

# ENDURANCE

# NEWS

BY HAMMER NUTRITION

#124 April/May 2021

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### **CBD Balm for Ultras**

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### **Introducing**

### **Hammer PHOOD**

Our newest nutrient-dense meal replacement

### **A Runner's High**

Dean Karnazes shares excerpts from his new book

### **PLUS**

- Intermittent Fasting for Athletes
- Mike Freeman's Hammer Story

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Hammer athlete **Lou D’Onofrio** makes time for early morning hill repeats through the rugged trails of Pennsylvania. Lou completed 3,014 miles in 2020, with 406,313 feet of vertical gain. Photo: Heather D’Onofrio

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## ENTER THE DRAGON

“A very fine 5.12c route near Sinks Canyon of Lander, Wyoming. Great climbing and glorious landscapes. I climbed 9 days in a row, every day after work, which felt good since I always stay consistent with Hammer Gel®, Endurance BCAA+, and go for Hammer Whey Protein every night. Towards the end of the trip, I attempted the notorious Enter the Dragon line on this sheer face. It took all the climbing power that I had—I was able to do the route on only my second try with max focus. What a way to end the trip!” - Sevve Stember

Photo: @danieljnoll

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

# Welcome to the 124<sup>th</sup> issue of Endurance News!



Be sure to check out all of our international contributions throughout this issue, especially Chilean cold water superstar Bárbara Hernández.

On the racing front, a lot of events are on for 2021, and as has been the case for decades, we'll be supporting these grassroots events the Hammer way. Check out the events pages and be sure to sign up for any that are near you!

Also in this issue you'll find some early season race results, including wins at Rolex 24 at Daytona. Caitlin Lewis rounds out the issue nicely with her female overall win at the Grandmaster Ultra 50K—She shares her race winning strategy, along with an awesome photo on page 66.

As is usually the case, we'll be introducing exciting and effective new products, starting with Hammer PHOOD! This is our first meal replacement product (MRP), and as usual, I find myself asking “what took me so long?!” Oh well, it's here now and I am eager to hear your feedback once you try it out.

Hammer PHOOD is a high protein, high fat, low carb powdered drink mix that can be used as a meal substitute, as part of a calorie restriction plan, or as a supplement for those who need extra calories to avoid muscle loss. It boasts a short, clean ingredient list with NO added sugar, artificial ingredients, or

emulsifiers: Nasty stuff found in almost every other MRP on the market. Which explains the “why” of this product.

I'm also super excited for the return of my beloved Phytomax after an almost three-year hiatus due to supply chain problems. Also on the list of great products, soon to be back on the shelf, much improved is our AO Booster product. Now in softgel form, it will deliver an even more potent supply of fat-soluble antioxidants. Read all about this new and improved version on page 36. Both of these products are on my permanent “daily” list.

Before I sign off, I want to remind you that we are here, we are available to you, and we are easy to reach. Calling our toll-free number during normal business hours is the fastest way to get all of your questions answered, fueling plan dialed in, and product ordered up! However, if that doesn't work for you, our live chat, manned by real staff like Steve Born, is another great option.

We also listen to all of your feedback; good, bad, or otherwise. So, be sure to weigh in via phone, email, or social media platforms.

Enjoy the read and recycle by passing it on to a friend.

Brian

**W**e are charging into spring with a full head of steam and big plans for 2021. I hope the same is true for you! As has been the case for over three decades, we'll be here to help you accomplish your goals and reach new heights in your athletic performance and overall health. We are just a phone call or click away.

Besides all of the great grassroots client/sponsored athlete/ambassador content you have come to expect from *Endurance News*, we continue the discussion on intermittent fasting with Dr. French and how to do it while training eight hours a week or more. You can also be some of the first to read about Dean's new book, *A Runner's High* on page 10.



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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](http://hammernutrition.com).

## OUR GUIDING PRINCIPLES

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

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

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

## OUR CORE VALUES

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

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

Read our complete mission statement online at [hammernutrition.com/company/mission-statement](http://hammernutrition.com/company/mission-statement)



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# In this issue, find the ultimate fueling tips for race day.

Read more on pages 22, 28, 30, 42, and 54

**ON THE COVER:** "With plenty of mileage in my legs and Hammer in my hydration vest, I simply set out and enjoyed the race." **Ryan Ingham** finishes off his 2020 season with the Whiskey Basin Trail Run 91K fueled with Grape Endurolytes Fizz, Melon HEED, and Hammer Gel. Photo: Let's Wander Photography



6

Hammer's very first meal replacement product (MRP) is packed with nutrients and optimally formulated to reduce cravings and hunger. **Hammer PHOOD** comes doctor-recommended and is specifically designed for high-level athletic performance.

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Hammer Nutrition Chile sponsored athlete **Bárbara Hernández** is 2020 World Open Water Swimming Woman of the Year. Photo: THD Lateral **Read more about our international athletes on page 50.**

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# Introducing **HAMMER PHOOD**



the “sugar’s not that bad, I don’t eat that much” denial, but it still does not fully achieve a practice that avoids sugar.

Any diet that restricts or eliminates sugar and wheat is a diet I support. Furthermore, we now know that the “low fat” fad diets of the past were largely based on flawed research that diverted attention from sugar and blamed fat and cholesterol for our major diseases.

The last piece of the puzzle is my growing collaboration with Dr. Bayne French. As an informed, educated and credentialed expert in bariatric medicine, hardcore endurance athlete, and mountain man survivalist, Dr. French has spent the better part of the past two decades studying macronutrient intake and its effect on our health and well being. His advocacy for a higher fat diet combined with intermittent fasting is compelling and has been a revelation for me.

Ironically, I taught him how to fuel for OCR and the other endurance events in which he excels. It was inevitable that two guys who can’t stop developing products would soon come together to create a unique one. The result is Hammer PHOOD, a high protein, high fat, low carb, minimal ingredient powdered drink mix that truly fits the definition of a healthy meal replacement product. It will be an MRP for both Hammer and Dr. French’s bariatric practice.

*continued on page 60*



by BRIAN FRANK

The idea of a Hammer meal replacement product (MRP) goes back at least 10 or 15 years. Why it took us so long to bring one to market is a good question. One of my favorite sayings is, “The best time to plant a tree was 20 years ago, but the second best time to plant a tree is today.” So it is in that vein that I am pleased to announce the first-ever true meal replacement product from Hammer Nutrition, which we simply call **Hammer PHOOD**.

The reason I did not create an MRP until now was that it just did not feel right. Certainly I could have done a “clean” version

of the typical MRPs, but that is pretty close to Recoverite<sup>®</sup>, which I have always said could be effectively used as an MRP. However, Recoverite lacks fat, which is really important for satiety, so it really serves more as a meal bridge than replacement.

The next part of the MRP story is my evolution through diet theory and practice. I have tried to abstain from refined sugar and encouraged all of you to do the same. The challenge here is that refined sugar is usually replaced with natural sugars and foods that our body identifies as sugar. This is a huge improvement from

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Hammer sponsored athlete **Alexander Terry** traverses the challenging trails of Paradise Park—typically running 50-60 miles per week. In 2020, he participated in the Aravaipa Strong Virtual Race, running for 8 days, 7 hours, 13 minutes. Photo: Rebecca Widener

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# FASTING FOR THE LONG RUN

by DEAN KARNAZES

The idea of eating three square meals a day is a very modern one. Unfortunately, so is the worldwide epidemic of obesity. The ancient Greeks practiced a form of fasting (oftentimes referred to as an Apostles' Fast) as a way of, "purging impurities from the body and the spirit and normalizing metabolic functions." Today, many progressive types are doing the same, including Tony Robbins and Tim Ferriss, as well of a slew of celebrities, like Beyoncé and Hugh Jackman. Indeed, intermittent fasting has become a mainstream practice in recent times.

I first started fasting years ago with little idea of what I was doing. All I knew is that as a species we evolved from a time when food wasn't always plentiful or readily available, so it seemed inherently human to sometimes go without eating. I followed a regimen that could be loosely classified as time-restricted fasting: eating only during an eight hour window between 11 AM and 7 PM. Additionally, I ate my largest meal mid-day.

Within a week of starting this fasting practice I began to notice that I was feeling better. My sleep quality improved, my overall energy levels seemed higher, and I recovered quicker and more fully. This was prior to having widespread access to tools that can measure these things, such as Whoop and Ketone strips. But anecdotally I felt healthier even if I didn't have quantitative proof.

There was one area where I struggled, however. If I did a hard run or workout early in the morning it was sometimes challenging to wait until 11 AM before eating. So I accommodated for that by shifting the time restriction forward from 9 AM to 5 PM. That seemed to work.

Though I should be clear, throughout this modification in eating habits I continued drinking coffee in the morning (black with no cream or sweeteners). Consuming coffee releases triglycerides





and free fatty acids into the bloodstream, so my morning runs were likely fueled by stored body fat. That was probably the reason I could get through a strenuous workout without entirely bonking. If you drink coffee and don't work out, however, those triglycerides and free fatty acids are reabsorbed. So on days I didn't work out in the morning the circulating fats were just restored in the body.

I've now been practicing time-restricted fasting going on two decades. When I find something that works I tend to stick with it until I find something better. So far, I haven't. In fact, more and more studies are validating the benefits of fasting, from improved blood sugar tolerance, reduced inflammation, greater mental clarity, and even anti-aging. I should also point out that during this period I've changed the types of foods I eat as well, which may be another contributing factor. I've eliminated junk food and sugary snacks entirely. My diet could best be described as a hybrid between Paleo, Mediterranean, Rawism, and sometimes Keto. Yes, I take this stuff seriously. My health and my performance demand it.

Needless to say, this article is an unapologetic endorsement of fasting. I've experienced great benefits from the practice so why not pay it forward to potentially help others? I see this as a responsibility, an obligation. Of course, consult your physician or other health care professional if you have any underlying medical conditions. And read up on the various protocols for fasting. I've experimented with many of them and continue coming back to the time-restricted plan of eating between 11 AM and 7 PM. It's a simple program to follow and the results are dependable. And Hammer Nutrition's new Hammer PHOOD makes it all the easier! (That was an unapologetic endorsement as well.) EN Photo: Fitbit



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

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Jason Kent shows young Tiene Duro Team trainees how it's done on a ride up Laurales Grade in Monterrey, CA. Photo: Thor Poulsen

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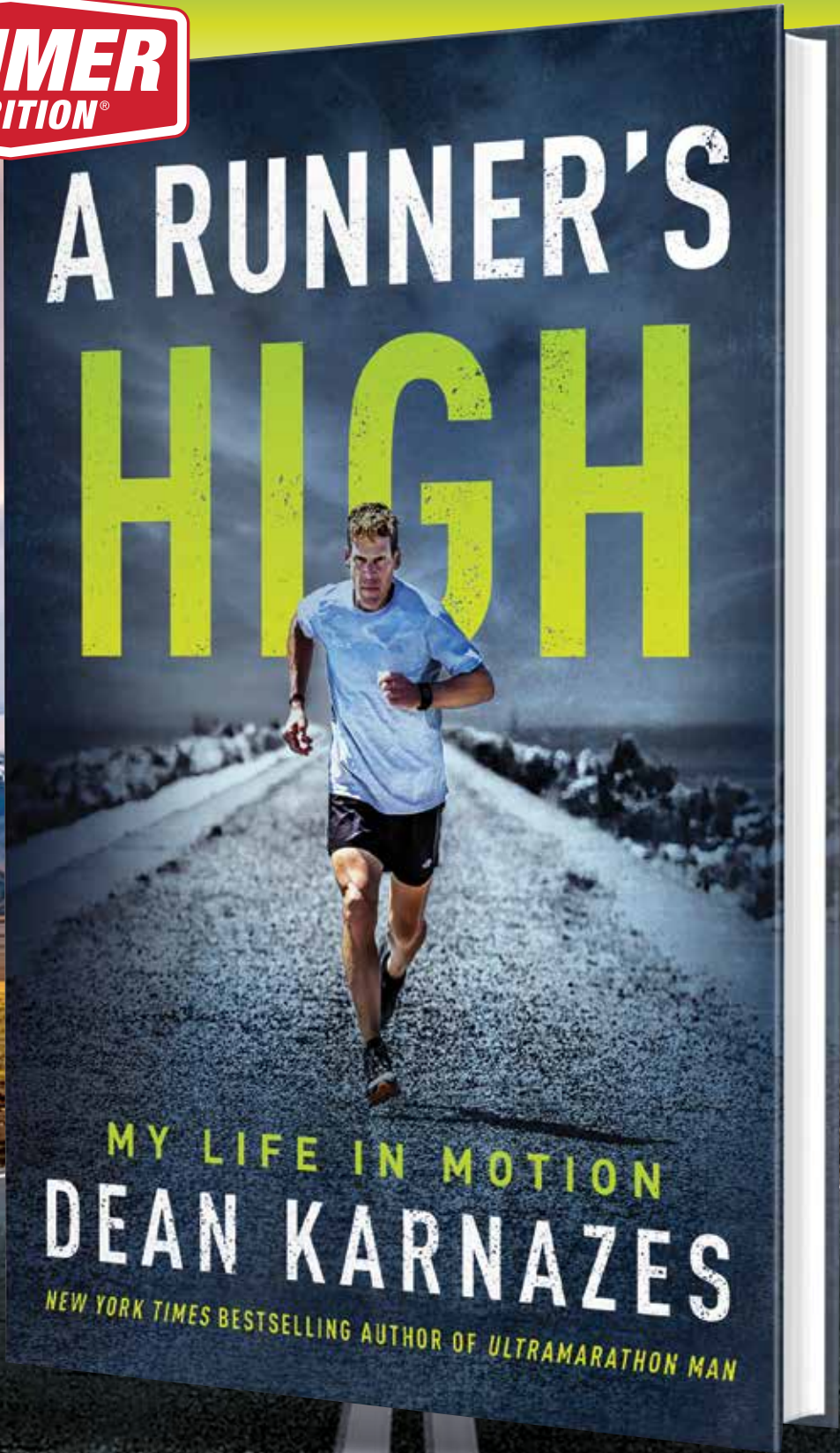
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# A RUNNER'S HIGH

by DEAN KARNAZES

Excerpt from *A Runner's High: My Life in Motion* by Dean Karnazes.  
Published by HarperOne. Copyright © 2021 HarperCollins.

