Health & Fitness

Vehicle Fire, West of Thermalito

VOLUME 3, ISSUE 10

NOVEMBER 2013

Upcoming events in the North State:

Sunday Fitness Classes:
*Nov 17th—Fleet Feet Chico
0900-1000
Hip and Knee Stabilization
Free to attend, must RSVP
*Nov 24th—Fleet Feet Chico
0900-1000
Grid for Core (using foam rollers)
Free to attend, must RSVP

Upcoming Running Events:
Dec 15th—Jack Frost 10K
Bidwell Park
8 AM

INSIDE THIS ISSUE:

Surprising supplements: Five effective nutrients you've never heard of

by Brian St. Pierre

Tens of thousands of supplements flood the market today. Sadly, many of them do little more than lighten your wallet, and a few can be downright bad for you. Others — such as fish oil, vitamin D, creatine, probiotics, greens powders, and the humble multivitamin — can improve our health, athletic performance, and body composition.

And then there's another group of supplements that offer equally important (and research-supported) benefits — while remaining largely unknown and little used.

Eager to learn more about these, I spent a few hours over at Examine.com, an expertly curated site that compiles and analyzes the latest research about hundreds of supplements and foods, along with other questions related to nutrition and health.

The database alone refers to more than 20,000 articles. Editors painstakingly sift and sort the information to make it easier to understand. The result is a highly valuable resource to anyone who cares about nutrition and health.

Though I consider myself pretty knowledgeable, I came away from perusing the site with new insights about some amazing — but lesser known — supplements that I simply had to share.

Surprising Supplement #1: Curcumin

Curcumin is the yellow pigment in turmeric and curry spice, and it's been studied for decades because of its many potential health benefits.
Anti-inflammatory benefits

Because curcumin reduces inflammation, especially if taken long-term, it also decreases pain, particularly post-operative and arthritic pain.

In fact, long-term curcumin supplementation decreases symptoms of osteoarthritis by more than half. When elderly and middle-aged patients with osteoarthritis took curcumin, it drastically improved their comfort and performance, allowing them to lead more active lives.

Curcumin also helps with general day-to-day pain – and the relief provided by 400 to 500 mg of curcumin seems comparable to taking 2000 mg of acetaminophen (Tylenol).
Curcumin can help reduce the pain associated with other diseases, such as ulcerative colitis and nephritis, limiting the inflammation and improving organ function. And perhaps because

Continued on Page 3

Sweet Potato Protein Bars (Gluten Free)

Sweet potatoes are delicious, and they're a nutritional powerhouse.

Bonus: sweet potatoes also provide bulk and body in breads and muffins, whip into purées and soups, roast or bake beautifully, and offer sweetness in these protein bars.

Ingredients

1 large cooked sweet potato
½ cup (125 mL) of vanilla pea protein powder (or rice protein, or casein protein powder)
1 tbsp. (15 mL) of date syrup (or agave syrup or honey)
1 tbsp. (15 mL) of coconut flour
1 tbsp. (15 mL) of golden flaxseed (a.k.a. linseed)
2 tbsp. (30 ML) of milk or coconut milk
½ bar of 90% dark chocolate

Preparation

In a bowl, blend all the ingredients (except for the chocolate) together. Shape the mix into four little bars and put aside.
Melt your chocolate either in a bain marie (i.e. a glass bowl on top of a pot of boiling water) or in a small non-metal bowl, using low power, in the microwave.
Once melted, dip your bars in the chocolate until they're fully coated. Place them on a cookie sheet lined with wax or parchment paper, or into a large plastic or freezer-safe glass container.
Transfer them to the freezer for an hour, or the fridge overnight, and voilá!

Serving size
4 bars

Preparation time
75 minutes total (15 min preparation time + 60 min freezing time)

Recipe courtesy of:

ProteinPow .com

Kick Your Cardio into Reverse

When's the last time you ran backward? Sure, you might not look cool doing it, but studies have found that motoring in reverse torches more calories, works your lungs more efficiently, and helps your bones to absorb shock more effectively than regular running. Give it a shot with this 400- meter forward-backward running challenge created by Todd Durkin, C.S.C.S., author of The IMPACT! Body Plan.
Here's how it works: Sprint a quarter mile—running forward—as fast as possible. Rest for 2 minutes. Then, complete the quarter mile again, but run backward this time. Your goal is to finish the distance in less than double the time it took you to run it the first time.

