

ENDURANCE

NEWS

BY HAMMER NUTRITION

#115 June/July 2019

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IN THIS ISSUE...

Sodium Aims for the Heart

Excess salt linked to cardiovascular death

Trail Running Starts Hot

Volcanoes and Speedcups: Spitfire 50K

Myth of the Sugar High

Research reveals placebo effect

PLUS...

■ **Spotlight: Perpetuem Solids**

■ **Tips to Beat the Heat**



Setting Sail

Hammer Nutrition employee Ginjer Yachechak flies the Hammer banner on the stern of *Double Take*. Ginjer and the rest of the crew competed in the Banderas Bay Regatta off the coast of Puerto Vallarta, Mexico powered with Endurolytres Extreme, Fully Charged, Fizz, Xobaline, and lots of Tissue Rejuvenator.

Photo: John Pounder





Welcome to the 115th issue of Endurance News!

I'd like to begin by welcoming all our new readers! Whether you are reading your first issue of Endurance News or your 115th issue, we've put together a great edition for you that I know you will enjoy and find some good take-away information within. This issue is just in time for the hot and busy summer training, racing, and adventure season, and Hammer Nutrition

is here with the right products and the right knowledge to help you achieve your goals. Let's make it happen!

As we are prone to doing, we've filled this issue full of encouraging stories from our customers, sponsored athletes, and ambassadors. There's also a healthy dose (pun intended) of articles that tell the truth about sugar and salt. We've also included some yummy recipes that are easy to make, delicious, and that contain little or no sugar or added salt.

When the weather turns warm like this, it's time to start incorporating one or more versions of our Endurolytes products into your daily exercise routine. I prefer the original Endurolytes Capsules that allow you to dose sodium in 100mg increments. Whether you use the original Endurolytes, the Extreme version, or prefer to sip your electrolytes from a bottle or glass using FIZZ, this is the time of year to have them on hand and use them as much as needed.

For when it gets really hot, we have brought back the hugely popular Liquid Endurance. I realize that I am always saying, "You can't load water, we're not camels," but that's not always true. When I make those statements, I am talking about the practice of massively over-hydrating in the days before an event. However, by creating a precise 26:1 ratio of water to Liquid Endurance and consuming it mixed in the NORMAL amount of water you consume, you will be able to "store" an additional two to three pounds of water weight (1/3 to 1/2 gallon) in your body. It works, it's totally safe, and it finally offers an opportunity to the athlete who wants to "load" water for an upcoming high-heat/humidity event.

continued on page 47

On the cover: Riding for the Hammer Nutrition 53X11 Team, Matt Slater climbs a hill ahead of the pack during the Thunderhill Curcuit at the Chico Stage Race in Chico, California. Matt stayed on top of his calories and hydration with Hammer Gels, HEED, and Hammer Bars. Photo: Greg Beliera

ENDURANCE NEWS

The informed athlete's advantage since 1993

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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 & individually. Your trust is our top priority.

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

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OUR CORE VALUES

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

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In this issue, learn how high-sodium diets are wreaking havoc on the health of millions of people worldwide.

Photo: Luke Mortensen

Read more on pages
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Fueling for long distances requires more than just carbohydrates; fuel your long workouts with the 8:1 carb to protein blend in Perpetuem Solids.

50



Leaping over taxis is the easiest obstacle you'll encounter climbing Stratton Mountain at the North American OCR Championships.

Letters from Hammer Nutrition Athletes & Clients

An Inspiration

BY MOLLY HAYES,
HAMMER SPONSORED
ATHLETE SINCE ~2004

Hi HAMMER—

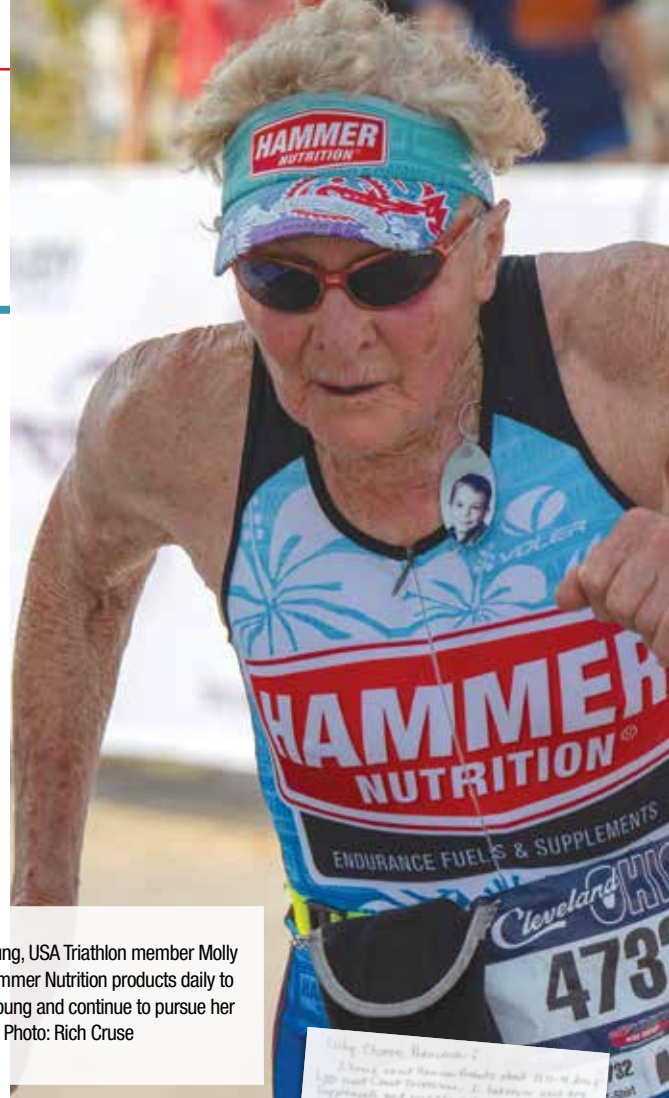
Personal Achievements

I have always been proud of my 58½ years. I worked as a registered nurse, ten of those years in: Saudi Arabia for seven years, Bell Helicopter for two point four years. IRAN. Istanbul, Turkey—the American Hospital of Istanbul (a taxi tried to run me over on a run there).

I have two slight “running/biking arrest” stories. Tabuk, Saudi Arabia: I was caught riding a bike eight miles into a 50K with long clothes and head covered. The American Hospital Administrator and the Sheik of Tabuk both scolded me good—fined me \$300. My next four contracts in Saudi Arabia I got to stand up and tell nurses new to the hospital what happens if you ride a bike there.

“I had never used any supplements and read about Hammer Nutrition and it seemed so right to try, to see if it improved my condition after races and training.”

At 86 years young, USA Triathlon member Molly Hayes uses Hammer Nutrition products daily to help her stay young and continue to pursue her active lifestyle. Photo: Rich Cruse



this 9th/last Persian Marathon. My time was 4:18 (it was tough). Ahh! Discovered triathlons & husband Tom—32 years now, after last Saudi contract. 333 finished triathlons, 12 pulled out swim, one heat stroke. I entered five USAT Sprint Triathlons for 2019.

The next three contracts, Saudi Arabia let me organize hikes—go in/out of the compound through guards. I was 50 years old (1983) and the compound gave me a 5K run with 17 nationalities participating. I also went out from a two-year contract, October 1983, Al Bahah, at a 9,000-foot elevation and ran the Athens, Greece Marathon. The American company that ran the hospital (250 beds for Bedouins) had me wear a shirt from “American Medical International” and I took 1st place in the 42K, or 26.2 mile, marathon in the 50–59 years old category.

I loved my years as a nursing professional in the Middle East. Bell Helicopter International sponsored me to run the 9th and last “Persian Marathon”—we started in Aryamehr Stadium in Tehran—44K—no porta-potties or aid stations. I was the only American woman to finish



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letters@hammernutrition.com

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We welcome you to head over to our Facebook page and write a review! We check our page daily and enjoy hearing how Hammer Nutrition has helped you. Hammer on! [facebook.com/hammernutrition](https://www.facebook.com/hammernutrition)

Why Choose Hammer?

I heard about Hammer products around 1993-94 doing LOTS of West Coast Triathlons. I had never used any supplements and read about Hammer Nutrition and it seemed so right to try, to see if it improved my condition after races and training.

Then, as I did TEAM USA 2002 Cancun, New Zealand (2003), and Honolulu—I heard more about Hammer. I saw that amazing, nice guy Steve Born at the Hammer booth at ChelanMan, 2004-5, did ChelanMan x3.

My current daily intake of Hammer products is:

- In the AM, I run 2.8 miles and I use 2 Premium Insurance Caps, 2 Super Antioxidants, 1 Mito Cap, 1 Essential Mg, 1 Endurolytes Cap, 1 Race Caps Supreme, 1 Anti-Fatigue Cap, 1 AO Booster—all with my 8 oz. Perpetuum with Fully Charged mixed with milk.
- Then with meals, Tissue Rejuvenator (5/day), Phytomax (2/day), and Boron (2/day). Steve told me that Boron helps all vitamins/supplements work. REM for ol' Tom.
- I love Fizz—keep it in the water bottle at night for restless legs.
- I put our supplements up in lil' sacks once a week.
- Tom gets Phytolean and the BCAA+ (I take also).

So, we are 86 and 82 (Tom) and we use and profit from Hammer Nutrition.

Favorite races: Local—always do March—Run to the Pub 10K, the August Sweet Pea Run 10K, the Huffing for Stuffing 10K, and the Bozeman June Triathlon. And I would not miss my six Bridger Bowl Giant Slalom ski races—love sharing Hammer products.

Molly Hayes, Hammer Sponsored Athlete since ~2004

Molly Hayes

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Dean Karnaze running the Endurance Challenge Series race.

Photo: Ultra Race Photos

#howihammer

HAMMER HAPPENINGS ON FACEBOOK, INSTAGRAM, & TWITTER. USE THE HASHTAG TO SHARE YOUR PHOTOS!



@smerica83

After Hammer Ambassador Erica Gass qualified for the 2019 Boston Marathon, she raised over \$12,000 for AKTIV Against Cancer, an organization working to promote physical activity as a part of cancer treatments.

Photo: Erica Gass



@ryantaylor20

Ryan Taylor relies on Hammer for daily training, so come race day, he's ready to go!

Photo: High Groove Photos - Christopher Hockley



@christinegz

After suffering from an injured wrist, Christine turned to Tissue Rejuvenator for a speedy recovery!

Photo: Christine Giampaoli Zonca



@hellb0y73

Clint Burfitt snuck in a few after-work miles before the sun set in Victoria, Australia. Photo: Clint Burfitt



@maumendezmx

As an elite triathlete, Mau Mendez understands the importance of loving your nutrition. Photo: Mau Mendez



@sweetthecyclist

Hammer Nutrition's new packing peanuts are 100% bio-degradable and water dissolvable! Throw a few into a glass of water and watch the magic happen! Use the hashtag #hammergonegreen to show us how you train sustainably. Photo: David Sweet

RACE RECIPE

MEGHAN WALLACE

OZARK FOOTHILLS 25K
WILDWOOD, MO



"My first race as a Hammer athlete! It was a short race for me as I was racing back to back. Ozark Foothills 25k Saturday and GO! Marathon Relay Sunday. Ended up snatching 3rd overall female in the 25k! Hammer Nutrition was a sponsor and I loved having the gel-filling stations along the course."

- Meghan Wallace

See Meghan in action on page 58

FUELING FACTS

Pre-Race

Oatmeal with Hammer Fizz

During

Hammer Gel

HEED

Endurolytes Extreme

Post-Race

Chocolate Recoverite

Results

3rd Overall Female

2:48

Photo: Jacob Wallace

Matt Sommer's Fueling for Success

BY ALEX CORBELL

When Matt Sommer first entered the world of endurance sports, he was an athletic man in his early twenties. Nearly two decades later, and as a highly certified and accomplished trainer, Matt's fueling and nutritional knowledge goes unmatched.

After running his first 5K at 21 years old, Matt found himself running the Rock 'n' Roll Virginia Beach Half Marathon sporting a white cotton tee and baggy athletic shorts. After he finished in two hours and eleven minutes, he knew he had unrealized potential. With an ever-growing background in athletic training, Matt knew how to train, but didn't fully understand the importance of fueling during endurance events.

"I don't have to think about my fueling, allowing me to focus all on racing."

Matt Somer sports the new black Hammer kit during the Boston Athletic Association 5K. With almost 10,000 runners participating each year, Matt likes to use the 5K as a shake-out run before the Boston Marathon.

Photo: Colleen LaFrance

Matt began training an athlete who was an acquaintance of Hammer Nutrition founder Brian Frank. After trying his first Hammer Gel, Matt was hooked. Applying the knowledge he learned from Brian and Hammer Nutrition fueling expert Steve Born, Matt ran the Baltimore Running Festival Half Marathon in one hour and 36 minutes, improving his time by 35 minutes!

Matt now trains to excel in all distances, including duathlons, triathlons, marathons, and even double marathons. Having relied on the same foundational fueling plan for over ten years, Matt is confident that come race day, fueling is the last thing he needs to worry about.

When training others, Matt continues to apply the fueling techniques he has developed. He guides his trainees to the edge of bonking to help them further understand how their body reacts in certain circumstances and how to prevent future issues. When asked why he has been able to rely on Hammer Nutrition year after year, Matt stated, "Because it

works! It's a plan that I have down. I learned what works and what doesn't through trial and error."

He added, "I don't have to think about my fueling, allowing me to focus all on racing." He encourages all of his athletes to train how they race, which includes their fueling plans and day-to-day nutrition. 

