

ENDURANCE

BY HAMMER NUTRITION

#128 January/February/March 2022

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NEWS



IN THIS ISSUE

More Good Multi-Vitamin News

Even more reasons to maintain your supplement routine

Omega 6

Processed nut and seed oils have a dark secret

Winning Results

Eat more fat, burn more fat

PLUS

- CBD Testing Update
- Announcing New Online Product Videos



THE HAMMER SQUAD

Leading the pack into 2022, the Hammer / 53x11 Coffee National Team is headed up by Hunter Ziesing as team manager and captain, 6 other Americans, and 2 Canadians racing road, cyclocross, and gravel events all over North America. Top race results included **18 wins** and **37 podiums** - that's in criteriums, hill climbs, TT's, and road races.

As their team name suggests, this is a major coffee-consuming squad - nearly 50 lbs combined for the year! Other team favorites in no particular order include Peanut Butter- Chocolate **Hammer Gel**®, **Endurolytes Extreme**®, Cherry Bomb **HEED**®, and **Mito Caps**. Photo: Jeff Vander Stucken Photography



Endurance News depends on authentic photos from our readers and your photo submissions are always welcome! To be featured in the next issue of *Endurance News*, email your hi-res photos to photos@hammernutrition.com.



BEING FRANK

A WORD FROM BRIAN FRANK

Owner and Founder of Hammer Nutrition

Welcome to the first issue of 2022, the 29th year of this publication, and the start of my 35th anniversary in business! By my calculations, that's over 2/3 of my life dedicated to building what you see, touch, and experience as Hammer Nutrition. Despite my tendency to tell my staff that business is not personal, in this context is definitely is! The simple truth is that none of this would have been possible without your support. So, without hesitation, I take this opportunity to thank you for your faithful support, especially all of you lifers! It's been an awesome adventure!

Now, it's time to get on with another year of this journey, continuing to seek your approval. As we have done all along, we'll be introducing new products, improving trusted favorites, and expanding our educational programs, all while delivering the best customer service in the world! It's not the easy way to do

things, especially in these trying times, but it's the only way I'll ever do it.

I look forward to hearing from you with suggestions, criticisms, and whatever other feedback you feel is appropriate. I am listening!

Despite my optimism and enthusiasm, we are not immune to the inflation and supply chain woes that exist today. As a result, unfortunately, you will see a few items increase in price and our shipping rates for orders under \$100 going up a smidge. However, do take particular notice of all of the items that have NOT increased in price. I've simply absorbed those increases – one of the things I can do as the sole owner of this company.

At Hammer, there are no shareholders, debt holders, or anyone else telling me they want growth and more profits. Principles before profits. No short cuts, no compromise. If I would not use a product myself and feed

it to my kids, I wouldn't try to sell it to you!

On the education front, we will be launching the Hammer Academy Fueling Expert Certification Program. This will be accessible for coaches and athletes alike or pretty much anyone who wants to deliver my 5 Secrets of Success to one or more athletes. We'll keep you posted through ENW and the next issue of Endurance News.

This is all on top of our continued efforts, with the able assistance of Dr. French and Steve Born, to share the good news about sugar abstinence, low sodium, high fat/low carb diets, and intermittent fasting.

So, enjoy the read, pass it on to a friend, be fit, healthy, and happy. Life is too short to live any other way. Remember, we are here to help!



Brian Frank



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MISSION

Endurance News provides informative and inspirational content to help endurance athletes like you achieve peak performance and health. The views expressed favor a healthy diet, hard training that emphasizes quality over quantity, and prudent supplementation to improve health and performance. Back issues are available at hammernutrition.com.

OUR GUIDING PRINCIPLES

Service: From day one, we've strived to treat each client fairly, honestly, and individually. Your trust is our top priority.

Education: We educate and empower athletes with free, easily accessed information on health and performance.

Principles Before Profits: Profits never take priority over our values. If it says "Hammer Nutrition," it's good for you.

OUR CORE VALUES

Innovation: Our development of new, cutting-edge products and categories has led the field since 1987.

Product Integrity: Our consumables are researched, tested, and USA-made to the strictest standards.

Read our complete mission statement online at hammernutrition.com/company/mission-statement



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In this issue, stay strong for great things coming up in 2022!

Read more on pages 06, 14, 26, and 42

ON THE COVER:



14

Did you know that Vitamin D can lower our risk of cardiovascular disease? Read about all the many benefits of Vitamin D on page 14.



40

There's so much more to Endurance C than just vitamin C. It's packed with numerous nutrients that work in synergy and provide you with a tremendous range of health benefits.



52

Valarie Huseh is on a roll! - speeding past the competition, representing Hammer Nutrition Columbia.

Endurance News: Issue 128
January/February/March 2022

EN FEATURES

- 6 **More Multivitamin News**
by STEVE BORN
- 8 **Omega-6** by STEVE BORN
- 10 **Calories By The Hour**
by BRIAN FRANK
- 12 **Do Try This At Home**
by Dean Karnazes
- 14 **Vitamin D and Heart Health**
by STEVE BORN
- 24 **Sugar's Role in Glycation**
by STEVE BORN
- 26 **Lab Tests-What you need to know** by DR BAYNE FRENCH MD DC
- 28 **Wayne Taylor Racing**
- 30 **Optimum Iron Levels**
by STEVE BORN
- 36 **REM Caps and CBD**
by STEVE BORN
- 40 **Endurance C: More Juicy Benefits** by STEVE BORN
- 56 **2022 Events At A Glance**
- 60 **Too Much Salt**
by STEVE BORN

EN REGULARS

- 4 **Publisher's Note**
- 14 **Product Spotlight: EnDuro D**
- 16 **Starting Lines: Josue Barron**
- 18 **#howihammer**
- 20 **Ask Hammer**
- 22 **SOS: Pre-Exercise Fueling**
- 40 **Product Spotlight: Endurance C**
- 42 **Top 10 Reasons to Drink Coffee**
- 44 **Laura's Kitchen: Salad & Salmon**
- 48 **From Our Athletes**
- 52 **International**
- 56 **Events**
- 66 **Finish Chute**

WOW!

Now even more GOOD NEWS about

PREMIUM INSURANCE CAPS

by STEVE BORN *First published on Endurance News Weekly*

I've often referred to Premium Insurance Caps, Hammer Nutrition's multivitamin/mineral supplement, as "the most boringly beneficial product we make." The reason for that unique distinction is because it's not the most glamorous supplement you can take; there's nothing as ultra-cool in the product as there is in, say, Fully Charged or Anti-Fatigue Caps.

But while Fully Charged, Anti-Fatigue Caps, and other supplements in the Hammer Nutrition line may have a more direct impact on improving athletic performance, if you're not covering your basic nutrient needs (vitamins and minerals), those other products won't ever realize their full value—and you will never get maximum benefits from the time and energy you spend in your workouts.

In my nearly 22 years at Hammer Nutrition, I've found that there are three main excuses why people don't take a multivitamin/mineral supplement:

- 1 They feel that because they already eat a "healthy diet," a multivitamin/mineral supplement is unnecessary.
- 2 They believe that taking a multivitamin/mineral supplement won't do anything to boost athletic performance.
- 3 They're convinced that taking a multivitamin/mineral supplement is a waste of time because of the constant message trumpeted from many so-called "experts," who say that doing so just causes "expensive urine."

The first reason is absolutely incorrect; it is virtually impossible to obtain all of the nutrients your body requires from your daily diet. Three main reasons why this is true:

- 1 Studies show that food alone may not supply all of the micronutrients we need to prevent deficiency, let alone to achieve optimal health.
- 2 Much of our diet comes from foods grown far away, picked when unripe, and then shipped. Nutritional content is questionable and usually depleted.

- 3 Even if we could obtain all of the nutrients we need from our diet, it's unlikely that any of us eats an ideal diet with much consistency.

The first point is of primary importance. Forget about providing enough nutrients to promote optimal health—many people do not eat enough quality food to meet the minimal Reference Daily Intake (RDI) micronutrient requirements for preventing deficiency-related disorders. Dr. Bill Misner's hallmark paper, "Food May Not Provide Sufficient Micronutrients to Avoid Deficiency" is but one effort in pointing out this startling problem.

The research of distinguished nutritional scientist Bruce Ames, professor of biochemistry and molecular biology at the University of California, Berkeley, also presents a hypothesis that implies micronutrient deficiency may eventually deteriorate the quality of whole human cell health. A portion of Professor Ames' abstract reads as follows :

Continued on page 58

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OMEGA 6

PROCESSED SEED OILS: Toxins that will destroy your health

by STEVE BORN
First published on
Endurance News Weekly

We need two essential fatty acids (EFA) for life—omega-6 fatty acids and omega-3 fatty acids. Our bodies cannot make either of them, so we must obtain these fatty acids from dietary sources. Omega-6 is important because they produce specific molecules (prostaglandins and leukotrienes) that are, in appropriate amounts, necessary for proper immune system function. Omega-3s also produce prostaglandins and leukotrienes; but, they're less inflammatory and are associated with many health benefits.

While both are necessary in the human diet, most people consume an excess of omega-6—and their omega 3 intake is woefully lacking. While research points to a 1:3 or 1:4 omega-3 to omega-6 ratio as ideal, most people's diets show a 1:20 ratio or even higher. Dr. Artemis P Simopoulos explains:

In the past three decades, total fat and saturated fat intake as a percentage of total calories has continuously decreased in Western diets, while the intake of omega-6 fatty acid increased and the omega-3

fatty acid decreased, resulting in a significant increase in the omega-6/omega-3 ratio from 1:1 during evolution to 20:1 today or even higher. A balanced omega-6/omega-3 ratio is vital for health.

Clearly, a 20:1 omega-6 to omega-3 ratio is very much out of balance. This imbalance causes excess inflammation and oxidation throughout the body, significantly disrupting optimal health and increasing the likelihood of chronic diseases,

Continued on page 59



OLIVE OIL

THE HEALTHIEST OF THEM ALL

In our article on processed seed oils being a health hazard, we just touched on a couple of oils that are quite healthy, one of which is olive oil. Some impressive research, recently published in the Journal of the American College of Cardiology, clearly indicates olive oil is not just healthy, but has some remarkable benefits that may very well extend life. The results:

Consuming more than 7 grams (>1/2 tablespoon) of olive oil per day is associated with:

- Lower risk of cardiovascular disease mortality
- Cancer mortality
- Neurodegenerative disease mortality
- Respiratory disease mortality

The study also found that replacing about 10 grams/day of margarine, butter, mayonnaise and dairy fat with the equivalent amount of olive oil is associated with lower risk of mortality as well.

Using participants from the Nurses' Health Study and the Health Professionals Follow-up Study, researchers analyzed 60,582 women and 31,801 men who were free of cardiovascular disease and cancer at the study baseline in 1990. During 28 years of follow-up, diet was assessed by a questionnaire every four years.

After the 28-year follow-up, researchers compared those who rarely or never consumed olive oil, those in the highest consumption category had:

19% lower risk of cardiovascular mortality

17% lower risk of cancer mortality

29% lower risk of neurodegenerative mortality

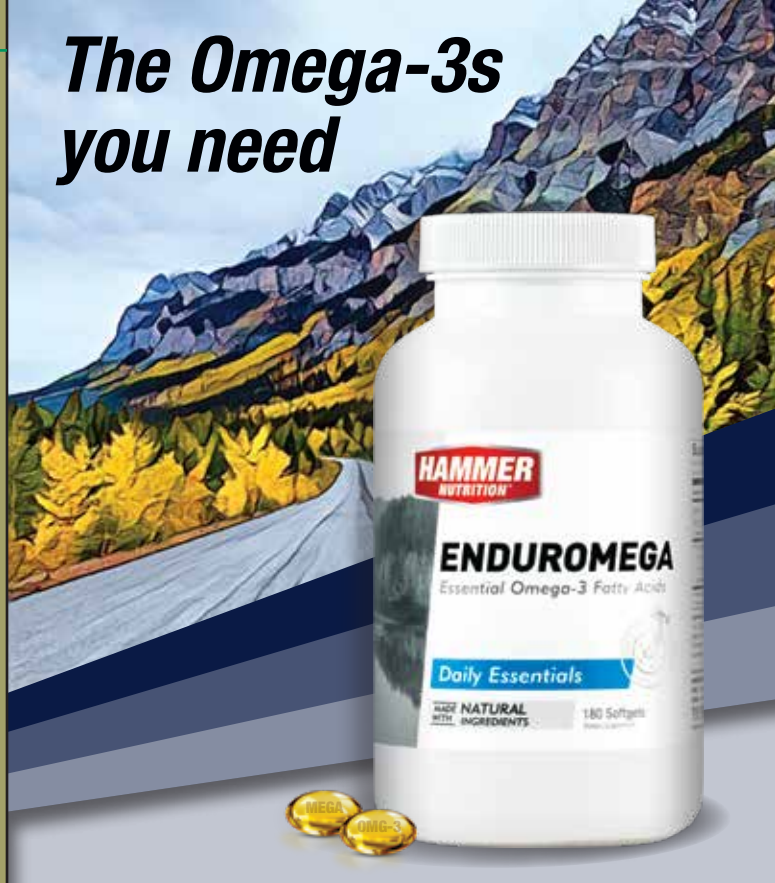
18% lower risk of respiratory mortality.

