

How gut bacteria balance enhanced exercise performance

Strenuous exercise, endurance sports, intense training, performance and competition can impose considerable physical and psychological stress on the athletes.

Exercise-induced stress and training can disrupt normal stress response regulation, immune system balance, and healthy gut functioning.

It is known that strenuous exercise increases the prevalence of upper respiratory tract infections and digestive symptoms in athletes.

Many athletes are susceptible to gastrointestinal symptoms such as abdominal discomfort and diarrhea.

As exercise intensity and duration increase, there is considerable evidence showing increase in intestinal injuries, impaired gut barrier permeability and gastric emptying, slowing of small intestinal transit, poor absorption of nutrients, and increased risk of blood endotoxicity (harmful bacterial toxins in circulation).

Exercise of 2 hours and more at 60% V02max appears to be the threshold whereby significant gastrointestinal disturbance manifested. The addition of heat stress and running mode aggravate distress.

Studies have shown that gut microbiome imbalance leads to impaired gut barrier permeability, increasing the risk of blood endotoxicity. In a study, 68% of athletes were found to have endotoxins in their blood one hour after a long-distance triathlon.

Another study investigating the effects of gut microbiome on endurance swimming time suggested that gut microbiome health is crucial for exercise performance, and may be linked to the antioxidant enzyme systems in the body.

The gut balances of the 13 sailors of the America's Cup's US team Oracle were also tested recently during intense training. Their diet was modified based on the results and they also took tailored supplements and probiotics.

The team experienced a 30% reduction in the incidence of upper respiratory tract infections, a 47.5 % gain in the number of training days lost to illness, and a 54 % improvement in the number of total training days lost.

One athlete who suffered from 17 upper respiratory tract infections had that number cut to one, and another had 12 similar illnesses reduced to three. A chance meeting in Bermuda between Dr. Erika Angle, CEO and co-founder of Ixcela, the

biotechnology firm that has developed the microbiome tests, and Scott Tindal, Oracle's head physiotherapist and team nutritionist, started the U.S. team's foray into internal health.

"It (the test with tailored supplements program) doesn't stop you from getting sick, but it does reduce the incidence and severity. You do get sick, but you bounce back quicker, that's powerful and significant in a sporting context," Tindal said.

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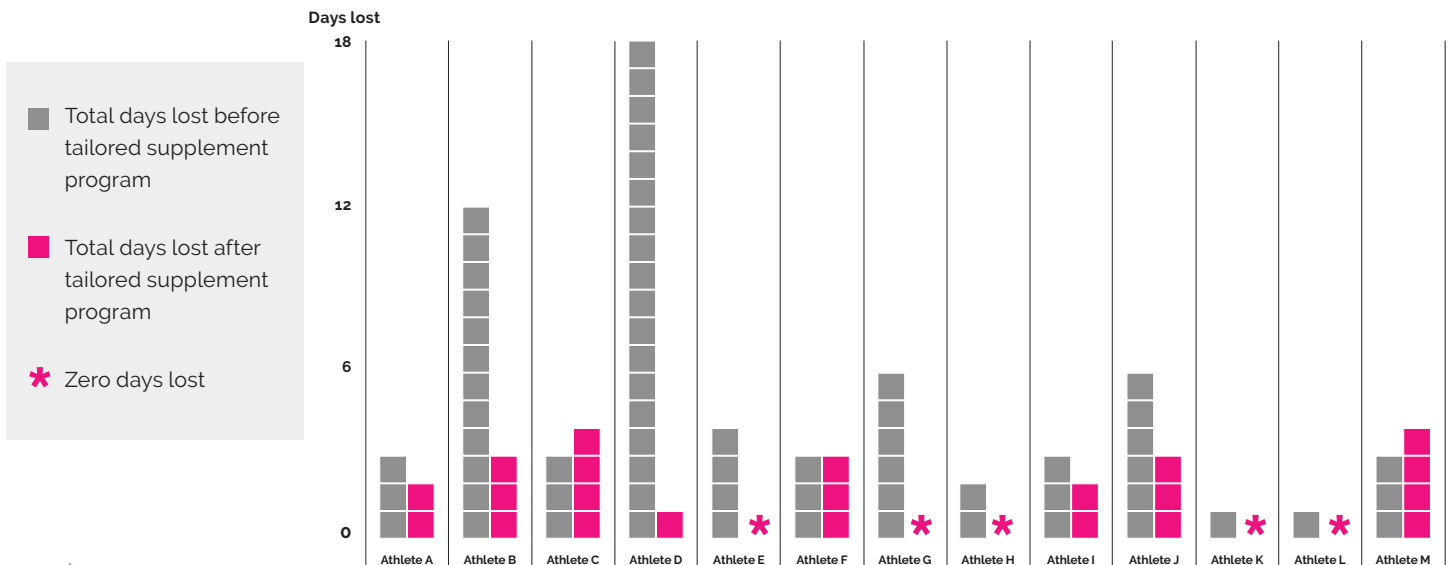
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