FAST FACTS MATT SOMER

Age: 42

Location: Burlington, NC

Number of
Completed Races: 107

Favorite Race: American Triple-T



Real Endurance Fuel

Quality, concentrated energy
in a single-serving size

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- No sugar crash
- Easy to digest



Scott Gaiser fueling with Hammer Gel while on a run in Colombia Mountain, MT. Photo: Alex Corbelli

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- Online Reviewer

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**Contain caffeine

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The Connection Between Sodium and Cardiovascular Death

BY STEVE BORN

The research [1] is about four-and-a-half years old, but the results are still staggeringly eye-opening and should make every one of us take whatever steps we can to lower our sodium intake: According to research published in the *New England Journal of Medicine*, an estimated 1.65 million cardiovascular deaths occur each year due to daily sodium consumption above the World Health Organization's (WHO) recommendation of 2.0 grams (2,000 milligrams).

The exhaustive research involved collecting and analyzing data from 205 surveys of sodium intake in countries representing nearly three-quarters of the world's adult population. Along with other global nutrition data, the researchers used these surveys to calculate worldwide sodium intakes by country, age, and sex. Other data was used along with current rates of global cardiovascular disease to estimate the numbers of cardiovascular deaths attributable to sodium consumption above 2.0 grams per day.

The results showed that all regions of the world were above recommended levels with averages ranging from 2.18 grams per day in sub-Saharan Africa to 5.51 grams per day in Central Asia. The average daily sodium intake in the United States was 3.6 grams, 80% higher than the WHO recommendation, and 60% higher than the United States Department of Agriculture (USDA) recommendation of 2.3 grams per day. The American Heart Association's recommendation matches the USDA's, with an admonition for "moving toward an ideal limit of no more than 1,500 mg per day for most adults." [2]

The researchers found that nearly 58,000 cardiovascular deaths each year in the United States could be attributed to daily sodium consumption greater than 2.0 grams. Dr. Dariush Mozaffarian minced no words in stating, "High sodium intake is known to increase blood pressure, a major risk factor for cardiovascular diseases including heart disease and stroke. These 1.65 million deaths represent nearly one in 10 of all deaths from cardiovascular causes worldwide. No world region and few countries were spared. These new findings inform the need for strong policies to reduce dietary sodium in the United States and across the world."

Refraining from adding salt to your meals is certainly a step in the right direction. However, the best way to reduce dietary sodium is to eliminate packaged, processed foods from your diet. 



High sodium intake is known to increase blood pressure, a major risk factor for cardiovascular diseases including heart disease and stroke. These 1.65 million deaths represent nearly one in 10 of all deaths from cardiovascular causes worldwide.

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[1] Mozaffarian, D; Fahimi, S; Singh, G; Micha, R; Khatibzadeh, S; Engell, R; Lim, S; Goodarz, D; Ezzati, M; and Powles, J. "Global sodium consumption and death from cardiovascular causes." *N Engl J Med* 2014. 371:7, 624-634.

[2] <https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/sodium/how-much-sodium-should-i-eat-per-day>





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- Helps prevent cramping
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Alicia McCormick sports the new cranberry Hammer kit on an early morning bike ride. Photo courtesy Alicia McCormick



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- Online Reviewer

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The North Face **ENDURANCE** CHALLENGE SERIES

BY JOSEPH PERRY

After a successful partnership in 2018, Hammer Nutrition is excited to return to The North Face Endurance Challenge Series as the official Hydration Sponsor in 2019. We've sponsored events for over 20 years. Last year, we sponsored over 800 events in all 50 states and the District of Columbia—we support your sport! Out of all the events we sponsor, one series stands alone: The North Face Endurance Challenge Series, also known as the Endurance Challenge Series (ECS).

Events in the ECS are unlike any others in the trail-running world. Races occur over the entire year across the entirety of the United States. Earlier this year, runners tackled the ECS in Washington, DC and in New York, New York. There are three races left: Massachusetts (June 6-7), Wisconsin (September 14-15), and California (November 16-17). Every event offers near-luxurious planning, staffing, and course marking. (The running joke is that you have to try to get lost—that's how well-marked the trails are.)

After attending a few ECS events last year, Hammer Nutrition fueling expert Steve Born can't wait to return. Describing his first year at ECS, Steve recounts, "From my experiences attending the 2018 ECS, I found that the support is thoroughly professional and absolutely first rate—the best I've ever seen. The staff and volunteers are super friendly, mega-helpful, and genuinely enthusiastic. They go to great pains to make sure that the aid stations are well-stocked, among many other things.

I will also readily admit that a big part of the allure of attending some of the ECS events was getting to meet Dean

"Shake off the jitters with a pre-race run with Ultra Marathon Man Dean Karnazes . . ."

Karnazes, an athlete who I really admired, but who was also a bit "bigger than life" to me."

Along with Dean Karnazes and The North Face, Hammer Nutrition is excited to announce a new addition to the ECS program this year. Prior to each race, Hammer Nutrition will team up with Dean Karnazes and The North Face to offer a "warm-up" run with Dean followed by an expert fueling clinic with Steve Born. Shake off the jitters with a pre-race run with Ultra Marathon Man Dean



Runners start one of the 50 Mile, 50K, Marathon, Marathon Relay, Half Marathon, 10K, or 5K in the ECS.



Dean Karnazes, a long-time Hammer user, and Steve Born will ensure your ECS experience starts off right with fueling clinics before the events.



A competitor visits the Hammer Nutrition tent, which will equip runners at every ECS event in 2019.

Karnazes before bringing your toughest fueling and nutrition challenges to the clinic with Steve. Stay tuned to Hammer and the ECS social media accounts to catch the details for where to meet Dean and Steve for the events in Massachusetts, Wisconsin, and California.

The Hammer Nutrition team will also be on-site on race day at each event serving Hammer products and nutrition knowledge. Of course, runners are treated to Hammer products at all the aid stations along the course. Depending on which event you run—there are 50 Mile, 50K, Marathon, Marathon Relay, Half Marathon, 10K, 5K, and Kids' 1K events—you may need to stop by the Hammer tent and pick up a few Hammer Gels for the run.

Look over your race calendar and pencil in one of the remaining ECS events. You'll be treated like royalty as you enjoy some of the best trail running to be found anywhere. You may even get the chance to have a photo op with Ultra Marathon Man Dean Karnazes! 

For more details or to register, visit www.thenorthface.com/get-outdoors/endurance-challenge.html



"You'll be treated like royalty as you enjoy some of the best trail running to be found anywhere."

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Nick DiNapoli competes at a Local Enduro Mountain Bike event in Salinas, CA.
Photo: Dustin Vaughn-Luma

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*Cola flavor now with caffeine!

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- Online Reviewer

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The Sugar Rush & The Truth

BY STEVE BORN

In the hopes of getting an energy boost and improving their mood, a lot of people grab a sugar-sweetened beverage or candy. That belief has been pretty much “set in stone” for as long as there has been sugar, and its practice has grown dramatically every year. Need to squash that fatigue and get yourself in a better frame of mind? Grab a soda! Eat a candy bar! Sugar’s got you covered!

Not true, according to new research [1] published in *Neuroscience & Biobehavioral Reviews*. In fact, their analysis of 31 studies involving over 1,250 people shows the opposite to be the case. Headed up by Dr. Konstantinos Mantantzis, the researchers sought to determine the effect of sugar on various aspects of mood, including alertness, anger, depression, and fatigue.

Their results revealed that sugar—no matter how much was ingested—provided no positive effect on any aspect of mood at any time following its consumption. In addition, the researchers’ findings showed that sugar caused greater fatigue and less alertness compared to a placebo within the first hour after ingestion.

Dr. Mantantzis summarizes: “The idea that sugar can improve mood has been widely influential in popular culture, so much so that people all over the world consume sugary drinks to become more alert or combat fatigue. Our findings very clearly indicate that such claims are not substantiated – if anything, sugar will probably make you feel worse.”

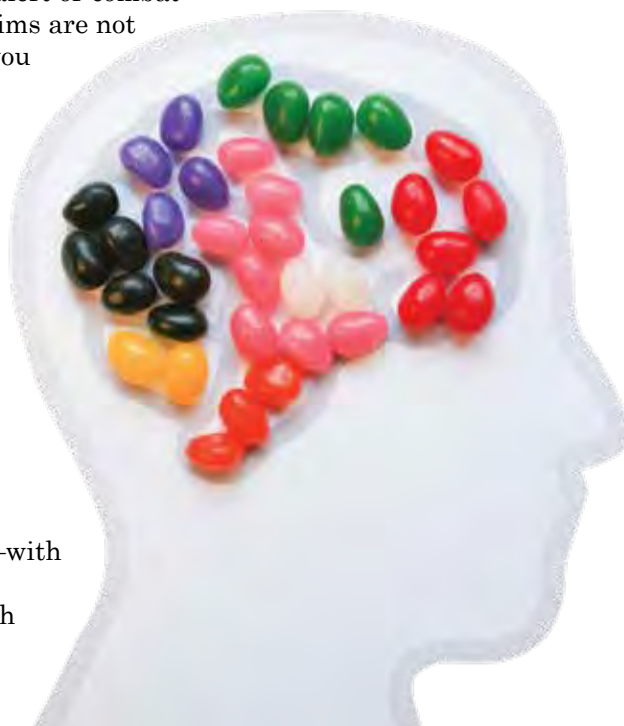
Another member of the research team, Dr. Sandra Sünram-Lea, adds: “The rise in obesity, diabetes and metabolic syndrome in recent years highlights the need for evidence-based dietary strategies to promote healthy lifestyle across the lifespan. Our findings indicate that sugary drinks or snacks do not provide a quick ‘fuel refill’ to make us feel more alert.”

It is estimated that the average American consumes a whopping 19.5 teaspoons (82 grams) of sugar every day, an amount much higher than the American Heart Association’s recommended limit of six teaspoons (25 grams) of added sugar per day for women and nine teaspoons (38 grams) for men.

With sugar not providing any positive effects on mood—with a very real potential that it worsens it—and with sugar also responsible for a massive number of negative health consequences [2], we all must maintain vigilance to remove as much sugar as possible from our diets.

For more on why it’s absolutely crucial to minimize your sugar consumption, see the articles “Eight Important Reasons to Avoid Sugar,” “Your Body’s Fight Against Sugar,” and “Less Sugar = Less Body Fat” on our blog at hammernutrition.com/blog/. 

“Our findings indicate that sugary drinks or snacks do not provide a quick ‘fuel refill’ to make us feel more alert.”



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- [1] www.sciencedirect.com/science/article/pii/S0149763418309175
 [2] www.hammernutrition.com/knowledge/endurance-library/146-reasons-sugar-ruins-your-health

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Heather Brooks enjoys a trail run outside of Missoula, MT. Heather uses Lemon-Lime HEED to replenish her electrolytes and stay hydrated in hot weather. Photo: Heather Brooks



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- Online Reviewer

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Answers to frequently asked questions about Hammer CBD

BY STEVE BORN

? I'm already using Recoverite, Super Antioxidant, AO Booster, and Tissue Rejuvenator to help my recovery. I'm now hearing about CBD and wondering if I should add it to my regimen. What are your thoughts?

You're on a great fueling/supplement recovery program, no question about it. Now it's time to take it up a notch—and I'm talking a BIG notch—with Hammer CBD.

While the products you're on are extremely helpful for antioxidant support, restoring glycogen, rebuilding lean muscle tissue, protecting

the joints, and more, taking a quality CBD product will be your most powerful ally for two of the most vital areas of recovery: Sufficient sleep and soreness alleviation.

Getting adequate sleep and managing soreness are absolutely crucial to repairing—and preparing—your body for the next workout; they are two things you simply cannot ignore if you hope to perform at your best. Enter CBD—one of the most revolutionary advances in sports nutrition in recent memory. Adding CBD to your regimen is a simple, yet undeniably effective step to promote deep sleep and help reduce aches and swelling, among a myriad of other benefits. 

? I see CBD popping up everywhere. What is it?

CBD is short for cannabidiol, one of over 60 compounds called cannabinoids that are found in the hemp plant. A number of cannabinoids are produced in the human body as well. Cannabinoids act on receptors found in the cells that are part of the body's endocannabinoid system, a system that regulates key aspects of our biology. The two major cannabinoid receptors are:

- **Cannabinoid Receptor Type 1 (CB1):** These receptors are found throughout the body, though they are primarily located in the brain. Among the many areas of human health that CB1 receptors regulate is immune system function and sleep, both of which are crucially important components for maximizing recovery.
- **Cannabinoid Receptor Type 2 (CB2):** These receptors are found mainly in the immune system throughout the body. When CB2 receptors are activated, they work to reduce soreness, aches, and swelling, all of which support optimal recovery.

When we use a CBD product, not only do we receive the benefits that those cannabinoids we're consuming provide, we are also—and *this is arguably the main benefit*—activating and positively influencing how our built-in cannabinoid receptors work. In taking a CBD product, we aren't overriding the body and how it wants to naturally work. We are simply enhancing how it works and helping it work more efficiently.

If you're ready to perform at your best this season, don't wait another minute to add Hammer CBD products to your arsenal! 

In taking a CBD product, we aren't overriding the body and how it wants to naturally work. We are simply enhancing how it works and helping it work more efficiently.

? Is it Hammer Hemp or Hammer CBD?

