

SUPPLEMENTS: DO THEY Really Work?

HIGH PERFORMANCE DIETICIAN **REBECCA DENT** EXAMINES THE COMPLEX SUBJECT OF DIETARY SUPPLEMENTS FOR CLIMBING

Supplements are best seen as an addition to an already sound, healthful diet with appropriate fuelling and refuelling strategies in place.

Supplements, however, can and do work and this article highlights examples of some which have been scientifically proven to be beneficial to sporting performance. Supplements should be seen as 'add ons' to the diet and not a substitute for real food. If your diet is not already healthful and complete, then you are wasting your money buying supplements. More health and performance benefits can be made from getting your day-to-day eating and climbing nutrition strategies correct first before even considering supplements. The same applies to your training, as more gains can be achieved by turning up to each session and putting in 100% effort instead of taking any supplement. Taking a supplement without putting full effort into your climbing is, therefore, a waste of time and money.

All competition climbers are responsible for ensuring that all supplements they take are both legal and safe. This means that they have been batch tested to ensure that they are not contaminated with illegal substances. More information can be found on the UK anti-doping website, 100% ME and the world anti-doping agency (WADA) website.

Dietary supplements are not recommended to be taken by those under the age of 18. Young climbers should simply focus on eating well, getting sufficient energy and nutrients for growth, development, and for their climbing.

CREATINE

Creatine is found naturally occurring in meat and fish. It is one of the most researched and effective ergogenic aids available. Creatine monohydrate supplementation provides an additional energy source to the exercising muscle at high intensity, thus enabling better quality and longer duration of training and therefore enhancing adaptations to climbing, increasing strength and lean body mass. It could also prove beneficial for providing that additional energy source for short powerful movements during a climb. Not everyone will experience a performance benefit from creatine (one possible reason for this is that non-responders may already have high levels of creatine in their

muscles). In my experience many climbers are concerned about taking creatine due to the 'weight gain' that it causes. If so, for this reason I would suggest that creatine should be taken during times of high load training, particularly power / strength training (the extra weight merely acts as a weight vest) and then ceasing supplementation for that project or specific climbing trip (reducing body weight but not losing strength gains achieved). If weight is gained (usually 1-2kg) then this is showing that you are responding to the creatine supplement. Contrary to speculation, there are no harmful side effects to taking creatine.

WHEY PROTEIN

Whey protein has been shown to be the most potent of protein sources to enhance muscle growth following exercise. Whey is quickly absorbed and has a higher content of leucine, the key amino acid that triggers a rise in muscle protein synthesis (muscle repair/building). Whey protein is a useful supplement to add to meals to help achieve protein content (e.g. to porridge or soups on climbing trips where quality of food is poor) or to make as a recovery shake after a climb. It is also a convenient source of good quality protein for when away on climbing trips if you don't have a fridge. Studies have shown that there is a ceiling amount of protein that stimulates muscle protein synthesis (i.e. any higher intake protein is oxidised and excreted out of the body), these maximum levels have been suggested to be 20g of protein after exercise and 40g of protein at each meal. Therefore 1 scoop of whey protein (usually 20-24g true protein) is sufficient post-exercise and more is not necessarily better.

OMEGA 3 FISH OILS

Omega 3 fats are essential fats and found in oily fish; our bodies can't make omega 3 fats so we have to get them from our diet. Those omega 3 oils found in flaxseed and hemp do not contain the important DHA/EPA that has been shown to have all the beneficial properties to health and athletic performance. I would recommend to most people to take an omega 3 fish oil daily due to its renowned health benefits. These include; promoting heart health and reducing risk of a heart attack, improves circulation, brain health, memory, and cognition. Omega 3 oils have even been shown to alleviate depression, along with promoting immunity and skin health. For

climbers, omega 3 fish oil may reduce recovery time and muscle soreness and promote muscle repair. It could also be speculated that if omega 3 fish oils improve circulation then potentially forearm blood flow could improve, reducing the pump on climbs or reducing recovery time from endurance routes and training. Of course nothing beats obtaining omega 3 fish oils from fish itself, however consistency of intake is key and not many people eat oily fish on a daily basis. Therefore it is recommended to take 1-2g of EPA/DHA per day and on days oily fish is eaten you do not need to take an omega supplement (1 85g salmon steak contains approx 2g of EPA/DHA). For vegans and vegetarians to gain similar benefits of omega 3 fish oils, they must supplement with an algae-derived source. Please note those on medication must consult their GP if considering supplementing with a fish oil.

