

Cauliflower

Cauliflower, in some regards, has become the forgotten sibling to broccoli, which everybody knows is 'good for our health'. However, cauliflower's ready supply of liver-supporting glucosinolates, antioxidants, B-vitamins, and many other nutrients required during strenuous exercise, means that it is a natural food choice for athletes. Nutritional therapist **Katia Demekhina** does a marvellous job of resuscitating this invaluable food.



While we typically associate physical activity with health, prolonged and intensive exercise may be accompanied by inflammation, oxidative stress and toxic burden (1). If not adequately addressed, these can impair one's wellbeing, which explains why a J-curve is typically used to describe a relationship between exercise and health (1). However, our wellbeing is a function of not only exercise intensity, but also our diet, life load and environmental factors such as pollution. By addressing these through dietary and lifestyle strategies, one can reverse the exercise-health relationship pattern into an S-curve as demonstrated by top elite athletes with nutritional and psychological support (2). The message this sends to the athletic community is that individuals with high exercise and life load can boost their body's ability to defend itself from the hard training load by leveraging nutritional and lifestyle strategies.

Nutritional support during high training load

To protect the body from the excess burden associated with high exercise load, some of the key systems that athletes can support are antioxidant defences, immune system and detoxification processes. While it may seem easy to pop a pill to fill in the demand for extra nutrients, all biochemical pathways in our body rely on a multitude of macronutrients, vitamins, minerals and phytonutrients to function. Unlike a supplement, real foods contain an array of potent nutrients, allowing them to modulate multiple processes at once. Plant foods are particularly attractive in this regard, making them great functional foods.

In this article, we take a look at cauliflower as an example of one such functional food that can support multiple pathways, allowing athletes to train harder and longer, while protecting their body from the harmful effects of excessive inflammation and oxidative stress.

Cauliflower; broccoli's forgotten sibling

Cauliflower is a member of the cruciferous family (also called brassicas), named so because its plants' flowers are shaped like a 'crucifer'

cross. While often overshadowed by its green cousin broccoli, cauliflower is living proof that we shouldn't judge a vegetable by its colour.

Brassicas are unique among vegetables because they contain high amounts of sulphur compounds, known as glucosinolates, which explain their often pungent aromas and bitter taste (3,4). These bioactive compounds are essential to support the liver's detoxification capacity, protecting cells from damage by toxins and free radicals (3-5). Cauliflower's high fibre content (6) further assists in detoxification by supporting the elimination of toxins from the body. Vitamins, flavonoids and other phenolic compounds in this vegetable can also help quench oxidative stress associated with detoxification processes. And while antioxidant content is greater in colourful varieties of this brassica, even white cauliflower contains one of the highest amounts of vitamin C among vegetables, with one cup providing almost 70 per cent of your daily recommended intake. Cauliflower's vitamin C content not only helps address oxidative stress, but is also essential for the strength and stability of connective tissues like tendons, ligaments, muscles and bone through its role in collagen synthesis (7-9).

Cauliflower is also a great source of B vitamins, crucial for sustaining good energy levels, and supporting metabolism and functioning of the nervous and immune systems (7). It is also rich in the minerals calcium, potassium, iron, magnesium and zinc (8), which, between them, contribute to several hundred processes in the human body, ranging from energy production to bone strength (7).

Easy ways to include cauliflower into one's diet

Adding to cauliflower's appeal is its extreme versatility. Mash, popcorn or pizza are just some of the ways to incorporate cauliflower into one's diet. It is important, however, not to boil this vegetable as glucosinolates, antioxidants and polyphenols are water-soluble compounds and, when cauliflower is boiled, 50 per cent of its glucosinolate content and 22 per cent of its antioxidant capacity could be lost (10,11). Instead, use a steaming cooking method because this is thought to double its antioxidant capacity and only sacrifice 10 per cent of glucosinolates (10,12). An even easier

way to benefit from the magnitude of nutrients in this vegetable is to consume it raw. Try it in a crudites spread or add frozen florets to your post-workout smoothies (Box 1). Bear in mind, however, that while raw cauliflower has the highest bioavailability of glucosinolates (11), individuals with hypothyroidism should consume the raw form of brassicas in moderation (13,14).

Conclusion

Consuming real plant foods is an effective nutritional strategy to support a multitude of physiological pathways in the body, helping athletes to achieve performance goals while offsetting exercise-induced immune dysfunction, inflammation and oxidative stress. While no single food holds a key to health, a varied plant-rich diet, in combination with sleep, hydration and stress management, can reduce the risk of illness and impaired performance that may be associated with physiologically demanding bouts of intensive exercise, supporting an athlete in achieving their sporting goals.

Box 1: Post-exercise recovery drink

Ingredients:

- 1 cup berries
- 1 small banana
- 1 cup frozen cauliflower florets
- 4-5 Brazil nuts
- 1 scoop protein powder (20g protein)
- 1tbsp tart cherry juice
- 1tbsp raw cocoa powder
- 1-2 cups liquid (such as water, coconut water or plant milk) depending on how thick you like your smoothie

Blend all ingredients until well incorporated and enjoy!

ABOUT THE AUTHOR



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CISNCert. After a decade in financial markets and her own health journey,

Katia is now a Hong Kong based nutritional therapist. She also holds an ALM in Psychology from Harvard University and is an NLP certified

practitioner. This allows her to integrate nutritional and lifestyle knowledge with a psychological toolkit to help busy professionals on their wellness journey. Her particular field of expertise is helping women to thrive by bringing hormones into balance. Katia may be contacted directly on katia.demekhina@gmail.com