We can certainly understand the confusion of seeing a product listed “Hammer CBD” on the website, but receiving a bottle with “Hammer Hemp” on the label. Here’s why this occurred. When we knew that the “green light” was officially going to be given for sales of cannabinoid products, we started producing labels for our arriving-soon products. Until the Farm Bill passed Congress quite a bit later, we decided to err on the cautious side by labeling the products “Hammer Hemp.” Although this might cause some to think it to be nothing more than a hemp oil product—one that you can find alongside the flaxseed oil and other

But whether labeled Hemp or CBD, the product has always been the exact same.

plant oils in a health food store—the product originally named “Hammer Hemp” has always been a broad-spectrum cannabinoid/terpene product; our certificates of analysis, available on the Hammer Nutrition website, prove that. When the Farm Bill officially passed, we felt completely comfortable naming/listing the product as “CBD” instead of “Hemp” (with the description that it was/is a phytocannabinoid-rich hemp product). We are almost through the “Hammer Hemp” labeled bottles and future bottles will be labeled “Hammer CBD.” But whether labeled Hemp or CBD, the product has always been the exact same. 

Sore No More

CBD benefits, topically applied



Jeremy Heath applies Hammer CBD Balm aid recovery after a training run.

This topical balm is made with natural ingredients, lavender and eucalyptus, for a nice scent.



- Helps with muscle soreness
- May resolve skin issues
- Made in USA
- 0.0% THC



500 mg Balm
\$49.95

“LOVE THIS!”



*“After a long, hard ride, I massage just a bit of **Hammer CBD Balm** into my legs. Definitely feel a difference. Also very soothing for my face when wind burned.”*

- Online Reviewer

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Thinking Through Sweat Tests

BY STEVE BORN

While there may be some good general information that can be derived from a sweat test, I am not a big fan of them, mainly because the information they produce is limited and, in my opinion, only reflects a small part of an entire picture. The results from a sweat test are not truly representative of what happens during prolonged bouts of exercise.

In a sweat test, you sit someone on a bike or have them run on a treadmill in a controlled environment and gather their sweat to determine fluid and electrolyte loss. That's all fine, but how long is the test? Maybe an hour? The test may be accurate in determining fluid and sweat loss during the first hour or so, but it's not necessarily indicative of what is going to happen each hour following that initial test hour.

When we begin to exercise, we generally lose a lot of fluid and electrolytes, especially salt (sodium chloride), in the first 30 to 60 minutes. That's not unusual at all. The problem with going "all in" with sweat test results is that you're basically assuming that these losses are going to occur in the same amounts and volume hour after hour. You're not taking into account the many built-in mechanisms in the human body that regulate fluid and electrolyte use.

So, yes, when you begin to exercise, you may lose a lot of fluid and salt (we start exercise with a TON of stored salt in our bodies, by the way). The body, the marvelously designed machine that it is, recognizes this and a number of hormonal mechanisms that help monitor and regulate fluid and mineral loss (especially the latter, and especially sodium) are actively engaged.

In regards to sodium loss, there is a hormone called aldosterone, which has a primary responsibility (in layman's terms) to monitor sodium levels in the body. When aldosterone senses that sodium losses are becoming too great to

maintain normal bodily functioning, it orchestrates a complex process by which sodium is recirculated back into the system via the kidneys. In doing so, aldosterone helps conserve our stores of sodium.

Now, this recirculation/conservation process cannot take care of all our needs hour after hour after hour. We need to supplement with electrolytes to work with aldosterone and help maintain adequate electrolyte status.

The mistake many athletes commit is that they overdo it with the salt/sodium. They oftentimes look at sweat tests and notice (for example) that perhaps two to three grams of sodium has been lost. Forgetting that the body will not automatically and repeatedly lose this amount hour after hour after hour, and not taking into account aldosterone's actions in monitoring, recirculating, and conserving sodium stores, athletes will start consuming two to three grams of salt every hour, which is far too much. Once the body detects an increase in sodium from exogenous sources (food, salt tablets, or products too high in sodium), the hormone aldosterone signals the kidneys to stop filtering and recirculating sodium. Instead, the kidneys will excrete even more sodium than before.

The fact is that when you consume too much salt—in your diet, prior to exercise (sodium loading), or during exercise—you're actually doing more harm than good.

Additionally, another hormone, vasopressin, will predominate and cause fluid retention. While ingesting large amounts of sodium

may temporarily resolve a sodium deficiency, doing so substantially increases the risk of a number of other problems, including increased fluid storage in the form of swelling (edema) in the extremities.

Other consequences include elevated blood pressure and, as mentioned earlier, an increased rate of sodium excretion (i.e. when you consume too much salt, the body is forced to excrete even more salt than it was originally).

Elevated blood pressure, excess sodium excretion, and dramatically increased fluid retention all

inhibit performance.

If you've ever finished a workout or race with swollen hands, wrists, feet, or ankles, or if you've experienced puffiness under your eyes and around your cheeks, or if your body and clothing becomes covered in excess amounts of salt stains, your sodium/salt intake was most likely too high.

The moral of the story is that too much of anything—water, salt/sodium, calories, etc.—will result in performance-inhibiting issues ranging from conditions as minor as stomach distress to as serious as hyponatremia.

As mentioned earlier, while there may be some usable information that a sweat test can provide, the results do not reflect how the body responds during long-duration exercise. Athletes who rely too heavily on the results of a sweat test—meaning that they try to replace in equal amounts what the sweat test tells them they are losing mineral-wise—will usually experience negative, performance-inhibiting-to-ruining outcomes. 

The fact is that when you consume too much salt—in your diet, prior to exercise (sodium loading), or during exercise—you're actually doing more harm than good.

IGNITE Your Workout

Grab a Pack and Go

- Increases energy
- Promotes mental acuity
- Improves power output
- Natural tart cherry flavor



Daniel Blanc Gonnet pops a wheelie on the trails outside of Tuscon, AZ. Photo: Mimi Seeley



"THIS STUFF WORKS"



"Great to use pre-race or high-intensity group rides. Just follow the instructions. No question about being able to repeat super hard efforts, particularly towards the end of longer rides!"

- Online Reviewer

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Perpetuem Solids: The Ultramarathoner's Fueling Answer

BY ARYNN MAZNIO

When faced with an ultramarathon, nutrition choices can make or break the race. Improper fueling is a double-edged sword: lack or overabundance of the wrong fuel, and you are guaranteed to *bonk*—essentially, run out of energy. Repeat unhealthy habits and you might as well add gastrointestinal distress, excess soreness, poor recovery, and a whole host of health issues to the list of problems you are likely to encounter.

After completing several ultramarathons, I have seen *everything* when it comes to unhealthy and unhelpful fueling strategies. Typical aid stations will provide a “free-for-all” fare of candy, salt-laden chips, and artificial “sports” drinks. Not only do these options provide ZERO energy for the participants, but they are also unfortunately tied to the myth that you are allowed to eat whatever you want during an ultra. This couldn't be further from the truth! Sure, a handful of chewy sweets may *look* enticing in the moment, but do you really want to sacrifice the rest of your race for a moment of tempering your taste buds?

My response to these sugary, synthetic, and empty calories is to fuel up with Hammer Nutrition's Perpetuem Solids. Endurance athletes who are familiar with Hammer products rely on Perpetuem, a product

designed for workouts and events lasting over three hours. This delicious powder is formulated with a blend of complex carbohydrates (maltodextrin), soy protein, and healthy fats, with additional performance-benefiting ingredients. It is a fantastic way to find long-lasting energy, protect your muscles, and stay strong on your way to the finish line.

While this product is a top-notch solution for endurance athletes of all disciplines, ultrarunners have a unique problem to address: lack of storage space for their fuel. Cyclists have water bottle cages on their bikes, seat packs, and jersey pockets, and even long-distance hikers have hefty packs,

HAMMER KNOWLEDGE

Fuel lean:

120-180 cal/hr

Your body cannot process calories at the same rate it burns them during exercise. Maximize fatty acid utilization while minimizing GI distress by fueling lean. Supplement the lowest amount of calories your body needs to feel strong and steady hour after hour.

Perpetuem's ultra-effective formula:

Complex Carbohydrates

- Easily digested
- Quick-acting
- Consistent, long-lasting energy

Soy Protein

- Minimizes muscle cannibalization
- Accelerates workout recovery
- Strengthens immune system

Healthy Fat

- Maximizes stored body fat usage
- Increases satiation
- Slow burn of steady energy

Auxiliary Nutrients

- Buffers lactic acid
- Neutralizes free radicals
- Stabilizes blood sugar



but ultrarunners are faced with scant options. Combine this with the fact that not every race is equipped with drop bag stations and ultrarunners have a challenge even *before* the race begins. There are three main options ultrarunners have to provide on-the-trail fueling: hand-held water bottles, waist belts, and hydration vests. Depending on the race, items jousting for real estate in my vest or pack include nutrition, hydration, a packable jacket, gloves, a phone, a headlamp, moleskin, and perhaps trekking poles. That's a lot of gear to carry, so I spend significant time planning my race-day strategy—nutrition supplies always take the top priority.

Enter Perpetuum Solids. These convenient tablets contain the same ingredients as the product's powder counterpart, but in a chewable, packable form that takes up less space, does not spoil, and will curb the hunger and protect against muscle breakdown runners experience from multi-hour events. Utilize the chart on Hammer Nutrition's website to customize your serving size, pick a flavor, and measure out hourly doses in a storage method that works for you. Add some Endurolytes (Fizz or capsules), a few Hammer Gels as a back-up plan, and you are ALL SET for the race or long-duration workout. It really is THAT simple!

The next time you run an ultra, pack some Perpetuum Solids to ensure you have quality nutrition; these tablets will provide a straight-forward fueling plan that keeps you from experiencing the disastrous consequences of aid station snacks. In fact, you just might be able to bypass the aid station time-trap altogether! Don't complicate race-day nutrition; keep it simple, safe, and effective with Perpetuum Solids. 



Naomi Haverlick on a training gravel ride in Pisgah National Forest, Brevard, NC. She rode strong fueled by Cafe Latte Perpetuum and covered over 50 miles and 5.7K ft. of climbing in 4 hours. Photo: Jared Vigil

Endurance athlete's diesel

- Stabilizes energy & blood sugar
- Maximizes fat utilization
- Protects lean muscle mass

32 Servings | \$49.95

Single-serving packets | \$3.25

Flavors: Caffè Latte, Orange-Vanilla, Strawberry-Vanilla, Chocolate



"IT HELPS ME KEEP GOING AND GOING . . ."



"Perpetual movement requires fuel and I have found Perpetuum does the trick. The latte flavor gives you that coffee fix you crave after hours of running. This stuff works!"

- Online Reviewer

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NSAIDs

Research confirms why they're bad for your heart

BY STEVE BORN

While a large body of research over the years has shown that non-steroidal anti-inflammatory drugs (NSAIDs) increase the risk of heart attack and stroke, the mechanisms behind their negative effects remained unclear. However, a study conducted by scientists at the University of California, Davis and published in the *Journal of Molecular and Cellular Cardiology* has now identified possible reasons as to why NSAIDs have heart-damaging effects [1].

Using heart cells from mice and rats, the researchers found that NSAIDs affected the heart in two significant ways:

1 They trigger increased production of a group of free radicals known as reactive oxygen species, an excessive amount of which is associated with numerous diseases, including heart disease.

2 They attack mitochondria, which reduces heart cells' ability to produce energy.

Additionally, some NSAIDs were suggested to impair the heart cell's proteasomes, which remove abnormal or damaged protein from cells. When proteasome functioning is impaired, there can be a toxic buildup of abnormal proteins, which can eventually result in the death of cardiac cells.

The study's lead author Aldrin Gomes stated, "We were surprised to see that many of the NSAIDs

we tested were causing the cardiac cell to die when used for prolonged periods. Some people are taking these drugs too often, and this is a problem. These drugs are abused."

Jude Racoosin, MD, deputy director of the FDA's Division of Anesthesia, Analgesia, and Addiction Products, remarked, "Everyone may be at risk—even people without an underlying risk for cardiovascular disease."

"Some people are taking these drugs too often, and this is a problem. These drugs are abused."

Tissue Rejuvenator—A Safe, Natural Option

It should be abundantly clear that NSAID use is unhealthy. A safe and natural option is Tissue Rejuvenator, which can help your body quell swelling, repair tissue, and increase mobility in a safe, natural, and effective manner. Tissue Rejuvenator is also ideal for helping protect against joint-related injuries and recover from them, as well.

Tissue Rejuvenator's formula includes:

- Glucosamine sulfate: a building block for repairing damaged cartilage. Also promotes joint movement and acts to reduce swelling.
- Chondroitin sulfate: helps repair and protect cartilage, promotes joint lubrication and cushioning.
- Methylsulfonylmethane (MSM): an organic form of sulfur that maintains tendon and cartilage tissue. MSM is reported to reduce joint irritation and support healing.
- Turmeric, boswellia, yucca root, and devil's claw: contain compounds that are purported to have potent joint support and swelling reduction properties. 

[1] Ghosh, R., Alajbegovic, A., & Gomes, A. V. (2015). NSAIDs and Cardiovascular Diseases: Role of Reactive Oxygen Species. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/26457127>

Tieni duro post race. Photo: Katie Miu

Relief is Near

and
without
NSAIDs



Shaun Pettigrew catches his breath after riding in 24 Hours in the Enchanted Forest.
Photo: Shorell Pettigrew



Tissue Rejuvenator 120 Capsules | **\$32.95**

Vegan Tissue Rejuvenator 120 Capsules | **\$34.95**

- Targets joint & muscle soreness
- Optimizes joint mobility & flexibility
- Maximizes recovery

“DAILY STABILITY FOR JOINT HEALTH”



*“I use **Tissue Rejuvenator** daily and after long endurance rides. It is superb for joint soreness.”*

- Online Reviewer

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NEW RESEARCH FOR RAPIDLY ENHANCING ENDURANCE!

Mediterranean diet boosts endurance exercise within days!