## RUCKY CHUCKY RIVER CROSSING – 1:00 AM

Lowering myself down the darkened riverside embankment and cautiously wading into the water, it was unnervingly cold and bracing. The American River was mostly fed by snowmelt from the higher elevations, and to the uninitiated, crossing it could be catastrophic. To those unlucky few, the Western States journey ended at this point when their muscles seized up upon exposure to the whirling, cold-water torrent.

Thankfully, some of us found the occasion just the opposite, renewing. I submerged fully in the chilly liquid, then jumped up and shook vigorously like a wet dog. “Brrr!”

It felt so good I did it again. Once sufficiently doused and thoroughly chilled, I began the crossing. A line was strung across the waterway for safety, and I held tight as I stepped farther into the depths, the waterline rising over my waist. I thought about other races and how Western States compared. To a runner at, say, the Boston Marathon the idea of forging a river midrace would seem preposterous, unimaginable. But here I was, 78 miles into a 100-mile footrace grasping a flimsy rope for dear life trying to avoid being swept downstream. If marathoning is a boxing match, ultramarathoning is a bare-knuckles bar brawl.

When I reached the far side of the river, I marched up the sandy embankment in my soaking wet shoes and socks and continued onward. Many veterans say Western States begins once you’ve crossed the river. I’d now done so. **The race was on.**

Unexpectedly, waiting on the shoreline stood my son Nicholas. “What are you doing here?” I was startled to see him; this was not something we’d planned.

“Thought I’d check on you, to see if everything’s okay.”

“That’s nice, but how did you get here?”

“I walked down from Green Gate.”

“You realize you’re gonna have to run back.”

“They told me most people hike this section.”

“Most people do, though I might crawl.”

“Still not feeling it?”

“Nicholas, there are good races and there are bad races. Let’s just say this is not a good race.”

He smirked.

“Dad, you’re running 100 miles. To most people that says enough.”

His perspective was healthy. Sometimes when you’re so close to something your viewpoint distorts. Fast or slow, everyone out here was running 100 miles. Enough said.

*continued on page 60*



# INTERMITTENT FASTING

PART 2

by DR BAYNE FRENCH MD DC

## BRIAN'S NOTE

In the previous issue of *Endurance News*, Dr. French kicked off our discussion on the subject of intermittent fasting (IF). As with his recent articles on low carb, high fat (LCHF) diets, these articles are intended to provide additional insight from a Hammer perspective on these frequently discussed dietary practices. For those of you who want to dive deeper, Dr. French will be writing unabridged articles for *Endurance News Weekly*.



Over the past 100 years, numerous intermittent fasting (IF) studies have shown a remarkable improvement on aging and life span in animals. Initially thought to be caused by the reduced production of free radicals and weight loss, it is now understood that there are numerous other cellular phenomena going on. An excellent article in the *New England Journal of Medicine* states that,

*“Intermittent fasting elicits evolutionarily conserved adaptive cellular responses that are integrated between and within organs in a manner that improves glucose regulation, increases stress resistance, and suppresses inflammation.”*

They continue:

*“Periodic flipping of the metabolic switch not only provides the ketones that are necessary to fuel cells during the fasting period but also elicits highly orchestrated systemic and cellular responses for carry over into the fed state to bolster mental and physical performance as well as disease resistance.”*

As the *New England Journal of Medicine* review article describes, **autophagy** is greatly enhanced during IF. With fasting, our cells become more adept at cleaning themselves and recycling components.

Dr. Yoshinori Ohsumi, who

specializes in autophagy, was the recipient of the 2016 Nobel Peace Prize in Medicine for his discoveries of the mechanisms of autophagy: that each cell in our body has the capability of destroying its own contents and recycling them. This concept of “self eating” was first observed in the 1960s. He is a smart guy (and I’m told, also a good fly fisherman).

Dr. Ohsumi’s discoveries open the door for a new paradigm of understanding about how the cell responds to a host of physiological processes and stressors like starvation and infection, and how autophagic processes affect serious illnesses like cancer and neurologic disease.

## DIFFERENT IF REGIMENS

Fasting, like everything else in life, should be kept simple. In general, the longer someone spends in a fasting state the more robust the benefit. There is no widely accepted superior method of IF, but there are a few popular and widely practiced approaches.

### Leangains, 16:8

This method of fasting (developed by Martin Berkhan, a Swedish nutritional consultant, bodybuilder, and model) is probably the most popular IF method. It involves 16 hours of fasting and eating within an 8 hour window. It's pretty much just eating lunch and dinner.

### The Warrior Diet, 20:4

This is based on the purported eating patterns of ancient warriors, who consumed little during the day and feasted in the evening. It was created by Ori Hofmekler, a former Israeli special forces member turned fitness and nutrition educator. It specifies 20 hours of fasting and eating a large amount at the end of the day, in a 4 hour window.

### Eat Stop Eat

This is the title of a book written by Brad Pilon, another bodybuilder, who has a graduate degree in human biology and nutritional sciences and is a leading and vocal advocate of IF. This method involved fasting for an entire 24 hours, 2 days per week. Many find this method more difficult, but certainly a deep level of fat breakdown (lipolysis) and fat burning (beta oxidation) occur.

### The Non-Body Builder, Non-Model, Middle-Aged, Endurance Hack, Nobody Method

This is my regimen. It's very complicated and nuanced. Also highly evidence-based and basically the greatest thing ever. Sometimes I have really fatty coffee in the morning. Sometimes I do not have fatty coffee. But I always have coffee. I hardly ever eat breakfast. Monday through Thursday I eat two meals a day, low-carb high-fat. Friday through Sunday usually "OMAD", one meal a day. I am rarely hungry, commonly exercise on an empty stomach, and never count calories or measure ketones. This signature method of mine also can encompass much longer fasts. I am looking out the window right now, with pride, at a garden fence I built while fasting for 5 days. It's a terrible fence, all uneven and falling apart. It doesn't even keep the deer out, which was its original intent. But hey, I was lightheaded and kept falling off the ladder while pounding posts. I absolutely love that my day no longer revolves around food. It is freeing, liberating, and time saving. And I was never well suited for physical labor anyway.

## TIPS FOR IF

Most individuals who've adapted to a LCHF (low carb, high fat) way of eating can seamlessly fast, although that's not a requirement. I have written about eating this way many times and I think it is the healthiest "diet." I have also written about the concept of "fat adaptation," the cellular biochemical state of fat burning efficiency. It takes a while to develop this, which is one of the principal problems of many of the ketogenic diet studies on athletic performance: the athletes were simply not allowed the time to fat-adapt. The more adept we are at burning fat, the more pleasurable the fasting experience.

Staying well hydrated is critical. Drink at least 2 liters of water daily. Tea and coffee are also excellent choices. Green tea in particular yields favorable chemicals to stimulate metabolism and weight loss. Coffee really should have its own article. Both caffeinated and decaffeinated coffee show greater suppression of hunger than equivalent amounts of caffeine mixed with water. This implies there are numerous other beneficial compounds within coffee.

***Embrace the grind. Understand the benefits of fasting and understand that nothing bad will happen because you are hungry. Also realize (and keep telling yourself over and over) that the hunger will pass relatively quickly.***

*Continued on next page*

# HOW TO BREAK THE FAST

## INTERMITTENT FASTING PART 2

by DR BAYNE FRENCH MD DC

*Continued from previous page*

With shorter duration fasts (24 hours or less), there really is nothing to “break;” just start eating again. Be aware that the urge to eat is based more on the psychological need to do so than on hunger. Overeating can lead to gastrointestinal issues. Be mindful, don’t binge, and choose low glycemic, nutrient-dense food.

## CAN I EXERCISE DURING A FAST?

Yes. In fact, it’s recommended. There are actually many similarities between exercise and fasting, and doing them together compounds the benefits. There is a misconception that when we exercise, we must provide caloric fuel. Except for higher level endurance training and competition when the nuances of proper fueling become more important, the liver is capable of creating glucose through gluconeogenesis. Furthermore, muscles are able to directly use fat for fuel. That’s why exercising on an empty stomach accelerates the reduction in body fat percentage that confers such health benefits.

While our liver glycogen stores are naturally depleted during sleep and fasting, muscle glycogen stores remains intact. Fasting three hours prior to exercise will increase insulin sensitivity and fat burning.



## CONCLUSION

Strive to increase the amount of time spent in a fasting state. Many people find that with a little bit of practice, breakfast can be routinely skipped. Eating two delicious nutrient-dense low-carb high-fat meals per day (a later lunch, and a larger dinner) seems to maximize fasting’s benefits for most people.

A great way to start is to first try LCHF eating. Then slowly move back the first meal.

Many neurological and hormonal forces within the body all conspire to elevate insulin levels. Why? Because it’s an anabolic, survival hormone, and our brains really, really want us to survive. Consumption of a LCHF diet has a powerful impact on insulin secretion, metabolism, and overall health. The addition of IF further accentuates these effects. Many authorities, including Dr. Fung, feel it is the most powerful modality to reduce insulin, thus allowing the burning of fat. And it’s entirely within our control. Your control. **EN**

References available on request



Dr. Bayne French MD DC is Hammer Nutrition’s medical advisor. Along with an MD from the University of Washington, Dr. French brings over 20 years of health experience, with a focus on wellness, to the Hammer team. Dr. French currently works at Glacier Medical Associates and is double board certified in Family Medicine and Obesity Medicine. Bayne picked up obstacle course racing in 2013. He won the Masters division of the Bigfork, MT Spartan Beast (2016) and the Monterey, CA Spartan Super (2016). He competed in the Spartan World Championship Ultra Beast in 2016 and earned a 2<sup>nd</sup> place finish in his division.

Read **Part 1** of Dr. French’s Intermittent Fasting article on *Endurance News Weekly*. →



# Hammer PHOOD

## The Doctor-Recommended Meal Replacement

by DR BAYNE FRENCH MD DC

Whether or not you are an advocate of lower carb, higher fat eating or the “ketogenic diet”, there are great health benefits to minimizing carbohydrates, and consuming moderate amounts of protein and higher amounts of fat.

In a controlled environment with ample time, preparing meals like this is enjoyable and achievable. Many, however, do not have this option for much of the day. Providing outstanding nutrition with sound macronutrient distribution has always been a priority at Hammer Nutrition, so I am pleased to have collaborated on the development of this powerhouse meal replacement product (MRP). Finally, we have a nutrient-dense meal replacement with a biologically sound macronutrient distribution based on our human needs.

Hammer PHOOD is useful both as a standalone fuel for shorter duration exercise (<2 hours) and as a true meal replacement. Furthermore, it has been used successfully as part of calorie restriction/weight loss treatment plans. Inclusion of optimal fat profiles was critical.

This resulted in a purposeful omission of vegetable emulsification.

Many of the health problems I see with endurance athletes (elevated insulin levels, insulin resistance, accumulation of belly fat, elevated CRP inflammatory markers, abdominal bloat, nagging injuries, and suboptimal performance) are solely based on dietary and fueling practices. Particularly those whose daily dietary habits include high carbs and sugar.

Hammer PHOOD offers a nutrient-dense, optimally formulated alternative to reduce the amount of daily carbohydrate consumption by as much as 100+ grams per day. Less dietary consumption readies the body to perform better when complex carbohydrates are ingested during training and competition.

Noticeable reductions in cravings and hunger are directly observable with Hammer PHOOD use. Its choice of ingredients is known to result in very low levels of our hunger hormone “ghrelin.” This facilitates an overall reduction of daily calories, especially from carbohydrates, which allows ketones to be more readily liberated. It also helps with intermittent fasting for those who practice it. Refer to my previous articles about the myriad benefits of ketones for health and disease prevention, as well as adaptation and athletic performance. EN



# “FEED FORWARD”

## V.I.P. - a Very Important Perspective

To Brian Frank and all at Hammer Nutrition,

It has been a pleasure speaking with you and in kind, I would like to share a practice that has proven beneficial in my own experience.

Whenever I see or hear the word ‘feedback’ it usually has a negative connotation—so much so that in my company, we don’t even use the word! Our term is ‘feedforward’.