The study also found substituting 10 grams/day of other fats, such as margarine, butter, mayonnaise and dairy fat, with olive oil was associated with 8-34% lower risk of total and cause-specific mortality. They found no significant associations when substituting olive oil for other vegetable oils.

Lead study author, Marta Guasch-Ferré, PhD, states, "Our findings support current dietary recommendations to increase the intake of olive oil. Clinicians should be counseling patients to replace certain fats, such as margarine and butter, with olive oil to improve their health."

EN References available upon request.

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KEEP ROCKIN' AROUND THE CLOCK

Minimum and Maximum optimal calorie intake per hour

by BRIAN FRANK



If you regularly exercise for 3 hours or more, this article is for you!

For decades now, I have been haunted by one recurring question from clients; which of your products will allow me to consume the most calories per hour? While I understand the reasoning behind the question, it's necessary for a complete paradigm shift to a question at the other end of the spectrum; What amount is the FEWEST calories per hour I can consume without slowing me down? And, why would anyone want to consume more than this glorious minimum while exercising? These are questions worth asking and the purpose of this article.

I first became sensitized to this question when I introduced our first "sports drink" in 1991, which I poorly named "Energy Surge," but subsequently changed to Sustained Energy. This product represented a significant departure from all previous and existent products on the market with unique features such as

1. no added sugar
2. no added flavoring
3. three sources of complex carbohydrates
4. a protein component

“Anyone who claims that you can train your liver to process more than 60 grams per hour is a complete ignoramus.”

This radical departure from the sugar/salt/citric acid-based products of the day proved to be a godsend to ultra runners, cyclists, Iron distance triathletes, and every other athlete wanting to exercise for more than 3 hours.

However, it also gave false hope to many athletes who reckoned that they'd be able to come closer to replacing calories burned on a 1:1 basis. At the time, they were told by ignorant experts that their goal while exercising should be to replace what they are burning to avoid “bonking.” In addition, 400-600 calories per hour was the recommended (but entirely unattainable) supposed goal.

To make matters worse, dieticians of the day recommended a “fat-phobic” diet that encouraged massive carb consumption and protein avoidance for fear of becoming a muscle-bound gorilla. Unfortunately, this type of diet completely inhibited our body's ability to burn fat and forced it to rely only on glycogen and muscle (protein) for fuels. However, we know that an athlete can get 60% or more of their calorie from our massive fat supply. See related article on page 12.

Still, yet another variable that most failed to consider was how many calories per minute or hour our poor overworked liver can convert into glycogen. We now know that one gram per minute is the maximum the liver can produce, giving a theoretical maximum calorie intake of 240 per hour (4 calories per gram, 60 minutes in an hour).

(Side note: anyone who claims that you can “train” your liver to process more than 60 grams per hour is a complete ignoramus, or is trying to sell something, or more likely both.)

Continued on page 64

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Dean Karnazes and crew are pumped to run 1,000 miles across New South Wales. Photo courtesy of Dean Karnazes.

DON'T TRY THIS AT HOME

by DEAN KARNAZES

I'm a longtime fan of Hammer Nutrition **Endurolytes**®. Through countless races, I've relied on Endurolytes to help me maintain electrolyte and fluid balance. However, this is not a story about Endurolytes on the racecourse; rather a tale of discovery in a mess hall. Wait, mess hall? Let me explain.

Earlier this year, I accepted an invitation to run 3,000 miles across Australia. But with the spread of the Covid Delta variant, that ambition got scaled back to running 1,000 miles across the Australian state of New South Wales. As Delta continued proliferating, the run

was curtailed to being staged entirely within a military base. All the participants and support staff could be kept in a safe isolation bubble. Thankfully it was a sprawling military base out in the countryside with some very amiable running terrain. That was the good news.

The unfortunate news was that we'd be living on military rations for the ten-day endeavor. Military food can be notoriously bland, and the meals we received were no exception. It's as though spices and seasoning had yet to be invented. Still, there's one thing I've learned you don't do in military circles: complain (especially about the cooking). So suck it up, buttercup.

However, one athlete did mention something, and the next day, a handful of those generic salt and pepper packets were thrown in with our rations. Now I don't know about you, but I'm not a big admirer of iodized white table salt. I've read numerous articles—in this publication and others—describing the downsides of table salt. Plus, the stuff is rough on the stomach.

Still, the food needed something—what I wouldn't give for some ginger powder. Wait, ginger powder, where have I seen that ingredient recently? Hmm... POOF! The intracranial flashcube illuminated. I reached into my pack to grab a bottle

of Endurolytes. Sure enough, ginger is a key component. So I split open a capsule and sprinkled the contents all over my food. They say never to experiment with anything new during a race, but a man can only endure so many boiled potatoes. With the powdery contents spread about my plate, I bit in.

And it was, drum roll...sensational! I chewed slowly. The flavor was strong, though not overpowering, and it added a certain zing to the meal, a zesty flair that brought out the best in those otherwise lifeless spuds. Along with sodium, Endurolytes has other electrolytes (potassium, calcium, magnesium, chloride, and a small amount of manganese). Perhaps it's this combination of ingredients that imparted such a unique flavor. I'm not sure, but I'll be auditioning for Top Chef next week.

Kidding aside, I continue to flavor my foods with Endurolytes powder even after returning from Australia. And, if I may be so bold as to confess, it's not the only Hammer Nutrition product in my kitchen. You haven't lived until you've tried my Huckleberry Gel pancakes! **EN**



Hammer Nutrition athlete Dean Karnazes is an ultramarathoner and author of *A Runner's High*. He's raced and competed around the globe and is a recipient of the President's Council on Sports, Fitness & Nutrition Lifetime Achievement Award. Dean has been a passionate supporter of Hammer since 2008.

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Improved Vitamin D Level = Lower Cardiovascular Disease Risk

by STEVE BORN



If you're not currently taking Hammer Nutrition's **Enduro D** supplement, here's a darn good reason to start—A recent study published in the *European Heart Journal* reveals a profound benefit: Researchers estimate that an improvement in serum levels of vitamin D to 20 ng/mL may prevent up to 4.5% of all cases of cardiovascular disease.

Vitamin D is converted in the liver to 25-hydroxyvitamin D, which is the circulating form of vitamin D that is used to measure vitamin D status, listed in nanograms per milliliter, or ng/mL. Even more astounding is that 20 ng/mL is considered by many experts to be at the low end of the “normal range.”

Other research, however, shows that the preferred healthy range is 30-60 ng/mL. Therefore, based on this study, even a marginal increase in vitamin D status—to the “low end of normal” (20 ng/mL) appears to yield some incredible benefits. Of course, that leads to the question: How much greater would the increase in benefits be if one were in the “preferred” 30-60 ng/mL range?

In this particular study, nearly 45,000 men and women with

cardiovascular disease and over 250,000 men and women without cardiovascular disease were involved. Researchers used the Mendelian randomization method, which genetically predicts subjects' serum 25-hydroxyvitamin D level to estimate the effects of improved levels on cardiovascular disease risk.

Nearly 52% of the subjects had 25-hydroxyvitamin D levels that were deficient (i.e., <20 ng/mL). Their levels were increased via supplementation so that they reached the 20 ng/mL “standard.” The results were outlined by lead researcher, Dr. Elina Hyppönen:

“Our results are exciting as they suggest that if we can raise levels of vitamin D within norms, we should also affect rates of cardiovascular disease. By increasing vitamin D-deficient individuals to levels of at least 50 nmol/L [20 ng/mL], we estimate that 4.4 percent of all cardiovascular disease cases could have been prevented.”

The study concluded: “While improving vitamin D status among people with the lowest concentrations is likely to have the strongest effects, a population-wide approach

“Hammer Nutrition’s Enduro D supplies a generous 50 mcg of vitamin D3, along with efficacious amounts of vitamin K2, which work hand-in-hand to deliver multiple health benefits.”

to eradicate vitamin D deficiency could reduce the burden of CVD [cardiovascular disease].”

Summary

There are dozens upon dozens of health benefits associated with sufficient levels of vitamin D in the body, with this most recent research clearly showing how even “minimal standard” vitamin D levels help to reduce the risk of cardiovascular disease.

A 25-hydroxy vitamin D blood test is the way to determine your vitamin D status, and allows you to know how much vitamin D you need to consume to bring you into the “preferred healthy range” of 30-60 ng/mL. As a guideline, The Endocrine Society states that to maintain serum 25-hydroxyvitamin D levels of 30 ng/mL, “adults might need at least 37.5 to 50 mcg (1,500–2,000 IU) per day of supplemental vitamin D.”

Hammer Nutrition’s **Enduro D** supplies a generous 50 mcg (2,000 IU) of vitamin D3, along with efficacious amounts of vitamin K2, which works hand-in-hand with vitamin D to deliver multiple health benefits.

Lastly, to ensure that you’re getting the most from the vitamin D you consume via supplements or food, make sure you’re also supplementing with Hammer’s **Essential Mg**.

EN References available upon request

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HAMMER ATHLETE

JOSUE BARRON



My name is Josue Barron, and I am a Retired United States Marine. In 2010 while deployed to Afghanistan I was severely injured in an IED blast and as result I lost my left leg and left eye. During my recovery at the Naval hospital I was introduced to Disabled Sports. Sports became an outlet, giving me my confidence back. In 2020 I got serious with cycling and set a goal to race and become a full time cyclist. I knew along the way I would need supplements to help me achieve those goals.

Hammer Nutrition has been my fuel and has helped me stay on track with my nutrition. From keeping me hydrated with their **Endurolytes® Fizz** tablets to helping me stay strong on the road with the **Hammer Gel®**. My goal is to become a top cyclist in my sport and make the Paralympics.

“*Take control of your life. If you know there’s something better out there,*

GO GET IT !”

- Cpl. Josue Barron, USMC, Ret.



ESSENTIAL KNOWLEDGE

For more information about Hammer-recommended fueling protocols that can help you not only meet, but exceed your goals, go to hammernutrition.com

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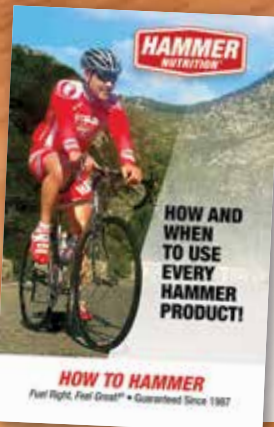
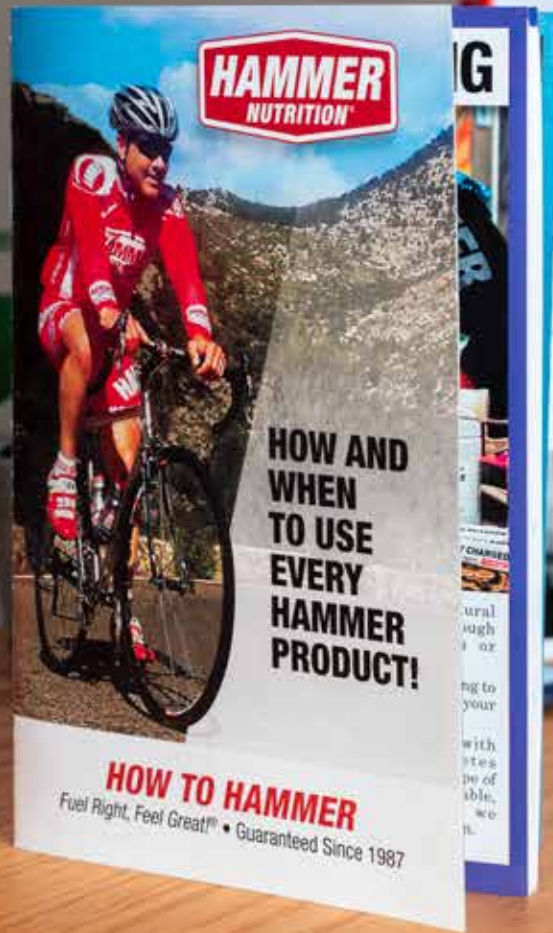
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rodfarvard



Rod Farvard I raced two 50k ultras in California this month - the San Jacinto 50k on 11/6 and Quad Dipsea on 11/27 - and won both!