BY STEVE BORN

Within just four days, athletes can improve their endurance exercise performance via the consumption of a Mediterranean diet compared to a Western diet. That's the eye-opening conclusions from recent research from Saint Louis University [1].

Before we discuss this further, let's take a look back at some information from an article on Hammer Nutrition's website, "*Western Diet Increases Risk of Severe Sepsis and Death.*"

In that article, I discuss the Western diet being comprised of:

- 25% carbohydrates, largely from refined sugar and minimal-to-no fiber
- 44% fats, with a 5:2 ratio favoring saturated fats over polyunsaturated fats
- 31% protein

Excess sodium is also noted in the Western diet, with amounts of 7,000 mg daily being common.

Dr. Brooke Napier, the lead researcher in that particular study [2], summarized: "The mice's immune system on the Western diet looked and functioned differently. It looks like the diet is manipulating immune cell function so that you're more susceptible to sepsis, and then when you get sepsis, you die quicker."

By comparison, the Mediterranean diet includes whole fruits and vegetables, nuts, olive oil, and whole grains, and avoids red and processed meats, dairy, trans and saturated fats, and refined sugars. The Mayo Clinic website has excellent information about the Mediterranean diet [3].

Lead researcher Edward Weiss, Ph.D., professor of nutrition and dietetics at SLU, says the Mediterranean diet is well-established as having numerous health benefits, and he and his team believe that the diet's potential for improving exercise performance are due to its:

- Anti-inflammatory and antioxidant effects
- More-alkaline pH
- Higher levels of dietary nitrates (which convert to nitric oxide)

Dr. Weiss states: "Many individual nutrients in the Mediterranean diet improve exercise performance immediately or within a few days. Therefore, it makes sense that a whole dietary pattern that includes these nutrients is also quick to improve performance. However, these benefits were also quickly lost when switching to the Western diet, highlighting the importance of long-term adherence to the Mediterranean diet."

Dr. Weiss concludes: "This study provides evidence that a diet that is known to be good for health is also good for exercise performance. Like the general population, athletes and other exercise enthusiasts commonly eat unhealthy diets. Now they have an additional incentive to eat healthy."



REFERENCES:

- [1] Michelle E. Baker, Kristen N. DeCesare, Abby Johnson, Kathleen S. Kress, Cynthia L. Inman, Edward P. Weiss. Short-Term Mediterranean Diet Improves Endurance Exercise Performance: A Randomized-Sequence Crossover Trial. *Journal of the American College of Nutrition*, 2019; 1 DOI: 10.1080/07315724.2019.1568322
- [2] <https://www.pnas.org/content/early/2019/02/05/1814273116>
- [3] <https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/mediterranean-diet/art-20047801>

GOTT!

Now tell me what the results were!



In a nutshell, researchers found that participants performed a 5K run 6% faster after eating a Mediterranean diet than after eating a Western diet. That might not seem like a lot until you crunch the numbers:

- **5K** (3.1 miles) at 7:30/mile pace = 23:18 time
- 23:18 time, with a 6% improvement = 21:54 time, or 1:24 faster

While the participants only performed a 5K run, think of what a 6% improvement would be for longer-duration exercise!

- **10K** (6.2 miles) at 7:30/mile pace = 46:36 time
- 46:36 time, with a 6% improvement = 43:48 time, or 2:48 faster
- **Half-marathon** (13.1 miles) at 8:00/mile pace (slightly slower pace) = 1:44:53 time
- 1:44:53 time, with a 6% improvement = 1:38:25 time, or 6:18 faster
- **Marathon** (26.2 miles) at 8:30/mile pace (slightly slower pace) = 3:42:42 time
- 3:42:42 time, with a 6% improvement = 3:29:20 time, or 13:22 faster

ANTIOXIDANT ARSENAL

Enhance endurance, accelerate recovery,
and supercharge your immunity with the "A" Team.



Miles Frank and Tieni Duro Rider Nicholas Jerabek cruise the roads in Southern California. Miles sports the 2019 Hammer kit. Photo: Adam Evard



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Ultimate Endurance Cocktail

Anti-Fatigue Caps and Endurance BCAA+

BY STEVE BORN

If you're looking to take your endurance performance up a notch—and I mean a BIG notch—this is the two-product combo you need. Both products contain nutrients that supply impressive endurance-extending benefits. Anti-Fatigue Caps and Endurance BCAA+ are super compatible and complement each other perfectly. Perhaps best of all, I firmly believe that the longer you go, the better this “dynamic duo” works!

ANTI-FATIGUE CAPS supplies three nutrients—potassium/magnesium aspartate, L-citrulline, and OKG—that help neutralize the negative effects of excess ammonia, a primary culprit in premature fatigue.

• **Potassium/Magnesium Aspartate** - A well-known nutritionist says it best regarding aspartic acid, “Because aspartic acid increases stamina, it is good for fatigue and plays a vital role in metabolism. It is good for athletes and helps to protect the liver by aiding in the removal of excess ammonia.” Studies (Agersborg and Shaw 1962, Hicks 1964, Gaby 1982) show this combination provides substantial benefit for the prevention of fatigue. Aspartic acid also combines with other amino acids to form molecules that absorb toxins and remove them from the bloodstream, aid the function of RNA and DNA, and help protect the liver. Additionally, the potassium/magnesium aspartate compound increases the production of a key substrate, oxaloacetate, which is involved in energy production. Lastly, the compound provides the minerals potassium and magnesium to help provide protection against cramping.

• **L-citrulline** – L-citrulline is an amino acid found in plant foods such as watermelon, onions, and garlic. Citrulline helps in the removal of ammonia in the muscles and liver and, like aspartic acid, is beneficial for alleviating fatigue. L-citrulline is a precursor for the endogenous production of L-arginine. Increased blood levels of arginine significantly boost nitric oxide (NO) content. NO acts as a potent vasodilator, relaxing the arteries and allowing them to widen. Vasodilation is responsible for increased blood flow to tissues such as muscle fibers, which supports enhanced athletic performance and cardiovascular health.

• **OKG** - Both ornithine and alpha-ketoglutarate (OKG) provide a readily available, non-ammonia-producing source of glutamine in the body. Glutamine is depleted at high rates during exercise but cannot be replaced with regular glutamine, as it produces ammonia on its own. OKG increases the amount of glutamine in the muscle and also helps prevent muscle catabolism.

Suggested Dosing: 2-4 capsules 20-30 minutes prior to exercise, with additional doses of 1-2 capsules every hour.



ENDURANCE BCAA+ supplies the key amino acids—BCAA (leucine, isoleucine, valine)—the body needs to satisfy a small percentage of its energy requirements during prolonged bouts of exercise, helping to protect against lean muscle tissue breakdown. BCAA supplementation has also been shown to decrease the perception of fatigue on both a mental and physiological basis.

Two capsules contain:

- L-leucine – 400 mg
- L-isoleucine – 200 mg
- L-valine – 200 mg

Endurance BCAA+ also contains (per 2 capsules)

- L-alanine – 100 mg

The liver can convert L-alanine into glucose as needed, which the bloodstream transports to the muscles for energy. L-alanine also aids in the synthesis of pantothenic acid (B-5), which is also needed for protein, fat, and carbohydrate metabolism activation in cells. L-alanine also activates an enzyme called AMPK that turns on the genes that serve to increase energy production.

*Perhaps best of all,
I firmly believe that
the longer you go, the
better this “dynamic
duo” works!*

- Reduced Glutathione –
100 mg

Glutathione is a tripeptide which consists of the amino acids glutamic acid, cysteine, and glycine. It is one of the three endogenous (naturally occurring in the body) antioxidants the body maintains to control excess exposure to free radicals produced during exercise as well as from exposure from the environment. Pages and pages could be written about this tremendously powerful nutrient, which one nutritional scientist calls “The Life-Extending Master Antioxidant.” With an Oxygen Radical Absorbency Capacity (ORAC) score/rating estimated to be an astounding 12,000+, glutathione is undoubtedly a potent antioxidant, arguably the most important one in existence.

Suggested Dosing: 2-4 capsules 20-30 minutes prior to exercise, with additional doses of 1-2 capsules every hour. (Same as Anti-Fatigue Caps!)

*If you're not yet on the
Anti-Fatigue Caps/
Endurance BCAA+
combo, don't wait any
longer. It's a game
changer!* 

RECOVERITE TODAY

Hammer Tomorrow

- Restores muscle glycogen
- Rebuilds muscle tissue
- Reduces soreness & fatigue



Russell Elcock on his way to 2nd place in a local crit in Barbados. Russell fueled with Sustained Energy, Hammer Gels, Fizz, Endurolytes Extreme Powder, and Recoverite. Photo: Terrence G. Lowe

32 Servings | \$59.95

Single-serving packets | \$3.50

Flavors: Chocolate, Vanilla, Strawberry, Orange-Vanilla



“I WILL CONTINUE TO BUY”



*“I use **Recoverite** after my ride by making a smoothie with a banana, chai/ flax seeds, almond butter, and some fat-included yogurt.”*

- Online Reviewer

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Beat the Heat

Simple strategies to hammer strong in rising temperatures

BY STEVE BORN

Summer weather extremes can make a tough race even tougher. Not only can the heat put a damper on your finish time, but it also can result in serious medical problems if you do not prepare and respond to it properly. Take these simple but important precautions to beat the heat and finish strong.

1 Train in the heat. Heat acclimatization and fitness reduce fluid and electrolyte losses by up to 50%. Gradually train for longer and longer periods of time until you feel more comfortable exerting yourself in warm conditions.

2 Increase your Endurolytes dose or use Endurolytes Extreme. If you're exercising in weather that you're not yet acclimated to, your electrolyte losses will be higher than normal, so you will either have to increase your intake of Endurolytes or use Endurolytes Extreme. The same applies if you have unusually high sweat rates, which are often due to a high dietary sodium intake.

3 Use Liquid Endurance prior to your hot-weather workouts and events. Glycerol, the active ingredient in this one-of-a-kind product, safely and effectively prepares your body for heat exposure by maximizing intercellular water levels, which are called upon as needed during activity. Liquid Endurance minimizes your potential for dehydration, significantly increases your cooling efficiency, and improves body thermoregulation, all of which maximize exercise performance in hot weather.

4 Use caffeine with caution. When used properly and sparingly, caffeine has impressive ergogenic benefits. However, it is also believed to have diuretic properties, which may deplete your fluid stores more rapidly. Caffeine is also a central nervous system stimulant and may increase your heart rate, making it work even harder in the heat.

5 Know the symptoms of overhydration and dehydration. Stop exercise immediately if you feel light-headed or queasy or get the dry chills. No race or training is worth compromising your health.





Erica Lazarus hammers in the Las Olas Triathlon. Photo: Fixed Focus Photography

Never too hot to HAMMER!

Hyper-hydration Formula

- Increases heat tolerance
- Improves hot weather performance
- Reduces exercise-related dehydration

Perform at your peak, regardless of high temperatures. Take Liquid Endurance in the days prior to exercising in the heat and you'll start your day hyper-hydrated and feeling great until the end. As dehydration takes hold of those around you, you'll still be going strong.



"HOT WEATHER WORKOUTS"



"I've ridden my bike in lots of hot weather, all throughout the country—**Liquid Endurance** has proven to be beneficial in helping me ride well, even in conditions that were out of my comfort zone. **This stuff is gold!**"

- Online Reviewer

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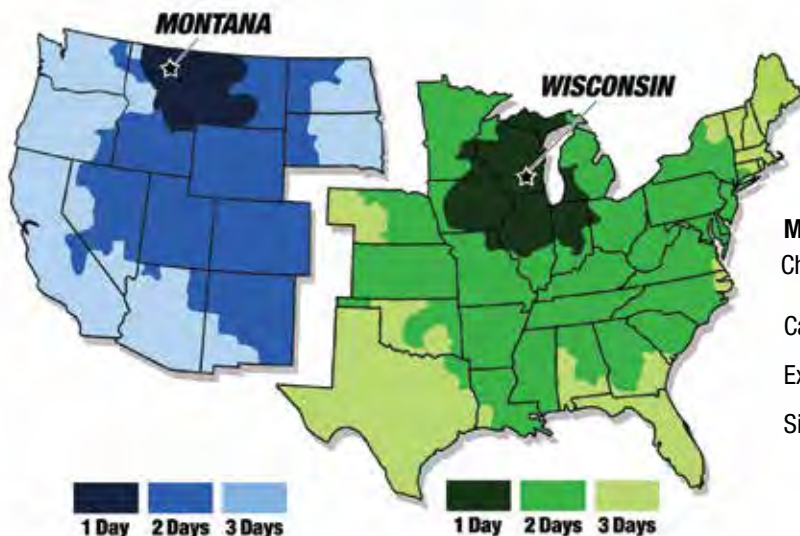
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SOS 5 Secrets of Success

Continued from
Endurance News #114
April/May 2019

#2 CALORIES COUNT

Complex Calories for a Simple Fueling Strategy

The “less is best” strategy is key to a successful race day. While plenty of newfangled strategies recommend sugar, high doses of caffeine, and “calories in, calories out” as solutions for managing race day needs, we contend—and continue to prove—that the simple solution is to fuel with quality complex carbohydrates and protein customized to your exercise duration and body weight.

- 1 Complex Carbohydrates:** Not all carbohydrates are equally effective when applied to endurance activities. Avoid products containing SIMPLE SUGARS including sucrose, fructose, and/or glucose. These sugars need to be diluted in a 6-8% solution to be effective, but do not come close to providing needed calories for solid performance.

A “gut bomb” will result from loading up on simple, short-chained sugars, which can result in GI distress, electrolyte depletion, and dehydration.