**“We are giving information to our team that will propel them forward, rather than focusing on what has already happened.”**

If I have to use the word ‘feedback’ I always put the word ‘constructive’ in front of it.

Here are few ways I implement this positive reinforcement:

### “Yet”

When I do have to give more critical coaching to one of the team, I try to add the word ‘yet’, which makes a huge difference. Compare these two comments:

1. You don’t have the skills to close this deal.
2. You don’t have the skills to close this deal YET. It’s the same message, but the door is open for future improvement and development—much more positive.

This has helped us create a growth mindset within the company. Mistakes don’t cause failure; not growing is what causes failure.

### “Coaching”

The other word that I use instead of feedback is ‘coaching.’ It signals partnership and commitment by the mentor, while ‘feedback’ can seem rather remote and cold.

That said, I am a firm believer in giving positive feedback where it is due, and with Hammer’s customer service, willingness to answer questions, and high quality products, it is definitely due.

I finally made the decision to become a VIP member about a year ago and it has been one of the best decisions I have ever made. Yes, getting the excellent Hammer Nutrition products at a discounted rate is great, free shipping is great, and the additional ‘freebies’ that crawl into my monthly packages are always welcome. But the thing that I want to highlight is the top notch customer service that I always get (even before I was a VIP member). Whether I am talking with Shyanne, Tyler, Nick, or anyone else on the team, I get the same consistent level of care—so rare these days.



# ESSENTIAL KNOWLEDGE

Thank you for focusing on looking after your customers. It really makes all the difference.

“Great products, great people, great customer service, great combination!”

Thanks for bringing the highest quality supplements to market, in the highest quality way.

Kind regards,  
Simon Wheeler

*Hammer Client since 2016*



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**HEED**  
The most sports drink

- Sustains energy with no sugar crash
- Reduces cramps
- Buffers lactic acid
- Supports dental health

**SERVING SIZE:** 1 level scoop (30-32g)  
Contains 110 calories per serving

PRE-EXERCISE	DURING EXERCISE
10 min before	2-3 hours

The "non-bottle solution" for athletes who prefer a drink over Gel and water. HEED contains a full-spectrum electrolyte profile and key auxiliary nutrients. It may be used to meet all fueling needs for short workouts, or as part of a comprehensive system for long-duration activities.

**HOW TO USE**  
Individual dosage benefits will vary! Read 5 Secrets of Success at [hammernutrition.com](http://hammernutrition.com) for more information.  
Mix 0.5-2 scoops of HEED in 16-28 ounces (475-828 ml) of water. Sip continuously during exercise.

**TIPS AND CONSIDERATIONS**

- For many athletes, 1-2 scoops of HEED will completely fulfill electrolyte requirements in normal conditions.
- In hotter climates or during longer activities, add Endurolytes or Endurolytes Extreme.
- In all instances, carrying backup Endurolytes capsules is recommended.
- When exercise lasts longer than 2-3 hours, Perpetium® or Sustained Energy may be preferable.
- Cherry Bomb HEED contains 25 mg of caffeine and 500 mg of taurine.

22 Call for expert advice from friendly people at 800.336.1977

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### HOW TO HAMMER

Endurance Fuels and Supplements Product Manual

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Use the hashtag #howihammer to share your photos!

 **danielblancgonnet** ...



Photo: Tracy Johnson

**Daniel Blanc-Gonnet** #wheeliewednesday on my @gasgasusa #getonthegas

 **tmberro** ...



Photo: @ky\_haugen

**Travis Berro** And we're back at it! Stoked to be riding out in the backcountry this season. As always we stay powered up with Hammer Gel®, Hammer Bars®, and Perpetuem® so we can ride more and stop less during these short winter days.

 **polacsystem**  
Hammer Nutrition Venezuela ...



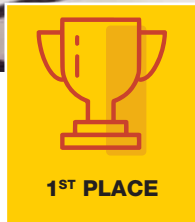
**Daniel Mamopulakos** The best for your performance! Climbing above the city skyline.

 **hammernutritionmy** ...



**Hammer Nutrition Malaysia** Happy Chinese New Year! Gong Xi Fa Cai. Selamat Tahun Baru Cina. Best wishes to everyone! Stay safe and Keep Hammering those workouts at home!



## NO. 10 KONICA MINOLTA ACURA ARX-05 WINS ROLEX 24 AT DAYTONA

The 2021 edition of the iconic Rolex 24 hours of Daytona was a wild success for Hammer-fueled drivers as well as an epic day for the Taylor family and Wayne Taylor Racing (WTR). Three of five category winners were piloted by some or all Hammer-fueled drivers including Ricky Taylor and Jordan Taylor. It also showed the fruition of two years of working directly with drivers, engineers, and crew adapting a “less is best” fueling protocols, products, and timing to the top level of endurance motorsports.

The four-driver team of the No. 10 Konica Minolta Acura ARX-05, consisting of Ricky Taylor, Filipe Albuquerque, Alexander Rossi, and Hélio Castroneves, pulled out the win with top notch fitness and their own race-tested Hammer fueling regimen.

Congratulations to the drivers, crew, engineers, and Wayne Taylor! Congratulations also to Hammer-fueled drivers Oliver Askew and Jordan Taylor, who both had fantastic drives supporting team wins in LMP3 and GTLM classes, respectively.

Before and during the 24 hours, the crew and drivers relied on a broad array of Hammer products including Hammer Bars®, Hammer Gel®, HEED®, Recoverite®, and Endurolytes® Fizz in the pits to keep them performing at their best. In-car, drivers can sip plain water and at roughly 45 minute intervals, when they come in for a 60 second tire stop, they are handed

a “Hammer Bomb” containing a secret recipe of Hammer Gel, Endurolytes, and Fully Charged.



This event also provided the “after” test data to document the reduction in fluid and electrolyte losses of the drivers while they are in-car. Thanks to some amazing technology from Scott Ackerman and CoreStyle, using skin patches that record sodium concentrations in the driver’s sweat, coupled with before and after body weights, we were able to numerically document the effects of Hammer products and protocols in real world competition. The test driver experienced a 25-40% reduction in both fluid loss and sodium concentrations, compared to pre-Hammer data collected!

Look for a feature article about WTR and measured sweat/fluid loss reductions, in the next issue of *Endurance News*. [EN](#)



(top) 60 second stops every 45 minutes for 24 hours—Hammer time drivers and crew! Photo: Brian Cleary (inset) “Hammer Bomb” bottles stand ready for drivers. Photo: Ricky Taylor (above) The champion drivers: Alex, Ricky, Felipe, and Hélio. Photo: Wayne Taylor Racing



# You ask, we answer

answers by BRIAN FRANK

## CBD FOR SLEEP

### QUESTION

I'm looking to add CBD tincture or capsules to my regimen for better sleep. Actually, for longer sleep as I regularly wake up too early and cannot get back to sleep. Which form and strength do you recommend to start with? And when should I take it?

### ANSWER

While dosages can vary from person to person, 25 mg per night seems to be the most common dosage reported by our clients to provide substantial improvements in sleep quality and duration. For those of you who really don't like to take pills, the 750 mg or 1500 mg tincture is a good alternative. However, you may need to go higher—50 mg/day to get the same results.

Our 25 mg nano-emulsified softgels are my favorite and our best selling form of CBD. It gives you the most bang for your buck and the convenience of one or two softgels. I take one just before bed and one in the morning before heading to work. The only side effect I have noticed or heard reported from higher dosages is feeling like you could sleep longer after getting a solid 8-10 hours. My 80 year old mom went from around 4 hours per night to 7-8, according to her Fitbit tracker, after adding 25 mg of Hammer CBD to her nighttime regimen. EN

## CBD FOR DISCOMFORT

### QUESTION

I am mostly interested in CBD for my joints and to deal with discomfort after exercise, which form do you recommend?

### ANSWER

For your situation, I would suggest that you use both oral and topical CBD. Pick your choice (25 mg softgels, or 750/1500 mg tinctures if you don't like pills) and take that daily. Then add the CBD Balm topically to joints and areas of concern for immediate relief. EN





## CBD FOR MOOD

### QUESTION

I am interested in CBD mostly for stress and mood improvements, what do you recommend?

### ANSWER

These concerns are usually addressed effectively with the previously suggested dosages, 25 mg softgels or 750/1500 mg tinctures taken daily to address all three of the major benefit areas—sleep, discomfort, and mood. However, I would also strongly encourage you to keep a bottle of 750 mg or 1500 mg tincture on your desk or somewhere within reach for easy access during the day, if and when the situation necessitates quick relief. **EN**



Photo: Tyler Keck

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- Protects lean muscle mass



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 32 Servings **\$49.95**

**Rory Heinlein** shows his support for Hammer Nutrition during a Strava Challenge. Rory hammered home a 1<sup>st</sup> place finish in his 2020 season atop the podium at the Quick & The Dead/Mt. Davis Gravel Grinder. Photo: Neil Gallivan

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## 5 SECRETS OF SUCCESS FOR ENDURANCE FUELING

# #2 Calories Count



### What and how much you consume during exercise can be the difference between crushing it and being crushed.

by STEVE BORN

In the 34 years of Hammer Nutrition's existence (including my nearly 24 years with the company), Brian and I have helped athletes identify and correct faulty fueling myths and recommendations. The “replace what you lose” myth is the worst fueling recommendation of all.

It's hard to believe that many alleged experts still continue to recommend that athletes need to replace calories burned during exercise in equal or near-equal amounts, hour after hour. Yet they do, defending their position by saying, “you're burning 500 to 600 calories or more an hour;

you need to put that many back in—or very near it—from your fuel donation or you're going to bonk and not be able to finish.”

In my first Race Across America (1988) I fueled this way, trying to stave off fatigue and flat-out bonking by stuffing myself with as many calories as I could. While I did manage to somehow finish the 3,073-mile race in 9<sup>th</sup> place, my stomach was rebelling big time most of the way—and I was downright miserable an awful lot of the time.

Wouldn't it be great if we could replace all the calories, fluids, and electrolytes we burn? Theoretically, we could extend endurance for hours, even days! Unfortunately, the human body doesn't work that way; it's never going to accept a fuel donation that comes anywhere close to what it's losing. That's why the goal of fueling—especially calorie intake—is to postpone fatigue for as long as possible.

So how do we do that? By feeding the body just enough calories to “keep the energy fires burning,” or even a little less than that. Too much fuel only “overwhelms and puts out the fire.” So instead we want to give our bodies the least number of calories necessary to maintain energy levels, hour after hour.

For the majority of athletes, this represents an intake of 120-180 calories per hour. Larger athletes like me (~ 200 pounds) can take in a bit more. If you find that's not quite enough, that's an easy fix—simply consume a few more. Problem solved!

**Remember,**  
**it is ALWAYS easier to fix a ‘not enough’ problem than an ‘uh oh, I overdid it and now my stomach is rebelling’ problem.**



When it comes to endurance fueling...  
**WE WROTE THE BOOK!**

While it's interesting to know how many calories you're burning each hour during exercise, this amount does not determine how many calories your body can process. Fortunately, calories from body fat stores will definitely help to "bridge the gap" between what you're burning and what your body can comfortably and effectively accept. So, give your body a sufficient number of calories to maintain quality energy levels, and let it do what it's designed to do to take care of the rest.

We've been preaching the "less is best" approach to fueling for over three decades because it works. Simple as that. Apply our recommendations in your workouts and races, and we guarantee you'll not only feel better, you'll perform better! **EN**

**EN FUELING STRATEGIES**

Read more about calories, fluids, and electrolytes on page 54.



Get the answers you need to succeed with Hammer Nutrition's easy-to-read **FREE** fueling guide that will help you **Fuel Right, Feel Great!**<sup>®</sup>

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# INTERMITTENT FASTING

## Two things to consider

by BRIAN FRANK



**What “eating window” time of day is best for you?**

**What works best for your body type?**



**Gabrielle Suver** preps for an open water training swim in Florida. Gabrielle is one of the top duathletes in the USA and recently took 1<sup>st</sup> place at the Long Course Duathlon National Championship. Photo: Rainelle Vasquez

I have practiced IF on and off for the past five years or so and while the results can be impressive, it does take some getting used to, including initial feelings of hunger and empty stomach growling. These do subside in the first week as your body adjusts to this new pattern of caloric intake. However, I have not seen much written about employing IF during periods of mid to high volume training and/or intensity. Another area that receives little, if any, attention in the IF discussion is body type and how each may respond. I’m scratching the surface on these subjects here and will continue to expound on them in future issues of *Endurance News* and *Endurance News Weekly*.

I have most often practiced and found the 16 hours of fasting with an 8 hour “eating window” to be the easiest to manage with my work and workout schedule. My eating hours are between 11 AM and 7 PM, or noon to 8 PM in the summer when I want to ride and eat later in the day. For those of you who mostly work out after work, this pattern works well and allows for consistent use of whey/glutamine before bed for an hGH spike after fasting for 3 hours or more. See accompanying article on page 26.

For those of you who do your training early in the morning, you are accustomed to working out from a fasting state, so this is not new. However, waiting until 11 or noon to begin eating is challenging from both hunger and recovery/repair perspectives. Try shifting your 8-hour food window earlier in the day, say 8-9 AM to 4-5 PM. This allows you to take maximum advantage of your post workout recovery window, though it will make for an early dinner and a long evening with no snacking. If you want to lean out a lot, this eating pattern works extremely well.