Pic by @ garygellin that's #howihammer



aaronssanchezg



Aaron Sanchez Meteoro Challenge, 4 hours of crushing on the 5.5kms Madagascar track #HowIHammer #hammernutritionMX



Perezluhacoaching



Steven Perezluha Wanted to give Hammer a shout out for continued support of our events and cycling camps. Riders pushed themselves for 5 days, 265 miles, and ~26,000 feet of climbing. #howihammer



coachmarkwilson



Mark Wilson A racer on course at Frozen 50K in Cassadaga NY #howihammer



ryantaylor20



Ryan Taylor Racing on NASCAR's Bristol Motor Speedway with the World of Outlaws Racing Series was definitely a highlight and a time where my Hammer Nutrition came in handy! #howihammer



mudslingerevents



Mudslinger Events Thank you for the massive support of the High Cascades 100 and the Oregon 24 one week earlier! We are a bit addicted to Cherry Bomb HEED Hammer Nutrition #howihammer



meowontwo



Tami Kihlay Love that my gravel bike can take me on so many adventures! Love the team @hammernutrition for always providing support! #howihammer



ASK HAMMER NUTRITION

answers by STEVE BORN



“Can branched-chain amino acids (BCAA) help with recovery?”

“**T**he findings of the systematic review and meta-analysis indicated that BCAA supplementation could alleviate muscle damage within the first 24 hours after exercise, and it seems that the consumption of daily doses of BCAA is more effective in the recovery of athletes compared to the periodic doses.”

These are the conclusions of ‘Reduction of Muscle Injuries and Improved Post-exercise Recovery by Branched-Chain Amino Acid Supplementation: A Systematic Review and Meta-Analysis,’ research that involved 16 studies, the goal of which was to “attain specific data on the effect of branched-chain amino acids (BCAAs) administration on muscle injuries and the indices of delayed-onset muscle soreness (DOMS) after exercise.”

The research showed that BCAA supplementation significantly reduced the levels of creatine kinase in the 24-hour period post-exercise. Creatine kinase (CK) is an enzyme that leaks out of damaged muscle, with elevated blood levels of CK correlated to muscle damage.

Researchers also noted that BCAA supplementation did not lower the levels of lactate dehydrogenase—a factor in delayed onset muscle soreness (DOMS)—in as rapid a fashion, but more incrementally over a 72-hour period.

This suggests that ASAP post-exercise fuel replenishment with Recoverite/Organic Vegan Recoverite, along with additional consumption of Hammer Whey Protein, Hammer Organic Vegan Protein, or Endurance BCAA+ later on in the day (like bedtime is an excellent time) is an outstanding way to enhance exercise recovery by protecting against muscle damage and alleviating DOMS.

BCAA content in one 2-scoop serving of [Recoverite®](#)

- LEUCINE – 970 mg
- ISOLEUCINE – 600 mg
- VALINE – 460 mg

BCAA content in one 2-scoop serving of [Organic Vegan Recoverite](#)

- LEUCINE – 517 mg
- ISOLEUCINE – 311 mg
- VALINE – 329 mg

BCAA content per gram of protein in [Hammer Whey Protein](#)

- LEUCINE – 97 mg (total in one scoop* = 1455 mg)
- ISOLEUCINE – 60 mg (total in one scoop* = 900 mg)
- VALINE – 46 mg (total in one scoop* = 690 mg)

*Each scoop contains 15 grams of protein

BCAA content per gram of protein in [Hammer Organic Vegan Protein](#)

- LEUCINE – 51.7 mg (total in one scoop* = 1034 mg)
- ISOLEUCINE – 31.1 mg (total in one scoop* = 622 mg)
- VALINE – 32.9 mg (total in one scoop* = 658 mg)

*Each scoop contains 20 grams of protein

BCAA content per 4-capsule dose of [Endurance BCAA+](#)

- LEUCINE – 800 mg
- ISOLEUCINE – 400 mg
- VALINE – 400 mg

EN

REFERENCE

Rahimlou, M., Ramezani, A., Mahdipour, M., Palimi, E., Moradipoodeh, B. (2020). ‘Reduction of Muscle Injuries and Improved Post-exercise Recovery by Branched-Chain Amino Acid Supplementation: A Systematic Review and Meta-Analysis’, *Journal of Nutrition, Fasting and Health*, 8(1), pp. 1-16. doi: 10.22038/jnfh.2019.38666.1177

“I am lactose intolerant so I switched from Whey Protein to Vegan Protein and Vegan Recoverite. Does Vegan Protein have the same level of benefits as Whey Protein?”

One of the primary differences between **whey protein isolate** and any **plant-based protein**, is the biological value (BV) difference between the two. In terms of bioavailability, whey protein has no peer. One of the other differences is that whey protein isolate is the richest source of all the essential amino acids (EAA), which including the three branched-chain amino acids—l-leucine, l-isoleucine, l-valine. EAA are not produced inside the body so they must come from outside sources, and whey protein isolate has the most volume of these nine amino acids compared to any other protein source.

This is not to say that plant-based proteins are not beneficial; they most definitely are. The organic pea protein that we use in Vegan Recoverite is arguably the best of the best when it comes to plant-based proteins. Here’s what I wrote about this particular protein: “Considered the least allergenic of all protein sources, organic pea protein is also regarded as arguably the easiest plant protein to digest. Organic pea protein contains an excellent amino acid profile—it’s a rich source of the three branched-chain amino acids (BCAAs) L-leucine, L-isoleucine, and L-valine—and is gluten-free and lactose-free.”

In both whey protein-based Recoverite and pea protein-based Vegan Recoverite, you get the same 3,000 mg of the multi-beneficial amino acid, l-glutamine, in each 2-scoop serving. The most abundant amino acid in the muscles, L-glutamine plays a significant role in the glycogen synthesis process, and helps repair and rebuild muscle tissue. It has also been shown to help raise bodily levels of glutathione, the most important antioxidant for immune system health. Glutamine also contributes to growth hormone release and digestive health.

So aside from a bit lower bioavailability and less concentrations of EAA, **Vegan Recoverite is an outstanding choice for athletes who want/need to consume non-dairy protein.** EN

Targeted Amino Acid Protein



- Delays perception of fatigue
- Protects lean muscle tissue
- Supports immunity

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240 Capsules **\$54.95**



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SOS 5 SECRETS OF SUCCESS FOR ENDURANCE FUELING

#1 Pre-Exercise Fueling

Many an athlete has paid a hefty performance price for mistakes in the area of pre-exercise fueling. No more! In 34 years, we've yet to have one athlete tell us our pre-exercise fueling recommendations didn't work. Actually, we've heard nothing but glowing reports from athletes who are blown away by how much better they feel and how much more endurance they enjoy.

For higher-quality workouts and better race results, consistently apply these time-proven "Dos" and "Don'ts" right away!

1. DO finish all calorie consumption 3 hours before exercise begins

Weeks of consistent training and immediate post-workout refueling builds and maximizes your stores of muscle glycogen, the first fuel the body uses when exercise begins. Because your glycogen supply is limited, you'll want to use it very efficiently. Eating less than 3 hours prior to the start of exercise promotes faster depletion of muscle glycogen and inhibits fat utilization, both of which will negatively affect your performance.

2. DON'T sacrifice sleep to eat

Muscle glycogen levels remain intact—not one calorie has been depleted—even after a full night's sleep, so it's unnecessary to intentionally wake up early just to eat. Instead, if eating a pre-exercise meal 3 hours prior is not logistically feasible, consume a small amount of fuel such as **Hammer Gel**® about 5 minutes prior to the start. By the time those calories are ingested, insulin is released, and blood sugar levels are elevated, you'll

be well into your workout or race, and glycogen depletion rates won't be negatively affected.

3. DON'T overeat



The goal of the pre-exercise meal is to top off your liver glycogen, which has been depleted during your sleep. Accomplishing this doesn't require the consumption of a mega-calorie meal. No more than 300-400 calories is needed. You can't add anything to muscle glycogen stores at this time (you'll just be topping off liver glycogen stores), so stuffing yourself is counterproductive, especially if you've got an early morning workout or race.



4. DO avoid simple sugars, high fat, and high fiber

Give your body the right fuel, which means complex carbohydrates and perhaps a small amount of protein. Simple sugars (sucrose, glucose, fructose) provide unwanted junk calories. Avoiding fat-laden and high-fiber food minimizes the potential for stomach distress and unscheduled bathroom breaks during your workout or race.

5. DO stay properly hydrated

Consume between 10-17 ounces of water (don't forget to include a serving of Fully Charged!) each hour prior to the start. Finish your fluid consumption about 20-30 minutes before you start to allow time for a quick bathroom break.

6. DO take your first dose of Endurolytes or Endurolytes Extreme 15-30 minutes prior

This will cover your first hour's requirements for electrolytes, allowing you to focus on getting into a nice smooth rhythm when you begin. EN

RACE DAY PROTOCOL EXAMPLE

If your event starts at 8:00 AM:



6:00 PM
NIGHT BEFORE

Enjoy a light, healthy dinner with no refined sugar, saturated fats, or alcohol.



5:00 AM
3 HRS BEFORE

Enjoy a 300 - 500 calorie light, easily digestible breakfast.



7:30 AM
30 MIN BEFORE

One serving of **Fully Charged**® in water, and any additional supplements (eg: **Anti-Fatigue Caps**)



7:50 AM
10 MIN BEFORE

One serving of Hammer Gel, 2 Endurolytes, or 1 Endurolytes Extreme with water



8:00 AM
HAMMER TIME!

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SUGAR IS AGE-ing YOU !

Sugar's role in the “Sinister Action” of Glycation and AGE-ing

by STEVE BORN

When it comes to sugar, Dr. Bayne French, Chief Medical Advisor at Hammer Nutrition, pulls no punches: “Whether in your water bottle or your bloodstream, sugar is toxic. It creates inflammatory havoc whether you’re an endurance athlete or someone afflicted with the disease obesity.”

Sugar “toxic?” We couldn’t agree more, which is we’ve been so adamant for 34+ years that all people remove sugar from their diet as much as possible and avoid sugar (anything that ends in “ose”) in the fuels they consume during exercise.

One reason for our stance on sugar that doesn’t get discussed too often—but should because it’s of the highest importance—is its role in the AGE-ing process.

And no, that’s not a typo you

see, as Dr. French explains:

“Sugar sticks (covalently bonds or cross-links) to fats and proteins and never lets go. The result is **Advanced Glycation End Products**, ironically termed AGE [aka AGEs]. These compounds accumulate systemically in numerous tissues from the brain to blood vessels. They perturb cellular signaling and function. They have been implicated in many disease processes, including small and large blood vessel diseases. If your goal is to gum up your cellular machinery and “AGE” at an accelerated rate, load up your diet and fuel with sugar.”

The glycation and cross-linking process—which Dr. French appropriately refers to as the “sinister action”—begins with what is known as the

Maillard reaction. Ever notice the browning and thickening of foods when cooking? This reaction occurs when the protein and carbohydrates are exposed to heat. Dr. French explains that a similar process happens in the body, the final result being Advanced Glycation End Products.

One nutritional scientist states, “While glycation is a normal consequence of aging, it is far from desirable,” and the reasons are numerous:

- AGEs contribute to the loss of flexibility and deterioration of connective tissue associated with aging
- AGEs trigger chronic inflammation
- AGEs play a role in abnormal platelet clumping, a significant factor for increased heart

“Whether in your water bottle or your bloodstream, sugar is toxic!”

disease risk.

- AGEs are linked to increased blood pressure.
- AGEs are purported to be involved in a damaging protein known as a beta-amyloid peptide, which is implicated in Alzheimer’s disease.
- AGEs are implicated in various conditions such as rheumatoid arthritis, ulcerative colitis, and irritable bowel syndrome.

If that weren’t enough, AGEs are also believed to be responsible for developing cataracts, a drop in kidney function, damage to the endothelial cell layer of blood vessels, and the sagging and wrinkling of the skin.

So how can you slow down and perhaps even stop AGE-related health issues? The best place to start is by getting an A1c blood test. Dr. French explains:

Traditionally, fasting blood sugar is relied on to screen for diabetes or prediabetes. However, the A1c is reserved only for those with already diagnosed diabetes and followed to determine the effectiveness of treatment. This practice has changed in the last few years, with many providers screening many non-diabetic patients with an A1c, me included.

No uniform optimal levels are universally agreed upon. Traditionally, labs will report 6.0 or less as normal. Functional Medicine practitioners consider <5.3 as optimal, 5.4-6.0 as concerning, and over 6.0 as very abnormal. Diabetes is 6.5 or higher. Elevated A1c levels are directly associated with diseases of the eyes, brain and other nerves, heart and other

cardiovascular tissues, liver (by driving NAFLD/fatty liver disease), and kidney.

Here are more proactive steps to take:

1. Be aware of your sugar intake and reduce it, mindful that many everyday food items (such as ketchup) contain hefty amounts of sugar. Dr. French takes it one step further in stating, “The only patients I’ve ever seen cure diabetes and obesity have done it by adopting a mindful, and sustainably enjoyable low carb, higher fat diet. Their A1c’s plummet.”

2. Don’t consume artificial sweeteners—Aspartame, sucralose, and saccharin increase A1c.

3. Get sufficient amounts of quality sleep. Dr. French states, “Chronic sleep deprivation results in stress hormones that drive up blood sugar. Getting at least seven restorative hours per night is critical, not just to the quality of life and accident prevention, but overall chronic disease risk reduction.”

