

Are You Getting Enough Iron to Power Your Performance?



FERROCHEL®



Engaging in regular exercise and consuming more plant-based foods are bedrock principles in healthy living. Regular exercise causes your body to adapt in several ways. [According to the CDC](#), physical activity helps you feel better, function better, and sleep better and can even reduce anxiety. However, some of these healthy habits can impact your nutritional needs, too. Iron deficiency is one of the most common nutritional gaps in the world. Many health-conscious consumers practice two behaviors that can *increase daily iron requirements* making it that much more challenging to meet your needs – [engaging in regular physical activity and consuming a plant-based diet](#).

So, let's explore – what does iron do for me? Why is iron so important for athletes in particular? And how can athletes meet their iron needs?

[Iron is an essential mineral](#) and its primary role is to serve as a major component of hemoglobin and myoglobin, proteins found in red blood cells and muscle tissue that help transport and deliver oxygen. Through this function, iron plays an essential role in any activity, but particularly aerobic/endurance exercise. Sports with a high endurance component – e.g., running, rowing, HIIT workout (high intensity interval training), biking, basketball, etc – can be heavily influenced by an athlete's iron status.

According to the [Academy of Nutrition and Dietetics](#), iron

deficiency, with or without anemia, can impair muscle function and limit work capacity. Plus, iron plays a role in other body functions that can have an indirect impact on performance such as by supporting overall immune health. For younger athletes, it's also important to remember that iron plays an important role in growth and development during childhood and adolescence, and therefore is essential not only for their performance, but also their general wellbeing.

According to the [Institute of Medicine \(IOM\)](#), adult men and women between the ages of 19-50y require 8 mg/day and 18 mg/day of iron, respectively. But if you're an athlete, your nutritional requirements may change. Factors such as [training at high altitudes, injury, or foot-strike hemolysis](#) (slight injuries to red blood cells that happen from repeated and forceful impact of the feet with the ground) may decrease your iron status. Plus, [athletes can lose more iron in sweat and excrement](#), creating additional hurdles for maintaining iron status. With these factors in mind, the IOM estimates that [the requirement for iron for athletes is increased by up to 70%](#).

Female athletes face additional challenges in meeting their iron requirements. The first challenge is that on average, [adult women \(age 19y+\) consume ~25% less iron per day than men](#) from foods and beverages.

That may not sound like a drastic difference until you consider

the second challenge women face with respect to iron nutrition: at 18 mg/day, the [Recommended Dietary Allowance for adult women \(age 19-50y\)](#) is actually **125% higher** than for adult men. Why? A major driver of [women's iron requirements](#) is menstruation, as menstrual blood loss is a major driving factor of this difference in iron needs between genders.

When you consider both the relatively lower intake and the relatively higher requirement compared to men, it's easy to see why [nearly 20% of adult women \(age 19-50y\) do not get enough iron from foods and beverages alone](#). Athletes, despite their additional focus on their health, are not excluded from this. For example, [a recent analysis of the diets of female CrossFit® athletes](#) shows that their intake of key minerals such as iron and calcium fell below the recommendations.

This issue is hardly specific to the United States – nearly [8 in 10 teen girls in the Netherlands](#) do not get enough iron their diet. In Canada, nearly [1 in 3 adult women have inadequate iron intake](#) from foods and beverages. Getting enough iron in your diet, let alone the optimal forms of iron, is not always easy.

Consistently getting less iron than your body needs can have real consequences. The CDC estimates that nearly that [nearly 1 in 10 adult women](#) (age 20-49y) in the United States are estimated to have an iron deficiency. That equates to over 6 million adult women in the United States, which is more than the entire populations of [Wyoming, Vermont, North Dakota, South Dakota, Delaware, and Montana](#)...combined.

Iron deficiency can lead to anemia, a condition in which there is an inadequate amount of healthy red blood cells available to delivery oxygen to the body's tissues. People with iron deficiency anemia often experience fatigue, weakness, and lightheadedness, [among other signs and symptoms](#). The [CDC estimates](#) that nearly 890,000 ER visits in the US occur annually with anemia as the primary diagnosis, and an estimated 1.7 people per 100,000 die each year from iron deficiency or anemia in the United States. [In Europe, nearly 1 in 5 women are estimated to have anemia](#) according to the World Health Organization (WHO).