Still another option when workout volume and intensity are high, shortening the fasting window to 14 or even 12 hours will still give excellent results and allow you to have a long enough eating window to have a good meal after both your AM and PM workouts.



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## Body Type: Another Consideration

When I first became serious about weight lifting in college, I studied Bill Sheldon's three Somatypes: Ectomorph—lean, hyper metabolism; Endomorph—naturally higher body fat, slower metabolism; and the Mesomorph—the perfect mix of the two. Much to my chagrin, I learned that I am an Endomorph.

It's critical to know your body type in order to understand how you should train and eat. We'll elaborate on this in future issues of *Endurance News* and *EN Weekly*.

Somatypes do not seem to be much discussed or applied to training and diet principles, which is unfortunate. When considering intermittent fasting, knowing your body type should be the starting point.

### Ectomorph

You are an ectomorph if being lean and maintaining your ideal weight is so easy, you can't help it. Ectomorphs are necessarily fixated on not losing weight/lean muscle mass and have to eat sufficient calories every day and always consume calories during training to avoid this problem. Over the age of 50, gradual muscle loss is a major concern that should be proactively addressed with adequate daily protein intake and avoiding long periods without food during the day. I do not think that Ectomorphs thrive on IF. Don't get me wrong, it can be done, but it won't be fun!

### Mesomorph

If you have trouble shedding an extra couple of pounds that you don't need, you are a mesomorph and IF can help you get super lean. You are so gifted naturally, you don't really need much help. Of course, if you do get serious about your diet and practice IF, you likely will be winning most of the time. **EN**

Read more about intermittent fasting on pages 8 and 12.

Also visit *Endurance News Weekly* for updates on all the latest information and research from our experts.

# Hammer Whey Protein's Glutamine Component

by STEVE BORN



## hGH-Boosting Nutrient Extraordinaire

There are numerous reasons why we consider our Hammer Whey Protein to be the ideal protein source, at least for those athletes who are not exclusively plant based. One reason is how well it can enhance hormone activity and recovery during sleep, when used properly.

Hammer Whey Protein starts with the purest grass-fed whey protein isolate available; then we add a whopping 6 grams per serving of glutamine. This powerful amino acid is included because of the key roles it plays in athletic performance and human health, including: enhancing glycogen restoration processes after exercise, supporting the immune system, and helping to protect against muscle tissue wasting (cannibalization).

One thing you may not know about glutamine is its ability to release maximal amounts of human

growth hormone (hGH). A 1995 study showed that glutamine supplementation raised growth hormone levels more than four times (400%!!) over that of a placebo. And, in this study, age did not diminish the increased hGH effects with participants ranging from 22 to 64 years of age.

Other benefits of hGH include:

- Boosting optimal immune system function
- Supporting cardiovascular health
- Helping improve lung function
- Protecting against osteoporosis and improving bone density
- Positively improving many areas of brain function (for better sleep, mood, and cognitive function)
- Powerfully assisting in weight loss and improving body composition

**Glutamine enhances glycogen restoration processes after exercise, supports the immune system, helps protect against muscle tissue wasting, and releases maximal amounts of hGH.**

Because the majority of hGH is released while we're sleeping, glutamine supplementation prior to bed is an excellent strategy. This is why we recommend consuming glutamine-enhanced Hammer Whey Protein shortly before going to bed. The benefits are three-fold:

1. The body has sufficient amounts of glutamine to release maximal amounts of hGH.
2. It provides the gut's preferred fuel source and supports gut health.
3. It supplies the body with an excellent supply of the amino acids it needs to support muscle tissue repair and many other areas of athletic performance and overall health, much of which occurs during sleep.

The key to making this all work is to consume Hammer Whey Protein with water on an empty stomach! Carbohydrates consumed prior to sleep will cause a rise in insulin levels, which will block the hGH released during sleep.

**HOT TIP:** For a powerful assist, take 1-2 REM Caps prior to bed. All of the nutrients in this outstanding product will help ensure high-quality sleep, a time when hGH release is at its highest. The melatonin component in REM Caps also helps stimulate hGH release, augmenting the beneficial effects of glutamine. **EN**

References available upon request

For more on our glutamine-enhanced grass-fed whey protein isolate, check out the complete article in *Endurance News Weekly*.



# WHEY PROTEIN

Your muscles' best friend



**"TRUSTED!"**

*"I can always count on Hammer to deliver a product I trust. Excellent taste and always easily digested. Thanks Hammer!"*

- Kirsten H.

- Maintains and repairs muscle tissue
- Strengthens immune system
- Accelerates recovery



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24 Servings **\$42.95**

Whether flying down trails or soaring the skies, Hammer Sponsored USA All American Triathlete and Air Force pilot **Chris Knaute** knows what it takes to fuel right! Thank you for your service Chris! Photo: Tom Dewane

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# Topical CBD Balm During Ultras

by BRIAN FRANK and DUSTIN PHILLIPS

One of the things that has always amazed me about new products is the way clients find new ways of using them after they have been brought to market. Fully Charged is the best example—we designed and bench tested that product exclusively as a pre-workout supplement and positioned it that way when it launched. However, not long after its introduction, we began getting reports from clients about their use of this product as a non-stimulant “pick me up” during ultra distance events. This has now become as common a use as its original intended use. I think that’s pretty cool.

Hammer CBD Balm is the most recent product we’ve seen this phenomena. I designed the balm with no heating or cooling analgesics for use AFTER exercise and during periods of inactivity, recovery, and primarily for use on joints and connective tissue. Then we started getting feedback from clients getting good results using it on joints during events, knees mostly.

Recently, I was catching up with Dustin Phillips, an extremely gifted cyclist who was my first employee when I moved the company to Montana in 1995. Over the past 26 years, Dustin’s athletic resume has been filled with bike racing of every discipline, including fifty 100-milers and dozens of 24s.




As a followup to our conversation, Dustin wrote me about his experimentation of adding Hammer CBD Balm to his already successful ultra regimen:

"I have experimented with various delivery systems of CBD and love the Hammer CBD Balm. In 2020's 24 Hours of Old Pueblo, my team won the four-person single speed team division. Although I was the oldest person on the team, I had some of the fastest and most consistent laps, and did the most laps. Why? Hammer CBD Balm. The protocol between laps was Recoverite and Hammer Bars with a lot of avocados. I would then wash my legs off and take 15 min to rub in a liberal coat of Hammer CBD Balm before resting until my next outlap. General fatigue is unavoidable, but my legs felt strong the whole 24 hours. Honestly I was truly amazed at how much of a difference adding the CBD muscle rubs into my routine made.



Fast forward to Fall 2020, and no races on the calendar. I had a goal to ride a section of Arizona Trail from Flagstaff to Grand Canyon and back, a 200 mile effort, self-supported. I have never ridden that distance before nonstop, and with a lot of unknowns. What was known is Hammer CBD Balm was a must. As I tapered in the days leading up to the effort, I would apply CBD balm daily and the last couple days applying twice a day. It was an epic ride, totaling 17 hours on the bike and my legs felt great the whole way. Two days later I was putting in hard efforts with a friend on gravel bike adventure in southern Arizona, legs were good...everything else not as much.

Based on my experiments with Hammer CBD Balm and the results it delivered, it's a permanent addition to my ultra game plan."

So, if you tend to go long, think about adding Hammer CBD Balm to your Hammer fueling program!  Photos from Dustin during his Arizona Trail ride.

# HAMMER CBD BALM



## The Gold Standard



**"WILL DEFINITELY BUY AGAIN!"**

*"Hammer CBD Balm is great! It has a nice feel and really works. Great after workouts or anytime!"*

- Bonnie M.

- Pure CBD relief
- Natural light scent
- Non-heating or cooling formula



30mg Balm Stick  
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500mg Balm Stick  
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Roger Weingaertner expertly navigates the rugged paths of the Coldwater Rumble with ease.  
Photo: Jubilee Paige

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# SUPPLEMENT PROTOCOL FOR YOUR BONES

## PART TWO

by STEVE BORN



In “Supplement Protocol For Your Bones Part One” found in *Endurance News 123*, I listed the nutrients and supplements that have been shown to be extremely helpful for the repair of broken bones, as well as for supporting long-term bone health and protection against osteoporosis. Brief dosage suggestions were also provided. In this issue of *Endurance News*, I present the rationale and research references for each of those nutrients/supplements, and have provided more details on suggested usage.

As mentioned in Part One, if you’re currently recovering from a bone injury, or you’ve been diagnosed with osteoporosis and/or low bone density, it is highly recommended that you consult with your health care professional before starting on a supplement program. This is especially true if you’re currently taking a prescription medication for these or any other conditions.

### Essential Mg

Of all the nutrients vital for bone health, magnesium is arguably the most important one of all. Without sufficient magnesium, not all of vitamin D’s benefits can be fully realized. Additionally, while excess calcium has a magnesium-depleting effect (which is one reason I suggest that we all obtain most of our calcium from whole foods instead of supplements), magnesium helps spare calcium stores in the body.

In his hallmark article “Magnesium: The Key to Health and Life,” James South writes: “Magnesium stimulates release of the hormone calcitonin, which drives calcium into the bones where it belongs, and out of the soft tissues where it doesn’t. A high-calcium, low-magnesium diet and cellular environment will thus tend to favor calcification of soft tissues as osteoporosis gradually

develops.” He then quotes Dr. Guy Abraham from the early 1980s: “Magnesium has a calcium-sparing effect and decreases the need for calcium.”<sup>1</sup>

I discuss this and more in my *Endurance News Weekly* article “Magnesium—The Most Important Mineral for Bone Health,” and I encourage you to read it.

**DOSAGE SUGGESTION:** The government-set Recommended Daily Allowance (RDA) for magnesium is 420 mg a day for males and 320 mg a day for females. A more appropriate amount to aim for, however, is the Optimum Daily Intake (ODI) standard of 500 - 750 mg of magnesium. Magnesium expert Dr. Mildred Seelig suggests even more precise dosages of 2.7 mg of magnesium per pound of body weight, and for those under severe chronic stress or engaged in strenuous work/athletic training, a dose of up to 4.5 mg of magnesium per pound of body weight.



## Boron

This trace mineral supplies a surprisingly high number of benefits for many aspects of overall health, including bone health. Boron is vitally important for maintaining and improving bone health because of the role it plays in assisting with the bone-building effects of calcium, magnesium, phosphorus, and vitamin D. Studies show that adequate intake of boron reduces the loss of calcium and magnesium excreted in the urine. That ensures that more of these two important minerals stay in your body.

### DOSAGE SUGGESTION:

1 capsule, once or twice daily.

## Selenium (found in Premium Insurance Caps and LSA Caps)

The roles that this trace mineral plays in bone health are complex, but it is believed that a portion of its importance comes via its antioxidant properties. As part of the glutathione peroxidase antioxidant enzyme, selenium

helps neutralize reactive oxygen species (ROS) free radicals. Levels of selenium that are too low can lead to higher ROS levels, which are considered to be a primary culprit in the development of osteoporosis.

One study examined the relationship between selenium and bone health, and the results showed that the participants who had lower selenium levels also had these abnormalities:<sup>2</sup>

- **Higher osteocalcin levels.** Osteocalcin is a non-collagen protein in the bone matrix, and levels are increased in bone diseases such as osteoporosis.
- **Higher alkaline phosphatase (ALP) levels.** ALP is an enzyme found throughout the body, primarily in the liver, bones, and kidneys. High levels of ALP may indicate liver or bone disorders.
- **Higher phosphorus levels.** Too much phosphorus in the blood (hyperphosphatemia) can cause the body to pull calcium from the bones to maintain the proper balance of phosphorus, calcium, and vitamin D.

- Lower bone mineral density (BMD), which decreases bone strength and increases the risk of fractures and osteoporosis.

### DOSAGE SUGGESTION:

The Optimum Daily Intake of selenium ranges from 100 mcg to 400 mcg daily, with 200 mcg daily being the usually suggested amount. More is not better with selenium, so don't exceed 400 mcg on a daily basis. Some foods—mainly fish such as tuna and halibut—supply some selenium, while Brazil nuts are the richest source of this trace mineral (1 oz contains a whopping 544 mcg). Four capsules of Premium Insurance Caps (57 mcg) and four capsules of LSA Caps (100 mcg) daily will supply you with an ideal amount of selenium.

## EndurOmega

Research on the omega-3 fatty acids found in fish oil (EPA and DHA) shows that they have powerful anti-inflammatory and antioxidant effects.<sup>3</sup> This makes fish oil an ideal candidate for inclusion in a bone-strengthening/anti-osteoporosis regimen, given the role of inflammation in osteoporosis.<sup>4</sup> EPA and DHA also reduce activity of bone-resorbing cells, increase that of bone-forming cells, and improve calcium balance.<sup>5</sup> Research shows that men and women who consume higher amounts of oily fish (tuna, mackerel, salmon, etc.) have greater bone mineral density than do those with lower fish consumption.<sup>6</sup>

### DOSAGE SUGGESTION:

2 softgels, 2-3 times per day with food.