BETA ALANINE

Beta alanine has been shown to improve muscular endurance. During high intensity exercise such as climbing, hydrogen ions accumulate in the exercising muscle which causes a drop in the pH within the muscle. This drop in pH results in impaired muscle contraction leading to fatigue (i.e. feeling pumped). Supplementing with beta alanine increases carnosine levels in the muscle. Carnosine acts as an acid buffer inside the muscles, reducing the acidity within the exercising muscle and delaying fatigue allowing you to climb for longer. Side effects of beta alanine have been reported to be 'tingling' sensations in doses above 8g per day. This sensation is not harmful, but obviously may affect climbing performance if experienced.

BEETROOT JUICE

Beetroot juice (and now available in bars) provides a rich source of dietary nitrate. Dietary nitrate has been shown to extend time to fatigue during high intensity exercise such as climbing. However studies have shown that the training status of the user effects the potential benefits of beetroot juice, suggesting that the recreational to moderately trained climber may benefit, but in studies highly trained individuals did not show any performance gains when using beetroot juice. Daily dietary supplementation of 5-7mmol nitrate results in increased exercise tolerance, this can be achieved by drinking half a litre of beetroot juice, a 'beet it' bar or a 75cl 'beet it' shot taken 3 hours before climbing.

CAFFEINE

Caffeine is well known as a stimulant and has long been used in sport for this very reason. Little research has been carried out on the effects of caffeine in high intensity / strength based performance. However, one such study did show that caffeine improved strength and reduced perception of effort during resistance exercise such as climbing. Drinking a cup of coffee, a can of coke, or chewing caffeine gum 60 minutes prior to climbing or towards the end of a long session may in fact help improve your performance. However, some people do not respond well to caffeine (palpitations, shakes, headaches) and I would advise them not to take it. Others are habitual drinkers of caffeine, which may potentially reduce its beneficial effects. If you want to use caffeine to boost climbing performance, then reducing your daily intake of caffeine or abstaining from caffeine for 4-6 days will help when it comes to creating that desired effect.

When buying supplements, it is important to make sure you are purchasing good quality products, so do your research. Do not assume more is better, and increase the dose thinking it will only add more benefit. This is not the case. Follow guidelines on labelling. An excellent, evidence-based resource on supplements can be found at examine.com which provides information on effectiveness of the supplement you are considering and dosing. Often supplement manufacturers lure the consumer with fancy packaging, big promises and supplements containing more than one active ingredient (e.g. creatine, whey and glutamine).

Keep it simple: start with one supplement and determine its benefit. If you take more than one at once how do you know which one is doing the job? It is also advisable to seek out professional guidance from an experienced qualified sports dietitian or nutritionist if you are considering taking nutritional supplements.

A NOTE FOR VEGAN CLIMBERS

Whilst it is perhaps more difficult to achieve desirable amounts of good quality protein in the diet, this is not to say it can not be obtained with a well planned diet and the addition of nutrition supplements to support both athlete performance and health. Vegan athletes have to be more meticulous at ensuring adequate protein is consumed, focusing on protein rich plant foods such as tofu, soy, nuts, beans, quinoa, buck wheat, chick peas, and peanut butter. Other nutrients that are of concern in vegans are calcium, iron, B12, zinc and omega 3 fats EPA/DHA. These can be obtained via foods such as green leafy vegetables, figs, dates, oats, beans, seeds, nuts, fortified foods, algae. B12 is of particular concern as it is predominantly found in animal products. Therefore foods fortified with B12 such as plant milks and cereals should be consumed or a nutritional supplementation of B12 should be considered. However, it in fact remains an open question as to whether a vegan diet offers advantages or disadvantages for an athlete/climber. Regardless of dietary choice, any diet that is sub-optimal in the fundamental nutrients, particularly the micronutrients, will compromise both health and athletic performance.



THIS PAGE: Marc 'Flex' Etune trying hard on an unclimbed project at Theatre, Waterval Boven, South Africa. 'Taking a supplement without putting full effort into your climbing is a waste of time and money.' DAVID PICKER