



EVIDENCE BASED NUTRITION

Quarterly



News and Updates

Spring is almost here and we are very excited for our upcoming Module 2 seminar (Advanced Sports Nutrition) on Sunday, May 1st, 2016 in Toronto. This comes right off the heels of our two-day Module 3 seminar (Bio-identical Hormones), which was a great success and is now available online as an e-module!

In this Spring 2016 and Volume 2 edition of EBN Quarterly, we expand on the discussion of whey vs. vegan protein from last edition by discussing branched chain amino acids. Tart cherry juice is highlighted as a functional food with particular application in the sports nutrition world, and Dr. Cameron Marshall DC discusses his work with concussion management.

The EBN Team

Nutrient Spotlight: BCAA's

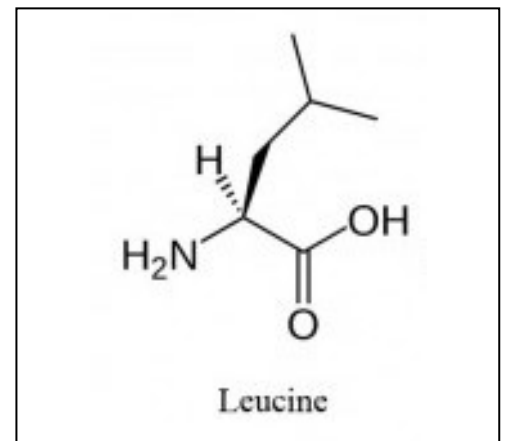
Getting the Athletic Edge With Branched Chain Amino Acids

Branched Chain Amino Acids are a specific group of amino acids that have the most significant role in stimulating protein synthesis as they up-regulate enzymes that are responsible for muscle growth.¹ BCAAs are about 25% of animal protein and occur in a 2:1:1 ratio (leucine: isoleucine: valine) in nature. High quality supplements should reflect this ratio.

BCAA supplementation also prevents damage to muscle during exercise. One randomized, placebo controlled study found that those subjects that used BCAAs during and after strenuous exercise had less muscle soreness and faster recovery than those subjects that took placebo.²

In addition to supporting muscle growth, studies also show that BCAAs aid in the maintenance and production of glycogen, which is responsible for muscle energy and is a stored source of fuel during exercise.³ They also may help to delay the onset of fatigue and maintain mental function in aerobic exercise because BCAAs can compete with tryptophan (a calming amino acid) in the brain that can cause fatigue.⁴

Finally, some evidence also suggests that BCAAs maintain immune function in athletes. There is no substantial evidence that BCAAs improve performance but they do increase recovery in both resistance and aerobic athletes. Due to their muscle protective mechanism and the fact that BCAA plasma levels peak about 30 minutes after ingestion they should be supplemented before and after exercise in divided doses.



How can you get BCAAs?

- 1) Directly supplement with a BCAA as a stand alone supplement
- 2) Consume whey protein as it contains higher levels of BCAAs than vegan proteins

References available at
www.evidencebasednutrition.ca

New Research

Branched-Chain Amino Acid Supplementation and Resistance training maintains lean body mass during a caloric restricted diet.

17 resistance-trained males were placed on a caloric restricted diet and randomized to a BCAA group (containing 7 grams total BCAA profile) or a carbohydrate group (CHO, Gatorade) over an 8-week period. At the end of the trial, results showed that the BCAA group was able to lose body mass while retaining lean muscle mass, unlike the CHO group that lost body mass but also lean muscle mass. Additionally, the BCAA group had improved strength over the CHO group (through measurements of 1 repetition maximum squats and bench press). These results suggest that BCAA supplementation allows for resistance-trained individuals to gain lean muscle mass while losing fat on a hypocaloric diet. *JISSN* 2016; 13(1) DOI: 10.1186/s12970-015-0112-9

Withania Somnifera (Ashwagandha) improves muscle strength and recovery. In this 8-week double-blind, placebo-controlled RCT, 57 male subjects (18–50 years old) with minimal experience in resistance training were randomized into treatment or placebo groups. Subjects in the treatment group consumed 300 mg of ashwagandha root extract twice daily, while the control group consumed starch placebos. Both groups underwent resistance training for 8 weeks with muscle strength measured at baseline and the end of the trial. Muscle size, body composition, serum testosterone levels and muscle recovery were also tested. Compared to the placebo subjects, the group treated with ashwagandha had significantly greater increases in muscle strength and size, significantly less exercise-induced muscle damage as indicated by serum creatine kinase, significantly greater increase in testosterone level, and a significantly greater decrease in body fat percentage. *JISSN* Nov 2015; 12:43 DOI: 10.1186/s12970-015-0104-9

Cochrane Review: Herbal Medicine for Low Back Pain. In this systematic review, 14 RCTs were identified with a total of 2050 participants suffering from acute, sub-acute or chronic non-specific back pain in which herbal medicines were used as treatment interventions. Results found that cayenne (*Capsicum frutescens*) reduces pain more than placebo. Devil's claw (*Harpagophytum procumbens*), white willow bark (*salix alba*), comfrey (*Symphytum officinale*), brazilian arnica (*Solidago chilensis*) and lavender essential oil all additionally showed benefit for reducing pain over placebo, but evidence for these substances was of moderate quality at best. It is worth mentioning that *no* significant adverse events were noted in any of the included trials. *SPINE* 2016; 41(2): 116–133



Please check out our
sponsors for our May 1st,
2016 Sports Nutrition
Seminar!