*Continued on next page*

# HAMMER PRODUCTS FOR STRONGER BONES

- Repair broken bones
- Support long-term bone health
- Protect against osteoporosis

## Supplement Protocol For Your Bones (Part Two)

by STEVE BORN

*Continued from previous page*

## Hammer Whey Protein, Organic Vegan Protein

A lot of people don't think about protein when it comes to bone health, but this bit of information should convince you otherwise:

Bone can be imagined as being somewhat like a sponge made of living protein upon which mineral crystals are embedded. By volume, roughly half of bone is comprised of protein. When a fracture occurs, the body is called upon to gather protein building blocks together to synthesize a new structural bone protein matrix. In addition, protein supplementation increases growth factors such as insulin-like growth factor-1 (IGF-1), a polypeptide that exerts a positive effect on skeletal integrity, muscle strength, immune response, and bone renewal.

Protein malnutrition or under-nutrition leads to a “rubbery” callus, the new tissue formed

during the bone reparative process. Adequate and high protein intake leads to more rigid calluses that harden into stronger bone. Numerous studies document the acceleration of fracture healing with even a 10- to 20-gram increase in protein intake. The benefits of supplemental protein are important to everyone and especially to those with malnutrition or low baseline protein intake. In fact, among elderly hip fracture patients, poor protein status at the time of fracture predicts fracture outcome. Those with low protein status take longer to heal and have more complications, including death.

Specific amino acids of special importance include lysine, arginine, proline, glycine, cystine, and glutamine. Lysine, for example, is known to enhance calcium absorption, increase the amount of calcium absorbed into the bone matrix, and aid in the regeneration of tissue.

**NOTE:** Hammer Whey Protein is my go-to protein source, and each serving contains an extraordinary 6,000 mg of glutamine. Hammer Organic Vegan Protein contains ample amounts of the earlier-listed amino acids, so it too is a great

option for obtaining ample amounts of protein.

## OTHER THOUGHTS AND SUGGESTIONS

### Vitamin D

This vitamin is essential for nearly every aspect of human health. There is a wide range in the amount of vitamin D one needs to take daily to maintain optimal levels—a vitamin D 25-Hydroxy blood test is the only way to know for sure—but the general consensus is 2,000 International Unit (IU) - 4,000 IU daily. Each capsule of Premium Insurance Caps contains approximately 71.5 IU of vitamin D, so a typical four-to-six capsule daily dose will supply you with just about 285 IU-429 IU of vitamin D. Augmenting with additional amounts can easily be done via a stand-alone vitamin D supplement, most of which are extremely affordable and readily available. Most vitamin D supplements (sold as vitamin D<sub>3</sub> or cholecalciferol) are produced from lanolin, which is derived from sheep's wool. There are also vegan-friendly vitamin D supplements, the vitamin D<sub>3</sub> being derived from lichen.

**NOTE:** Supplements that currently use the “IU” (International Unit) measurement will be switching over to “mcg” (microgram). Each IU of vitamin D is equal to 0.025 mcg, so 25 mcg of vitamin D is the same amount as 1,000 IU.

Read **Part 1** of Steve Born's Bones Supplement Protocol article on *Endurance News* #123. →





# HAMMER BONE HEALTH KIT

*A strong frame is fundamental*

- Aids vitamin absorption
- Promotes higher bone density
- Boosts mineral retention



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**BONE HEALTH KIT**

---

EnduroOmega  
Essential Mg  
LSA Caps  
Boron

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**\$94.95**

**Bruce Balch** hammers the downhill on the Cottonwood Valley trail system in Las Vegas, NV. Balch has competed in over 700 races including IRONMAN Canada and the IRONMAN World Championship in Kona, HI. Photo: Sarah Sisson

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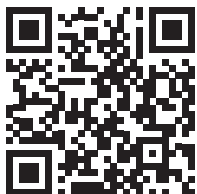


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**Hammer PHOOD**  
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Hammer legend **Victor Sheldon** rips through high grass trails on another training ride. Photo: Gabe Keating

- Targets muscle soreness
- Optimizes mobility
- Maximizes recovery



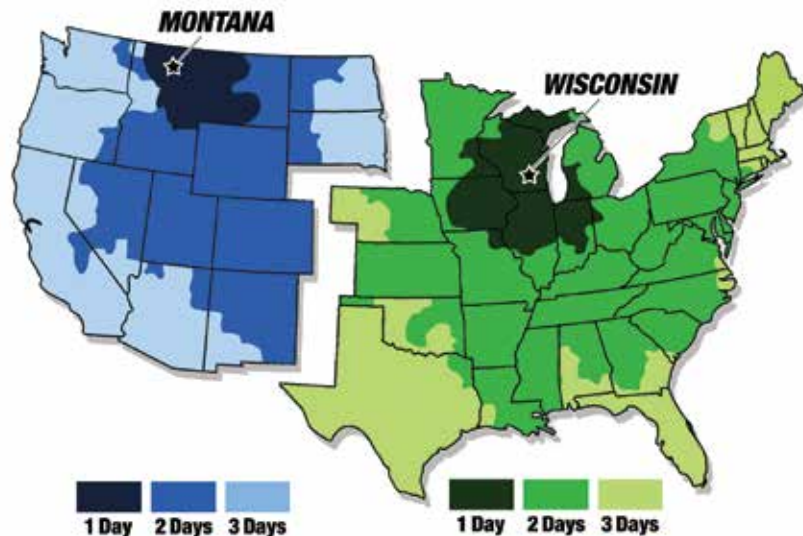
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# AO BOOSTER IS BACK IN A BIG WAY!

by STEVE BORN



Back in 2009, over 50 issues of *Endurance News* ago, we introduced a revolutionary new product we named AO Booster (the “AO” standing for Anti Oxidant), featuring all fat-soluble antioxidants. Because of the consistency of the nutrients—which ranged from sticky to down-right oily—it was a real challenge to mix and encapsulate the product, so much so that outages and delays were constant.

This was frustrating for clients and us, so of course, we did a total reboot and massively improved what was already an extremely potent formula, changing from dry powder capsules to liquid softgel caplets. One of the biggest benefits is that one full serving is now a single softgel versus two of the two-serving vegetable capsules. That’s right, AO Booster—though it can be taken more than once daily, if desired—is now classified as a one-a-day supplement.

We’ve improved the formula by incorporating a new trademarked form of the tocopherol/tocotrienol component in the product. EVNol™ is considered the highest-quality source for the richest amounts of soy-free tocopherols and tocopherols, derived from GMO-free palm oil. Marigold-derived lutein, as well as astaxanthin, derived from the microalgae *Haematococcus pluvialis*, remain in the formula.

## WHY AO BOOSTER?

In talking with a nutritional scientist friend a number of years ago, he commented that endurance athletes—even those going at a modest aerobic pace—generate more fat-soluble free radicals than water-soluble ones. He also mentioned that a wide range of both water- and fat-soluble free radicals is continually formed in the body as part of normal biological processes. Other factors, such

as pesticides, cigarette smoke, pollution, alcohol, stress, and foods that are fried at high temperatures or burnt also contribute to an overload of free radicals. Supplementing with a variety of antioxidants is required to counteract the damaging effects of the numerous types of free radicals.

Lastly, he reviewed the Hammer Nutrition product line and noted that while there are a number of superb water-soluble antioxidants in many of the formulas, there really needed to be more of the fat-soluble antioxidants to accompany the water-soluble ones for more-complete antioxidant coverage. That was the impetus for creating the AO Booster formula, and it’s found a venerable spot in the Hammer Nutrition lineup (hint: It’s in a tie with Essential Mg for my next supplement choice after the Daily Essentials).



# AO BOOSTER

Supercharge your recovery



“AMAZING PRODUCT!”

“AO Booster is really fantastic and I can feel the difference immediately!” - Barbara A.



## DOSAGE SUGGESTIONS

NON-WORKOUT DAYS: 1 softgel with food

WORKOUTS DAYS: 1 softgel after workout with Recoverite®/Organic Vegan Recoverite® or food

## SUMMARY

In a single softgel capsule, Hammer Nutrition’s AO Booster supplies you with an arsenal of powerful fat-soluble antioxidants to provide even more immune system-boosting power. These specific antioxidants are perfect complements to the multiple water-soluble ones found in Super Antioxidant, Premium Insurance Caps, and more, and also to the couple of fat-soluble antioxidants in Race Caps Supreme and Mito Caps. In addition, with AO Booster you’ll also notice benefits for your eyes and skin, reduced muscle soreness (a nice post-workout benefit!), as well as potentially increased endurance via enhanced fats-for-fuels utilization.

Back in stock now after a bit of hiatus, I sincerely believe that AO Booster is one of the most advanced and important products we’ve ever come out with, and I enthusiastically and unhesitatingly suggest taking it every day all year round. **EN**

- **Supports immunity** 30 Softgels **\$34.95**
- **Relieves post-workout soreness** 3 or more **\$29.95 each**
- **Benefits skin and eyes**

Davis Phinney Foundation Masters Cycling Team for the Win! They hammered home to 1<sup>st</sup> place in both the 55+ and 60+ Masters AGs at the CBR Domingue Hills Circuit Race. Photo: Scott Dworkin.

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### **EN** PRODUCT SPOTLIGHT

Read about the new AO Booster Formula on page 60.

# Higher Coffee Intake May Be Linked to Decreased Risk of Prostate Cancer



Photo: Drew Silvers

by STEVE BORN

Some very good news for men was recently published in the online journal *BMJ Open*:

**Drinking several cups of coffee every day may be linked to a lower risk of developing prostate cancer.<sup>1</sup>**

Prostate cancer is the second most common cancer and the sixth leading cause of death in men world-wide.<sup>2</sup> In 2021, an estimated 191,930 men in the United States will be diagnosed with prostate cancer, and an estimated 33,300 will die from it.

For the *BMJ Open* report, researchers reviewed the data from 16 different studies: 7 from North America, 7 from Europe, and 2 from Japan. 15 studies compared the highest to the lowest coffee consumption, while 13 studies reported on the risk associated with an additional daily cup of coffee. In all studies, the highest level of consumption ranged from 2-9 or more cups a day; the lowest level ranged from 0-2 cups a day.

Out of 1,081,586 men, 57,792 developed prostate cancer.

What the researches found:

- Compared to the lowest category of coffee consumption, the highest category was associated with a reduction in prostate cancer risk of 9%.
- Each additional daily cup was associated with a reduction in risk of 1%.

When the researchers further analyzed the data to differentiate between localized cancer (inside the prostate gland, not yet spread to other parts of the body), and advanced prostate cancer, they found the highest intake resulted in:

- A 7% lower risk of localized prostate cancer
- A 12% and 16% lower risk for advanced and fatal prostate cancer, respectively

Taking into account the possibility of some limitations in the 16 studies—for example, the coffee consumption was dependent on the recall of the study subjects—researchers still believe that there are plausible biological explanations for their findings.

They pointed out that coffee:

- Improves glucose metabolism
- Has anti-inflammatory and antioxidant effects
- Affects sex hormone levels

All of these, the researchers suggested, may influence the initiation, development, and progression of prostate cancer. They concluded:

*“This study suggests that increased coffee consumption may be associated with a reduced risk of prostate cancer. Further research is still warranted to explore the underlying mechanisms and active compounds in coffee. If the association is further proved to be a causal effect, men might be encouraged to increase their coffee consumption to potentially decrease the risk of prostate cancer.”*

With daily use of Hammer Nutrition’s multi-nutrient **PSA Caps**, along with a few cups of coffee (may we suggest the oh-so delicious **53x11** brand?), men have a doubly effective way of protecting prostate health! EN

References available upon request

# 53x11 COFFEE

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



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# ENDURANCE NEWS WEEKLY

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

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## Meet the Authors

---

**Brian Frank**



Brian's uncompromising commitment to superlative customer service, unlimited free educational resources, and providing the highest quality, all-natural products specifically engineered for endurance athletes has allowed him to achieve his goal of helping serious endurance athletes reach their highest level of performance and health, safely and naturally, since 1987.

**Steve Born**



Steve has over 20 years of independent research in nutritional fueling and supplementation which has given him unmatched familiarity with the myriad of product choices available to athletes—and the knowledge of what actually works.

**Dean Karnazes**



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

**Dr. Bayne French MD DC**



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





# ENW

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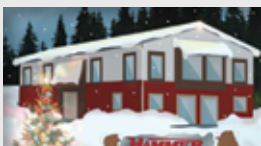

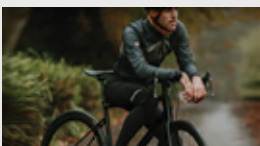
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Keep Hammering!