4. Reduce stress. High levels of cortisol (aka the “stress hormone”) lead to insulin resistance. Persistently elevated blood sugar results, driving up the glycation of hemoglobin, the protein in our red blood cells that carry oxygen.

5. Increase muscle mass. As per Dr. French, “The bulk of lean body mass correlates with A1c, so do your pushups!”

6. Take these nutrients, which support healthy blood sugar levels:

- Chromium, the trace mineral found in Chromemate, is

referred to by many nutritional experts as the “master nutrient” for controlling blood sugar.

- R-alpha lipoic acid, a nutrient found in Mito Caps, plays many essential roles in the body by helping maintain optimal blood sugar levels.

- The flavonoid quercetin, found in Premium Insurance Caps, Tissue Rejuvenator, Vegan Tissue Rejuvenator, Clear Day, and Endurance C, provides a plethora of health-promoting benefits, including helping to improve insulin sensitivity.

- The B vitamins, especially biotin, folic acid, B1 (thiamin), B6 (pyridoxine), and B12—all of which are in Premium Insurance Caps—are involved in maintaining healthy blood sugar levels.

- Coenzyme Q10 (CoQ10) is one of the main components in Race Caps Supreme, and among its many health-benefiting properties is its ability to assist in maintaining and improving blood sugar levels.

Summary

There is no question that sugar plays a significant role in the formation of AGEs, which, as you now know, are linked to many negative health consequences. Following the recommendations and strategies outlined in this article will help you avoid the most undesirable and unwanted AGE-ing processes. **EN**

Special Note: Many thanks to Dr. French for providing a wealth of outstanding information referenced in the writing of this article.

LABORATORY TESTING



Be informed and be your own advocate

by Dr. BAYNE FRENCH

Most of us have a primary care provider. A select few of you may be fortunate enough to possess one with a sense of humor. And even rarer air might be one who spends a portion of their time studying health and wellness: a truly unique soul that realizes the status quo sucks. And is willing to spend their limited time studying about a different, more effective way to help people.

The marketing guru Seth Godin notes that a better way of doing things requires significant change: “They fly in the face of the status quo, and inertia is a powerful force.” Instituting any meaningful change requires discovering “better” and sharing

that journey.

The lab testing for wellness and screening purposes that has suffused our medical training and consumer (patient) lives is inadequate. It finds a liver that is already fatty, arterial intimal lining that is already atherosclerotic, a midsection that is already obese, and knees that are already arthritic.

But the message of “better” needs to be delivered to an aligned audience in order to gain “customer traction”. That traction may lead to a micro-market of people that are better informed, thus more capable of advocating for their wellness. Basically, you need to want to reduce your risk of

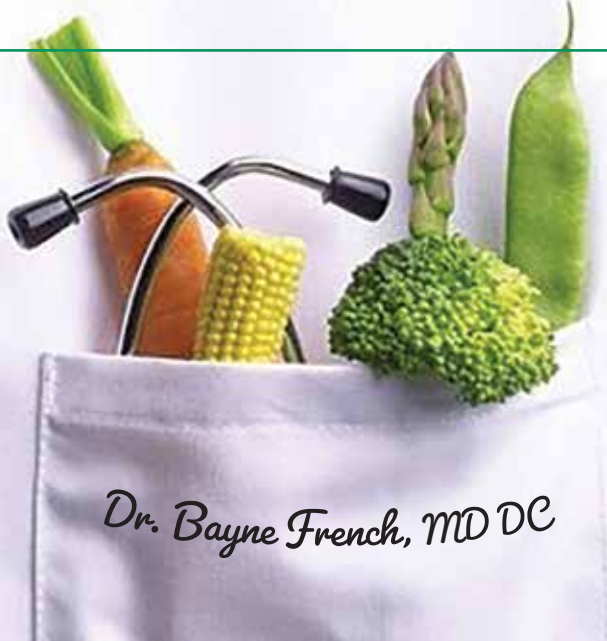
getting MAD (Myriad American Diseases) and have the temerity to seek it out. This is not radical originality; The tests have been around for ages. I’m not making the assertion that these tests will save your life and you must insist your provider order them for you stat! Nor is it an exhaustive list. It’s just an introduction to what else exists, why I order what I do, and what that can mean for you.

Uric Acid (UA)

UA is the end-product of purine metabolism, formed in a multi-step manner. An important catalyzing enzyme is XO, a most affectionate little protein. Purines are nitrogen containing organic compounds found in high concentration in meat and meat products. Lentils, mushrooms, peas, spinach, asparagus, oatmeal, cauliflower and other non-animals also are dense with purines. So is beer damnit. If you read my last Pulitzer-worthy article on NAFLD/Fatty Liver Disease you recall that fructose is a potent driver of UA formation. Sugar is 50% fructose, and high fructose corn syrup is, well, higher.



Continued on page 62



Dr. Bayne French, MD DC

THE DOCTOR IS IN

DR. BAYNE FRENCH, MD DC

Double Board Certified in Family Practice and Obesity Medicine
 Nutrition and Medical Weight Loss Specialist
 Hammer Nutrition Chief Medical Advisor
 Accomplished Spartan Athlete
 Proficient Outdoorsman and Mountain Survivalist
 Developer and founder of DeEvolution Lifestyle
 Developer and founder of LW Med



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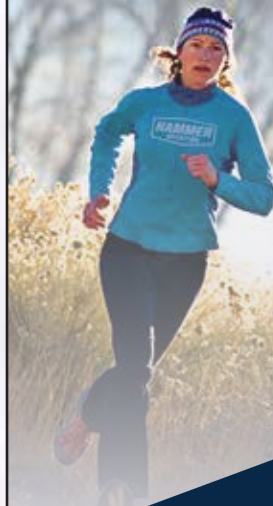


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WINNING RESULTS



The results don't lie! Wayne Taylor Racing and Hammer prove to be a winning combination. Photo: Brian Cleary

More proof of dietary GI:GO: Eat more fat, burn more fat! More amazing data from the world of IMSA Endurance Motorsports

by Brian Frank

During prolonged exercise, would you rather be burning 70% carbs and 30% fat OR 60% fat and 40% carbs? The answer is so obvious, it's almost rhetorical, especially when the high carb athlete goes catabolic and starts burning protein after a short period of time!

Our association with Wayne Taylor Racing and involvement in their driver science program continues to produce revelatory confirmation of my long held beliefs and practices in regards to dietary habits and endurance outcome. Recent laboratory testing of two driver athletes, using ground breaking new

technology, allowed us to see the difference in fuel selection during exercise based on dietary habits. It turns out that just like dietary sodium, whether you eat high carb/low fat or high fat/low carb correlates directly to what you burn during exercise, regardless of other factors!

Last year, in issue #xxx of Endurance News, I reported how we had successfully reduced an athlete's perspiration rate and sodium concentrations through dietary intervention. This represented the first time in history that cause and effect were associated with hard data

that I am aware. It's so simple too! To improve your heat stress tolerance, lower your dietary sodium intake! This will lower your perspiration rate and sodium concentrations! We have the proof!

Now comes hard evidence that dietary macro nutrient intake (carbs, fat, protein) is a primarily determining factor in what you burn during exercise (substrate utilization). Since we are largely focused, or obsessed, with endurance, this is of paramount importance to understand and practice dietary habits that will optimize your endurance abilities during

“Now comes hard evidence that dietary macro nutrient intake is a primarily determining factor in what you burn during exercise.”

prolonged exercise.

With the huge assistance of David P. Ferguson PhD FACSM CEP, Assistant Professor, Department of Kinesiology, Michigan State University, East Lansing, MI, 48824, and their new respiratory analysis technology, one can easily see the substrate utilization during a laboratory workout.

For the test, Ricky and Jordan Taylor agreed to be my guinea pigs. These two brothers are very similar in every way, physiologically speaking. They are both super lean, high metabolism race car drivers that do triathlons for cross training. However, up until this test, they ate very different diets. Ricky consumes a low sodium, high fat, moderate carb diet while Jordan consumed the typical low fat diet with plenty of starchy carbs.

As noted in the opening, Ricky’s macro nutrient burn was 60% fat and 40% carbs, with no real protein cannibalization occurring. Jordan, on the other hand, burned 70% carbs, 30% fat and showed significant protein utilization by the end of the test.

Conclusion

These test results convinced Jordan to change his diet to high fat, reduced carb intake. If you have not yet gotten off the high carb/low fat merry go round, this data should do the trick. Allowing your body to better tap into your almost limitless fat stores during exercise, massively reducing lean muscle mass cannibalization, all while sparing precious glycogen every endurance athlete’s dream! Now you know it’s not genetics or training, but what you eat that will get you there.

Look for more on this subject in upcoming issues of ENW and *Endurance News*.

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IRON

The Double-Edged Sword Mineral



by STEVE BORN

How come Premium Insurance Caps don't contain iron?

Do I need to take iron supplements?

To answer these questions, we need to delve a bit more into this oftentimes misunderstood mineral.

Iron is found in every cell in the body, as it is an important mineral for nearly all bodily functions. Most of the body's iron is in the form of hemoglobin, the protein molecule in red blood cells that carries oxygen from the lungs to the muscles and other body tissues. A smaller portion of iron is found in myoglobin, a type of hemoglobin that is found in muscle tissue and in the oxidative enzymes within the mitochondria. Both myoglobin and oxidative enzymes are major components in energy production. Iron is also very important in immune system function.

There is no doubt that iron is an extremely important nutrient, especially for endurance athletes. An iron deficiency can negatively affect oxygen transport to the muscles if below-levels of hemoglobin are detected. An iron deficiency can also impair energy production

if myoglobin and mitochondrial enzymes are sub-normal.

We all need iron—but it's crucially important to understand that “too much” is far more problematic than “not enough.” Here's why:

Excess iron generates massive free radical reactions, which damage cell membranes, DNA, mitochondria, and organs, leading to serious health consequences: liver disease, cancer, and more. For example, a growing body of evidence implicates iron in neurological disorders such as Parkinson's disease and Alzheimer disease. In addition, excess iron is linked with the process of atherosclerosis—the hardening of the arteries caused by a buildup of plaque—which then leads to cardiovascular disease (CVD). Iron “build-up” in the body is particularly problematic for men, whose iron stores start to rise in adolescence. In women, iron stores typically start to increase around the age of 45. Bottom line is that all of us, courtesy of the aging process, are at risk for excess iron stores in our bodies.

The Optimum Daily Intake (ODI) for iron is 15-25 mg for

men and 20-30 mg for women, an amount that is easily achieved with diet. In fact, it is very easy to exceed these amounts, which is why many people most likely have too much iron in their bodies. This is especially true for those who consume red meat, the source of heme iron, which is absorbed at significantly higher levels than non-heme iron, the plant form.

While those who consume a vegetarian/vegan diet may (key word “may”) be somewhat short on iron, those who consume red meat with consistency are at a much greater risk for iron overload and the associated health issues, especially CVD. Studies have shown that only heme iron was associated with an increase in cardiovascular disease. Another study found a 60% increase in the risk of a fatal heart attack in men who ate red meat six days a week compared to men who ate meat less than once a week.

Because most of us are likely to be at “excess iron” status, iron is not formulated in Premium Insurance Caps or any other Hammer Nutrition supplement.

Additionally, unless a CBC (Complete Blood Count)/



Chemistry Profile blood test reveals a deficiency, iron supplements are not recommended.

Here are some steps we can take to help ensure the iron in our bodies is at an acceptable level:

1) Exercise consistently. Of the nearly countless benefits associated with physical training, one is that iron is reduced via numerous mechanisms in as short as six weeks.

2) Donate blood. Blood loss is the most effective way of ridding the body of excess iron, and donating blood is an effective way to accomplish this.

3) Decrease red meat consumption. Limiting your intake of red meat and increasing your whole vegetable consumption is both an immediate and long-term way to maintain ideal iron "status."

