Can good fat boost your fitness level?

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Credit: Valeria Boltneva from Pexels

Fish oil supplements may seem like a relatively recent health fad but they have actually been produced in the UK on a large scale since 1935 by the company Seven Seas Ltd. Since then, the fish oil supplement market has continued to grow, with many beneficial effects claimed for health.

Fish oil is mainly found in oily fish such as salmon, mackerel, shellfish and in the liver of lean fish. It contains omega-3 fatty acids, particularly eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA) and docosapentaenoic acid (DPA). Considerable interest in omega-3s arose in the 1970s when evidence suggested that Inuit populations on Greenland had lower rates of heart attacks despite their extremely high-fat diet.

This was thought to be due to the high levels of fish, and thus omega-3s, in their diet which have beneficial anti-inflammatory effects. In fact, researchers have showed that omega-3s may help in the prevention or treatment of many inflammatory-related diseases such as rheumatoid arthritis, cancer, cardiovascular disease, diabetes and obesity.

Increasingly, fish oil supplementation is also being advertised and sold as a sport supplement. Many athletes use daily dietary supplements to keep good health, avoid disruptions to their training and ultimately improve performance. But is there evidence to support this? We have been investigating the issue.

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Evaluating the evidence

One thing that often interrupts athletes' training is that they are three to four times more likely to suffer from coughs and colds. While this may seem like a minor problem, it is in fact one of the most common reasons for not training. It is thought to be due to the fact that exercise can temporarily suppress the immune system, leaving the body open to attack by bugs and viruses. Omega-3s are thought to boost the immune system and have been found to improve immune function after exercise, although results are so far mixed.

Looking at the long-term effects, we found that a supplement drink containing omega-3s (along with whey protein and vitamin D) reduced the number of days with cough/cold symptoms in young, active people,

although the effect was small. The immune system is also known to play a role in exercise-induced bronchoconstriction (asthma-like symptoms during exercise) and omega-3s have been found, in one study, to help ease such symptoms. So from the point of view of the immune system, omega-3 supplements may be of benefit to some people.

Another important aspect of training is the recovery time between sessions when you are typically dealing with muscle damage and associated soreness. Again, the effect of omega-3s on these processes is inconsistent. While several researchers have found decreases in muscle damage and soreness with omega-3 supplementation, there are as many studies which show no benefit at all. Understanding these data becomes more complicated as there are some who question whether an athlete would want to interfere with these responses – inflammation and associated soreness are after all part of the body's natural recovery/regeneration process. Supplementing with omega-3 may actually hamper some of the gains of training.

When it comes to strength training such lifting weights, we recently demonstrated that omega-3 supplementation further increases muscle strength gain but, interestingly, not muscle size. It may be that neuro-muscular processes, which make muscles contract faster and better, were responsible for this effect. Importantly, these observations were only seen in women and this was a study in older people.

Ultimately, the main reason for an athlete to take a supplement is to increase exercise performance. So, all things considered, do omega-3s make you perform better? In short, no. Despite data showing omega-3 supplementation prior to exercise may provide some beneficial cardiovascular effects, such as reduced heart rate, the research demonstrates that omega 3 supplementation has no effect on endurance exercise performance.

But there are some people who may in part benefit from taking it, such as athletes or other active people looking to boost their immune systems, or older women aiming to gain muscle strength. But it's still early days and we will need more evidence to know for certain.

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