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## **The Natural Athlete Newsletter November 09**

### **Athletes & Anemia**

The most common form of anemia that athletes are prone to is that caused by iron deficiency. This can be the result of poor dietary intake and/or increased losses. Inadequate amounts of iron lead to low amount of hemoglobin (the molecule that transports oxygen on red blood cells) and/or decreased amounts of red blood cells. This often leads to symptoms of dizziness, shortness of breath, cramping, insomnia and rapid heartbeat, among others. It goes without saying that this form of anemia is detrimental to an athlete's performance. Newer research also shows that anemia can inhibit gains in performance as a result of training.

Typically, women of reproductive age are considered at highest risk due to blood loss (through menstruation). Vegetarians are also considered at risk due to typically insufficient consumption of iron-containing foods (animal flesh, namely red meat), while endurance athletes can be considered another at-risk group. In endurance athletes, iron loss can occur through sweat, bleeding in the gut, and generalized destruction of red blood cells (RBCs) as a result of something known as exercise-induced hemolysis, or the destruction of red blood cells during the course of exercise.

Diagnosis can in some ways be complex. I am not a fan of the typical way that iron-deficiency anemia is diagnosed. Typically, a diagnosis is not made until the patient is showing clinical laboratory signs of anemia, as marked by a low hematocrit (number of red blood cells) and or low hemoglobin. Frankly, these are late-stage signs of iron deficiency anemia, which may take several months to occur after an extended period of iron deficiency. Further, it may take a full 90 days to reverse this late stage anemia. This equates to at least several months of sub optimal red blood cell function, further detracting from performance and training performance gains. And, new studies point to the fact that symptoms and side effects of anemia can manifest well before a person shows laboratory signs, such as low hematocrit or hemoglobin.

My advice for competitive athletes is to monitor your hematocrit and hemoglobin very closely, probably every 3-4 months. The idea is to stay on top of your iron stores before you get anemic. This way, you can prevent a 6-month slump in performance and exercise gains by avoiding the spiral into, and the climb out of an anemic state.

But don't just start popping iron pills – this can be quite dangerous. Get your blood measured and consult with a knowledgeable doctor that is interested in keeping you on the right track!

### **Running Shoes and Your Feet**

Ever wonder why running shoes are shaped the way they are? Me too! Why is it that your toes are scrunched together in the toe box, and why is the heel so high? According to a podiatrist friend of mine, this modern shoe design is actually the cause of many foot problems he sees in his patients. He may be on to something, as there seems to be a new trend in minimalist footwear. That is, running shoes with little of the seemingly excessive support features offered in every shoe.

According to my friend the human foot is designed such that the toes are made to spread and extended. This allows for optimal balance and stride. In industrialized societies however, the foot's natural shape changes over time. The toes become elevated and pinched together, resulting in weakened flexor muscles combined with overly tight extensors. The elevated heel rise forces the metatarso-phalangeal joints into an over-extended position. These effects can create an opportunity for injury in the foot and lower leg.

So what is the solution? Correct Toes. Correct Toes are a toe spacing device that is worn in between the toes, inside of your shoes. Your shoe may need to be modified to adapt to the Correct Toes, but it is worth it. I'm a big proponent of them and I recommend that most people use them in their athletic shoes. This is a solution that makes complete sense, and if you are like me and want to avoid injury, they are a great idea.

Check them out at: [Correct Toes](#)

### **Natural Medicine Review**

**Branched chain amino acids (BCAAs)** include the essential (your body cannot make these on its own) amino acids leucine, isoleucine and valine. Taking BCAAs before intense exercise can inhibit muscle breakdown and slows the use of muscle glycogen. These effects are good for overall health, but taking BCAAs will not directly improve athletic performance.

**Coenzyme Q-10** can help with energy production and prevention of fatigue. It is the last molecule used in the production of ATP, the body's energy currency. It may help by improving exercise tolerance and decreasing fatigue in certain individuals. The right dose must be used to achieve a clinical effect; typically this is several times the amount available in over the counter preparations.

**Ribose** is a sugar molecule that is involved in maintaining ATP levels as well. Supplementing with ribose leads to increased reservoirs of ATP in the muscles after intense exercise. This is yet to be correlated in a study showing increased exercise performance, however many people supplementing with it report a quicker recovery time.

**Bee pollen** is often promoted as an athletic enhancer because of its combination of vitamins, proteins, fatty acids and enzymes. However there is not proof that bee pollen can improve performance or endurance in any way. It is helpful for seasonal allergies, however.

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