4) Take supplements that contain nutrients that are both antioxidants and iron chelators. Antioxidants will help neutralize the negative effects of free radicals, thus providing protection for the entire body, and nutrients that chelate (bind) with heavy metals are able to help remove some excess iron from the body. Such nutrients include:

- All of the flavonoids found in Endurance C
- Quercetin and turmeric, found in Tissue Rejuvenator and Vegan Tissue Rejuvenator
- R-alpha lipoic acid and acetyl l-carnitine, found in Mito Caps
- Milk thistle extract and n-acetyl cysteine (NAC), found in LSA Caps

Continued on page 64

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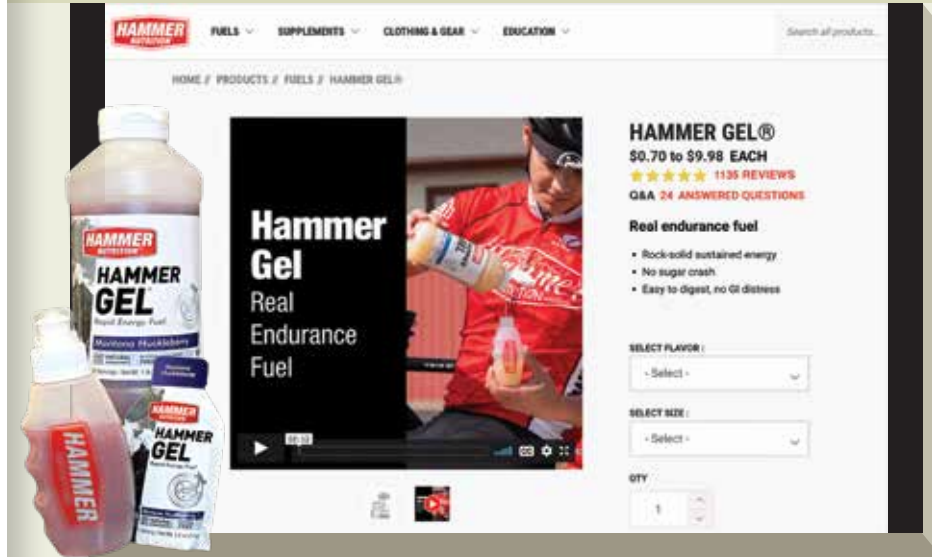
Brian Frank

As a Hammer client, you may already know all the in's and out's of our most popular fueling and instruction manuals, such as *How to Hammer* and *5 Secrets of Success*. Now we are taking your education one step further! To help answer more of your questions, we have begun creating individual how-to videos for all of our products and fueling protocols, conveniently located on every product page.

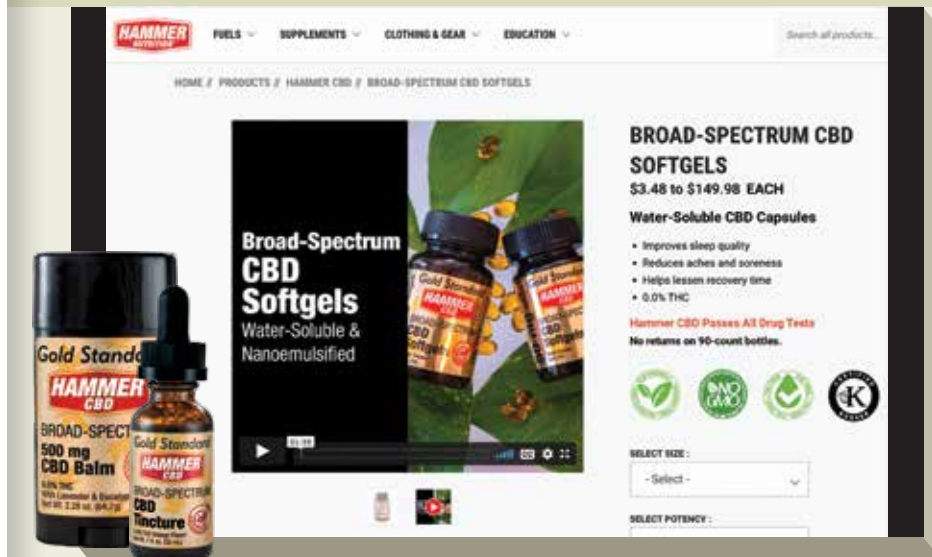
I personally walk you through the how, when, and why - so you can Proceed to Checkout confident in your fueling plan.

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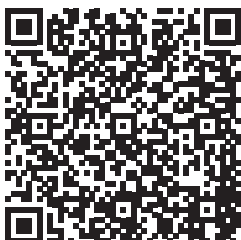
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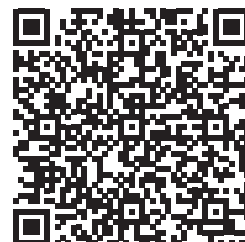
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— Cynthia R.



REM Caps and CBD: Your DREAM Team

by STEVE BORN

Can I take REM Caps every night? Can I take CBD with Rem Caps? YES and YES!

ANSWER TO QUESTION #1: Yes, we believe that it's highly beneficial to use **REM Caps** on a nightly basis. This is primarily due to the melatonin component, which has the following benefits:

Melatonin possesses neuroprotective effects

Age-related decline in the body's melatonin levels is associated with an increased potential for neurodegenerative diseases such as Alzheimer's and Parkinson's. Unlike most other antioxidants, melatonin easily crosses the blood-brain barrier to protect the brain by providing antioxidant protection against these particular conditions. For people who already have

Alzheimer's disease, melatonin has also been shown to decrease cognitive deterioration, most likely by protecting brain cells from a toxic protein known as beta-amyloid, which can increase due to insufficient sleep.

Melatonin provides protection against stroke

Research has shown that a deficiency in melatonin is correlated with an increase in both ischemic and hemorrhagic strokes. Conversely, adequate bodily levels of melatonin help reduce high cholesterol and high blood pressure, both of which are some of the risk factors for stroke.

Melatonin an extremely powerful antioxidant

One well-known nutritionist has stated that melatonin is "one of the most powerful antioxidants ever discovered with a greater range of effectiveness than vitamin C, vitamin E, or beta-carotene..." Another highly respected nutritional scientist writes, "Melatonin neutralizes one of the most damaging free radicals, and does so five times more effectively than the antioxidant enzyme glutathione..." Speaking of glutathione, melatonin increases the endogenous production of this powerful antioxidant.

continued on page 62

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ENDURANCE

NEWS REMEMBERS EN ISSUE #1

1993

ENDURANCE

Introduction

Welcome to the first issue of *Endurance News*! It is my sincere hope that you will find the information enclosed in this and future issues to be thought provoking, informative, educational and helpful in your ongoing pursuit of optimum performance and health. Our objective is to provide you a valuable resource to help you achieve these goals.

Endurance News will feature insightful articles on diet, nutrition, training and other topics of interest to serious endurance athletes - Written by myself as well as professional and elite amateur athletes, and other experts in the area of nutrition and exercise. In addition, we will include articles highlighting new and existing E-CAPS products and how to get the maximum benefits from them.

In reading this and future issues, please remember that the views expressed in this publication will always be biased in favor of eating a healthy diet, hard training that emphasizes quality over quantity, and prudent supplementation to improve health and performance. But above all, we at *Endurance News* believe there are no short cuts, and success can only come from hard work.

So, enjoy the reading and happy training!

Brian Frank,
Editor and Publisher

New systems become y

A person that most would kill for provides direct performance constructive, and guides athletes toward achieving their goal. Which is exactly what the new SUPER Coach Endurance Sports Training System will teach you to do yourself. Informative hands-on approach all phases men. It with formal training to able base committing. Through coaching SUPER achieve could of full time you can SUPER develop both as an athlete and your own coach because it teaches

Looking ahead

What's around the bend in 2022



Just as I said in our very first issue of *Endurance News* back in 1993, it is my sincere hope that you will find the information in this and future issues to be thought-provoking, educational, and helpful in your ongoing pursuit of optimum performance and health. Our objective to provide you with a valuable resource to help you achieve your goals remains unchanged.

As always, please remember that the views expressed in this publication will always be biased in favor of eating a healthy diet, hard

training that emphasizes quality over quantity, and prudent supplementation to improve health and performance.

Above all, what we said back then, still holds true today and always will: we believe there are no short cuts, and success can only come from hard work.

Thank you for joining us on this journey, now entering our 35th year here at Hammer Nutrition.

2022 is going to be an Amazing year -

Stay Tuned!

- Brian Frank



Read the original story in *Endurance News* at hammernutrition.com



“We at *Endurance News* believe there are no shortcuts and success can only come from hard work.” - Brian Frank



No More Heavy Legs



- Prolongs endurance
- Removes harmful ammonia
- Combats everyday fatigue



90 Capsules \$22.95



*“I never train without **Anti-Fatigue Caps**. Whether I’m lifting, running, or cycling, these are my go-to every time.” - Nicolette H.*

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Endurance C

The unique blend provides powerful, wide-ranging benefits.

by STEVE BORN *First published on Endurance News Weekly*

When word got out that Hammer Nutrition was going to produce a vitamin C product, we received a few calls and emails that were something to the effect of, “What for? There are already tons of vitamin C products on the market everywhere!”

And we very well could have made another typical vitamin C product, put the Hammer name on it, and called it good. But that’s not how we roll. Nope, Endurance C, like the other Hammer Nutrition supplements, was going to be unique and provide a lot more benefits than “standard issue” vitamin C supplements can.

The key is in our potent Endurance C formula which contains two forms of vitamin C:

Calcium Ascorbate

Calcium Ascorbate is known as “neutral C,” “buffered C,” or “non-acidic C,” with a pH of 7.0-7.4. (Unlike “regular” Vitamin C, ascorbic acid, which is highly acidic and may cause gastric distress). While the compound is mostly vitamin C (90%), it also contains a beneficial 92 mg of calcium (10%).

Ascorbyl Palmitate

AP is a highly bioavailable, non-acidic, fat-soluble form

of Vitamin C that can reach specific tissue areas that standard vitamin C cannot. Thus, ascorbyl palmitate can neutralize specific free radicals that water-soluble vitamin C can’t. It also protects against the oxidation of lipids, a broad group of macronutrients that are heavily involved in many essential bodily functions (e.g., hormone regulation, nerve impulse transmission, fat-soluble nutrient transport, and more).

But there’s MUCH more than just vitamin C in Endurance C. We’ve added the following nutrients/compounds, working synergistically to provide a tremendous range of benefits that you don’t get in the typical vitamin C supplement:

Citrus Bioflavonoids

While not strictly vitamins, bioflavonoids have impressive vitamin-like properties, which is why this group of compounds is known as Vitamin P. Citrus fruits contain several bioflavonoids, such as diosmin and naringin tangeretin, diosmetin, marirutin, neohesperidin, nobiletin, and others. These bioflavonoids work synergistically with vitamin C to support the immune system with antioxidant properties. Citrus bioflavonoids also enhance circulation, reduce

aches and soreness, and help support joint health.

Hesperidin 95% HPLC

HPLC is a major bioflavonoid found primarily in lemons, oranges, and tangerines. Hesperidin possesses potent antioxidant properties for supporting vital immune system function, but it can also help blood vessels function better, thus promoting optimal circulatory and cardiovascular health. Additionally, hesperidin helps reduce aches and soreness, supports insulin sensitivity, and may also help protect cognitive health.

Quercetin

Quercetin is a highly versatile bioflavonoid obtained from various sources, including citrus fruits, apples, onions, and more. Quercetin has extraordinary antioxidant properties, making it a top nutrient for immune system health. Quercetin possesses properties that strongly reduce aches and soreness, as well as helping to alleviate discomforts associated with allergies. Additionally, quercetin is believed to be highly beneficial for brain and cardiovascular health...

continued on page 58

Nothing average about this **C** !

950 mg of Vitamin C

+ plus

Calcium

Citrus Bioflavonoids

Hesperidin

Quercetin

Rose Hips



90 Capsules **\$19.95**

- Promotes superior bone health
- Provides powerful immune support
- Improves insulin sensitivity



"Hammer products stand alone as a great success beneficial to all athletes! I keep coming back for the great selection and high-speed, accurate service."
- Merville H.

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10 REASONS YOU SHOULD DRINK COFFEE

Coffee is ubiquitous. The centuries-old drink is among the most consumed beverages on earth, outpaced only by water and tea. Each day 1.6 billion cups are gulped globally, and an estimated 8 out of 10 Americans routinely indulge in a cup of joe. With numerous benefits and more research being published frequently, we wanted to recall some of the best reasons to drink coffee from previous issues of *Endurance News*:

Coffee Helps Protect Against Cognitive Decline

Recent research found that phenylindanes, compounds producing in the coffee roasting process, were responsible for cognitive protection and a decreased risk of Alzheimer's and Parkinson's disease. This study suggests dark roast coffee may have more potent effects than light roasts.

Coffee Drinkers Live Longer

A 13-year study involving over 400,000 men and women investigated how coffee consumption could reduce risk of death. The study found that men had a 10% lower risk of death while women had 13% lower risk compared to those who don't drink coffee.

Coffee Protects Your DNA

Consumption of coffee has been shown to substantially lower the levels of spontaneous DNA strand breaks in white blood cells. DNA damage can lead to accelerated aging, among other

issues. Research has found that DNA damage is reduced by up to 23% when coffee is consumed daily.

Coffee Will Not Stiffen Arteries

A study was done to debunk the common association between coffee and reduced arterial health. Researchers found that moderate to heavy coffee consumption was not associated with significant changes in arterial stiffness. Participants consumed up to 25 cups of coffee a day with no significant health issues!

Coffee Lowers Risk of Diabetes

A meta-analysis of 30 prospective studies found that participants with the highest coffee intake has a 29% lower risk of developing type 2 diabetes. Researchers suggest that some of coffee's compounds including cafestol, caffeine, caffeic acid, and chlorogenic acid have anti-diabetic effects.

Coffee Can Protect Your Vision

A study published from Turkey showed that one cup of coffee can decrease eye choroidal thickness for at least four hours. The choroid supplies blood and oxygen to the retina and decreased oxygen flow may lead to ocular diseases.

