

# ENDURANCE

BY HAMMER NUTRITION

#129 April/May 2022

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# NEWS



## IN THIS ISSUE

### Winning Proof

Hammer athletes rack up repeat victories

### Stress and Cortisol

The Hormonal Catch-22

### Magnesium

Linked to a Lesser risk for Alzheimers

### PLUS

- Latest Happenings at Hammer HQ
- Carbo Loading - the Right way







## MASON KLEIN

Mason Klein places 9th overall at the grueling Dakar Rally, beating out former champions and veterans of the sport on his first attempt! Read more about his outstanding finish and fueling notes on page 50.

Photos courtesy of RallyZone

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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).



# BEING FRANK

## A WORD FROM BRIAN FRANK

Owner and Founder of Hammer Nutrition

**W**elcome to EN 129! Spring is here and it's time to go racing! Even though we're barely three months into the year, Hammer-fueled athletes have already scored some major victories. We're continuing to celebrate our 35<sup>th</sup> Anniversary of Endurance and gathering momentum for another absolutely incredible year! Thank you for being a part of the adventure!

We kicked off the year in January with victories in Daytona and a Top 10 finish in the grueling Dakar Rally. 18-year-old rookie, Mason Klein, put the rally world on notice with a 9<sup>th</sup> place finish in one of the toughest races in the world. As he said after the race "I couldn't have done it without Hammer." Read his story, it's amazing.

Hammer-fueled drivers and riders, Helio Castro Neves (47 years old), won the overall at Rolex 24, with Ricky Taylor in 2<sup>nd</sup> place on a couple of seconds behind. This followed an impressive victory in the 4-hour TCR race won by my old F3 racing buddy, Roy Block, his codriver Tim Lewis, and the whole TMR/Alfa Romeo team including Joe Varde and Louis Milone.

These wins were closely followed with dominating performance by Hammer fueled athletes in Epic Rides

the first 24-hour mountain bike race of the year. See my race recap on page 6.

We have demonstrated with increasing dominance that even in the high tech, high dollar world of motor sports, failing to provide proper fueling to athletes will negatively affect performance and race wins.

This issue, like the previous 128 issues, is filled with hard-hitting, contemporary information about nutrition and fueling, the benefits of reducing dietary sugar and sodium, and most importantly, stories and feedback from you, our most prized asset!

Despite all of the challenges ahead (see my Hammer Housekeeping notes on page 34) I am extremely optimistic about 2022. Sure, times are changing, but being a small, agile company, we are able to adapt and roll with the punches, so to speak. As I mentioned in the last issue, and I'm pretty sure you all know this from daily life, we have experienced cost increases on every product we sell, as well as shipping and every other aspect of the business. Despite this fact, I have only raised prices on a scant few products and will continue to do my very best to hold prices down, despite this reality.



For me, 2022 is a much-anticipated return to competitive form. After being injured most of last year with several broken bones along the way (getting hit by a deer on my road bike in July, suffering a broken finger, wrist, collar bone and two ruptured disks in my low back), I'm ready for some competition! Which is why I've committed to doing all 8 rounds of the NATC Moto Trials nationals, with two rounds each in Tennessee, California, Colorado, and Minnesota between April and June. Wish me luck!

So, let's all see if we can make 2022 a great year full of goals reached, race wins, personal bests, and enjoying the ride every day! Remember, myself and my knowledgeable staff is here to help.

Enjoy the read and pass this issue and the good news about Hammer to your family and friends. Referrals are our main source of new clients, and nothing beats getting to help more clients do what they love to do.

*Brian Frank*

Brian Frank





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## MISSION

*Endurance News* provides informative and inspirational content to help endurance athletes like you achieve peak performance and health. The views expressed favor a healthy diet, hard training that emphasizes quality over quantity, and prudent supplementation to improve health and performance. Back issues are available at [hammernutrition.com](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, warm up your training as Spring comes MARCH-ing in!