Functional Food Spotlight: Tart Cherry

Tart cherries join blueberries, pomegranate, acai, kale and broccoli as the newest member of the elite super food club! In the realm of sports nutrition, studies on tart cherry juice are showing benefit for reducing muscle fatigue after exercise (much like BCAAs), but that's only a part of the story.

Athletic Performance: One study found that tart cherry juice reduced the symptoms of exercise-induced muscle damage (1). Another randomized, placebo controlled trial followed runners

that drank sour cherry juice for the 7 days leading up to their race. The cherry juice group had less muscle pain after their race compared to those who had a placebo drink (2). Other studies have found similarly positive results for endurance athletes, including



marathoners. (3) Reducing post exercise muscle pain and strength decreases can be extremely useful in maximizing training and performance and enhancing recovery on successive days of activity. One of the reasons that sour cherries can have a positive effect on muscle pain after exercise is that they have anti-inflammatory effects (3). Tart cherries contain flavonoids and anthocyanins, with high antioxidant and anti-inflammatory properties (2).

Joint Pain: The benefits of an anti-inflammatory and antioxidant effect can carry over to more than just sports

(continued on page 4)

Practitioner Spotlight: Dr. Cameron Marshall DC, RCCSS (Cand.)

Practice focus: “Most of my practice is focused on the management and treatment of both acute and chronic concussions. Complete Concussion Management utilizes vestibular, visual, exercise, cervical spine, and nutritional supplementation and dietary therapies to accomplish safe and effective recovery from traumatic brain injury.”

Why is nutrition important for concussion management? “The evidence in this field is actually demonstrating superior effects for dietary and natural interventions over most of the proposed pharmaceutical interventions. The pleiotropic effect of natural compounds seems to act on more of the inflammatory processes than unidimensional pharmaceutical compounds. Post-injury metabolic and inflammatory processes following concussion are undeniable and proper consideration of how diet can help offset these processes is extremely important when it comes to concussion recovery and symptom management.”

Favorite clinical pearl: “I don't know if this would be a 'clinical pearl' per se, but one thing that is emerging in the literature is that early activation and end engagement back into activities of daily living is showing to reduce the likelihood of having prolonged symptoms. The traditional model of rest until asymptomatic is starting to fall by the way-side. Now, that being said, it is an important and delicate balance between early engagement and pushing too hard and setting someone back in their recovery. Master this balance, and you will have improved success in the recovery of your patients!”

Dr. Marshall is the President and CEO of Complete Concussion Management (CCM), a concussion research company that educates healthcare practitioners on evidence-based concussion therapies and management strategies.



performance. Inflammation and free radical damage has been linked to cardiovascular disease, cancer, arthritis and Alzheimer's disease. One study found that eating cherries for just 30 days reduced CRP, a well-known and commonly measured inflammatory marker. In another recent trial, twenty women with osteoarthritis consumed tart cherry juice twice daily for three weeks. The researchers found significant reductions in important inflammation markers especially in those who had the highest inflammation levels at the start of the study (5). These findings suggest that sour cherry juice and fruit consumption may have a protective effect against common chronic diseases such as arthritis.

Sleep: Just when you thought tart cherries couldn't get any better, further evidence suggests they also benefit sleep! A recent study found that sour cherry juice increases melatonin production and sleep quality after just 7 days (6). Improvements in sleep can have a very powerful benefit on many different health aspects.

What is most impressive about tart cherry juice is that it is not a supplement in the form of a pill or a capsule. The wide-ranging benefits can be



attributed to the various polyphenols and beneficial compounds contained in the juice. Tart cherry juice is widely available at most grocery and health food stores with lower prices than refined supplements. When recommending it to patients be sure to emphasize they only use tart or sour cherry. It's easy to mistakenly pick up a

sweet cherry juice mixture, which doesn't have the same health benefits.

Sour cherries seem to be the latest elixir of super health but unlike some other supplements and super foods there is strong research supporting benefits for sports performance, cardiovascular disease, insomnia and arthritis. The research strongly suggests that adding sour cherry juice to your diet has many health benefits. To maximize potential health benefits make sure you look for tart (or sour) cherry juice.

Editor's note: Sour cherry juice is an excellent functional food to be used in combination with beet juice! Beet juice has been studied extensively in athletes to improve performance and time to exhaustion. Check out EBN Quarterly V1E3 for more info. ■

References available online at www.evidencebasednutrition.ca



Upcoming Seminar:

[EBN Module 2: Advanced Sports Nutrition](#)

Sunday May 1st, 2016

Canadian College of Naturopathic Medicine
1255 Sheppard Ave East, Toronto ON

**Missed Mod1: Foundations of Clinical Nutrition or
Mod3: Bioidentical Hormones?**



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