Coffee Reduces Risk of Cancer

Multiple studies have shown that coffee seems to provide protection against many common cancers including prostate, breast, colorectal, and liver cancers.

Coffee Reduces Risk of Liver Disease


A round-table report from *The Institute for Scientific Information on Coffee* shows that the liver may be the chief beneficiary of coffee's powerful benefits. Most notably, studies in Italy and the United States revealed a consistent association with coffee consumption and 25%–75% reduced risk of cirrhosis.

Coffee Enhances Brain Function

In a study mapping brain activity, coffee-drinking participants experienced enhanced concentration, improved motor control, greater alertness, and greater ability to focus compared to non-coffee drinking participants. This research has possible implications in improved learning, memory, and motor control.

Coffee Supports Good Digestion

Studies associating coffee consumption with protection against gallstone disease observed more benefits with caffeinated coffee compared to decaf coffee. Other research has found that beneficial gut bacteria thrives after drinking coffee showing how consistent, daily consumption of coffee can stimulate gut health and digestion.

Coffee contains thousands of different compounds that are continuously being researched. More and more benefits are being published every year! As the good news about coffee keeps coming in, you can rest assured that your morning ritual is indeed supporting your health and wellness. 

References available upon request



- Fair trade
- 100% organic
- Shipped *fresh* within days of roasting

Hammer life to the fullest—beginning with your morning cup of joe. If you've never tasted 53x11 Coffee, you'll be a fan after your first cup, guaranteed.

Each Fair Trade Certified, 100% organic 53x11 Coffee blend is micro-roasted daily to our exact specifications and delivered fresh to your door.

Join the **Coffee of the Month Club** for discounts!

Visit hammernutrition.com/products/coffee

53x11 COFFEE.....\$13.95

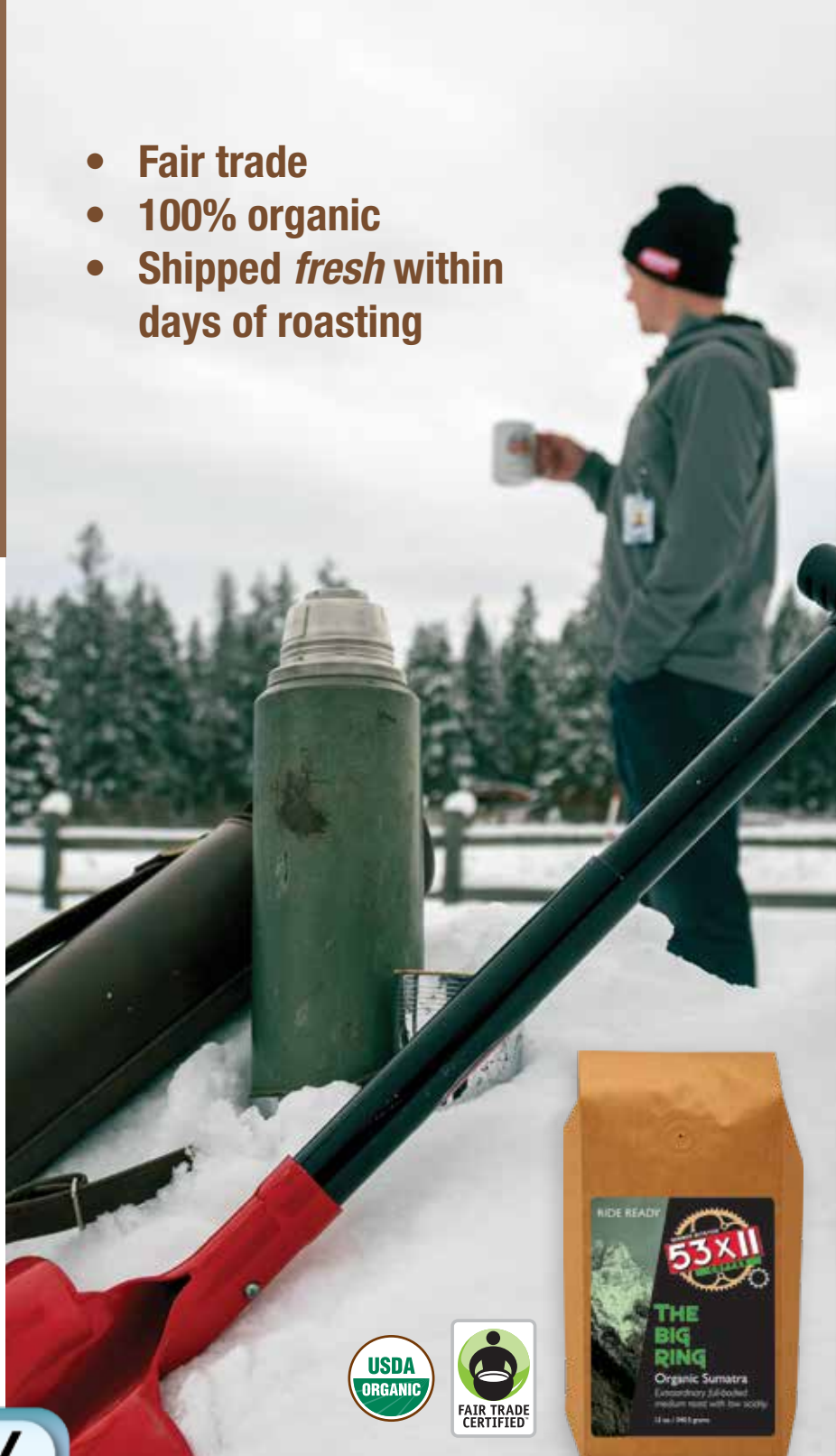
All 53x11 Coffee Blends are available in 12 oz. Ground and Whole Bean bags.

THE BIG RING.....Sumatra

THE CHAIN BREAKER.....Espresso

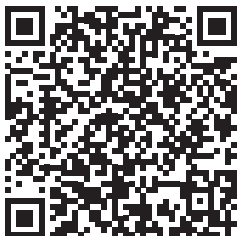
THE EARLY BREAK.... Medium Roast

THE DOWN SHIFT..... Decaf



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*flavor may vary



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FROM THE
KITCHEN OF

LAURA LABELLE



Deliciously Healthy Recipes

APPLE AVOCADO SALAD

INGREDIENTS

3 Belgian endives,
cut crosswise into ribbons
1 large crisp apple, peeled and cubed
1 avocado, peeled, pitted, and cubed
1 tsp fresh dill, minced (or dried dill)

DRESSING

Juice of one large lemon
1/4 cup extra virgin olive oil
Salt and pepper to taste
Combine ingredients and mix well.
Salt and pepper to taste

PREPARATION

Combine salad ingredients in a large bowl. Add dressing, gently toss, serve!

OPTIONAL

Garnish with fresh nuts, crumble cheese and cranberries.

RUSTIC SALMON CAKES

INGREDIENTS

8 oz. salmon
1 whole large egg
2 tsp Sriracha sauce
1/2 tsp salt (optional)
1/4 cup chopped fresh basil
2 tsp chopped fresh mint
1 cup mashed potatoes
3 egg whites, stirred
1/2 cup panko or bread crumbs

PREPARATION

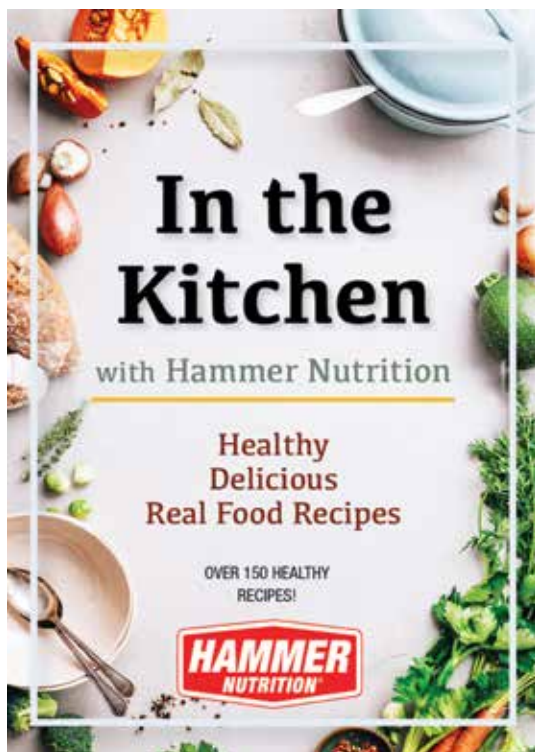
In a bowl, mix salmon, whole egg, Sriracha, salt (if using), herbs, and potatoes. Scoop into 2-oz. portions, forming about 8. Roll into balls. Coat each in egg whites and then panko or bread crumbs. Press flat and chill. Cook these on the griddle or frying pan, using a small amount of oil.

SAUCE

1/4 cup nonfat yogurt
2 Tbsp mayonnaise or Vegenaise
1 tsp lemon juice
1 tsp Sriracha sauce
1 tsp chopped fresh dill

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Introducing All New for 2022 **BODY CARE**



COOL FEET

Anti-Fungal, Anti-Bacterial Powder
with Tea tree, Eucalyptus, Peppermint, Basil,
and Clove.

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PELLE ECCELENTE

Ultra-Hydrating Skin Cream
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Lavender, Thyme, Calendula, Comfrey, Lemon
Balm, and Camomile.

4 oz. \$19.95 .33 oz. \$3.95

SEAT SAVER

Chamois and Anti-Chafing Cream
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Butter, Tea Tree, Eucalyptus, Basil, Sage,
and Clove.

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HAMMER LIPS

Soothing Lip Care
with Coconut Oil, Beeswax, Olive Oil, Aloe,
Jojoba, Vitamin E, and Natural Fruit Essential
Oil.

Tangerine or Lime \$3.95



Now better than ever!

You may have been a Hammer Body Care loyalist in the past, but for 2022, we've taken our same great formulas back to spec and made them even better!

Our balms and moisturizers are now even creamier! We have perfected a means to keep all the wonderful natural ingredients from ever “settling out” like some other brands do. Silky smooth

right out of the jar, never an emulsified puddle of oily, messy goop.

We have sourced new, reusable, practical packaging with your feedback in mind - doing away with bulky plastic tubes in favor of sleek, brushed metal tins. All are far better suited for packing and travel.

Stash a small sized spare Everywhere!

Our new lip balms leave lips smooth and hydrated, never stick or waxy, and come in natural orange and lime flavors, that actually taste *good!*

Most importantly, keep chaffing at bay with our star-performer, Hammer Seat Saver - mile after mile in the saddle, the name says it all.

FROM OUR ATHLETES



MIKE FREEMAN'S HAMMER SUPER MASTERS TEAM



With USA Cycling holding both National and District championships this year, Hammer's Super Masters team was back in action. Jack Kelso and Larry Wolff won state championship track titles, followed by Jack Hines and Durward Higgins with national championship track and road titles respectively.

"We have all continued to represent Hammer Nutrition in Northern California, California, and all the way up to a national level!"

-Mike Freeman / Team Captain and Manager, Central Oregon

Café Latte Perpetuem fuels Mike on a training ride to the top of McKenzie Pass, Central Oregon. Photo courtesy Mike Freeman



LOUIE AMELBURU

WORLD TIME TRIAL CHAMPIONSHIP
136.8 MILES IN 5 HRS/55 MIN/53 SEC
AGE GROUP 50-59

The men's 6-hour race was absolutely the race of the weekend and was won by returning champion Louie Amelburu (USA). Amelburu rode in second place until the final laps of the race. Powered by Grape **Fizz** and Strawberry **HEED**®, Louie then turned in his fastest lap, overcoming a 26-second deficit to win by only two seconds. Second place was held by John Czajkowski (USA), a rookie from Southern California. This race was one of the most exciting races ever at the WTTC - and added to his wins after the 2019 record of 145.2 miles in 2019 24.6 mph set in 2019. What a ride!

Louie gets aero for his race winning ride. Photo: Steve Morgan

2021 HIGHLIGHTS

HALLIE MARKS

1st PLACE ENDUROCROSS

LADIES AMATEUR CLASS, DENVER, CO.



“This past year I have dedicated more of my focus to racing in general and am now racing at the Women’s Pro level. I race many off road disciplines: extreme enduro, enduro cross, and cross country.

I am always equipped with my Hammer essentials on the starting line. My go-to race fuels are the **Hammer Gel**[®], **Endurolytes**[®], and **Hammer Bars**[®]. There are certain races I truly would not have been able to complete without that extra Hammer boost! Thank you, Hammer Nutrition, for making quality products that carried me to 5 wins and over 9 podium finishes throughout the season.” - Hallie Marks

Hallie navigates an obstacle with ease.
Photo: Diahann Tanke



MIKIE ALESSI

2-TIME WORLD VETERAN CHAMPIONSHIP;
PASHA 125cc 30+ PRO AND 30+ PRO CLASS

Mike Alessi – AKA “Mr. Holeshoot” – is one of the biggest names in motocross history. Known for his raw speed, he got back to his winning ways at the 2021 WORLD VET MX Championships, coming away with 2 wins. The first 3 days of the event were spent chasing the title in the PASHA 125cc 30+ PRO class and Mike won both moto’s to secure the titl. On Sunday Mike once again was able to sweep the 30+ Pro Class to add a second title to the tally. Before Mike came back to Hammer this year, his experience racing with subpar products left much to be desired; “I always found myself wanting more and more because of the sugar. Hammer products are so clean and make me feel good!”. We are happy to have a motocross legend as part of the family – Congrats!