## Stay Healthy. Stay Informed.

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 <p><b>HAMMER NUTRITION’S SUPERIOR CLOTHING OFFERINGS!</b> By: Steve Born January 28, 2021</p>	 <p><b>CBD—IT’S AWESOME FOR ORAL HEALTH!</b> By: Steve Born January 15, 2021</p>	 <p><b>TURN YOUR HEALTH RESOLUTIONS INTO REALITY WITH PREMIUM INSURANCE CAPS</b> By: Steve Born January 6, 2021</p>
 <p><b>HAPPY HAMMER DAYS</b> By: Hammer Nutrition December 16, 2020</p>	 <p><b>SERVING YOU FOR 33 YEARS AND COUNTING!</b> By: Steve Born November 13, 2020</p>	 <p><b>PHYTOLEAN + CHITOLEAN</b> By: Steve Born November 6, 2020</p>

# ENDURANCE NEWS WEEKLY

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# Hammer Nutrition Fuels: COMPLETELY COMPATIBLE!

by STEVE BORN

One of the questions we frequently receive is “Can I mix your fuels together?” The answer is a resounding “yes!” All Hammer Nutrition fuels are completely compatible with one another. That means you can mix them together (e.g., adding Hammer Gel® or HEED® to Sustained Energy or Perpetuem®), or you can use two different Hammer fuels during the same hour. This allows you a tremendous number of flavor options, giving you greater variety in your endurance fueling menu.



The main thing to remember is that the calories from both fuels count toward your hourly intake. You absolutely cannot, for example, add HEED to Perpetuem solely for flavor-enhancement purposes; you must count the calories from both fuels, making sure that you don't exceed the recommended total hourly intake amounts of 120-180 calories. The same is true when, for example, you're consuming Hammer Gel and Perpetuem during the same hour. You must keep track of your hourly calorie intake so that you're not over-supplying your body. Doing so will cause serious stomach issues and put an abrupt halt to your workout or race.

**EN FUELING STRATEGIES**

For more information on proper caloric intake, read Brian's article "Fueling Long" on page 54.

Remember, also, that you should not combine our fuels—all of which contain only complex carbohydrates—with other companies' fuels, most-to-all of which are loaded with simple sugars (glucose, sucrose, fructose, etc.) Doing so is a disaster that will happen. These two very dissimilar carbohydrate sources digest in different caloric concentrations; mixing the two together—or consuming them within the same hour—will negate the efficient digestion of both. The result? Digestion takes a lot longer, your stomach will rebel once everything finally gets through the GI tract, your performance tanks big time, and your workout or race comes to a grinding halt. Don't go there. Ever.

For more detailed information on this topic, please read the article "Simple Sugars and Complex Carbohydrates—An Incompatible Combination." →



Hammer Nutrition's premium-quality fuels. Whether you use them on their own, mixed together, or in tandem during the same hour, they're all you need to achieve better quality workouts and better race results! **EN**

# HAMMER FUEL KITS

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## Real person, chat now...



# LET'S TALK ABOUT IT!

We want to see you succeed! If you ever have a question or need fueling advice, the time to call is BEFORE your event, not after.

One thing that sets Hammer apart is our personal approach. We take great pride in providing you with live support from our team of knowledgeable experts. Unlike most companies that use scripted bots or outsource their web chat feature, we do it all in-house.

A free phone consultation is also an available option. Some issues need more time for an in-depth discussion, especially if you're going to be doing something new or outside your usual comfort zone.

Additionally, you can email us anytime with your fueling questions, supplementation concerns, or general product inquiries.

There is always someone available to help you here at Hammer—all you have to do is ask. We offer superior quality products and the support you need to achieve your best results.

Remember, we are at your service!

## Here's what our clients are saying

*"Love the real person chat... Thanks for keeping the human to human contact... wish more companies would follow your lead."*  
- Tim C.

*"Amazing guy with a lot of knowledge! Hammer is the best company out there that cares about you! Thank you Steve!"*  
- Brandon

*"Awesome support! Really happy with the investment of time in giving me the tools I need to learn. Thank you so much!"* - Ty

*"Steve was amazing! Really appreciated the opportunity to speak with a subject-matter expert. Mahalo!"* - Stephanie

*"The best help ever!! I don't know why I didn't think to just ask here in the first place. I wasted so much time trying out different methods of fueling."* - Judith R.

*"As always, everyone at Hammer is extremely knowledgeable and helpful and the products are great."* - Kelly

*"Thank you for the prompt response and helpful info! I love Hammer Nutrition!"* - Marla

*"The representative handled my order quickly and changed my shipping date. Top notch all the way!!"* - David R.

*"Shyanne did a tremendous job! She was very pleasant and patient with me!"* - Roger W.

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Hammer OCR Team's **Blažena Rozkydla** shines at the Gladiator Race Lanškroun. Photo: David Antoš



# STAY CONNECTED



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- Scott H.

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*We're here to help you Fuel Right and Feel Great!®*



## A Fresh Start

Whether you're training, competing, or just living your life, at Hammer Nutrition we believe the food you eat is of the utmost importance. Your bodies perform best when they have strength, rest, and proper fuel. While we supply the supplements and performance fuel, we aim to inspire you to eat healthy whole foods.

When Brian and I were growing up, our family raised us to eat the healthiest foods possible. So we tried to capture our love of simple, fresh, healthy whole foods in one cookbook. *In the Kitchen with Hammer Nutrition* has an eleven-year collection of simple, healthy, and easy recipes we have previously published in *Endurance News* magazine. You'll find over 150 recipes that include delicious protein-packed, plant-based meals; some vegan, allergen-free, and gluten-free meals; and much more.

While some recipes are a little more decadent, most have few

ingredients and can be made in a very short time. We hope you will be motivated and excited to add some new tricks to your food preparation needs and habits.

Eating healthy never has to be boring!

EN



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 for 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.

# Deliciously Healthy Recipes



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## Spring Veggies with Yogurt Sauce

### INGREDIENTS

---

1 cup sugar snap peas  
2 celery stalks  
1 red bell pepper  
1 large cucumber  
6 radishes  
1 cup cherry tomatoes  
1 tsp fresh dill, chopped  
1 tsp fresh chives, chopped  
2 Tbsp fresh mint, ribboned

### YOGURT SAUCE

---

1/2 cup plain yogurt  
2 Tbsp olive oil  
1 Tbsp fresh lemon juice  
1 garlic clove, finely grated  
1/3 tsp Sriracha

### PREPARATION

---

Start by washing all the veggies and herbs. While they dry, make the yogurt sauce by combining all ingredients in one bowl. Stir until smooth. Set aside and let rest. Next, chop all the veggies into ¼-½-inch cubes. Pour yogurt sauce over chopped veggies and mix well.





# Deliciously Healthy Recipes



## Grilled Marinated Shrimp

### DRY INGREDIENTS

---

- 3 large shallots peeled and chopped
- 2 garlic cloves peeled and minced
- 1/4 cup green onions finely chopped
- 1/2 cup lime juice
- 2/3 cup coconut aminos
- 1/4 cup avocado oil
- 1 tsp red chili flakes
- 1/2 tsp black cracked pepper
- 2 lbs jumbo shrimp

### PREPARATION

---

Mix all ingredients in a bowl and marinate for an hour in the fridge, then bring to room temperature. Throw on a hot grill for about three minutes on each side. Serve hot or allow to cool slightly to top salads.





# Woman of the Year

**B**árbara Hernández Huerta was voted the 2020 World Open Water Swimming Woman of the Year for her adventurous spirit and passionate love of extreme swimming, sharing of her swims in dramatic venues, and for her inexhaustible joy for cold water.

Bárbara is known as the Sirena de Hielo (Ice Mermaid) in her native Chile, where she specializes in glacier swimming, winter swimming and high-altitude swimming.



Bárbara's feats of strength are fueled by Perpetuem® and Hammer Gel®; her favorite flavors are Strawberry Vanilla, and Espresso and Peanut Butter respectively. She keeps fueling simple because in winter conditions, she doesn't have time to waste! For her daily training, she takes Hammer Gel and Endurolytes® Fizz and always finishes with Organic Vegan Protein.

In 2020, she completed the 45.9 km (28.5 mi) 20 Bridges Swim around Manhattan Island in 7 hours 59 minutes to achieve the Triple Crown of Open Water Swimming. She also completed an unprecedented 7.5 km (4.6 mi) high-altitude swim across Chungará Lake in the Andes Mountains in 10°C (50°F) water, finishing in 2 hours 11 minutes at 4,517 m (14,820 ft) of altitude. She also pioneered a 9.5 km (6 mi) course across the Beagle Channel in 1 hour 55 minutes in 7.8°C (46°F) water and won the 30-39 age group in the 2019-2020 International Winter Swimming Association World Cup. EN

Photo: THD Lateral



Photo: Patricio Dinamarca

## Pepo Vinueza

@one\_arm\_runner

One of Hammer's newest international distributors is sponsoring an ultrarunner who studies and lives in Spain for part of the year. He was gracious enough to answer some questions about his life and running strategies.

### ***How did you get started running?***

I have always liked the sport. When I started dating the woman who is now my wife, we had participated in short distance races, but at the end our bodies needed to rest for several days because we were not conditioned for that effort. In the quest to practice running more consciously, to perform better in racing, life leads us to people, places and incredible moments.

With running I discovered a better lifestyle. I started training with my wife six times a week and that's how a foundation invited me to participate in the New York Marathon, debuting among the best marathoners and falling even more in love with running.

### ***Do you remember the first Hammer product you had?***

The Speed Project (TSP) DIY 2020 race "solo" category was my debut in the ultramarathons. Physically it was a jump from 42km to 160 km. It lasted 31 hours 15 minutes and I was fortunate that my first Hammer products were Perpetuem, Endurolytes Fizz, and Hammer Gel. This helped me have enough energy and hydration throughout the race.

### ***What keeps you going during ultras?***

For me, running ultramarathons

means challenging myself and showing myself what I am capable of, putting my body and mind to the limit, and seeing how far I can go. This helps me live to the fullest and know that limitations are only in our minds, as well as the size of our aspirations.

My motto is to find the EXTRAordinary in the ordinary, the only difference is that "little" EXTRA that we put in every step we take in life. We all desire extraordinary things in our lives, but when we find that "extra," we give our best, consciously, consistently, and without excuses—not everyone is willing to do it. That's why I wanted to complete my first ultra. Not only do I want to motivate with words but with example and actions. It's not to impress others, it's to be my best version of myself and a better human being.

*Continued on page 64*

# FROM OUR ATHLETES



TEAM 1  
WINNERS



## RICK & JEAN ROBIDOUX

Grand Canyon “Rim 2 River”

Happy New Year to the Hammer Family, we wanted to share our “non-scientific” research with you!

Over the Christmas holidays we had two small teams of soldiers do the “Rim 2 River” and back again at the Grand Canyon in one day. It is a challenging 32 km trek with 10,000 ft of elevation change. We had been hiking, biking, and rock climbing with both teams over the previous few months, so we were confident in their ability to do this trek.

### Team #1

We spent over two hours getting our regular “Grand Canyon Briefing” with photos, maps, and lots of Hammer singles (HEED®, Endurolytes®, Hammer Gel®, Endurolytes Fizz, Perpeteum®, and most importantly, Recoverite®). We were down and back up in seven hours!

### Team #2

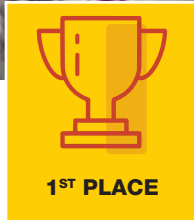
They opted to skip the briefing and also did their own trip planning and fueling plan (Gatorade). They managed to cover the same ground in 9.5 hours (~35% slower), but more importantly, their thighs and calf muscles were so sore the next day, they were essentially paralyzed three days after the Grand Canyon day.

The “Hammer Team” group split up and was knocking out hikes in Zion, Bryce, and Death Valley the very next day. **It works!! Thank you again for helping us make so many hardworking athletes into Hammer fans.** Photos: Rick Robidoux



# LUIS REYES

Tour De Los Tejas 300K



“To say this run was hard or tough would be an understatement. This run was physically arduous, mentally exhausting, and logistically challenging. I used Endurolytes throughout, Perpetuem Solids to zero-in on hourly caloric intake, and Hammer Gels to help sustain energy levels. Every three hours, I had a dose of Endurance BCAA+ and Anti-Fatigue Caps to help prolong endurance. My fueling was effortless and all of your support has helped me complete this race and above all, become the athlete I am today.

I completed the run in 90 hours 22 minutes. As an ultrarunner, I strive to be an ambassador for our indigenous people(s), a positive role model for my children as well as our youth. Thank you Hammer—I am appreciative of the knowledge you provide and the support you give!” - Luis

## RACE RECIPE

# CHARLENE PROCTOR

Nashville Starz Dance Championships



“For Competitive Ballroom Dancing my partner Andrey Begunov and I take our nutrition and supplements very seriously as part of our training and competition! Even when we’re not traveling to events, we’re dancing up to 15 hours a week and regularly practice all of these and more: International Ballroom style, Waltz, Tango, Foxtrot, Viennese Waltz, and Quickstep, Latin, and the 10-Dance which is its own separate event” - Charlene

Photo: Ryan Kenner Dancesport Photography

### FUELING RECIPE

#### PRE-EVENT

**Hammer Gel®, Endurolytes® Fizz, and Cool Feet in the shoes**

#### DURING

**Endurolytes® and Hammer CBD Balm**

#### RECOVERY

**Essential Mg, Hammer CBD Tincture, and Vanilla Recoverite**

### RESULTS

10-Dance Event: **1<sup>st</sup> place**

Open Gold Scholarship: **1<sup>st</sup> place**

Latin Style Dance: **1<sup>st</sup> place**

# FUELING LONG

## CALORIES, FLUIDS, & ELECTROLYTES



by BRIAN FRANK

As we gear up for another summer of endurance, it's time to get your fueling/nutrition strategy completely dialed in for those long days. Exercising beyond three hours is when the game completely changes, and your fueling plan will be either your success or your demise. For over three decades, athletes like you have used our products, followed our fueling strategies, and achieved unparalleled success in your training and races. Adopt these key recommendations, tweak them as needed to suit your personal physiology with our expert assistance, and we guarantee you'll see huge results!