Looking to increase your iron consumption?

The first step is knowing that not all iron is created equal. There are two main forms of iron: [heme iron and non-heme iron](#). Heme iron is the body's preferred source, and has [~50% higher bioavailability](#) compared to non-heme iron. Heme iron is generally found in animal foods (e.g., beef, poultry,



seafood), whereas non-heme iron is generally found in plant-based foods (e.g., whole grains, nuts, leafy greens, fortified breakfast cereals). Despite the known benefits of heme iron, typical Western diets contain just ~10% heme iron overall. And because of their high intake of non-heme iron, the [IOM estimates that the requirement for iron may be 80% higher](#) for vegetarians/vegans compared to the general population.

Another challenge plant-based diet consumers face is the presence of other nutrients in these foods which may negatively impact iron absorption. [Anti-nutrients](#), which include compounds like phytic acids and oxalates, are commonly found in plant-based foods such as nuts, grains, and seeds.

Phytates in particular can have a significant impact on iron absorption – [just 10 mg of phytate can decrease iron absorption by 60%](#) in human trials. [Phytates can have a negative impact on commonly used supplemental sources of iron](#) as well, such as ferrous sulfate.

Fortunately, there are solutions to address the challenges that anti-nutrients pose to human nutrition.

As the industry pioneer in mineral chelates, Balchem’s Albion® Minerals portfolio features premium chelates that help support all dietary lifestyles

Ferrochel®, Balchem’s flagship ferrous bisglycinate chelate, delivers enhanced bioavailability benefits. Because the iron in Ferrochel is bound to the amino acid glycine, it is less prone to interference from anti-nutrients and [has improved absorption relative to traditional iron salts](#), such as ferrous sulfate. Plus, by remaining bound to glycine the iron is less likely to cause GI upset. Clinical data has shown that consumers [prefer iron bisglycinate chelate](#) over competitive iron salts due to the lower number of side effects experienced. Even the WHO recognizes that iron bisglycinate [chelate is 2-3x better absorbed \(particularly in the presence of anti-nutrients such as phytates\)](#). And for product developers, the enhanced solubility of iron bisglycinate makes it an ideal choice for beverage applications such as fluid milk, juices, and soft drinks – which is why the **WHO also lists iron bisglycinate chelate as a suggested iron fortificant for beverages**.

In short, the very same activities we complete to help maintain our health – e.g., being active, consuming lots of plant-based foods – can make it somewhat more challenging to meet our needs for nutrients such as iron.

So what can athletes do to help address these challenges?

First, look for food and dietary supplement products that contain iron levels that are appropriately formulated to reflect your healthy and active lifestyle. For women in particular, this means a dietary supplement with at least 100% DV (18 mg) of iron. For male athletes, supplementing with between 8-18 mg/day of additional iron may be beneficial to ensure you are meeting your needs. For consumers age 50+, although iron requirements do decrease for females – it remains important to get enough iron to support the demands that exercise places on your body.

Second, look for products that list ferrous bisglycinate as the source of iron. Ferrochel® is less prone to interference from anti-nutrients found in plant-based diets, making it the perfect source of iron to support your healthy lifestyle.

Brands have an opportunity to help athletes meet their nutritional needs by creating new food, beverage, and dietary supplement products featuring iron. [As a leader in specialty mineral nutrition](#), Balchem is proud to offer a line of iron chelates, which have been clinically demonstrated to show better bioavailability than traditional iron salt forms and have been shown to possess high tolerability.

Balchem’s Proprietary Consumer-Validated Market Research Reveals a Marketplace Whitespace

As the Diamond Sponsor of WRBM’s Sports and Active Nutrition Summit, Balchem’s Eric Ciappio, PhD, RD and global strategic marketing manager Marlena Hidlay took to the stage to discuss the marketplace whitespace in their talk titled “The Intersection Between Performance and Longevity: Developing Appealing and Relevant Products for the 50+ Consumer”. In this talk, they revealed consumer-validated concept *Healthspan Pro*, an RTD shake designed to meet the nutritional needs of the 50+ athlete, featuring Ferrochel®. To request a copy of this presentation and find out how *Healthspan Pro* performed in a consumer test, [click here](#).



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