Mike with his trusty Hammer bottle on the top step of the 30+ Pro Class.
Photo: BrownDogWilson

FROM OUR ATHLETES

2021 HIGHLIGHTS



Kol takes his spot at the start of PKRA. Photo courtesy of Kol Bailey.

KOL BAILEY

1st PLACE ROUND #1 OF COTA KART SERIES

“I have been a professional karting driver for 6 years now, and I have yet to come across a product line that helps improve the human performance more than Hammer Nutrition does. As of 2021, I have been appointed the North American representative for the leading sports agency – WH Sports. We represent a number of drivers at the top echelons of motorsport, including DTM, Indy car, WEC and International karting.

For my karting drivers here in the U.S. we utilize the Hammer product line.

To start the day, we typically use the **Fully Charged** to get the drivers going for those early morning track walks. Throughout the day, we use **BCAA+ Capsules** and **Endurolytes® Extreme** capsules along with **HEED®**, which is the best hydration supplement I have ever used.

After racing across the country in multiple series, my drivers racked up over a dozen wins through the 2021 season, and we’re planning for even more international racing next year.

Without Hammer Nutrition products and the planning from Brian and his team, my drivers would be leaving a lot on the table in terms of physical performance! - Kol Bailey

53X11 NATIONAL TEAM

CYCLOCROSS SERIES WIN

MEN'S PRO 60+

“We’re really happy to have been back racing in 2021, our guys were getting antsy! Tim Davis for taking won the 65+ NCNCA CRIT Championships, the Road race Championship as well. Another one of our guys, Andre Tenthoery took 3rd in the 55+ crit. I had a great campaign at the Green Mountain Stage Race, racing solo out in Vermont. Other than that our team raced road, gravel, time trial, and cyclocross all around the west coast – big shoutout to Matt Trethric for wrapping up a long season with a cyclocross series champions as well” – Hunter Ziesing, Team Captain.

Matt Trethric on the top step after winning the Bay Area Super Prestige Cyclocross Series. Photo: Marcia Trethric



TODD PARKS and KIRK BAUSH

WORLD TIME TRIAL CHAMPIONSHIP

6 HOUR MEN'S TANDEM RECORD AGE GROUP 50-59 TOTAL DISTANCE: 123.6 MILES

Todd Parks & Kirk Baush never backed off - keeping their pace up and taking every corner at speed. Photo: Vic Armijo

After a big year of training and subsequent cancellation of the race in 2020, Todd and his tandem partner, Kirk, came at the WTTC this past season with full focus. It paid off in the end with a NEW record in the 50-59, 6 hour tandem category. - assisted by **Race Caps Supreme**, **Anti-Fatigue Caps**, Espresso **Hammer Gel**[®], Melon **HEED**[®], and finished off with ice-cold chocolate **Recoverite**[®]. “Thank you Hammer for the help in fueling and logistics for this intense of a race. I’m super happy I’m alive and that we won!” – Todd.



Valarie Huseth

Gold : 4000 meters
Silver: 1000 meters
Bronze: 700 meters

Since Valarie was hurt for most of 2020, it wasn't until 5 weeks before the 2021 US National Outdoor Inline Speed Skating Championship that she given permission to start to train. With very little training Valarie was able to make the US Team as the top Junior distance skater in the United States. As you can see, she won medals in 3 races. She is now on the US Team that will compete in Colombia, South America in November for the World Championships.

Hammer Nutrition has always been a part of her training, race day, and recovery program. **HEED**® has been invaluable to her training and racing, **Recoverite**® is also a must for after practice. And the **Hammer Gel**® gives her that little extra to get her through tough races.

Valarie would like to thank Hammer Nutrition for the privilege to represent here in the States and internationally. We are looking forward to a great fall and a chance to compete in the Euro Cup next year Thank you Brian Frank and the Hammer Family!

– Howard Huseth



Valarie Huseth is on a roll!- speeding past the competition, representing Hammer Nutrition Colombia. Valarie usually rides 30 miles and skates 20 miles for her morning workouts. Photo: Howard Huseth





Krisztián Bezzegh

Hammer Hungary Distributor

One of the many events our Hungarian distributor, Chris Bezzegh, attended last year was the highly unique – Hammer Run Hill Race.

Chris is based in Budapest and had this to say about the event “This was a first race in famous Hungarian mountain, Ski Arena Eplény. The runners ran 2.2 km laps with an elevation rise of 220m, and racers chose either 5, 10, 15 laps. We set up a few different aid stations with **Fizz** and **Hammer Gel**® for the participants to help combat the summer heat, and it was a great event for athletes to try their skills in a new place with the addition of fun family activities throughout the day”



The Hammer team in full force before the start. The faithful Hammer Van drove Chris with his team and all the equipment necessary for the event. Photo:Krisztián Bezzegh





ENDURANCE NEWS

WEEKLY

Since 1993, *Endurance News* has been a leading source of vital information for endurance athletes. Every issue is rich with insightful articles to help you be healthier, fitter, and faster. Between issues, we offer great new articles online every week to keep your knowledge growing!

Meet the Authors

Brian Frank



Brian's uncompromising commitment to providing superlative customer service, unlimited free educational resources, and the highest quality, all-natural products specifically engineered for endurance athletes has allowed him to achieve his goal: helping serious endurance athletes reach their highest level of performance and health, safely and naturally.

Steve Born



Steve is an accomplished, record-holding ultra-cyclist who has over 30 years of independent research in nutritional fueling and supplementation. His experience gives him unmatched familiarity with the myriad of product choices available to athletes—and the knowledge of what actually works.

Dean Karnazes



Also known as the Ultramarathon Man, Dean Karnazes is a supremely accomplished runner, author, and speaker. His passion for helping athletes achieve their personal best in sport and life aligns with Hammer's fueling- and education-based philosophy. Dean's legendary accomplishments have been Hammer-fueled since 2008.

Dr. Bayne French MD DC



Dr. Bayne French M.D. D.C. is Hammer Nutrition's medical advisor. Along with an MD from the University of Washington, Dr. French brings over 20 years of health experience, with a focus on wellness, to the Hammer team. Dr. French currently works at Glacier Medical Associates and is double board certified in Family Medicine and Obesity Medicine.

Stay Healthy. Stay Informed.



ENW: READ MORE...

Traditional “Blogs” are yesterday’s news.

Discover a wealth of free information and education, specially authored and curated with your peak endurance performance in mind.

Every week we bring you news you can use, including groundbreaking nutritional research from around the world, further professional insight regarding the many uses of our various products, and success stories from our athletes.

Stay ahead of the game!

When you subscribe to ENW, you will also enjoy advanced access to each issue of *Endurance News*.

Hop online today to take advantage of this invaluable resource.

hammernutrition.com

Keep Hammering!



“REFERENCES AVAILABLE UPON REQUEST”

You'll find this following many of our

EN KNOWLEDGE RESEARCH

articles here in *Endurance News*.

We invite you to follow the science further for more in-depth analysis of the many topics and studies we highlight each week on *Endurance News Weekly*.

You can browse our entire ENW library of articles on the Hammer website, where you will find full resources provided.

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ENDURANCE NEWS WEEKLY



Become a Hammer email subscriber today to begin receiving all the latest information, fueling knowledge, and cutting edge endurance research from our experts. Read more from our extensive online education library at: hammernutrition.com



UPCOMING EVENTS



24 HOURS OF RIVERSIDE

May 28th-29th 2022

Riverside State park, Spokane, WA

24hoursofriverside.com

Hammer Nutrition is thrilled to sponsor the 24 Hours of Riverside!

This classic round-and-round is a fast, open course over 70% doubletrack and 30% singletrack. The majority of contestants will compete as 5-10 person relay teams, alternating riders at the beginning of each lap. With Hammer Nutrition as the presenting sponsor for 2022, this will be a Marquee Event! You will be able to spot us at both the beginning and end of the course, and we will be hosting fueling seminars on both Thursday and Friday prior to the event. See you there!



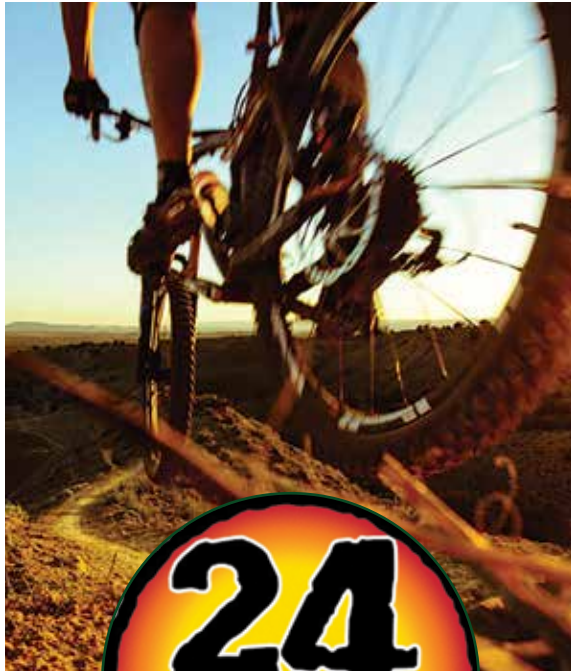
Spetember 10th 2022

Logan, UT

lotoja.com



Started in 1983, Logan to Jackson is one of the country's premier events for cyclists everywhere. At over 200+ miles, it is the longest one-day USCA-sanctioned bike race in the country. Cyclists must cover three mountain passes across Utah, Idaho, and Wyoming, finishing below the iconic Teton Mountains at Jackson Hole Mountain Resort.



Feb. 18th-20th 2022
Sonoran Desert, Tuscon, AZ
epicrides.com

16 miles
distance

755 ft
climb

746 ft
descent

Celebrating 19 years of riding single track in the Sonoran Desert, the 24 Hours in the Old Pueblo is one of the largest 24 Hour events in the world.

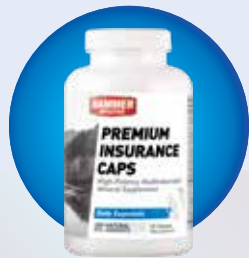
Be ready to get down and dirty on this fun and fast course that covers 16 miles loops with 1,434 feet of climbing.

Hammer Nutrition is proud to partner with Epic Rides for this truly one of a kind event! You can find Hammer in the expo area with plenty of fuel and hydration to go the distance lap after lap!

2022

AT A GLANCE

- TOUR OF THE GILA**
1/7/22
VIRTUAL
tourofthegila.com
- CACTUS CUP**
3/11/22
PHEONIX, AZ
cactuscup.com
- MOHICAN 100**
5/21/22
LOUDONVILLE, OH
bikereg.org
- SKULL 120**
6/18/22
BURNS, OR
adventureharney.com
- PIERRE'S HOLE 100K MTB**
8/6/22
ALTA, WY
grandtarghee.com
- DAKOTA FIVE-0**
9/4/22
SPEARFISH, SD
dakotfiveo.com



PREMIUM INSURANCE CAPS

by STEVE BORN

Continued from page 6

“Inadequate dietary intakes of vitamins and minerals are widespread, most likely due to excessive consumption of energy-rich, micronutrient-poor, refined food. Inadequate intakes may result in chronic metabolic disruption, including mitochondrial decay. Deficiencies in many micronutrients cause DNA damage, such as chromosome breaks, in cultured human cells or in vivo. Some of these deficiencies also cause mitochondrial decay with oxidant leakage and cellular aging and are associated with late onset diseases such as cancer.”

So, when you hear someone tell you that you can get all the nutrients you need from a healthy diet, keep in mind the sobering words of Drs. Misner and Ames.

As far as the second excuse for not taking a multivitamin/mineral supplement—“they’re boring and won’t don’t make me faster” (or something like that)—think about it a bit more: If you’re not covering your nutrient needs—and it’s pretty clear that basically no one is, especially athletes—you increase the potential for

a number of negative athletic performance and health issues to occur. At the very least, this means you won’t get the full value from all of the hard work you put into your training because your body doesn’t have the nutrient support it needs to fully recover. It could also very well result in a compromised immune system, which is definitely something to avoid because that could translate into missed training days due to illness.

The third excuse is just flat-out wrong. When you take a multivitamin/mineral supplement, your urine will turn a bright yellow. This is NOT your body “peeing out all the vitamins.” That bright yellow color is due to the riboflavin (vitamin B2) component in a multivitamin/mineral supplement. Among its many functions, riboflavin helps co-enzymes break down carbohydrates, fats and proteins. As the flavins in riboflavin are utilized in the body to metabolize carbs, fats and protein they pass along flavin rings which have a neon yellow color, which simply means that the flavins in riboflavin are doing their job in metabolizing carbohydrates, protein, and fat.

