

There are many sports supplements available on the market today. Research shows, however, that few will benefit exercise or sport performance. In most cases, good training, a healthy and balanced diet, and enough rest will help your performance more than any supplement.

However, here are some facts on three popular sports supplements on the market today that have some evidence that they “work”:

Creatine (Creatine Monohydrate)

Creatine is naturally found in muscle. It comes from animal foods such as meat and fish. Creatine supplementation can increase lean muscle and improve performance in sports that use intense short bursts of energy (10 and 30 seconds), such as sprinting, weight lifting or sprint cycling. This seems particularly true for those who have a lower intake of animal protein, like vegetarians. Creatine doesn’t improve performance for longer endurance sports such as long distance running, swimming or cycling.

How much creatine has been shown to be helpful?

Most research supports starting off with a loading dose of 15 to 25 g per day (0.3 g per kg body weight) for 5 to 7 days, followed by a smaller daily dose of 2 to 5 g for as little as one week to as long as 12 weeks.

However, if you cannot tolerate this dose, the following approach has also been shown to be helpful, although it may take longer to achieve results. Try, taking a daily dose of 3 g per day of creatine for at least a month.

Creatine works best if taken separately from caffeine.

Are there any concerns with taking creatine?

Side effects may include bloating, muscle cramping, nausea or diarrhea, especially at higher doses. If you notice side effects, try a smaller dose.

Short-term studies show that creatine is safe in the doses recommended above for healthy adults. Less is known about the long-term safety of creatine, and you should consult your doctor before taking creatine.

Creatine should not be taken if you are pregnant, breastfeeding or under 18 years of age.



Caffeine

Caffeine is the most widely used stimulant in the world. Caffeine is found in tea, coffee, cola beverages, energy drinks and shots, chocolate, certain herbs, sports gels, and caffeine tablets. Caffeine stimulates your central nervous system, making you feel more alert. It may make exercise feel easier, increase endurance, or delay tiredness especially when you exercise intensely. Caffeine can be taken before or during exercise to feel the benefits.

If you are thinking of taking caffeine tablets, creatine or another natural health product, look for an eight-digit NPN (Natural Product Number) or DIN (Drug Identification Number) on the label. This tells you that Health Canada has reviewed the product for quality and safety. Consult your doctor before taking a supplement.

How much caffeine has been shown to be helpful?

Research shows that 1 to 3 mg of caffeine per kg (0.5 to 1.4mg per lb) body weight taken before or during exercise may improve performance. For a 70 kg (154 lb) person, this equals 70 to 210 mg caffeine, which is the amount found in 1 cup of brewed coffee.

Caffeine affects people differently. If you are going to try caffeine to improve your performance, try it first while training to make sure you tolerate it well. Don't try it for the first time on the day of your event, because it may hurt your performance.

Health Canada recommends limiting caffeine to 400 mg per day from all sources for adults. When calculating daily caffeine intake, don't forget to include all the different sources in your diet.

Table: Caffeine content of Some Common Sources

Food	Serving size	Caffeine (mg)
Caffeinated chocolate bar (check label)	44g bar	101
Caffeine tablet	1 tablet	100-200
Energy shots Regular and Extra Strength	1 bottle	100 - 150



Coffee, brewed	250 mL (1 cup or 8 oz)	80-180
Energy drink, various types	250 mL (1 cup)	80-125
Tea, leaf or bag (black, flavoured black)	250 mL (1 cup)	43-60
Sports gels	1 gel	0-40

Source: *Canadian Nutrient File (2010), individual manufacturers*

Does caffeine have any side effects?

Caffeine can leave you feeling jittery and nervous, cause an upset stomach, a racing heartbeat, or affect the quality of your sleep, all of which can hurt your performance. If you get any of these symptoms, try a smaller dose or simply avoid it.

If you regularly include caffeine in your diet and you suddenly stop having it, you may have withdrawal effects such as headaches or drowsiness.

Unlike coffee, tea or cola beverages, which are sipped slowly, caffeine tablets, gels, liquid shots or energy drinks can be consumed very quickly and the caffeine is released into your bloodstream rapidly, which could result in more side effects.

Protein Supplements

Protein is essential in building and maintaining muscle and supporting muscle recovery after exercise. Research shows that taking protein shortly after intense exercise (the recovery phase) can help build muscle and repair muscle damage. Nutritious, protein-rich foods should be your first choice, but in some cases, protein supplements can be an easy, portable way to meet your protein needs. Protein supplements have not been shown to be better than protein rich foods like meat, fish, poultry, milk, yogurt, eggs and soy for building muscle.

How much protein has shown to be helpful?

Taking about 10 to 20 g of protein (from food or supplement) shortly after intense exercise. Typical liquid or powder protein supplements provide 16 to 30 g of protein per serving. Check the label to see how much protein your product contains.



Tips for choosing a protein supplement:

The protein in protein supplements can come from many sources, including whey and casein (milk based), soy, hemp, and peas. Whey protein contains all essential amino acids, is rapidly digested and contains high levels of the amino acid leucine. Getting enough leucine is important in helping your body build muscle.

The two most common forms of whey protein are whey concentrates and whey isolates. An isolate is more pure, meaning other non-protein components like fat, carbohydrate, and lactose have been removed. A concentrate contains fat and carbohydrate as well as the protein. Either isolates or concentrates can be “hydrolyzed,” which means they have been partially broken down, allowing the protein to be digested and absorbed more quickly. However, this results in the supplement becoming more bitter tasting. Since whey concentrates and isolates are already digested quickly, this provides little added benefit for the extra cost and bitter taste.

To get the most from your protein supplements, it is important to eat enough total calories and carbohydrate to meet the body’s needs. Otherwise, the protein may be used as an energy source.

Remember that consuming more protein supplement than recommended does not mean that you will be building more muscles.

Questions

Athletes should be referred to a dietitian to accommodate the unique issues of individual athletes regarding health, nutrient needs, performance goals, physique characteristics (i.e., body size, shape, growth, and composition), practical challenges and food preferences.) Visit www.dietitians.ca/find to locate a dietitian near you.

Additional Resources:

[Food Sources of Caffeine](#)

[Nutrition and Athletic Performance](#)



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