When Durkin ran the challenge he completed the regular sprint in 1 minute and 58 seconds. He needed to complete the lap running backward in less than 3 minutes and 56 seconds. His final time: 3 minutes and 40 seconds. What was your time?

This running challenge will crush calories and test your lung power

Supplements (cont. from Pg. 1)

of its effects on inflammation, curcumin may also slow brain aging and cognitive decline.

Antioxidant benefits

Besides reducing inflammation, taking curcumin for longer periods decreases various markers of oxidation, such as C-reactive protein or lipid peroxidation. Free radicals (cells that have become damaged during oxidation) lack critical molecules. In trying to repair themselves they sometimes go on a rampage in our bodies, ultimately injuring more cells by corrupting their DNA. This can lead to disease.

Our bodies naturally contain antioxidant enzymes to help protect us – namely, super-oxide dismutase (SOD), glutathione, and catalase. These powerful enzymes are our main defense against runaway oxidation.

Interestingly, not only is curcumin a strong anti-inflammatory and antioxidant by itself, it also significantly increases levels of these inherent bodily enzymes, further bolstering our defenses.

Because of this, curcumin supplementation can protect DNA from damage – even when someone is exposed to dangerous compounds, such as arsenic!

Anti-cancer benefits

Curcumin also seems to have anti-cancer benefits. This is because it can start a process called autophagy. Autophagy is the selective destruction of damaged cellular tissue. Think of it as cellular housekeeping – cleaning up damaged debris and preventing damaged cells from accumulating.

Autophagy helps to isolate damaged organelles, allow appropriate cell differentiation, and promote the death of cancerous cells. In other words, it puts some of the bad guys in solitary, separates those who need to be separated, and kills off others.

People whose diets are high in curcumin are less at risk for colorectal cancer, prostate cancer, and breast cancer. And if you're already suffering from cancer, curcumin might even make chemotherapy more effective and protect healthy cells from radiation therapy. Not too shabby.

Safety and dosing

The commonly recommended dose for general health purposes is around 500 mg of curcumin daily. Research suggests that doses of up to 8-12 grams per day are safe. The main reported side effect is some gastrointestinal discomfort.

However, curcumin by itself is poorly absorbed. So to benefit from it, you'll need a supplement with enhanced bioavailability. Methods to improve bioavailability include added black pepper extract (piperine), mixing with phosphatidylcholine (phytosomes), or taking a curcumin nanoparticle product. Check labels to ensure you're getting a product that will actually work.

Curcumin is fat-soluble, so it should be taken with a meal or other fat source (such as fish oil).

Surprising Supplement #2: Berberine

Berberine is a compound found in many plants, including Oregon grape, barberry, and goldenseal, among others.

Much like curcumin, berberine is yellow-colored – so strongly colored, in fact, that it was once used to dye wool, leather and wood.

Berberine's magic powers include anti-inflammatory effects, lipid-lowering effects, and most of all, incredibly powerful anti-diabetic effects. Many of these are due to berberine's activation of AMPK, a potent enzyme that is key to maintaining the energy balance in our cells and protecting their growth and function.

Berberine also has some antifungal and antibiotic properties.

But let's look at berberine's most potent benefits.

Blood sugar control

Berberine's anti-diabetic properties are well-established. In fact, berberine is every bit as powerful as a pharmaceutical drug. Not many supplements can boast that kind of effectiveness.

Taking 500 mg of berberine 3 times per day (1500 mg total) appears to improve glucose control and other markers of type 2 diabetes just as well as taking 1500 mg of the diabetes drug Metformin.

Not only that, but when taken together, Metformin and berberine seem to work synergistically for even better glucose control. But diabetics are not the only people who could benefit from taking berberine. It might also protect against metabolic syndrome, since it reduces blood glucose, body fat, triglycerides, and cholesterol.

Berberine seems to work

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IAPS Data from October 2013

Reportable Injuries:	6
Record Only Injuries:	2
Injury by Activity:	
PT:	2
Incident:	2
Training:	1
Station Duties:	3
Injury by Body Part:	
Head:	1
Torso/Back:	
Extremities:	2
Heat Illness:	
Exposure:	1
Internal:	3
Whole Body:	1

"SAFETY CORNER"

10/1/13—13CAHUU006363, Engine Rollover
10/6/13—13CARRU100700, Tanker 73 landing accident
10/7-10/10/13—National Drive Safely Work Week
10/8/13—13CABDU012237, Tree Felling Accident

What is The Shock Index?