EN Read the complete article with references and more on *Endurance News Weekly*.



ENDURANCE C

by STEVE BORN

Continued from page 40

while also normalizing blood pressure and blood sugar—lastly, quercetin and vitamin C work in tandem in optimizing each other’s absorption.

Rose Hips (*Rosa canina*):

A natural source of Vitamin C, rose hips are a rich source of antioxidant carotenoids and polyphenols. One of these is tiliroside, which has antioxidant properties assisting non-stimulant fat loss.

Now that’s a vitamin C product, a Hammer Nutrition vitamin C product! And the price is incredibly reasonable—and absolute bargain, actually—for such an all-encompassing vitamin C supplement: \$19.95 for a 90-capsule/30-day supply. So that’s 67 cents a day, a minuscule amount for the multiple benefits that Endurance C provides!

EN Read the complete article with references and more on *Endurance News Weekly*.





OMEGA 6 : Processed seed oils

by STEVE BORN

Continued from page 40

including obesity, diabetes, heart disease, cancer, and more.

The primary culprit for the excess? Health-destroying amounts of omega-6 fatty acids. The increased use and consumption of industrially processed seed oils referred to as vegetable oils. An expert on the subject, Dr. Chris Knobbe, states that these industrially processed seed oils “drive the oxidation. They’re pro-oxidative, proinflammatory, and toxic, but of all of these, it is oxidation. That is by far the worst.”

Cardiovascular research scientist, Dr. James DiNicolantonio, agrees and refers to these omega-6 seed oils as “drivers of coronary heart disease.” He summarizes:

Omega-6 polyunsaturated fat linoleic acid consumption has dramatically increased in the western world, primarily vegetable oils. Numerous lines of evidence show that the omega-6 polyunsaturated fat linoleic acid promotes oxidative stress, oxidized LDL [the “bad” cholesterol], chronic low-grade inflammation, and atherosclerosis. Omega-6 is likely a primary dietary culprit for causing CHD (Coronary Heart Disease), especially when consumed as industrial seed oils, commonly referred to as vegetable oils.

To reestablish the proper balance of omega-6 to omega-3, we need to reduce or eliminate the consumption of the following oils: Canola oil, Corn oil, Cottonseed oil, Grapeseed oil, Peanut oil, Rice bran oil, Safflower oil, Soy oil, Sunflower oil.

It’s important to remember that most (if not all) of these highly processed seed oils are found not only in oil form but in processed/fast foods as well, so we also need to strive to eliminate such foods from our diet. As Dr. Catherine Shanahan states, “More than any other ingredient, vegetable oil is what puts the ‘junk’ in junk food.”

EN Read the complete article with references and more on *Endurance News Weekly*.

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TOO MUCH SALT is Bad for the Brain



by STEVE BORN *First published in Endurance News Issue 118*

Increased risk for high blood pressure, stroke, heart failure, kidney disease, and osteoporosis. These are some of the better-known health consequences of a diet containing too much salt (sodium chloride). One health issue that you may not have heard about: too much salt may lead to cognitive impairment.

It's been long thought that salt's negative impact on brain health was due to high blood pressure. While that's true, recent research shows that excess salt intake can cause problems even for people with normal blood pressure.

Drs. Giuseppe Faraco and Costantino Iadecola, researchers at Weill Cornell Medicine in New York, investigated as to why salt itself appeared to have deleterious effects on the brain. They fed one group of mice a normal amount of salt, while

the other group received an amount of salt ranging between eight to 16 times that of the first group. After two months, the mice receiving the high salt amounts became unable to perform a number of functions like recognizing new objects, finishing their nests, and more. The high-salt diet mice also took longer to navigate their way out of a maze.

The researchers determined that the high-salt diet was causing cells in the small intestine to release the pro-inflammation molecule interleukin-17 (IL-17). Once in the bloodstream, IL-17 prevented the production of nitric oxide, thus restricting blood flow. At first, the researchers believed that the poor brain performance resulted from the restriction of blood flow to the brain. But while that was indeed occurring, it wasn't

severe enough to prevent proper brain function.

What they discovered was that decreased levels of nitric oxide in the brain—in addition to restricting blood flow—increased the activity of a brain cell enzyme known as cyclin-dependent kinase 5, or CDK5. This enzyme promotes the build-up of tau proteins, excess amounts of which are linked to Alzheimer's disease. The researchers believe that healthy levels of nitric oxide not only promote optimal blood flow, they also help protect against tau buildup and instability. According to Dr. Iadecola, nitric oxide “puts the brakes on activity caused by a series of enzymes that leads to tau disease pathology.”

At the end of the studies, Dr. Faraco concluded, “Our study proposes a new mechanism by which salt mediates cognitive impairment and also provides further evidence of a link between dietary habits and cognitive function.” Dr. Iadecola, summarized: “Although research on salt intake and cognition in humans is needed, the current mouse study is a reminder for people to regulate salt consumption. We've got to keep salt in check. It can alter the blood vessels of the brain and do so in vicious way.”

EN *References available upon request*

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LAB TESTING

by DR. BAYNE FRENCH

Continued from page 26

When UA crystalizes in joints, the disease gout results. Why some experience gout with relatively low UA levels, and others never get gout at a very high UA level is not at all understood. Like most things in my profession of choice.

The actions of XO generate reactive oxygen species (free radicals) as byproducts. This is the fundamental reason UA is thought to harm the vascular system, but there are other mechanisms as well. The consequences are varied but appear to be elevated blood pressure, hypertrophy of muscle within the arterial wall, arterial stiffening, and elevated C-reactive protein (CRP, discussed later). But the lack of a clear causal mechanism between UA and cardiovascular disease (CVD) has led to this correlation being largely “ignored”, according to Muiesan et al. European Cardiology article in 2016. The familiar question being is this just an observed association or is there causality.

I was shocked to learn that a UA-CVD connection was first made in 1879! In 1889 a physician proposed a lower purine diet to prevent hypertension CVD. Oh to be a fly on that chamber wall...”You want us to stop eating gravy and beer?! Have

you gone mad? To the rack with you!”

Many studies performed since the 1960’s show an association between UA levels and vascular disease at a level of 5-5.5. These are levels below recommendations from European and American rheumatology groups, which is <6. In addition, many studies in the last 50 years have supported UA as an independent risk factor for CVD. This is a statistical designation, one of strength, but still does not necessarily mean causality. There is much as yet that remains unknown. What is apparent however is that elevated UA is strongly associated with CVD irrespective of the presence of gout.

So what can be done about it? There are medications that reduce UA levels. No compelling evidence exists however that their use reduces the development of CVD. Functional Medicine trained physicians and Naturopathic physicians can likely competently advise realistic dietary recommendations to lower UA levels. I see the biggest reductions in patients that adopt a diet well balanced in quality plant and animal food. Many individuals can continue to enjoy higher purine animal product, even organ meats, without gout and with a UA level below 5 by reducing or eliminating beer and carb, especially sugar.

EN Read the complete article with references and more on *Endurance News Weekly*.



REM Caps + CBD

by STEVE BORN

Continued from page 36

Melatonin possesses potential anti-aging benefits

Ongoing research is finding that melatonin may help extend lifespan by increasing the levels and activity of SIRT1, often referred to as the “longevity protein.”

Melatonin helps protect against osteoporosis

In mice studies, melatonin—through a complex set of processes—was shown to regulate and balance bone formation and bone loss by increasing alkaline phosphatase (ALP) expression and reducing tartrate-resistant acid phosphatase 5b (TRAP5b) expression TRAP5b

Melatonin helps reduce the frequency and severity of migraines

In one study participants were given 3 mg of melatonin 30 minutes prior to bed for three months. At the end of the study, researchers noted that more than two-thirds of the participants and at least a 50% reduction in their monthly number of migraines. In addition, the study participants experienced a decrease in the intensity and duration of their migraines. The researchers attributed this to melatonin’s antioxidant properties as well as its ability to reduce aches associated with migraines.

ANSWER TO QUESTION #2: Yes, both products may be taken together. First, remember that Hammer CBD is a daily use product, while REM Caps can be used either on a daily basis or as an occasional-use supplement. These two products are compatible because they act on different bodily functions.

The main component in REM Caps is melatonin, which is a hormone that is naturally produced and secreted by the pineal gland, and vitally needed for a number of bodily functions, especially sleep. A number of factors, especially aging, decreases the body's production of this all-important hormone, which is why supplementation with melatonin-based REM Caps is highly beneficial.

Hammer CBD products contain Phytocannabinoid-Rich Hemp Oil, which beneficially works with and influences the body's endocannabinoid system, a series of nerves and receptors. Among numerous other things, the endocannabinoid system helps regulate sleeping patterns. The phytocannabinoids in Hammer CBD augments the body's natural production of cannabinoids, helping to ensure sufficient amounts are available to positively influence sleep.

SUMMARY

If you experience any issues with sleep, even if it's only occasionally, a REM Caps + Hammer CBD is a "must have" combination. Even if you don't have sleep-related problems, we believe that REM Caps is a supplement that can and should be used nightly

EN Referencenes available upon request

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IRON

by STEVE BORN

Continued from page 30

SUMMARY

Like many things in life, balance is key, and “if a little is good, more is not necessarily better.” This most definitely applies to iron, the “double-edged sword” mineral, as small amounts are necessary for optimal health and athletic performance, while excess amounts present a serious and potentially fatal threat to health. Premium Insurance Caps is the ideal way to obtain the vitamins and minerals you need, but without the unnecessary iron, and taking proactive steps to minimize iron intake and rid the body of excess iron is an extremely wise strategy to employ.

EN Referencenes available upon request



CALORIES PER HOUR

by BRIAN FRANK

Continued from page 11

Ok, the idea here is to consider 240 calories per hour as the maximum and seek to reduce from there to a minimum level of intake that does not reduce power output. Today, we have watt meters, and heart rate monitors to facilitate this process. By using one of these tools, or just good old perceived effort/pace, you should be able to pair this number down to somewhere around 120-200 calories per hour, depending on your body size.

For example, I weigh 160 pounds, and my OHCI is between 130-150 calories. I can comfortably increase that to 180-200 calories per hour, but there is no gain in pace! So, why would I consume those extra 50-80calories per hour? It won't



get me across the finish line any quicker!

In closing, I will say that experimenting to determine your own Optimum Hourly Caloric Intake (OHCI) and then using that for all of your endurance training should be your primary goal for 2022! Once you have this number locked in, it makes your life a lot easier and eliminates one of the biggest variables and issues central to maximizing your endurance success. EN

CBD Testing Update: 300 days / 400 mg and Still NEGATIVE

We first reported in *Endurance News* Issue 126 our exciting finding that you will Never fail a drug test when using Hammer Broad-Spectrum CBD.

Our original report followed 3 participants over 120 days of using Hammer CBD and subsequent testing. Of the original participants, Subject C has continued to increase his dosage by the same increment of 50mg every 30 days.

Going on nearly a year now, Subject C is currently taking **400 mg** of Hammer Broad Spectrum CBD daily, on the same testing schedule.

We are pleased to report that even at these high doses, over these many months, Hammer CBD continues to produce a negative drug test!

EN

TESTING CRITERIA RECAP

All subjects are tested with a 5-panel urine analysis for detecting Methamphetamines and Amphetamines, THC (Tetrahydrocannabinol), Cocaine, Opiates and PCP (Phencyclidine).

The results have concluded that the usage of Hammer CBD (0.0% THC) and derivatives (CBG, CBN, CBC, CBD-A, CBDV) will not cause a false positive for THC. If there is any THC found in urine samples, it would be safe to say that the failed subject has consumed marijuana (tetrahydrocannabinol). THC usually stores within lipid cells up to a month after THC consumption, depending on the consumer's BMI. Test subjects in Hammer Nutrition's CBD system loading (30-, 60-, and 90-day), ranges from 27.4 BMI to 42.0 BMI, proving that our product will not cause a failure in testing. **Read more on our study on Endurance News Weekly.**

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WORLD CHAMP

Returning multiple time record holder, Dusty Dustyn, came back to Borrego springs to race not one but two events - and came away with two wins!

Dusty powered her double race day with **Fully Charged** 1/2 hour before start, and at 6 hours; **Sustained Energy** and Espresso gel for all my ultra races, along with hourly caps: **Endurolytes® Extreme**, **Anti Fatigue**, and **BCAA**. "I've been competing for nearly 60 years and I feel great~ Why not make the most from my fitness. For WTTC I used the combination of Endurolytes and **Anti-Fatigue Caps** and **Hammer Gel®** (as I do on ALL my rides), and plenty of Sustained Energy for both races. My Hammer combo keeps me amazingly clearheaded even in a 12-hour race!" - Dusty, reigning 6 hour & 12 hour 70+ age group Champion.

Photo: Vic Armijo



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CBD Tinctures

Hydro 250 mg	\$0.10 per mg
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Classic 750 mg	\$0.08 per mg
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