Read more on pages 06, 22, 24, and 60

**On the cover:** Briank Frank captures the Hammer Team victory at 24 Hrs in the Old Pueblo. Photo courtesy of Shelby Reynolds.



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Did you know that poor sleep habits can result in a 3-times higher risk for heart disease? Read more on page 8.

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April / May 2022

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Introducing LifeBiotics Super 15 Broad-Spectrum Simbiotic/Probiotic. Learn how LifeBiotics, Digest Caps and EnduroZyme are your knock-out trio for optimal digestive health.



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# 24 HOUR HOP

A Race Recap by BRIAN FRANK

This was our first year sponsoring and providing fuel for almost 2,200 intrepid mountain bike racers competing 24 Hours in the Old Pueblo in a decade or more. It was great to be back! 24HOP is one of Todd Sadow's Epic Rides marquee events, kicks off of endurance Mtb racing season and a prime opportunity to expose Hammer products to all of the riders.

It was nice to have the Hammer sponsored/fueled four rider team "Not so pretty in pink" of Victor Sheldon, Phil Tinsman, Pete Tholl and Brandon Mills dominate the event, easily taking the overall win and showcasing how our **Less is Best** fueling protocols guarantee success. They managed to complete 23 laps of the 16 mile course, beating second place by several laps.

Most impressively, all four riders completed the event without a cramp, stomach ache or GI distress and were able to maintain lap speeds that barely degraded by 10% from first lap to last lap!! They were the epitome of our tag line "**Fuel Right, Feel Great**"!

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## MEET THE TEAM

Victor Sheldon, age 56, from Vista, Ca  
 Phil Tinsman, age 48, from San Marcos, CA  
 Pete Tholl, age 60, from Vista, CA  
 Brandon Mills, age 42, from San Diego, CA

Photos courtesy of  
 Shelby Reynolds



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# POOR SLEEP



## Connected to Triple Risk for Heart Disease

by STEVE BORN

There are a number of individual aspects of poor sleep that negatively impact heart health, including inadequate sleep quality, inconsistent sleep timing (i.e., going to sleep at different times at night), lack of sufficient sleep duration/sleep deprivation, low levels of alertness during waking hours, and more.

None of these are good for your heart, but when they're combined, the risk of heart disease skyrockets to whopping 141%. That's the findings of a study from the University of South Florida, which was published in the journal *Scientific Reports*.

In this study, the researchers reviewed sleep data of over 6,800 U.S. adults, average age of 53. These 6,800+ participants self-reported both the characteristics of their sleep as well their heart disease history. 633 of the participants wore a small actigraph unit around their wrist, which monitored and recorded their sleep activity.

While the researchers asked the study participants about their health—including if their personal physician confirmed a heart condition such as

arrhythmia, heart murmur or an enlarged heart, and more—they primarily focused on the multiple aforementioned aspects of sleep (e.g., quality, timing, duration, etc.), and linked them to physician-diagnosed heart disease.

With each additional increase in self-reported sleep health issues, the researchers noted an associated 54% increased risk of heart disease. The participants who provided sleep data via both self-report and the data provided by the actigraph had a 141% increased risk of heart disease. The researchers believe that this figure—using both self-reporting and actigraph data—was significantly more accurate than self-reporting alone.

Lead author, Dr. Soomi Lee, states: “These findings show the importance of assessing ‘co-existing sleep health problems’ within an individual to capture the risk of heart disease. This is one of the first studies showing that, among well-functioning adults in midlife, having more sleep health problems may increase the risk of heart disease. The higher estimated risk in those who provided both self-

report and actigraphy sleep data suggests that measuring sleep health accurately and comprehensively is important to increase the prediction of heart disease.”

Since sleep health can be modified, researchers say these findings can contribute to future prevention strategies to mitigate the risk of heart disease, which is the leading cause of death in the U.S.