### CALORIE INTAKE



#### Less is best

The right pre-race fueling question is: "What is the least amount of calories I need to consume to keep my body doing what I want it to do hour after hour without slowing me down?" The wrong question is: "How many calories am I burning or can I consume before I get sick?" At most, you might be able to replace 30% of what your body is burning. Fortunately, when you follow our fueling strategies, the vast supply of calories from body fat stores will bridge the gap between what your body is losing and what it can comfortably absorb.

#### Consume appropriate amounts of calories for your body weight

During exercise, the average-size athlete's liver can theoretically return 4.0-4.6 calories per minute back to the energy cycle. That's 240-280 calories per hour **MAXIMUM** for the average-size (160-165 lb) person. Athletes fueling with our products and strategies consistently do best with far fewer calories, especially when using Perpetuem; 120-180 calories per hour, depending on your size, is definitely the sweet spot for calorie intake.

#### Be flexible

Pace and temperature affect your ability to tolerate calories, so be prepared to reduce or increase your planned hourly



*"Some days the road seems to be reaching for that clear blue sky." Mitch DeYoung uses Hammer to fuel right on his long-distance rides across the Michigan countryside. Photo: Brett Miller*

intake by 10-20%. Running also reduces calorie tolerance, so plan to consume less than you do on the bike.

### Summary

Follow the "less is best" approach to calorie intake because a "not enough calories" problem is significantly easier to fix (consume more calories) than an "uh oh, I overdid it on the calories, I feel weak, sick, and downright miserable now my race is ruined" problem!

### EN CALORIES COUNT

Read more about calorie intake during exercise on page 22.

***"These time-tested and proven recommendations take all of the guesswork out of how to properly fuel your body during exercise."***

## FLUID INTAKE



### Monitor your hourly intake

Regardless of conditions, your maximum hourly fluid intake during exercise should be 20-28 oz—roughly the equivalent of a small or large water bottle. That's sufficient to stave off dehydration without putting yourself at risk of over-hydration. Smaller athletes and cooler conditions may only need 16-18 oz per hour.

### Don't over-hydrate

While dehydration is something you most certainly want to avoid; drinking too much fluid is just as bad, or worse. Consuming over 24-28 oz of fluid hour after hour greatly increases the potential for dilutional hyponatremia, a medical emergency. Peeing clear is NEVER a good thing.

### Stay hydrated all day long

The majority of people don't drink enough water throughout the day, so they're constantly in a state of dehydration. That's not good for athletic performance, and it's even worse for overall health. Therefore, in addition to what you're consuming in your workouts, drink enough fluid—

pure, clean water—to maintain optimal hydration status all day long. The goal is  $\frac{1}{2}$  your body weight in fluid ounces daily as a minimum. (e.g., 180 lb athlete should consume 90-110 oz of water daily). If you haven't been consuming this much daily, gradually increase your consumption until you reach your target amount.

### Don't try to "super hydrate" in the days before a hot-weather event

We are not camels and cannot store water. Chugging water in the 48 hours prior to a hot-weather race only flushes precious minerals out of your system prematurely, ensuring electrolyte problems on race day. Instead, maintain constant daily hydration (half of your body weight in fluid ounces) up to and through race day, regardless of temps.

### Summary

Keep yourself hydrated every day of the year, not just on race day. Drink  $\frac{1}{2}$  oz per pound of body weight, or slightly more, daily. Drink a maximum of 20-28 oz per hour during exercise. Overhydration on race day is more common than dehydration.

*continued on page 64*

# Hammering Since 1992







An interview with legacy Hammer athlete

## Mike Freeman

### How did you get into racing?

Every sport that I have done recreationally has always gravitated to competition. I raced motorcycles for about 15 years, enduros in the beginning, then on to motocross. I trained and conditioned by running during this time. These two sports caused a number of physical problems over time and ultimately lead to me giving up both sports.

So, I bought a boat and started water skiing. This of course lead to slalom competition. My wife, a great water and snow skier, got me started snow skiing. So you guessed it, I started racing down hill. It was at this time I started cycling as a conditioning conduit for these two sports. I loved cycling from the get go. I joined small group rides and continued to train on my own. I sold my boat but continued snow skiing. Then, I joined a local race team, Diablo Velo, in 1985 and started racing local masters events that year. That's when the magic happened. Even though I was getting my ticket punched every weekend I loved it.

*(left)* Mike doesn't take himself too seriously! *(inset)* On the road with Bill Nicolai, Brian, and Miles near Glacier National Park. *(top)* Celebrating a 3<sup>rd</sup> place result at the USA Cycling Masters Road Race Nationals in Bend, OR with Brian Frank in tow.



Martinez,  
California

### How did you hear about Hammer?

Funny story about how I was introduced to E-CAPS (now called Hammer Nutrition) and Brian Frank. I'll try to keep it short: The year is 1992. I changed race teams, Team Mako, and I was racing quite a bit with my teammate Bob Brooks traveling and racing out of state. (Sadly Bob is no longer with us. He was a very accomplished cyclist/racer. Many National Championships and National Records to his name. He became a good friend and mentor. We worked well together!) Okay, back to the story. We were at the Casper Stage Race in Casper, WY. I noticed Bob had an unmarked pill bottle with white capsules in it. I asked him what they were. He said they were Enduro Caps from E-CAPS. He had done a double blind test with some friends at Fresno State University and found that they buffered lactic acid.

He contacted Brian and a sponsorship was arranged. Now this is the funny part. I asked him why he hadn't told me about them before. He said he hadn't told anyone because he knew it gave him an advantage while racing. I had to have some of these! As it turned out, E-CAPS was located in Pleasant Hill, CA at the time, five miles from my house.

When I got home I contacted Brian. We talked a bit and arranged a meeting at his headquarters. We talked about his products and a small sponsorship was arranged. It all just came together and I hope that Mako and I have played a small part in the success of Hammer Nutrition.

Brian and I rode together quite a bit from the office and on group rides. Practice criteriums on Thursday evenings were also in the schedule. Brian is a very accomplished athlete, cycling being one of those sports. I used to call him "Mr. Fast Twitch," I could never beat him in a sprint!

As the years have passed we have become very good friends, like family. I have watched the company grow into the number one performance/supplement business in a very competitive nutritional market. I owe a lot of my success to Brian and what is now called Hammer Nutrition. Not only the excellent products but also for good sound training advice. **EN**

# LIVE EVENTS ARE BACK!

For as long as there's been a Hammer Nutrition, we have been supporting endurance athletic events, and we continue to be the leader when it comes to grassroots event sponsorships. As we're fond of saying, "We support your sport! If it's 'endurance,' chances are Hammer Nutrition is supporting it!"

Hopefully, with more and more events now able to go live for the most part, the whole "virtual" type of event will go by the wayside and never come back. It was a long drought in 2020, and I think we're all ready to participate at an actual event! The future is certainly looking brighter in that regard, as we've already confirmed nearly 200 2021 events. We've received several hundred requests coming in daily for Hammer Nutrition product support. We're psyched!

Here are just some of the events we'll be sponsoring in the upcoming months:



**The Wild Canyon Ultra** - April 17<sup>th</sup>

**The Hidden Hills Ultra** - May 15<sup>th</sup>

[ultraexpeditions.com/run](http://ultraexpeditions.com/run)

These are the next two races in the schedule of all the great events put on by the awesome staff at Ultra Expeditions, a company based in Texas and "built by runners with a passion for all things running. We genuinely believe that running is a vehicle that can enrich the lives of everyone."



**Calico Racing**  
...the Cat's meow in sport

**Ancient Aliens** - May 20<sup>th</sup>

**Running With The Devil** - June 19<sup>th</sup>

[calicoracing.com](http://calicoracing.com)

Hammer Nutrition is once again honored to support the running events produced and directed by our longtime friend and sponsored athlete, Joyce Forier of Nevada. Ancient Aliens is one of the newest events on the 2021 slate, while Running With The Devil is one of the longer-running Calico Racing events. A veteran of 150+ marathon-or-longer races, Joyce knows what it takes to put on a world-class event. "Integrity, innovation, attention to detail, community, and environmental stewardship are the driving forces behind Calico Racing."

## Chainbuster

**The Bartram PM** - May 22<sup>nd</sup>

[chainbusterracing.com](http://chainbusterracing.com)

One of the "6/3" (hours) mountain bike races that make up the Terrapin Southeastern Endurance Series. Six gravel races—The Terrapin Southeastern Gravel Series—are also produced by this Georgia-based company. Chain Buster Racing began in 2009 and is recognized as one of the premier gravel/mountain bike event organization in the Southeast.



**MORE THAN A RACE.**

**Oregon Coast Gravel Epic** - May 1<sup>st</sup>

**Sisters Stampede MTB Race** - May 30<sup>th</sup>

[mudslingerevents.com/events](http://mudslingerevents.com/events)

Our great friend in Oregon, Mike Ripley, produces some of the finest, most challenging mountain bike and gravel races in the entire country. The Oregon Coast Gravel Epic kicks off the five-event Oregon Triple Crown Series, with the Sisters Stampede Mountain Bike Race, one of the great races in the nine-race Oregon XC.



**Pioneer Sprint Triathlon & Abe's Mini Triathlon** - May 8<sup>th</sup>

[triharderpromotions.com](http://triharderpromotions.com)

The start of a long season of outstanding triathlons put on by Tri Harder Promotions, "The Home of Premier Multi-Sport Events in Central Illinois." Headed up by Steve O'Connor—USAT Certified Race Director and multiple IRONMAN competitor—all of the Tri Harder races "have been painstakingly planned, coordinated and designed so you don't just have a race; you have a full triathlon experience."

2021 is shaping up to be a big year for events and we're super excited to be supporting so many of them...and live events at that! Woo Hoo! No one sponsors events like Hammer Nutrition, and no one supports more of them! **We support your sport!** EN

# RACE CAPS SUPREME



Energy, Endurance, and Recovery Since 1987!



**“A GAME CHANGER!”**

*“Race Caps Supreme has been a game changer! It not only allows me to increase my training, but lets me enjoy it too! Thanks Hammer!” - Andrea H.*

- Helps increase energy
- Supports vascular health
- Enhances cognitive function

90 Capsules  
\$49.95

3 or more  
\$45.85



Erica Lazarus conquers the Las Olas Triathlon, winning 1<sup>st</sup> place in the Master's division and 5<sup>th</sup> woman overall! Erica preps with **Race Caps Supreme** and also makes **Fully Charged** and **Sustained Energy** staples of her race day routine. Photo: Fixed Focus Photography

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800.336.1977

# CONTINUED ARTICLES

## Hammer PHOOD

by BRIAN FRANK

*Continued from page 6*

As is the case with every product that carries my brand, Hammer PHOOD underwent extensive bench testing for almost two years before being released to the public. In real-world testing, I didn't go as far with Hammer PHOOD as we did with Perpetuem in 2001 when Steve Born did his double 508 record ride, but I did do some extreme testing. Initially, I used it as a substitute for either lunch or dinner. Eating breakfast and lunch, then having the MRP for dinner worked very well.

I also experimented with one MRP and one meal per day for a week, and that went well too. I preferred eating my main meal for lunch and the MRP for dinner, but vice versa worked as well.

The final test was 72 hours on nothing but Hammer PHOOD – 3 servings per day for three days and nothing else besides water. I maintained 30-90 minute daily moderate intensity exercise during this testing period. While I would not want to go for much longer than three days on nothing but Hammer PHOOD, I was amazed at how satiating the 240 calorie serving is. I would enjoy 4-5 hours of complete satiety without hunger pangs.

Now comes the fun part! We release the product into the wild and wait with bated breath to hear your feedback and creative uses! It should be in stock and shipping by the time you read this. **EN**

## A Runner's High

Excerpt from *A Runner's High: My Life in Motion* by DEAN KARNAZES. Published by HarperOne. Copyright © 2021 HarperCollins.

*Continued from page 10*

We started hiking the roughly 2 miles up to Green Gate and what had been told to Nicholas was indeed truthful, most people do hike this section, principally because it's nearly straight uphill the entire way. You could run, but you probably wouldn't get there much faster, and you'd almost certainly expend more energy. Until you can sniff the barbecue pits at the finish line, conservation of energy is always a factor during an ultramarathon.

"How's everything?" I asked Nicholas as we hiked along.

"It's nuts what you guys do."

"Does it seem different now than when you were a kid?"

"When I was young, I thought everyone did this stuff. Now I see it for what it is."

"Nuts?"

"I could use other words."

His induced a chuckled. We continued power hiking up the steep incline, Nicholas and I, the stars beaming brilliantly in the never-ending cosmos. And in that brief moment our hearts beat as one, and I felt a paternal connection to Nicholas in a way I hadn't since he was a young boy.

