applies, said Dr. Bolin, who adds, "Growing teens typically require more." A scenario like this, however, is all

too common for running teens: homework/texting/whatever till midnight, then up at 6 for a morning run, or just to get to school.

### **Precautions for Drinking and Supplements**

**Water warning:** If you lack iron and drink a lot of water, the blood will be further diluted because you re-stock fluid without re-stocking iron, said Dr. Fowler, and as a result your fatigue and other symptoms (like muscle cramping) may worsen.

**Supplement warning:** A coach or parent who indiscriminately gives a runner iron supplements without a physician's supervision can cause iron overload, a serious health issue, said Dr. Bell.

With greater awareness of healthy approaches to running and iron issues in particular, Hidden Valley girls have enjoyed renewed consistency, winning the last two Virginia state 2A cross-country championships and placing 13th at Nike Cross Nationals in 2009. In addition to her state runner-up performance last fall, an iron-rich **Haley Cutright**, at full strength, also won this winter's state 2A indoor 1,000 (2:57.90) while placing 3rd in the 1600 (5:01.71).

Cutright will do her college running at Ole Miss. Lights out early in the dorm room.

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