### Closing thoughts

Longtime triathlete, coach, and Hammer Nutrition client, Nate Llerandi labeled the lack of quality sleep as “the ultimate performance killer,” and stated, “Sleep deprivation can put you in one of the worst holes you’ll ever experience. It goes hand in hand with overtraining, erratic training, and poor performances.”

The research discussed in this article shows that poor athletic performance is the least of your problems if you're not getting sufficient amounts of quality sleep nightly.

To help you obtain maximum amounts of consistent high-quality sleep—helping you avoid the triple risk for heart disease—we highly recommend consistent use of our triple-



support arsenal of products:

● **Hammer CBD** contains Phyto-cannabinoid-Rich Hemp Oil, which interacts with the body's endocannabinoid system. Of its important roles in the body, the endocannabinoid system helps regulate sleeping patterns. The phytocannabinoids in all of Hammer CBD offerings augment the body's natural production of cannabinoids, helping to ensure sufficient amounts are available to positively influence sleep.

● **REM Caps** – Headed up by melatonin (which also happens to be an extraordinary antioxidant), REM Caps contains a proprietary blend of specific nutrients in therapeutic doses, all of which work synergistically to safely and effectively help you quickly fall asleep and stay asleep.

● **Essential Mg** – Of the hundreds of roles magnesium plays in the body, one of the primary benefits for aiding sleep is that it helps the muscles and nerves to relax. Additionally, along with the valerian root extract in REM Caps, magnesium may provide noticeable relief for anyone suffering from night cramping. **EN**

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*"Thank you Hammer for making CBD that I can trust and that does the job! The tincture keeps me calm, collected, and mentally refreshed - even 80 miles in." - Travis M.*



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# The SCOOP on Sugar

by Dr. Bayne French *First published in Endurance News Issue 117*

**A**lthough much has been written in EN over the years about sugar, I want to throw in my two cents. In my medical training, I was never taught about the detrimental health effects of sugar. But in defense of medical education, I was taught a lot about the human body, diseases, and medicine. What I know about health and nutrition, I learned from chiropractic school, my mother, and my own reading. Nutritional science is tough. The crux being the difference between association and causality. As a case in point, American male meat eaters have a high rate of heart disease. But is it the meat? Or is it perhaps abdominal obesity, deconditioning, smoking, high sugar consumption, or a myriad of other influences and contributors to inflammation? Food questionnaires and other data-gathering tools are relatively easy, but a true medical experiment like randomized controlled trials is much more involved and expensive.

What about bias and outright duplicity? The Sugar Research Foundation (SRF) funded “research” and Ancel Keys’ famous “research” in the ’50s

and ’60s directed outcomes to meet their conclusions—not exactly the scientific method. The detrimental effects of sugar on cardiovascular health were minimized and fat was demonized. These results dramatically changed the landscape of nutritional advice and spawned the high-carb, low-fat dietary recommendations we are still reeling from today.

Dr. John Yudkin, a British physician, warned about sugar’s effects on cardiovascular disease. He wrote *Pure, White, and Deadly* in 1972 and urged public health campaigns to focus on sucrose. How many of you have even heard of him? He’s not alone.

There are numerous sources and studies as early as the ’50s focused on sugar’s health detriments. The emerging evidence led the SRF to construct its research and pay Harvard researchers to shift the focus from sugar to fat. That’s enough to raise my blood pressure.

Tufts University performed research, compiling a massive amount of data on sugar-sweetened beverage (SSB) consumption that many feel reflects causality

between sugar and obesity, heart disease, type 2 diabetes, and cancer. These findings were published in *Circulation* in 2015. They report that, worldwide, 184,000 DEATHS per year are directly attributable to SSB consumption: 133,000 from diabetes, 45,000 from cardiovascular disease, and 6,450 from cancer. They concluded the data was “indicating an urgent need for strong global prevention programs.”