**"Thank you for being here," I said to him.**

**He didn't answer; didn't have to. He felt it, too.**

There is a threshold in which words and thoughts cannot cross,

a place of deeper awareness and meaning. Such instances are rare, profound, and precious. We continued hiking into the darkness, the two of us, all sense of time and place vanished, just two souls drifting along together in the night.

The Green Gate aid station is remote and accessible only by foot; thus there were fewer people here than at other aid stations. My pacer, Kim Gaylord, was waiting for me. Tan and fit, with long, flowing dark hair, Kim was like a locomotive. We ran together often, and when she put it in gear there was no stopping her.

I said hello to Kim and exchanged pleasantries with some of the aid station volunteers. Good people, these, out here at all hours of the day and night providing support to runners, some of who were barely coherent. Honestly, I wasn't that much better off myself, though not as bad as another runner who was bundled in blankets on a cot fast asleep. Or passed out. The difference between the two during an ultramarathon can be difficult to discern.

During the aid station transition Nicholas had refilled my bottles, one with Heed and one with Perpetuem. He was working behind the scenes, and I'd hardly noticed his absence.

"Here, Dad," he said, handing my bottles back to me. "Stay fueled."

There was an intimate, pub-like feel to the Green Gate aid station, and it would have been easy to relax and stay awhile. Of course, that would be a terminal mistake. The clock was ticking and only so much time remained for me to reach the finish line before the hourglass

emptied. I was 80 miles in and had thankfully crossed the river. Now came the hard part... EN

## Bone Health

by STEVE BORN

*Continued from page 32*

### Vitamin K2

Tremendously important for a number of areas in human health, including bone health.

More info at [healthline.com/nutrition/vitamin-k2](http://healthline.com/nutrition/vitamin-k2).

### BioSil

A silicon supplement made by Natural Factors that I recommend to everyone who has had to deal with bone breaks and/or who needs support for healthy bones. Bones, skin, hair, and joints benefit from silicon supplementation. You can find this supplement at most good health food stores and many online stores. I recommend using the liquid form instead of the encapsulated version because I believe it works better. The liquid form has a terrible taste, so mix the drops in a bit of juice.

### SUMMARY

Incorporating as many of these nutrients and supplements in your program will definitely help your broken bone recovery, and it will also help maintain strong bones and stave off bone-related issues. EN References available upon request

## AO Booster

by STEVE BORN

*Continued from page 36*

### THE AO BOOSTER FORMULA

#### Tocopherol (150 mg)/tocotrienol (50 mg) blend

The vitamin E “family” has eight “members”—four tocopherols and four tocotrienols. Studies suggest that optimal health benefits are obtained via intake of

a mixture of tocopherols and tocotrienols versus “regular” vitamin E (d-alpha tocopherol) only. Karin Granstrom Jordan, M.D. writes, “While alpha-tocopherol has long been known as an important antioxidant, research has now shown that the complete vitamin E team is much more effective. The different vitamin E forms have complementary effects as free radical scavengers. Together they can fight a wider spectrum of free radicals than alpha-tocopherol alone.”

In the tocopherol blend, we emphasize the gamma fraction in the formula; there is more of this particular form of vitamin E than the other three combined. Vitamin E expert, Dr. Maret G. Traber, explains, “While both alpha- and gamma-tocopherol are potent antioxidants, gamma-tocopherol has a unique function. Because of its different chemical structure, gamma-tocopherol scavenges reactive nitrogen species, which, like reactive oxygen species, can damage proteins, lipids, and DNA.”

Tocotrienols may be even more potent free radical scavengers than the tocopherols. According to research by Dr. Lester Packer and Dr. Barrie Tan, tocotrienols may have 30-60 times more antioxidant power than alpha tocopherol.

Read more: “The Full E Family in AO Booster” [hammernutrition.com/blog/the-full-e-family-in-ao-booster](http://hammernutrition.com/blog/the-full-e-family-in-ao-booster)

#### Lutein (20 mg)

This carotenoid is a potent antioxidant, with a particular affinity for eyes and skin, helping protect them from ultraviolet (UV) damage. In regards to eye health, not only does lutein provide the macula and lens with protection from sunlight’s UV

rays, it is suggested to decrease the risk of developing age-related macular degeneration (AMD). Lutein aids in protecting the skin from UV and free radical damage, it helps reduce soreness and redness in the skin, and may even be a powerful ally for helping protect against skin cancer. In addition, studies indicate that lutein and other carotenoids (a class of natural fat-soluble pigments) may have protective benefits to help ward off breast cancer. Lutein is also purported to help to prevent or slow down atherosclerosis, a condition that causes the arteries to clog and often leads to cardiovascular disease.

Read more: “AO Booster’s Lutein—More Than Meets the Eye” [hammernutrition.com/blog/ao-boosters-lutein](http://hammernutrition.com/blog/ao-boosters-lutein)

#### Astaxanthin (5 mg)

This carotenoid, derived from the microalgae *Haematococcus pluvialis*, is suggested to be 10 times stronger than beta-carotene and 100 times stronger than vitamin E in regards to its antioxidant capabilities. Japanese research suggests that mice supplemented with astaxanthin appeared to burn fatty acids for fuel more efficiently, were able to exercise longer, and had greatly decreased fat accumulation compared to mice not receiving astaxanthin. Other research has shown that astaxanthin reduces oxidative damage from strenuous exercise in the skeletal and heart muscles of supplemented mice. Research also suggests that astaxanthin may improve human cardiovascular health and provide a powerful assist in protecting against cancer. EN

Read more: “Astaxanthin’s Amazing Benefits” [hammernutrition.com/blog/astaxanthins-amazing-benefits](http://hammernutrition.com/blog/astaxanthins-amazing-benefits)



# Old Dogs, New Tricks

by RON AMOS

## Hammer Masters Team takes on E-racing

For the most part, the northern United States and all of us up here in Canada's snowy north have been training and racing indoors. The rapid growth in online virtual cycling platforms connected to the myriad of 'smart trainers' have made indoor virtual training and racing possible. Loads of fun and a great way to race while the winter season keeps the temperatures low and provide a racing and social venue that has been lacking during these difficult and challenging times. Real in-person races have experienced a huge decline in 2020. Many of us Hammer Masters racers have found that we can use virtual training/racing platforms to expend our competitive juices while testing our fitness.

Training and racing virtually requires the same fueling as an outdoor training ride or race. For a training ride of two or more hours I take two Endurance BCAA+ capsules and consume a scoop of Fully Charged mixed with 5 oz of water. I prepare a bottle with a scoop of Caffé Latte Perpetuem® and place a pre-opened Hammer Bar® on my desk beside me in easy reach. It is so important to begin the replacement of fuel during and immediately after a long hard session on the bike. After sessions like these, I consume 1-2 scoops of Recoverite® along with two additional Endurance BCAA+ capsules. This has been my go-to fueling for the past three months while riding the indoor trainer.

Outdoor in-person racing can't come soon enough. Until then I will be rocking the virtual races with my Hammer Masters teammates while fueling with the Hammer Nutrition products I have come to depend on.

### The Hammer 53x11 Masters Team

Officially, this team has been running continuously since 2012

(unofficially, it's been nearly 20 years) and is comprised of riders aged 45 to 55+ who race across the US and Canada.

With Hammer's sponsorship of the Northern California Nevada Cycling Association's (NCNCA) Premier Series, the Hammer Masters Team enters up to 30 races per year in Nor Cal, which is said to be one of the most competitive areas for road racing. NCNCA hosts over 70 races each year. In addition to CA, they enter select races in Canada and participate in a few major stage races such as the Tour of the Gila in New Mexico and the Green Mountain Stage Race in Vermont.

Over the years, Hammer Masters have won hundreds of races as well as a few championships, including the Canadian National Championships in Road, TT, and Crit, two USAC Masters National Championships, and a Masters World Time Trial title. None of the members have ever raced professionally and most started cycling later in life. **EN**

(above) Ron Amos shows off his virtual cycling setup. Photo: Hunter Ziesing

# RECOVERITE®

Recoverite Today, Hammer Tomorrow

Make Recoverite® part of your immediate post-workout routine!



Ron Amos represents the Hammer 53x11 Masters with 4 top-5 finishes, including 1<sup>st</sup> place in Criterium and a 2<sup>nd</sup> place podium finish overall, at the prestigious Green Mountain Stage Race. Photo: Ron Amos



## “PREVENTS THAT WIPED OUT FEELING”

*“I always have Recoverite ready after biking. No longer feeling drained, it gives me the rest of my day back. Definite life-changer!”*

- Kevin C.

- Restores glycogen
- Reduces soreness
- Reduces fatigue



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hammernutrition.com  
800.336.1977

# CONTINUED ARTICLES

## Pepo Vinueza

an interview with a Hammer Nutrition Ecuador sponsored athlete  
*Continued from page 50*

### **What keeps you going during ultras?**

Perpetuem® helps me reduce fatigue, protect muscle, and dampen lactic acid. Endurolytes® Fizz prevents me from having cramps and keeps me hydrated with electrolyte intake. Hammer Gel® provides me with complex carbohydrates that are easy to consume and digest.

Hammer products help me not have stomach problems or nutritional deficiency and perform well during races.

### **What solutions do you have to make fueling more convenient with only one arm?**

For the consumption of liquids, the best solution I found is the use of soft flasks, but I need help preparing the mixtures and placing them inside the vest. Using Hammer Gel and capsules is very easy to handle without help.

### **I can't go to a race weekend without:**

Visualizing the finish line and my pace strategy.

### **What races do you wish to do in 2021?**

Despite the global situation that does not allow annual planning, I certainly want to run many long-distance races. My real goal is to participate in the World Marathon Challenge that will take place in November, which consists of running 7 marathons on 7 continents in 7 days. **EN**

## Fueling Long

by BRIAN FRANK  
*Continued from page 54*

### **ELECTROLYTE INTAKE**

#### **Ditch the salt**

Most of us consume far, far too much salt from our daily diet, and most athletes have a reservoir of upwards of 8,000-10,000 mg of sodium stored in body tissues. When you begin your workout or race/event, you'll have PLENTY of sodium ready to serve you, assuming you have not prematurely flushed it all out of your body by trying to "load" water in the days prior. To allow your body to utilize its sodium stores more efficiently and conserve them more effectively, lower your daily sodium intake to between 3,500 mg and 5,000 mg per day of salt (1,400 mg to 2,000 mg of sodium). When you are not over-consuming dietary sodium, 300-600 mg/hour of salt (sodium chloride) should be plenty in any level of heat and humidity.

#### **Full-spectrum electrolytic mineral support required**

"Electrolyte replenishment" does not mean "sodium/salt replenishment." In fact, consuming too much salt overrides and shuts down the body's natural mechanisms for recirculating and conserving its stores of sodium. Moderate amounts of sodium and chloride are recommended, as well as adequate amounts of calcium, magnesium, and potassium; all of these minerals work synergistically to maintain the optimal performance of many important bodily functions. En-

durolytes and Endurolytes Fizz provide the full-spectrum, proportionately balanced blend of these electrolytic minerals, supplying your body with exactly what it needs. For extremely warm-to-hot weather—and especially if you're not acclimated to those conditions—Endurolytes Extreme or Endurolytes Extreme Powder are your go-to products.

#### **"Sodium loading" does not work!**

When you attempt to sodium load for a hot-weather effort, (as so many clueless "experts" recommend) your body will go into survival mode by flushing the excess sodium and all of your other precious minerals as well. You end up electrolyte deficient on the starting line, and things go from bad to worse.

#### **Summary**

A good hourly dosage guideline is 3-6 Endurolytes, 1-2 Endurolytes Extreme, 1-2 scoops of Endurolytes Extreme Powder, or 1-2 tablets of Endurolytes Fizz per hour. Don't slavishly adhere to the same dose hour after hour; take less in the morning when it's cool and more in the afternoon when it's hot. If you need more than this to avoid cramping, take more!

These time-tested and proven recommendations take all of the guesswork out of how to properly fuel your body during exercise. Adopt these recommendations, apply them in all of your workouts, and customize them if necessary to fit your unique physiology. We guarantee that you'll receive maximal benefits from your workouts, you'll experience better race results, and you'll have more fun in the process. **EN**



# HAMMER GEL<sup>®</sup>

Smooth Sustained Energy



**“BEST GEL, HANDS DOWN!”**

*“Before and during runs, Hammer Gel is the best—good clean burning energy and no upset tummy!” - Stacie R.*

- Rock-solid energy
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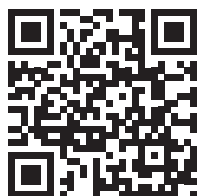


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*Endurance News* cover athlete **Ryan Ingham** maintains boundless energy for all of his training adventures across every type of terrain. Ryan had a busy year, successfully competing in the Whiskey Basin Trail Run 91K, the Copper Corridor 50K, and the Black Canyon Ultra 100K. Watch for him in May 2021 at the Cocodona 250 - Good Luck Ryan! Photo: Ryan Ingham

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**Caitlin Lewis, Grandmaster Ultras 50K,  
1<sup>st</sup> Female, Finish Time: 5:23:44**

Photo: Daniel Wilson

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Representing the Hammer 53x11 Masters Team, **Tim Davis** is a Hammer podium regular as part of NorCal Racing, Livermore, CA. Photo: Katie Miu