The EMT Spot
Medicine Moves Fast ... Keep Up
http://theemtspot.com

One of the more difficult things to relate to new EMTs who are just cutting their first patient assessment teeth is putting assessment findings in context.

Frequently, while teaching a new batch of EMT students patient assessment, I'm peppered with questions like these:

"How fast does the pulse have to be before you consider the possibility of shock?"

"Do you always put someone on oxygen when they have pale skin?"

"How slow does a person have to breathe before we should start breathing for them?" "So if the blood pressure is low, that means that they are bleeding?"

"If the patient doesn't have pinpoint pupils, should I still give Narcan?"

"What does the Glasgow need to be before we decide to go emergent?"

All of these questions have a simple desire at their core. The desire to know, with certainty, that a single assessment can give us the answer to our treatment questions. We want patient care to be simple. If then, then this. The less experience we have, the more cook-book we want patient care to be.

The unfortunate truth that our new EMTs are (hopefully) quick to learn is this, patient assessment is never quite that simple. Everything needs to be taken in context.

Respiratory rate is inseparably bound to tidal volume. Pallor is dependent on the patients baseline. Some abnormal findings aren't abnormal for patients with congenital pupil abnormalities or naturally pale skin. The unsatisfying answer to many of these questions is, "It depends." One of the more difficult aspects of patient assessment is being able to step back and put it all together. What do all these symptoms, when taken together, mean to me as a caregiver? What does the current constellation of symptoms mean?

To that end, I think it's useful to understand the shock index. The shock index is a simple calculation, based on the heart rate and the systolic blood pressure, that uses the coloration between those two numbers to try to identify potential shock patients.

Understanding the shock index helps us understand how multiple vital signs can be evaluated in combination to increase our index of suspicion for certain occult injuries or disease processes. (In this case, shock.)

Here's how we calculate the shock index. We take our patients systolic blood pressure and we divide it into the heart rate in beats per minute. Under normal conditions, we will tend to get a number between .5 and .8. (Yes, you can do this on your smart phone if you, like me, are mathematically challenged.

As a for-instance, when the classic vital findings of HR = 80BPB and a Blood pressure = 120/80. Our shock index calculates a comfortable .67. When the systolic blood pressure and the pulse become equal (for instance HR = 100BPM, BP = 100/60) our shock index reaches an uncomfortable 1.0. The farther we climb above that number, the higher our index of suspicion for an underlying shock state.

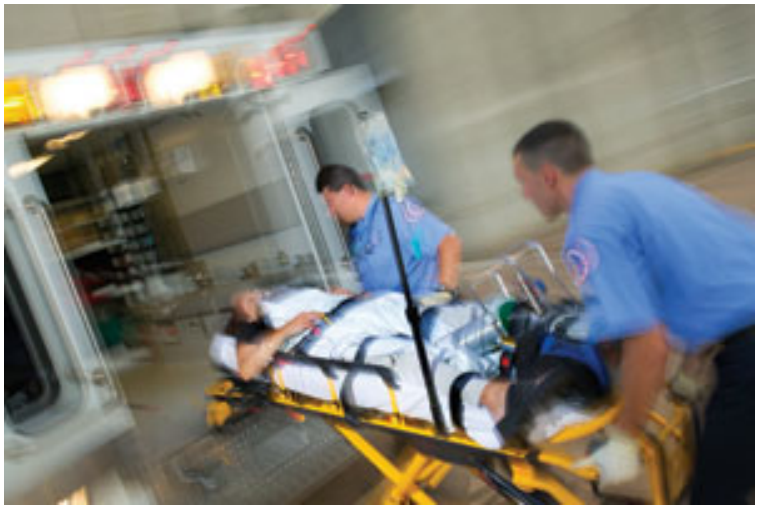
This holds true for all of our shock presentations including those sometimes cryptic presentations like sepsis and occult bleeding. This is where recognizing the concept behind the shock index can be a powerful tool in your physical assessment arsenal.

One of the powerful things about calculating the shock index is that it keys us in to the critical association between vital signs.

Vital signs don't exist in a vacuum.

None of our assessments live in a vacuum. We must consider them in association with the entire clinical picture. Research suggests that calculating the shock index might help us identify the presence of occult traumatic bleeding even when one of the two vital signs in question remain within a normal range (for any number of reasons). But even more than that, understanding how the shock index works can help us become more in tune to the relationship between all of the vital signs… even when we don't take the time to calculate it. And that's where it might prove its real value.