The Simple Solution: For activities lasting up to two hours, fuel up with HEED and Hammer Gel, which contain complex carbohydrates in the form of maltodextrin. This absorbable starch elevates blood sugar at a stable rate thanks to its polysaccharide structure, preventing the energy crash simple sugar fuels are known for.

Our fueling recommendations:

Consume 120 to 180 calories per hour of activity.

Fuel with complex carbohydrates like maltodextrin instead of simple sugars or blends.

For exercise longer than two hours, your primary fuel should include protein in a ratio of about 8:1 of carbs to protein.

#3 PROPER HYDRATION

What You Need to Know to Stay In The Flow

Exercising proper hydration is key to the success of any endurance athlete. Water comprises approximately 60% of our bodies, so creating good hydration habits in training, race, and daily routines will reflect in increased athletic performance and contribute to overall health.

Contrary to popular belief, many athletes think that “drinking to replace” water loss is the answer. Forget it! Your body cannot absorb fluids at the same rate it loses them similar to how our bodies utilize fuel sources. On race day, a variety of factors are out of our control, like weather, race terrain, and distance. What we can control is our hydration plan customized to our body weight.

Whether you spectate or participate in endurance events, it’s easy to pinpoint athletes who have addressed their hydration plan and those who have not. Some racers become disoriented, lightheaded,

and generally fatigued—dehydration is the likely culprit. Others exhibit the tell-tale signs of hyponatremia—over-hydration of fluids—such as puffy hands and water weight gain. Both sides of the spectrum are dangerous and can become fatal, so finding the Goldilocks solution of “not too little, not too much” hydration is paramount.

The optimal average water intake is one 20-25 oz. bottle per hour during exercise. Aim for 0.5-0.6 oz.

Our fueling recommendations:

To avoid performance and health problems associated with low blood sodium, your fluid intake should not routinely exceed 25 oz. per hour relative to weight and conditions.

Average athletes, average temps: 20 to 25 oz. (approx. 590 to 740 ml)

Lighter athletes or cooler temps: 16 to 18 oz. (approx. 473 to 532 ml)

Heavier athletes or hotter temps: up to 28 oz. (approx. 830 ml)



2 Fatty Acids: While our bodies contain nearly 100,000 calories of expendable energy in the form of body fat reserves (fatty acids), haphazard calorie intake will not allow us to tap into this useful resource. Fatty acids provide approximately 60-65% of your energy needs.

The Simple Solution: Utilize this primary fuel source by limiting fuel intake to 120-180 calories per hour.

3 Protein: When crossing the workout threshold of 90-120 minutes, 5-15% of our calorie expenditure comes from protein—and our bodies will look for it in any form it can, including our own muscles. In order to prevent muscle cannibalization, incorporate a fuel with protein to provide your body this energy source.

The Simple Solution: After the 3-hour mark, avoid fueling exclusively on carbohydrates by incorporating an 8:1 carb-to-protein ratio (by weight). Fuel up with Sustained Energy, Perpetuem, or Perpetuem Solids to supply protein for long-duration endurance activities.

of fluid per pound of body weight in addition to what you drink while training or racing. This recipe will prevent bloating, cramping, and hyponatremia, as well as reduce fatigue—all problems athletes should address if they desire to improve. A quick calculation will go miles in paving the way for improvement.



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FROM THE KITCHEN OF **LAURA LABELLE**

Keeping it Simple

I'm not sure why, but as the weather warms and the sun comes out more often, I find myself craving more simple foods. I think during the winter I gravitate toward more hearty items like stews, roasts, and starchy foods that weigh me down, figuratively and literally. But the current season is when I am motivated to get lean and kick some butt. Whether you are competing, training, or just getting ready to wear more revealing clothing, it's nice to feel like you are at your best, and choosing less-complex food is a good way to kick-start the process of getting there.

Leaning out is usually pretty easy if we cut back on sugars and starches, which our bodies recognize and metabolize as the same. The best way to build muscle and not store too much fat is to eat a high-protein, low-carb diet. We constantly advocate a primarily plant-based diet, but that doesn't necessarily mean a vegan or vegetarian diet. Although there is nothing wrong with those choices, what we mean is eating tons of veggies!

We at Hammer Nutrition believe the key to optimal nutrition is somewhat easy if you're really listening to your body and observing what works best for you. Many people mindlessly eat on the go and have no idea of what they have consumed by the week's end. One trick I find very useful, and that I do at least once a year, is journaling my entire food intake for a week. It's surprising to see how much we eat and don't think about. Journaling gives me a whole new take on paying attention to consumption.

After journaling your food for a week, try an "elimination diet" type regime. I enjoy very simple meals, like a grilled steak with baked spaghetti squash for dinner. With, say, baked chicken breast and an arugula salad for lunch, the object is to try to limit your condiments and use as little salt as possible. Your food may taste bland for a few days, but then you will discover a whole new world of flavor. The sense of clean nourishment you get is very satisfying. Another trick I use is, when I have a large lunch, I will simply eat a large bowl of steamed broccoli with a drizzle of olive oil and a dash of Himalayan salt or ponzu. How much simpler can you get than a giant bowl of broccoli or green beans?

"In the Kitchen with Hammer Nutrition" is full of fun foods and recipes and I have tried to include very simple dishes as well. The cleaner your body is, the easier it is to observe what your body wants and fine-tune your instrument.

We hope you enjoy trying new ways of approaching your food and cooking. Eating clean and simple can change your health, taste, athletic performance, and appearance.

Hammer on! 



"Keeping it simple" refers to both getting in touch with our food's flavor bouquet and seeing what your body responds to.



Acclaimed California-based chef Laura Labelle studied at *Ecole De Cordon Bleu* in Paris and received a "Grand Diplome" in cuisine and pastry. She has established two successful ventures, *Cafe Luna* and *Quality*

Food and Beverage and also worked as a personal chef to various celebrities and for *Mix This* music studio. Laura is an accomplished open water swimmer and enjoys practicing yoga and sharing her cooking with family and friends.

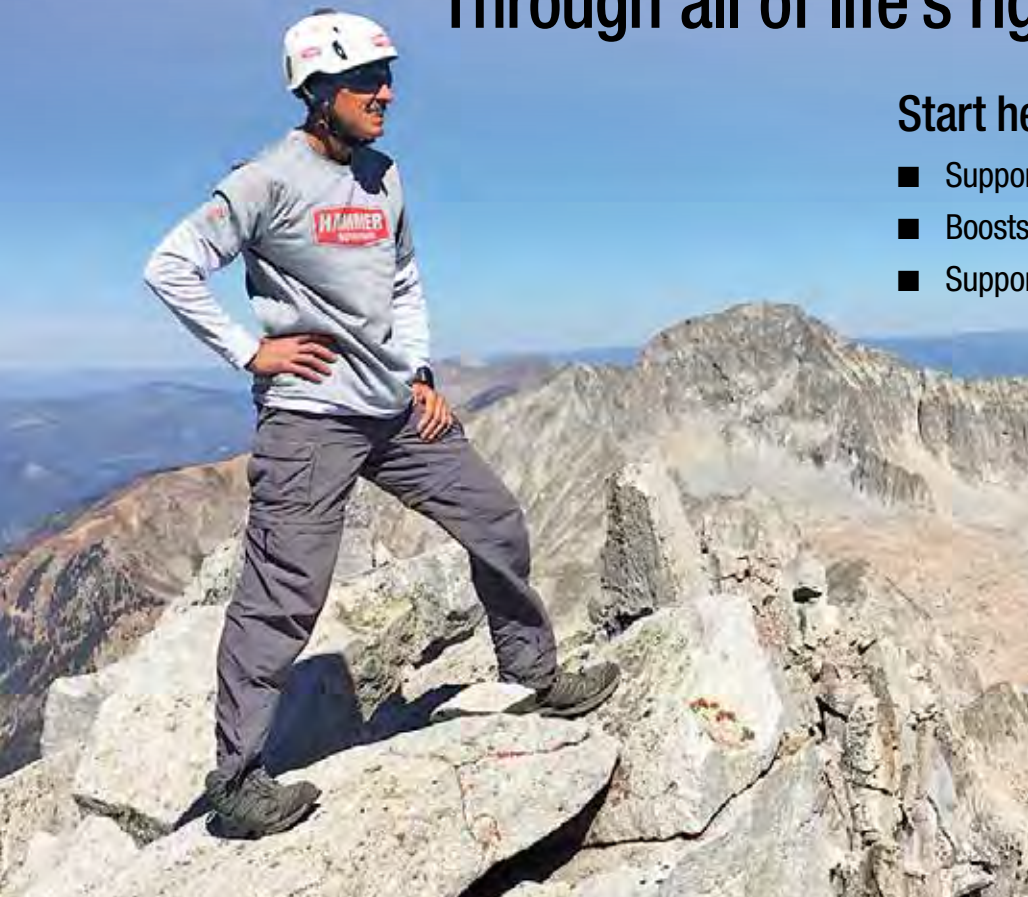
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Paco Garza ascends another fourteenner, Snowmass Mountain, CO (14,093').
Photo: Paco Garza



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- Online Reviewer

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FROM THE KITCHEN OF **LAURA LABELLE**

*Simple recipes
to add to your
spring menu*

Pan-Seared Barramundi with Sautéed Spinach and Toasted Pine Nuts

Makes 2-4 servings

Ingredients

2-4 6 oz. Barramundi fillets, or other white fish
(Mahi-Mahi, Halibut, Cod)

1 recipe for marinade of your choice, prepared

1 tbsp avocado oil

Fresh lemon, sliced (for garnish)

Preparation

1) Place fillets on plate and pat with a paper towel to remove excess moisture. Spread marinade on one side of each fillet and let sit while heating the pans.

2) Heat 1 tablespoon of avocado oil on medium heat in a cast iron skillet or heavy nonstick pan.

3) After the oil gets hot, place fillets in the skillet, marinade side up. Allow the fillets to sear for approximately 4-6 minutes. Flip to the other side, allowing fish to sear for an additional 4-6 minutes or until the meat is opaque and sides turn golden; the marinade

will begin to caramelize. Remove once fillets are cooked through.

4) Serve hot with a garnish of fresh lemon.

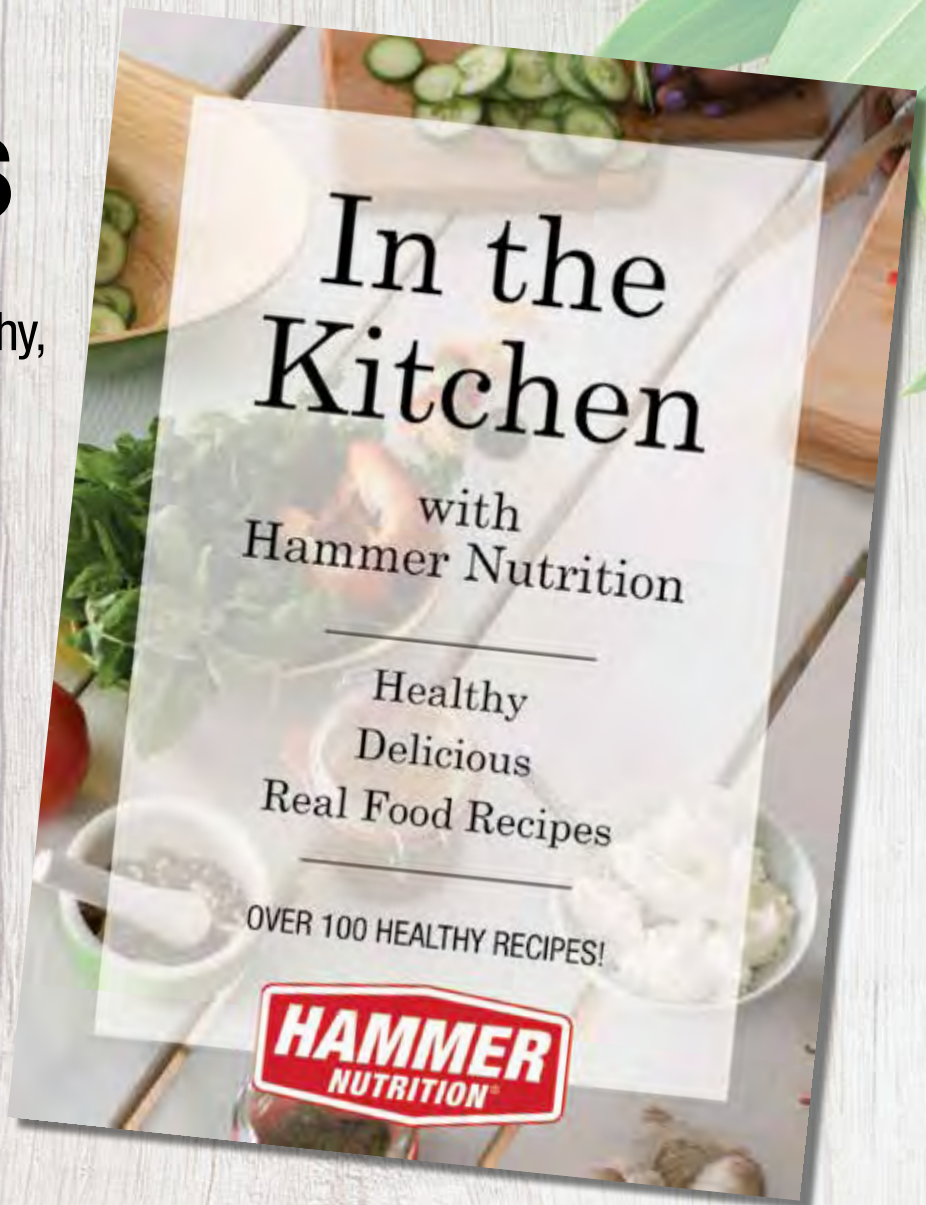
Pair with:

Spinach and pine nuts provide a nutrient-rich side that pairs well with any pan-seared white fish. After toasting the pine nuts for two minutes in avocado oil, red pepper flakes, and garlic cloves: remove garlic, add spinach, and sauté in a cast iron pan until wilted. Serve hot with fish in less than five minutes!