I'm not yet ready to recommend calculating the shock index as part of a standard trauma assessment. While it could be used on the fly in limited clinical presentations, I'd prefer to see EMTs play with it retrospectively and prospectively to better understand how these two vital numbers work in combination to help us identify underlying shock states. Have fun with it and let me know how it goes.



Shock Index may be more sensitive and useful than heart rate or systolic blood pressure alone in diagnosing occult shock, especially in trauma/ acute hemorrhage.

Shock Index = HR/SBP

Train Like a Champ

Jumpstart your workout with these 3 jump rope drills

Give your workout a jumpstart with these drills from Shaun Hamilton, head coach of USA Jump Rope. Master them at home, then take your show to the gym—where training in front of a crowd can help you ramp up your intensity.

1. Boost Your Speed

The Jog Step

Begin with your right foot planted, your left foot slightly above the floor, and the rope behind you. Swing the rope over your head, jump, and land on your right foot. As the rope comes down, jump off your right foot--allowing the rope to pass under both feet--and land on your left foot, keeping your right foot suspended.

2. Work More Muscles

The Backward 180

Start just like the jog step. As the rope passes overhead, move your right hand to the left, so the rope swings next to your left side. As it hits the floor, jump and turn left 180 degrees. Move your right hand back to your right side, letting the rope pass over your head and behind you so you're now jumping backward.

3 . Improve Coordination

The Crisscross

The trick here is to cross your arms at hip level. Jump rope normally for a bit. When the rope passes overhead, begin to cross hands. They should reach the opposite sides near your hips as the rope touches the floor. Jump, then keep your hands still while the rope rises. Start to uncross as the rope peaks the second time.

How Long Should My Jump Rope Be?

Follow these three steps to measure the length of a jump rope that's good for you::

1. Stand with one foot on the center of your rope.
2. Pull the handles up to your sides, keeping the rope tight.
3. The top of the handle should reach to your armpits.

These three steps and the table below will guide you to a rope length good for general rope jumping based on your height. A slightly longer or shorter rope length may be a better fit to your style of jumping, skill level and physique.

A Longer or Shorter Rope May Work Better For You

Longer ropes turn slower. But a rope too long is hard and unwieldy and hard to control. Use a longer rope to learn new tricks. Beginners line a longer rope because it is goes slower. A longer rope is also great for longer cardio workouts.

Shorter ropes turn faster. But a rope too short won't clear around your head or feet. Use a shorter rope for speed jumping. Advanced speed and trick jumpers prefer a rope that is as short as practical.

Rope length	Height
7'- 8'	4'10'' – 5'3''
9'	5'4''- 5'10''
10'	5'11'' – 6'6''
11'	Over 6'6''

Supplements (cont. from Pg. 3)

through multiple pathways.

First, it improves muscle insulin sensitivity, and promotes blood glucose and fatty acid uptake into muscle cells. It also seems to prompt the liver to decrease glycolysis, and down-regulate the high level of free fatty acids in the blood that occur due to poor body composition – thus decreasing insulin resistance.

A series of three trials, using around 1 gram of berberine daily for 1-3 months in people with metabolic syndrome or type 2 diabetes showed that their fasting blood glucose decreased by 17-26%, and their HbA1C levels by 12-18%. (HbA1C is a measure of blood glucose control over time.)

These are remarkable improvements, easily comparable to those obtained by taking diabetes drugs.

Reduced blood lipids

Berberine can also reduce blood lipids. This means it might protect against heart disease.

A meta-analysis of berberine supplementation in diabetics found that on average it lowered triglycerides by 42 mg/dL, and both total cholesterol and LDL-cholesterol went down, on average by 22 mg/dL. Those are serious reductions!

Not only that, but when it comes to reducing lipids, berberine seems to work differently than statins – currently the most commonly prescribed drug for this purpose. So theoretically, the two substances could work synergistically to lower blood lipids more efficiently and effectively than either alone.

Safety and dosing

Most trials of berberine have adopted a dose of 1-2 g per day, divided into 3 or 4 servings. Larger doses have been well tolerated, but not necessarily more beneficial.

Other than mild gastrointestinal distress if large doses are taken at once – and the chance that it might inhibit muscle growth – berberine appears to have few side effects.

Note of caution

The AMPK activation effects of berberine are incredible at improving blood glucose control and reducing blood lipids, but this comes at a mild cost: The increase in AMPK might actually inhibit muscle growth.

This unwanted side-effect might be somewhat or mostly offset by vigorous resistance training and anaerobic exercise. But so far, research is lacking, so that is mostly an educated guess.

Surprising Supplement #3: Spirulina

Spirulina is a blue-green mixture of algae species. It contains bioactive compounds (including phycocyanobilin) that confer exceptional health benefits. In particular, spirulina seems to inhibit NADPH oxidase, a pro-oxidation compound. So it helps protect us against free radicals and the damage they can cause to healthy cells.

Granted, the data on many of spirulina's reputed benefits is limited and needs to be replicated before we can judge with absolute confidence. But preliminary evidence is compelling.

Blood lipid protection

Several studies have shown that spirulina supplementation in both humans and animals lowers lipid peroxidation levels (a marker of damaged blood lipids) by around 15% on average.

Lower triglycerides

A number of studies on people with metabolic syndrome or other diseases involving high triglycerides have shown that supplementing with spirulina can reduce triglyceride levels by about 10-15%.

Effects that need more research

• Allergy control. One study showed that 2g of spirulina daily for 6 months was associated with significantly reduced symptoms of nasal allergies.

•Blood pressure reduction. A few studies have shown that 6 weeks of supplementation reduced blood pressure in people without hypertension by 11 points for systolic pressure (the top number) and 6 points for diastolic (the bottom number). Those are large changes.

•Power output increase. In a lone study, power output during exercise increased by 20-30%, where a placebo failed to produce any increase. The effect was stronger in untrained individuals, and weaker in trained athletes.

•Immune system up-regulation. One study showed that natural killer cell content and activity both increased significantly when subjects took spirulina. This suggests that spirulina might offer strong anti-tumor benefits.

•Liver enzyme and liver fat reduction. While based on case studies and rat data, this preliminary evidence seems to indicate that spirulina may improve liver health in those with liver damage.

Safety and dosing

Spirulina received a Class A safety rating by the United States Pharmacopoeia. Currently, there is no evidence to suggest any harm associated with its intake.

It should be noted, however, that other non-spirulina blue-green algae could contaminate spirulina supplements and potentially produce toxic metabolites. So if you choose to supplement, do look for a reliable source.

Spirulina is generally taken at 1-3 g per day, often in divided doses.

Surprising Supplement #4: Rhodiola rosea

Rhodiola rosea may sound like the name of a character in a kids' book. But it's actually an adaptogenic herb that grows in cold climates, such as the Arctic, and other mountainous regions of the world.

An adaptogenic compound is one that can soften the negative effects of stress, even when the perceived stress remains. (To learn more about stress, see Good Stress, Bad Stress: Finding Your Sweet Spot.)

Rhodiola is an adaptogen that has a strong track record of decreasing fatigue and exhaustion in prolonged stressful situations. (Including situations like my own: living in the same house with an infant and a toddler.)

Decreased fatigue; improved well-being

The research on rhodiola's ability to decrease fatigue and improve well-being is strong, and has been repeatedly demonstrated.

A meta-analysis of 5 studies found that compared to students taking a placebo, students who took rhodiola had less cognitive fatigue, better motor skills, and made fewer errors on tasks. They also stayed more focused, reacted more quickly, and felt generally happier. In fact, in one of those studies, the students taking rhodiola scored 8.4% higher on their exams than the placebo group. That's a pretty big advantage!

Beyond the academic setting, rhodiola supplementation has also drastically reduced total fatigue and increased the capacity for mental work and overall sense of well-being in military cadets performing night duties.

Finally, in a study on healthy physicians, rhodiola supplementation significantly decreased fatigue and improved performance on work-related tasks by ~20%.

Cognitive improvements

Rhodiola seems to make us smarter by reducing fatigue, not for any independent reason. Where mental fatigue is not a problem, it's not clear if rhodiola does much to improve cognition.

Having said that, the cognitive effects of reducing fatigue appear quite strong.

Effects that need more research

Like spirulina, rhodiola appears to offer additional benefits. But research remains in the preliminary stages, so we can't be certain.

However, here are a few of its suspected advantages:

•Reduces depression. In the sole relevant study, supplementation with rhodiola decreased depressive symptoms by up to 50%. One study is not enough to go on, but the result is significant, even so.