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7 Recovery Tips

Recovering thoroughly between all your workouts—even the easier ones—is undeniably important. But what about those ridiculously hard workouts, the ones after which you tell yourself, “Oh, am I going to be sore tomorrow. I doubt I’ll be able to function”? After those kinds of training sessions, do you simply resign yourself to the possibility that even getting out of bed may be difficult?

It doesn’t have to be that way! Apply these steps and I’ll bet you’ll wake up the next day feeling a whole lot better than you ever thought you would!

1 Consume a double serving (four scoops) of Recoverite right after the workout’s done. After a grueling training session, you may find that you’re just too tired to whip up a high-quality “sit down” meal and that your stomach isn’t ready for solid food anyway. You still have to “refill the tank,” though, especially after such a brute of a workout, and that’s where a double serving of Recoverite is in order. Your body will receive, and soak up, a most-generous 66 grams of complex carbs, 20 grams

of whey protein isolate, and six grams of glutamine. Recovery has now begun in superb fashion!

2 Take one capsule each of Chromemate and Essential Mg with your Recoverite. This is an inexpensive yet powerful way to enhance glycogen synthesis and storage capabilities. To quote Dr. Bill Misner, “the anabolic response for converting

carbohydrates to muscle glycogen will not completely take place in the absence of GTF chromium (Chromemate). Consuming a sufficient amount of carbohydrates along with Chromemate will result in a 300% increase in the rate of glycogen synthesis compared to no supplementation.”

Magnesium is the perfect complement to chromium for

for your *Toughest* *Workouts*

BY STEVE BORN

proper insulin function. A wealth of research shows that supplementation with this all-important mineral helps improve insulin function as well as how efficiently and effectively the cells take in blood glucose. Magnesium also protects against insulin resistance, a condition in which your cells' ability to respond to insulin is diminished, which is an important factor in how well they move glucose from the bloodstream and into your muscles and other tissues.

3 Take one capsule of Boron with your Recoverite. Taking supplemental boron on a daily basis is an excellent idea, as this trace mineral plays numerous roles in many general health areas. Boron is also key for restoring exercise-depleted hormone levels to normal, so it's a "must-take" nutrient after a super-arduous, hormone-depleting training session.

4 Resupply vitamins! After an "I'm not sure how I'm going to recover" workout, your body is begging for nutrient support. Vitamins, minerals, and antioxidants are in high need during this time. Hammer Nutrition's Premium Insurance Caps (a dose of four to seven capsules) will resupply the vitamins and minerals your body needs as well as some antioxidants. Additionally, Hammer's arsenal of potent antioxidant supplements, including Mito Caps (two capsules per dose), Super Antioxidant (one to two capsules), and AO Booster (one capsule now, one capsule later with a meal), will supply wide-ranging protection against the damaging effects of free radicals.

5 Take this trio to help put the fire out! Tissue Rejuvenator and/or Vegan

Tissue Rejuvenator (many athletes use a combination of both) are great products for alleviating both muscle and joint soreness. They really shine when used after those super hard training sessions. Take two to four capsules of either Rejuvenator with your Recoverite and another two capsules with a later meal to supply your body with a wide range of nutrients that reduce swelling.

AO Booster, mentioned earlier, is not only a potent antioxidant supplement, but everything in the product has soreness-alleviating properties as well.

After an "I'm not sure how I'm going to recover" workout, your body is begging for nutrient support.

It's an ideal complement to Tissue Rejuvenator. Take one AO Booster capsule with your Recoverite and another capsule with a later meal.

Lastly, among their many benefits, the omega-3 fatty acids in EndurOmega are well-known for alleviating muscle and joint soreness. I recommend taking two capsules with your post-workout meal plus another two capsules at another time during the day.

6 Use different types of Hammer CBD. Research continues to reveal bountiful benefits provided by the wide range of cannabinoids and terpenes found in the hemp plant. Topically applied Hammer CBD Balm is especially beneficial for those particularly achy muscles and joints. Hammer CBD softgels or tinctures will also help alleviate soreness and aches while promoting many

other aspects of optimal recovery. Perhaps oral CBD's greatest benefit is its ability to enhance sleep quality and duration, both of which are absolutely essential for maximizing recovery from exercise as well as promoting overall health.

7 Consume one scoop of Hammer Whey Protein prior to bedtime. You don't necessarily need to do this after every workout, but definitely make whey protein consumption a habit prior to hitting the sack after your toughest training sessions . . . you'll definitely feel much better the next morning.

Mix one scoop of Hammer Whey Protein in six to eight ounces of water, drink it, then brush your teeth and go to bed. Simple! The body now has an excellent dose of amino acids which it will use during a time (sleep) when it runs many of its reparation/recuperative processes. The six grams of glutamine you'll ingest will elevate serum human growth hormone (hGH) levels, which leads to anabolic (muscle-building) effects. Whey protein is also the best protein source for alleviating muscle soreness, so you'll receive that benefit as well.

With these seven tips and an eye toward recovery support, you'll be feeling better and stronger from the moment you finish your workout to the next time you start activity. 

AID STATION

A roundup of nutritional news tips and tidbits

Help Decrease Asthma Symptoms with Omega-3s

BY STEVE BORN

According to the Centers for Disease Control and Prevention (CDC), 1 in 13 people have asthma, an incurable condition which is described by the Mayo Clinic as when, “your airways narrow and swell and produce extra mucus. This can make breathing difficult and trigger coughing, wheezing, and shortness of breath.”

For many people, asthma can be a minor nuisance. For others, however, it can be a serious problem, one that greatly disrupts normal daily life, with the possibility of leading to a life-threatening asthma attack.

While omega-3 fatty acids have always been part of the discussion regarding nutrients that may help alleviate symptoms, recent research [1] provides more strong evidence that higher levels of omega-3 fatty acids—coupled with lower levels of omega-6 fatty acids—are associated with a decreased risk of asthma symptoms.

Addressing the seriousness of the issue, study co-author Andreas L. Lopata states, “Around 334 million people worldwide have asthma, and about a quarter of a million people die from it every year.” After analyzing blood samples of over 600 study participants for omega-3 and omega-6 levels, Dr. Lopata found that “certain types of omega-3 (from marine oils) were significantly associated with a decreased risk of having asthma or asthma-like symptoms by up to 62%, while high omega-6 consumption (from vegetable oils) was associated with an increased risk by up to 67%.”

What's the deal with omega-3s and omega-6s?

While omega-6 Essential Fatty Acids (EFA) are necessary for many aspects of health, most people are consuming the wrong kind of omega-6s—which have pro-inflammatory properties—and far too much of them in comparison to omega-3s. An ideal ratio of these two EFAs is 1:3 omega-3 to omega-6, yet the ratio for most American diets is an undesirable 1:20.

Additionally, many of the omega-6s we eat (linoleic acid)—mainly from vegetable oils such as corn, safflower, cottonseed, and others—are not beneficial, as they are converted to arachidonic acid, much of which is then converted to Prostaglandin Series E2, which has pro-inflammatory effects.

A portion of the omega-3 EFA we consume in our diet (alpha-linolenic acid) eventually gets converted to highly desirable eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Both of these—primarily EPA—are converted to Prostaglandin Series E1 and E3, both of which have anti-inflammatory properties and the unique effect of helping neutralize the pro-inflammatory effects of Prostaglandin Series E2.

Your Asthma Arsenal

- **EndurOmega** – 2 softgel capsules, 2-3 times daily.
- **Essential Mg** – 2 capsules, 2-4 times daily. Among its wide-ranging benefits, magnesium supplementation has been found to help relax bronchial smooth muscles, with research [2] showing that those who supplemented with at least 340 mg of magnesium daily enjoyed significantly lower bronchial reactivity, improved lung function, and better asthma control compared to the placebo group.
- **Clear Day, Tissue Rejuvenator, Vegan Tissue Rejuvenator** – All three products contain a flavonoid called quercetin. A portion of quercetin's chemical structure is similar to cromolyn, a medication used to help prevent the release of pro-inflammatory histamines and to protect against asthma attacks [3]. Another study [4] found that quercetin significantly promoted bronchodilation—the relaxing of bronchial muscle, resulting in expansion of the bronchial air passages—while also helping to inhibit mucus production and accumulation in the lungs.



Why fish oil is your best bet

The reason why obtaining your omega-3s from fish oil is so attractive is because it is already pre-formed EPA and DHA. When you consume fish or fish oil supplements, your body receives EPA and DHA right away; no conversion processes are necessary.

Plant sources of omega-3s (alpha-linolenic acid) need to go through a number of conversion processes in order to arrive at EPA and DHA. Unfortunately, that conversion process is not terribly efficient; only between 8% – 20% is converted to EPA, and only between 0.5% – 9% is converted to DHA. You, of course, still want to consume healthy plant sources of alpha-linolenic acid—nuts and seeds are good choices—but there is no doubt that fish/fish oil supplements give you the most omega-3 “bang for your buck.”

Summary

To achieve the asthma-alleviating benefits that omega-3s can provide, it's vital that we cut back on the volume and type of omega-6s we consume, while increasing our omega-3 intake, ideally done via consumption of fish and/or fish oil supplements.

Dr. Lopata bluntly states, “Asthma incidence has nearly doubled in the past 30 years and about half of asthma patients do not get any benefit from the drugs available to treat it.” He addresses the reason for this alarming increase: “There is an increasing consumption of what is known as the omega-6 fatty acid found in vegetable oils and a decline in consumption of omega-3 fatty acids, which is mainly found in marine oil. Crudely, there has been a global move from fresh fish to fast food.” 

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- [1] Adams, S.; Lopata, A.L.; Smuts, C.M.; Baatjies, R.; Jeebhay, M.F. Relationship between Serum Omega-3 Fatty Acid and Asthma Endpoints. *Int. J. Environ. Res. Public Health* 2019, 16, 43.
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- [4] Joskova M, Franova S, et al. Acute bronchodilator effect of quercetin in experimental allergic asthma. *Bratisl Lek Listy*. 2011;112(1):9-12.

When you consume fish or fish oil supplements, your body receives EPA and DHA right away.

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David Tatum rides in the Napa Valley HITS Half Triathlon on his way to a top-10 finish powered by Sustained Energy, Fizz, and Recoverite. Photo: Captivating Sports Photos

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Love Your Liver



Drinking coffee daily can help protect your hardest-working organ

BY STEVE BORN

It's long been accepted that the liver is the body's hardest-working organ, in charge of the monumental task of cleansing your body of toxins and helping other organs to function as they should. Protecting your liver is vital to your overall health, and recent research suggests a very simple way to do that. Drinking three or more cups of coffee per day, regardless of caffeine content, appears to offer powerful protection to the liver.

Using data from the U.S. National Health and Nutrition Examination Survey (NHANES, 1999-2010), which included nearly 28,000 participants, researchers from the National Cancer Institute measured levels of abnormal liver enzymes

to ascertain liver health. Participants who reported drinking three or more cups of coffee daily were shown to have had lower levels of the abnormal enzymes alanine transaminase (ALT), aminotransferase (AST), alkaline phosphatase (ALP), and gamma-glutamyl transaminase (GGT) compared to those who consumed no coffee. [1]

Researchers noted a similar outcome for participants who drank only decaffeinated coffee, prompting lead researcher Dr. Qian Xiao to comment, "This data suggests that ingredients in coffee, other than caffeine, may promote liver health. Further studies are needed to identify these components."

53x11: Four delicious options, including decaf

Given the latest research, along with dozens of earlier studies that link coffee consumption to good health, you have every reason to drink up! Coffee is more than a satisfying way to kick start your day—it's a tasty herbal beverage with an array of health benefits.

Many athletes also appreciate the energy boost they get from the caffeine in coffee. But if you're overly sensitive to caffeine, or you simply prefer to forego it, you can still benefit from coffee and enjoy the flavor of a freshly brewed cup by choosing a decaffeinated coffee variety.

Drinking three or more cups of coffee per day appears to offer powerful protection for the liver.

Organic 53x11 Coffee is available in four delicious varieties, including a decaffeinated blend: the Big Ring (a full-bodied Sumatra varietal), the Early Break (a bright blend perfect for the first morning cup), the Chain Breaker (a darker roast with full-bodied flavor, for espresso or drip), and the Down Shift (a smooth, water-processed decaf so good you won't know it's decaf!). If you've tried other decafs and have been disappointed by the flavor, be sure to give the Down Shift a try. It's naturally delicious and doesn't have that peculiar "off note" of other decafs.

All 53x11 Coffees are Fair Trade Certified, 100% organic, and micro-roasted daily to our exact specifications. Available ground or as whole beans, 53x11 is delivered fresh to your door within a week or two of roasting. Compare it to supermarket beans, or even the expensive coffees from trendy chains . . . you will find that 53x11 is a superior coffee, and a terrific value. Enjoy it in good health. 

[1] Research suggests coffee consumption is associated with a reduced risk of liver diseases, with some studies reporting risk reduction of up to 70%. (2017, November 20). Retrieved from <https://www.coffeeandhealth.org/2017/11/research-suggests-coffee-consumption-associated-reduced-risk-liver-diseases-studies-reporting-risk-reduction-70/>

■ Fair-trade ■ 100% organic ■ Micro-batch roasted



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*"This is by far the best coffee ever! It gives me the morning lift I need with absolutely no side effects. **Not 5 stars . . . 100!!!!**"*

- Online Reviewer



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Just wanted to ask... 10 Questions with Sponsored Athletes

10 QUESTIONS LIZ KARCZ



Liz Karcz displays her biking skills on the beaches by Baja.