•Increases lifespan. Worm and fly research with rhodiola has shown increases in lifespan by 10-24%. While this is intriguing, it is certainly not clear that this benefit would extend to humans. A lot of other life-extension therapies that have worked in worms and flies have failed to carry over to humans.

Continued on Page 7

Supplements (cont. from Pg. 6)

Safety and dosage

Human trials supplementing with rhodiola have not found any clinically relevant side effects. However, it could interact with some pharmaceutical drugs, so if you wish to supplement, be sure to discuss with your doctor first.

Rhodiola rosea extract should be 3% rosavins and 1% salidroside. Normal dosage usually ranges from 250-680 mg.

In addition, rhodiola has a bell curve response, meaning once you exceed that 680 mg threshold, the effectiveness of the supplement actually decreases. There's no point in taking more.

Surprising Supplement #5: Betaine

Betaines naturally occur in many plants to protect cells from dehydration. Sugar beets, quinoa, and spinach are three of the best food sources of betaine.

Betaine is what's known as a methyl donor. The methylation cycle is a biological pathway that manages or contributes to almost every important function in the body, including detoxification, cell repair and transfer, energy production, and more.

Improved strength and power

A moderate amount of research suggests that giving resistance-trained subjects 2.5 grams of betaine per day may increase the number of reps they can complete, which in turn contributes to increased strength. While the improvements in the studies were relatively minor, even minor improvements can be significant in trained athletes, who are looking for every edge they can get.

Some research also indicates that betaine can lead to improvements in peak and average power output. Other research suggests that taking betaine can significantly increase bench throw power, isometric bench press force, vertical jump power, and overall peak power. But other studies fail to find this benefit at a similar or lower dose.

Improved endurance

The research on betaine and endurance is still in its infancy. But supplementing with betaine has allowed some subjects to maintain high-speed sprints for longer periods.

Note, however, that betaine supplementation doesn't seem to improve performance in long-distance endurance sports. So it probably won't help you in a marathon.

Improved body composition

Long-term betaine supplementation can improve body composition as well. Subjects who took 2.5 grams of betaine per day for six weeks while on a structured training program showed increased upper arm muscle mass. Meanwhile, they gained 2.4 pounds of lean body mass, and lost 2.9 lbs. of body fat, which improved body composition by over three per cent. The placebo group showed almost no changes in those areas.

However, this was the first study to show such results; other research in non-exercising individuals showed no improvements in body composition.

Effects on cardiovascular health

Betaine supplementation consistently reduces homocysteine levels. This is a good thing, because high levels of homocysteine are linked to heart disease.

At doses of 6 grams per day, betaine can actually increase levels of LDL cholesterol and triglycerides in healthy subjects. But doses of 4 grams per day had no effect on blood lipids. So the research here is inconclusive overall.

Safety and dosage

The generally recommended dose is 2.5 grams per day. Lower than that and you won't get any benefits, and too much higher than that (up to 6 grams per day) and you could run into trouble – for example, increased blood lipids. Apart from that, no serious side effects have been reported – but again, the research is still in its early stages.

Surprising Supplement Bonus: Beetroot juice and nitrates

Nitrates occur naturally in many foods, with beets and spinach being two of the richest sources. This high nitrate content may help explain why beetroot juice shows some positive effects on human performance.

Why do nitrites improve performance? Well, nitric oxide seems to reduce our oxygen needs during exercise. A decreased need for oxygen reduces our ATP turnover, and since ATP is the key energy source during exercise, we can perform longer, harder and more efficiently.

Research comparing beetroot juice with its naturally occurring nitrates, vs. beetroot juice with its nitrates removed, found that the nitrate content of the juice is what leads to the positive benefits.

Improved performance

Several studies have shown that nitrate supplementation, mainly from beetroot juice, can improve endurance capacity and time trial performance. Time-to-exhaustion has been improved by 15%. And running velocity has been improved by 5%. Eating beets can also improve muscle recovery between sets of resistance exercise, reducing exhaustion and restoring oxygen recovery of muscle tissue (via our mitochondria).

Finally, beetroot consumption has improved power output in trained cyclists, leading to improved speed and faster times in time trial tests. But note that these improvements may be more obvious in moderately trained people versus elite athletes.

Lower blood pressure

Over sixteen high-quality, randomized, placebo-controlled trials (the strongest kind) have been conducted on beetroots/ nitrates and effects on blood pressure.

Overall the data show that on average beetroot juice consumption lowers systolic blood pressure (the top number) by 4.4 points, and diastolic (the bottom number) by 1.1 points.

Safety and dosage

Almost all trials using beetroot juice have asked subjects to drink 500 ml for several days prior to testing. Smaller doses or shorter time frames (eg. one dose immediately prior to event) show less consistent benefits. Unless you are allergic, there's probably no risk to drinking 500 ml of beet juice per day.

What you can do

Surprised by the benefits associated with these lesser-known supplements? I was. And I'm glad that research is ongoing so we can keep learning more.

For now, despite their benefits, most of us probably don't need to take any of these supplements regularly.

Sure, curcumin and/ or spirulina may offer some long-term benefit, especially if you have specific health

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Supplements (cont. from Pg. 7)

risks.

However the performance benefits of betaine and beetroot juice may only be relevant for competitive athletes.

While berberine and rhodiola should be used in very specific situations – addressed above – instead of indiscriminately.

And remember: Just because you can buy supplements over the counter doesn't mean they're always safe for you.

So, before you consider adding these to your routine, be sure to discuss with your doctor and/or pharmacist. This can help you prevent dangerous drug and supplement interactions.

Hamstring Stretching with Bands

You need to remember there are several components to hamstring tightness:
Structurally tight hamstrings
Myofascial stiffness
Stabilization weakness or muscle imbalance
Nerve tension restrictions

Any of these 4 can cause hamstrings to be tight but unfortunately they do not all respond to simply stretching out the hamstrings. Matter of fact, in 3 of the cases, hamstring stretching with bands aggressively will probably not result in any improvement or possibly make them even more restricted. This is definitely the case when it comes to hamstring stretching with bands when the problem is nerve tension restrictions.

Hamstring stretching with bands using an aggressive over pressure is probably not the best option for nerve tension issues

How the nerve becomes restricted.
I am not going to provide you an in-depth, microscopic description on how the nerve gets restricted because I don't have that level of understanding. The way I best can describe it is that as the nerve travels through the neuro-tube it gets struck up against the inner lining of the tube and subsequently cannot glide freely through the tube. I picture pulling a string through a narrow piece of PVC pipe. As the string is pulled through it gets stuck on the inner surface of the PVC pipe. As a result the more aggressive the pull the more likely the string gets damaged or breaks.
Subsequently the best way to free this up is by gently pulling on the sting repeatedly in hopes of freeing it up and releasing it from the restriction. Essentially this becomes more of mobilization approach versus aggressive stretching approach.

Getting a Baseline
Using the Active SLR test, trainers and coaches can provide a baseline value to hamstring flexibility. Once this is established the next step is to determine why the hamstring is restricted and specifically if there is a nerve tension component.
One of the ways I determine this is by asking the clients where they feel the greatest amount of tension when placing the hamstring on a stretch. If they report in the calf, especially when the ankle is significantly dorsiflexed, I become very suspicious of nerve tension tightness and will typically implement a different type of band stretching.

Hamstring stretching with Bands for Nerve Tension tightness
One of the reasons hamstring stretching with bands is so effective is because it provides an accommodating counter force that allows the quadriceps to actively lengthen the hamstring. Also by applying the band against the foot in the correct location, it allows the ankle to be passively dorsiflexed while performing an active lengthening of the hamstring using the contraction of quadriceps.
These two components, working together, create an effective way to mobilize the nerve tissue that ultimately frees it up and gets it moving within the neuro-tube without restriction.

CE Answer Sheet:

Complete this answer sheet from the previous CE article and forward it to the Training Office for grading and credit. (1 CE hour Credit for successful completion)

1. ☐ True ☐ False
2. ☐ True ☐ False
3. ☐ True ☐ False
4. ☐ True ☐ False
5. ☐ True ☐ False
6. ☐ True ☐ False
7. ☐ True ☐ False
8. ☐ Yes ☐ No
9. ☐ Yes ☐ No
10. ☐ True ☐ False

Name:
Email:
Station:

Comments: _____

Be Back Next Month…

Technical Rescue Team training at Openshaw Training Center

For Suggestions or Comments:

CAL FIRE / Butte County FD

176 Nelson Ave

Phone: 530-966-8682

Fax: 530-879-3433

E-mail: Mike.Waters@Fire.Ca.Gov

"Let No Man's Ghost Say His Training Let Him Down!" - Unknown Author