Photo: Daniel Curiel

1

Where are you from?

I'm originally from Kinnelon, NJ, but I've moved around a bit.

2

What sport do you participate in?

Lots! But my main focus is desert racing dirt bikes.

3

How did you get into racing?

I had some friends convince me it was a good way to challenge myself and keep getting better. So after a year of riding, I gave it a go!

4

What is your favorite pre-race meal?

A banana with peanut butter and some Hammer Perpetuem hits the spot.

5

How did you hear about Hammer Nutrition?

My good friends, the O'Neals and Nancy Rutherford, really got me hooked off a few samples while preparing for the Baja 1000. At the time I was with another nutrition company but immediately fell in love with Hammer's supplement options in addition to the rest of the products!

6

What is your favorite race venue and why?

Baja! Such a special, unique place. Some of the most challenging and beautiful terrain in the world. Plus, the food there is great and the people are better! Nothing like it in the world!

7

I can't leave for a race weekend without:

Lots of snacks and baby wipes. It also helps if I remember to bring my bike!

8

What is your favorite Hammer Fuel?

That's a tough choice! I love HEED, but I think Perpetuem for the win.

9

What is your favorite Hammer Supplement?

Another tough choice! My go-to combos are Mito Caps/Tissue Rejuvenator for daily use. I add Race Caps Supreme/Endurolytes Extreme/Endurance BCAA+ during training and racing and Hammer CBD for recovery and sleep!

10

What keeps you motivated?

The fact that all we have is one life to live! Regardless if it's my routines, my hobbies, my career, my racing, or my relationships . . . I try to live each day to the fullest, test my potential, keep learning, keep growing, and most importantly, ENJOY it all while it lasts.

10 QUESTIONS

ERIC CHIZUM

Eric Chizum rolls through the cold and snow to a top-10 finish at the 2019 Stanley Winterfest Fat Bike in Stanley, ID.

Photo: Bill McCaan

1

Where are you from?

I was born and raised in Hailey, Idaho. Hailey is part of the Wood River Valley (a.k.a. Sun Valley).

2

What sport do you participate in?

The sport I'm most passionate about is cycling. I enjoy all disciplines of cycling but am most excited about XC Mountain Biking and Gravel.

3

How did you get into racing?

I got into racing in my late 20s after a friend of mine encouraged me to race a local mountain bike race. I was in the lead of the Sport pack after one lap and got a flat tire. I didn't have a tube to repair it, so I was out. I went to the next race a few weeks later more prepared and won the Sport category. After that, I was hooked. I've been racing as much as I can afford ever since.

4

What is your favorite pre-race meal?

For pre-race I stick to what I know, which is a bowl of oatmeal with Greek yogurt. I usually add some granola, walnuts, and dried fruit to flavor it. I also like plain white rice with soy sauce and a few eggs.

5

How did you hear about Hammer Nutrition?

I first heard of Hammer many years ago at a mountain bike race. They provided on-course nutrition. Fast forward 15 years and my friend Tim Withers truly introduced me to the full line of Hammer products.

6

What is your favorite race venue and why?

I really enjoy the Leadville Trail 100. Leadville is just such a spectacular town and the atmosphere surrounding the race is indescribable. It is different from any other race I've ever done. 2,000 freezing cold, nervous racers line up at sunrise ready to suffer for a minimum of six hours. I also enjoy the course. It requires a good blend of road and mountain skills.

7

I can't leave for a race weekend without:

My french press. A good cup of coffee is essential for pre-race.

8

What is your favorite Hammer Fuel?

Café Latte Perpetuem. Favorite post-ride fuel is Chocolate Recoverite.

9

What is your favorite Hammer Supplement?

Tissue Rejuvenator is my go-to.

10

What keeps you motivated?

My motivation comes from the support I receive from the people around me. My wife and son are incredibly supportive of my racing and they allow me to pursue my passion. My teammates help keep me on track to achieve the goals I set. The support I receive from my sponsors keeps me motivated to produce results as much as possible. I couldn't ask for much more out of life right now. I'm stoked to ride my bike and see new places!



Metabolic Musings, Part 2

BY DR. BAYNE FRENCH, MD DC

In the last edition, I talked about a nutritional shift that I feel needs to take place to propagate our species. I'm not talking about the latest misguided governmental nutritional policy, a pyramid or a plate, or the latest diet some expert is pontificating about. I mean habitual food procurement, prep, and consumption that humans were designed by and for.

Anyone can lose weight by a host of means. As the Biggest Loser study [1] showed, the vast majority will regain and even surpass their baseline weight, and possibly with a damaged resting metabolic rate. Yep, if it's not done right, you run the risk of being damaged goods. Mitigating the weight regain is brutal. "Set point" is loosely defined as the last highest weight an individual spent any time at. The brain, specifically the hypothalamus, has an uncanny ability to protect that weight. There are deep neurohormonal influences on our metabolism to return to set-point weight after loss. The only individuals I've ever seen lose a large amount of weight, enjoy the process, and keep it off indefinitely did so by completely changing their relationship with food . . . by upgrading to mindful consumption of human food: meat and other animal product, large amounts of vegetables, fruit, nuts, seeds, eggs, and mushrooms.

I believe there is very little neutrality to food. It is either fostering vitality, leanness, and mental clarity, reducing inflammation, and promoting a metabolism that excels at disease avoidance, or it's contributing to a slow and insidious weakening of function causing susceptibility to disease.

Why are we sensitive to the metabolic actions of carbohydrates? Imagine our genetically identical early human ancestors who happened upon a bush of salmonberries. This was a metabolic boon for them and those that were efficient at converting that fructose to fat survived, and less "carb sensitive" ancestors who could not make that conversion as readily did not. Carbs are not prevalent in nature, so when we found it, we HAD to make the most of it. Now, of course, carbs are ubiquitous, cheap, subsidized, and strongly recommended by people and entities we trust.

Did you realize that carb eating begets carb eating? The appetite-inducing hormone ghrelin rebounds greatly after a high-carb meal, driving hunger and preoccupation with food, as well as activating potent parts of our brain involving cravings and spatial learning. We commonly justify how we eat because we're active and will just "burn it off." When we're younger, the brain will efficiently defend "set point" weight, both against gain and loss. With age, however, set point asymmetry becomes apparent, with a far more vehement defense against loss. A

Did you realize that carb eating begets carb eating?



Dr. Bayne French, Hammer Nutrition's new medical advisor, competes in the Bigfork Spartan Beast. 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 (continued).

slow accumulation of adipose accumulates, insulin directing it to the midsection. Center of mass.

Insulin must be the enemy. Bad insulin, naughty! Sure, it's anabolic. We grow bigger with higher insulin levels, which sure helped our ancestors. When functioning properly, insulin doesn't just open the cell to allow glucose in but acts on the brain to increase energy expenditure and reduce appetite. This sounds favorable to me and is a reason for symmetry of set point when we're younger. The problem is the cumulative effect of high insulin levels over time resulting in down-regulation of insulin receptors in the brain and in peripheral tissues like the liver and skeletal

muscle. The result is the American epidemic of insulin resistance.

What's the problem with a little extra insulation in the solar plexus region? How much time do you have? If I could bestow two healthful attributes on each patient it would be to never smoke and to remain lean in the midsection. Visceral or abdominal fat is not like subcutaneous fat (under our skin). We've all transiently glared at these cute little globules after a mishap with a paring knife before it filled with blood and we hit the floor. Visceral fat is biologically active. Adipokines are hormones secreted by fat tissue, and belly fat releases over 600 of them! Of course, I have the name and function of all 600 memorized but for the sake of time . . . they are not favorable. These myriad metabolic products hit our bloodstream and increase inflammation, insulin resistance, and blood sugar, as well as distort our lipid profile and dramatically increase heart disease and cancer risk. Beer, anyone?

The details and vigilance required for health is inconvenient and expensive. But disease is far worse. Resist that which is complicated. Do not allow yourself to be mired in confusing and conflicting dietary recommendations. As a member of *Homo sapiens*, you've been dealt a specific genetic profile forged over hundreds of thousands of years. You dictate largely if that genetic potential is realized. 

REFERENCES:

[1] Fothergill, E., Guo, J., Howard, L., Kerns, J. C., Knuth, N. D., Brychta, R., . . . Hall, K. D. (2016, August). Persistent metabolic adaptation 6 years after "The Biggest Loser" competition. Retrieved March 29, 2019, from <https://www.ncbi.nlm.nih.gov/pub/med/27136388>

(From previous page) Dr. French currently works at Glacier Medical Associates and is double board certified in Family Medicine and Obesity Medicine. Bayne picked up obstacle course racing in 2013 and won the Masters division of the Bigfork, MT Spartan Beast (2016) and the Monterey, CA Spartan Super (2016).



Welcome to the 115th issue of Endurance News!

. . . continued from page 4

I know it's early in the season, but I also want to remind you of the importance of recovery and sleep. Focusing on this now will help you stay ahead of the increased

training/racing volume and help avoid the late-season burnout so many athletes experience in August/September. Make sure you are getting at least ½ gram of protein per pound of body weight daily. Recover right after each workout with Recoverite, Vegan Recoverite, or a recovery drink of your own making using one of our high-quality proteins. Top off your recovery program with Tissue Rejuvenator and CBD. Both will help reduce the aches and soreness and have you sleeping like a baby all summer long!

Speaking of CBD, have you tried ours yet? Or, are you already using a brand a friend told you about or that you found online? Did you hear that CVS and Walgreens have introduced topical balms in eight states? How about the latest Bed Bath & Beyond mailer promoting their new CBD tincture and infusions?

It's everywhere, and everyone is talking about it for a reason—it works! It also can be really confusing to try to sort through the hype and misinformation. Luckily for you, Hammer is here to cut to the chase with the best products, the best pricing, and all of the information you need to become a "CBD Expert." Plus, with our Win/Win/

Win referral program, you can offset or eliminate the cost of your CBD while helping family and friends discover its myriad benefits for themselves!

There's a lot more on these pages, so enjoy the read and share it with a friend or two.

I know it's early in the season, but I also want to remind you of the importance of recovery and sleep.



Brian Frank
Owner/Founder

Off to a Fiery Start

Spitfire Ultra Trail Challenge

BY ARYNN MAZNIO

“This has got to be the craziest thing I’ve ever done,” exclaimed a runner hovering just behind my shoulder. I nodded as we both paused to stare up at the obstacle in our way: a scramble up the side of the rockface along the side of the volcano. After a few seconds of thought, I picked my route, grasped some sturdy handholds, and climbed to the top of the southwestern ridge, with a bird’s eye view of the Tetons to the east.

A volcano. Yes, you read that right. If the name didn’t give it away, the Spitfire Ultra Trail Challenge, located on the Menan Butte just north of Idaho Falls, is indeed a dormant, tufted volcano—one of the largest in the world. When I discovered this race a year ago, it rocketed to the top of my race list.

In its ninth year, the Spitfire Trail Ultra Challenge is a group of four race distances, 5K to 50K. Participants scale the side of the volcano and traverse the rim to observe the route before descending into the caldera itself. Jagged volcanic rock and sagebrush

dominate the landscape, an arid, desolate environment to challenge runners to engage with physical and mental limits. Steep terrain up and down switchbacks require technical foot placement and precise movement. If runners opted for the ultra-distance course, they were greeted with a “never-ending desert” of two loops through sand and wind-sculpted rock formations.

Like its resilient setting, the race holds its own by continually attracting runners of all backgrounds. Spitfire is directed by Jennifer Saunders, an ultrarunner committed to hosting an event reflecting the grassroots nature of the sport while mixing new, exciting elements in response to the growing running community’s need for unique adventures. Newcomers and ultra veterans alike can appreciate its straightforward, classic style anchoring this race in the mountain-west race circuit. It is touted as an ideal training race to stir up the dust after a long winter. For me, it was a race of firsts: first trip to Idaho, first race of the year, and first time

I EVER ran into a volcano.

Though it has been nine years since the inaugural Spitfire, Saunders and her support crew were excited for a first of their own: to welcome Hammer Nutrition on the scene as the official nutrition sponsor. Quality fueling products were paired with a new initiative to provide environmentally-friendly alternatives to reduce trash. Saunders and her crew jumped on board without hesitation.

Every race participant received their own reusable Hammer Speedcup, along with a bag with fueling goodies and delicious product selections at aid stations. With almost 200 participants and several volunteers, eliminating paper cups played a significant role in reducing the amount of waste littering the trails. These reusable cups are lightweight, could be conveniently stashed in a race gear pocket and pulled out to refuel along the course. The cups were a big hit amongst runners and a practical feature they could use during future events. For the volunteers and race directors, these cups keep costs down and simplify clean up.

This successful partnership between the Spitfire crew and Hammer Nutrition perfectly blended the logistic and experiential elements that make a great ultramarathon. Reflecting on the event to set a benchmark for the start of my year, I am thrilled to join the leaderboard for the women’s top ten best finish times. I am overjoyed to see many individuals show up to put themselves literally out on a ledge, equipped with training and endurance of will to pursue their goals. Races like Spitfire embody the underlying spirit of the sport and the invitation to push the limits to learn what one is made of. For the first-time trail runner or seasoned ultrarunner, this event is definitely a destination race to add to the schedule. 

Hammer Nutrition HQ employee Arynn Maznio traverses the north rim of the volcano during the second loop of the race. 50k runners completed three loops up, around, and through the caldera, as well as two loops through the desert.

Photo: Nate Lo



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Ryan Ingham battles rocky terrain during a training run on Telegraph Pass. Photo courtesy Ryan Ingham.

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WE SUPPORT

Whatever your sport, you'll find plenty of challenging Hammer Nutrition-sponsored events to choose from this summer. We already have over 200 events on our calendar for the upcoming months, covering practically everything associated with endurance, and more requests for sponsorship support are pouring in daily.

Here's just a sampling of the exciting summer events we are honored to support:



NORTH AMERICAN OCR CHAMPIONSHIPS

8/09/19 STRATTON, VT

The best of the best Obstacle Course Racing (OCR) competitors will descend upon Stratton Mountain in August for a challenging weekend during which they will display feats of strength, endurance, dexterity, and grit. The North American OCR Championships give all ages a chance to compete for dominance in a 3K, 15K, and Team Relay.

Aside from the Team Relay, which has open entry, participants must qualify to compete in the OCR Championships (see noramchamps.com for qualification details). Once there, racers will tackle obstacles as they race up Stratton Mountain. Be warned—all obstacles are mandatory, so finishing the course means completing every obstacle!

The North American OCR Championships offer more than just pain and difficult challenges. Those who

complete the courses receive hefty medals that will be guaranteed to make friends ask where you got it. So throw on your bling and enjoy the camaraderie of the multi-day event. The North American OCR Championships are guaranteed not to disappoint, and, in fact, we've only heard one regret about this event: not doing all the races. If you're heading to Stratton, maximize your weekend by signing up for the 3K, 15K, Team Relay, and 7K Charity races.



For more details or to register, visit: noramchamps.com

YOUR SPORT

EXTRATERRESTRIAL FULL MOON MIDNIGHT MARATHON

8/17/2019 HIGHWAY 375, NV

Break out the tinfoil hats and dust off your headlamps! Calico Racing is putting on the Extraterrestrial Full Moon Midnight Marathon for its 13th year. When the clock strikes midnight on August 18th, runners will toe the line on the infamous “Extraterrestrial Highway” outside Area 51. Renowned for UFO sightings and explanation-defying encounters, this route is like nothing you’ve done before.

Choose from distances ranging from 5K to 51K. Remember, this race starts at midnight! Calico Racing knows it’s difficult to run through the night, so each race finishes at the Little A’Le’Inn for breakfast. Dress your alien best—two competitors will win prizes for best-dressed.

For more, visit: calicoracing.com/events/et-full-moon

Photo: M Bradford Photography



HALIFAX SUMMER REGATTA

7/27/19

Returning for its 23rd year, the Halifax Summer Regatta is proudly presented by the Halifax Rowing Association on the Halifax River in beautiful Daytona Beach, FL. This long-standing event attracts over 600 rowers from over 30 rowing clubs and they will compete for trophies, prizes, and epic bragging rights.

The Halifax Summer Regatta is spectator-friendly, so take in the spectacle of paddles from the local parks and river banks. The Regatta is an excellent place to dip your toe into the rowing world, too, and it functions as great cross-training for cyclists, swimmers, and triathletes.

For more details or to register, visit: halifaxrowing.org



UPCOMING EVENTS:

TRI FORT DE SOTO II

8/3/19 TIERRA VERDA, FL
fortdesototriathlon.com

FINDLEY LAKE TRIATHLON FESTIVAL

8/3/19 FINDLEY LAKE, NY
coachmarkwilson.com/events/findley-lake-triathlon/

DEER CREEK OPEN WATER SWIM

8/10/19 WALLSBURG, UT
deercreekopenwater.com

LEAN HORSE 100

8/16/19 CUSTER, SD
leanhorse100.com

12 & 24 HOURS OF FLATHEAD

8/17/19 KALISPELL, MT
24hoursofflathead.org

HARRIMAN PARK 25K & 50K

8/17/19 ISLAND PARK, ID
buffalorunadventures.com

FORT MEADE ENDURANCE RIDE

8/18/19 STURGIS, SD
fortmeaderide.com

PRIEST LAKE TRI

8/17/19 PRIEST LAKE, ID
priestlakerace.com

RACE THE LAKE

8/25/19 FOND DU LAC, WI
dutriron.com/rtl

DAKOTA FIVE-O

9/1/19 SPEARFISH, SD
dakotafiveo.com

SUPERIOR FALL TRAIL RACE

9/13/19 LUSTEN, MN
superiorfalltrailrace.com

MOGOLLON MONSTER 100

9/14/19 PINE, AZ
mogollonmonster100.com

**FOR MORE INFORMATION,
VISIT THE EVENT WEBSITES
LISTED ABOVE.**

Be Brave, not Brash

BY JOHN KELLY

There are a number of issues in ultrarunning that have to be dealt with in racing and training. There are the visible ones: trips, falls, wildlife, extreme weather conditions, blisters, sleep deprivation, etc. These are pretty well-reported, recognizable, and in some cases sensationalized. At the Barkley Marathons, for example, so much attention is typically given to the briars and the resulting cuts (or “rat bites” as they’re called at the race). Well, they’re just little cuts. They heal. At worst, they’re a nuisance.

But then there are also dangers that are less visible, and that aren’t as “badass” to talk about. Hyponatremia is one such danger. In a race that long, there’s a lot of time for your sodium/hydration balance to take a turn for the worse. And unlike a briar cut, this can have major complications (in the worst case, death).

There’s been a big surge in recent years of doing extreme sports in order to create an image of being tough. The more pain and suffering someone can push through, the better. And if they can’t push through it, then surely they must just not be tough enough. Unfortunately, something like hyponatremia might not manifest itself as an immediate obstacle relative to other problems that can occur during a race, so people are apt to ignore many of the warning signs. After all, “I dropped because I felt my sodium levels were dangerously high” doesn’t make for the best Instagram post.

Being tough without being smart is just foolhardiness.



There’s nothing wrong with trying to be tough or taking on big challenges. Actually, those things are great, and on average I think people could use a bit more of both. But like most things in life, there’s such a thing as going too far and there’s more to consider than the immediate outcome. Being tough without being smart is just foolhardiness. True bravery is strength in the face of known danger, not ignorance of the danger.

So please, get educated on the less sexy dangers of endurance sports like hyponatremia. Watch salt and sodium intake in everyday life and be cognizant of your intake and warning signs during races. And if things get bad, remember how much more important long-term health is than that medal, belt buckle, Instagram post, etc. There are a lot more of those to be had in future races. 



John Kelly is an ultrarunning data scientist best known for winning the Barkley Marathons in 2017. He holds a Ph.D. from Carnegie Mellon University and works as the Chief Analytics Officer at Envelop Risk. This proud father of three (including twins!) recently moved with his family of 5 to the UK! Follow John’s running saga at randomforestrunner.com. Kelly tackled the tough Barkley Marathon course for the third time in 2019. No one has finished this race since John’s finish in 2017 (Pictured left).
Photo: Josh Patton

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Matt Slater and the rest of the Hammer Nutrition 53x11 Masters team took on the Thunderhill Circuit for the first stage of the Chico Stage Race. The Hammer Masters team had a strong day as teammate Ron Amos claimed 2nd place. Photo: Greg Beliera

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Training for Ultra Review

BY ARYNN MAZNIO

Line in the Sand

Turning the pages of Rob Steger's new book, *Training for Ultra*, transported me back to my early days of ultrarunning through tales of race campouts, exciting pre-dawn starts, and the anticipation of the unknown. The feelings of uncertainty, adrenaline, and awe at the starting line and elation when a goal became realized were all too familiar.

The last few years saw several literary contributions to the ultrarunning community from well-known names like Scott Jurek, Catra Corbett, and Karl Meltzer. Every new book release resulted in a dash to the nearest bookstore for my own copy, devouring every page . . . and was followed by lacing up my running shoes for a jaunt on the nearest trail, fueled by inspiration and excitement. When I heard that Hammer Nutrition's sponsored athlete Rob Steger was about to publish his story, I knew I was in for a treat and got my hands on a copy right away.

A self-described "middle of the pack runner," Rob presents witty and relatable stories from his adventures in ultrarunning, taking readers to well-known races such as UTMB (Ultra Trail du Mont Blanc) and The North Face Endurance Challenge, sharing trials and triumphs of nailing the "flow state," and delicately balancing running and life.

Fueling snafus? Check. Hallucinations? Check. Getting lost? Check. Rob describes triumphant finish line moments but doesn't shy away from less desirable scenarios. I found myself chuckling after each encounter or

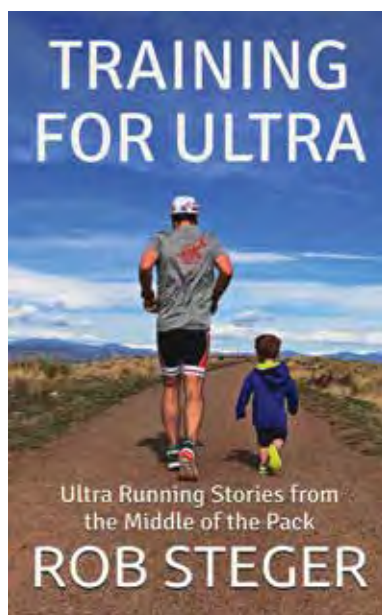
lesson he learned. Why? Because I have been there myself. The unique quality of *Training for Ultra* is that unlike documented superhuman feats, such as breaking FKTs (Fastest-Known Times) or sprinting off to establish course records, Rob shares valuable tidbits we often miss or overlook but are guaranteed to experience. Relatability is what gets us up off the couch and out for a run because we are convinced that we don't need a particular gene to run 100 miles, only the proof that someone exactly like you and I, with a job, family, and other obligations made a plan and was determined to achieve their goal.

Rob shares his three years and hundreds of miles of training and racing, the development of the *Training for Ultra* podcast, and most importantly how the personal impact of his father's health prompted him to change his own lifestyle habits. Rob engages his audience with humorous accounts

of his early races and progresses to eventually complete the longest footrace in America—the Moab 240—on his third "running birthday."

Runners who accomplish these feats of endurance come from diverse backgrounds—it is this motley crowd that makes ultras fascinating for both the participant and the observer. The ultra community is as much of a magnet as the mystery to answer for oneself, "Just how far CAN I run?!" Whether you're looking for validation that running 30, 50, or 100 miles is not THAT crazy or you are curious about what it takes to run these races, I guarantee Rob's storytelling will get you off the couch and out for a run, or at the very least dusting off your running shoes. That's where it all begins, right?

I've always appreciated enthusiastic slogans that encourage us to push past our limits; that hard work and discipline enable us to be more than capable of achieving our wildest dreams. Running 100 miles may initially seem far-fetched, but with commitment, a supportive community, quality nutrition, and grit, Rob proves that though the first step out the door may be the hardest, it is a step worth taking, and with it comes the start of a rich and fulfilling journey. Perhaps one day, you too will find yourself in the middle of the Utah desert running for the joy of it and think back to what inspired you to step up to the line in the sand. 



Rob Steger's "Training for Ultra: Ultra Running Stories from the Middle of the Pack" tells a story all runners can relate to, regardless of skill level.



Scott Wesemann relies on the raw, natural energy from Hammer Bars before and after runs. Photo courtesy of Scott Wesemann.

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From Our Athletes



BRENT HAEFNER

Double Chubb 50K

Hammering his way through the Double Chubb 50K, Brent Haefner finished 7th OA and 1st in the 60-69 AG with a PR of 5:17:55! Brent fueled with Fully Charged, Sustained Energy, Endurolytes, and a variety of his favorite Hammer Gels.
Photo: Mile 90 Photography



DYLAN FLORES

Dylan Flores, age 12, rides in the LA Tri Series #1 on his way to a 2nd place overall finish!

Photo: Byron Moore, photographer for Tri Events LA Tri Series 2019



NICK JERABEK

Nick Jerabek, a mentor for the Tieni Duro Developmental Team turns a corner during the Winchester Circuit Race in Meadow Vista, California.
Photo: Katie Miu



LANDON WOLFE

A few key moves during Round 1 of the GNCC Series brought Landon on a 1st place finish in Palatka, FL. Landon fueled with Lemon Lime HEED, Race Caps Supreme, Vanilla Gel, and Recoverite. Photo: Ken Hill



RYAN INGHAM

For Hammer Nutrition athlete Ryan Ingham, nothing beats the finish-line feeling. That is, until your 8-year-old paces you for the last four miles of the Whiskey Basin 88K! Ryan fueled with Hammer Bars, Fully Charged, HEED, and Perpetuem. Immediately after finishing, Ryan took BCAA+, Tissue Rejuvenator, and Recoverite. Photo: Aravaipa Running



DAVIS PHINNEY MASTERS TEAM

The Davis Phinney Foundation for Parkinson's Masters Cycling team is proudly sponsored by Hammer Nutrition! The team rides to support and raise awareness and funds for Parkinson's research. You'll find them racing in many Southern Californian road races. Photo: Scott Dworkin



Meghan Wallace Ozark 25K

Hammer Nutrition athlete Meghan Wallace smiles as she heads towards the finish line of the Ozark Foothills 25K. Fueled by Hammer Gel, HEED, and Endurolytes Extreme, Meghan finished 3rd Overall Female. Taking Recoverite immediately after her 25K allowed Meghan to recover properly, and she ran a marathon relay the very next day!

Photo: Mile 90 Photography

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Erica Lazarus runs in the Las Olas Triathlon, where she won the Masters Division and finished 5th overall (women). Her pink triathlon kit can be custom ordered.
Photo: Fixed Focus Photography