I say stop buying it, stop consuming it. But what is “it”? Soda, of course, and most sports drinks, but I would include juice and milk too. Artificially sweetened beverages must certainly be better, right? Blood pressure going up. Well, maybe in a future article.

True sugar is sucrose, a disaccharide, which is 50/50 glucose and fructose. High fructose corn syrup is 75% fructose. Although all cells in the body can metabolize glucose, only the liver processes fructose, and there is no more potent driver of fat formation (lipogenesis) than fructose. What about fruit? Worry not! Just chew it, don’t drink it.

*Continued on page 58*





***"As a physician with a great interest in leanness, wellness, and disease prevention, I feel there is absolutely, no place for sugar in the achievement of these things."***



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# Long Live **FULLY CHARGED**

The KING of Pre-Exercise Supplements

by STEVE BORN



**H**ard to believe that it's been over five-and-a-half years since we introduced Fully Charged, the most unique and effective pre-exercise supplement ever produced. Our pre-workout "ignitor" rewrote the book because, unlike other products in the category, Fully Charged was never about obscene amount of caffeine or stimulants, which are found in most-to-all of other pre-exercise supplements.

We were confident that we could supply athletes with a plethora of benefits for enhancing exercise performance via nutrients/nutrient compounds that were also beneficial for overall health. That's what a real athletic-specific supplement should be about, and Fully Charged most definitely is. Those other pre-workout supplements? The ones that make your heart race and pound 20-30 minutes before you even start your workout? That's not performance enhancing; that's dangerous!

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### Beta-Alanine

This amino acid simultaneously neutralizes acidity levels and

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### L-Carnitine Fumarate

This amino acid transports fatty acids into the mitochondria for conversion of cellular energy. Fumaric acid (fumarate) is a Krebs Cycle Intermediate and plays a vital role in energy production.

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#### Beet Root Juice Powder

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#### SUMMARY

No other pre-exercise product provides the wide-ranging benefits that Fully Charged does, and without subjecting you to the unpleasant, excessive jittery and elevated heart rate effect associated with other pre-exercise supplements. This extraordinary product—now available in capsules as well as powder—can be used prior to any workout or race, with additional doses every 2-3 hours during long-duration workouts and races not only being acceptable but highly recommended. For over 5.5 years, Fully Charged has helped thousands of athletes take their workouts and races to another level of excellence. Isn't it time you experienced that as well? 



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A close-up photograph of a hand holding a clear glass salt shaker, tilted to pour a stream of white salt crystals onto a dark-colored bowl. The bowl is filled with a vibrant, colorful salad of various vegetables, including broccoli, red bell peppers, and leafy greens. The background is dark, making the salt and the colorful food stand out.

# SALT

## is destroying your healthy diet

by STEVE BORN *First published in Endurance News issue #110*

Research has shown that no matter how healthy your diet may be, if you're still consuming too much salt, all of your efforts are for naught—at least when it comes to high blood pressure and the negative health consequences associated with it.

In this study\*, the researchers reviewed dietary data from a previous study, the INTERMAP study, which involved 4,680 people, aged 40-59, from the USA, UK, Japan and China. The results of this review revealed that the people who ate higher amounts of salt had higher blood pressure, no matter how healthy their diet was otherwise.

Previously, it was believed that eating high amounts of fruits and vegetables might help counteract the effect of high salt on blood pressure. However, while these foods do tend to lower blood pressure, this new research suggests that they do not counteract the adverse influence of salt intake.

In their review of the data, the researchers assessed concentrations of sodium and potassium in the urine samples of the 4,680 study participants. Sodium is a primary culprit for high blood pressure, while potassium has been linked to lower blood pressure. The intakes of 80 additional nutrients that are believed to help lower blood pressure—including vitamin C, fiber, and omega-3 fatty acids—were also reviewed.

The results showed that in the participants who were consuming high amounts of potassium and other anti-high



***“To get any value from the healthy foods you eat, you absolutely must lower the salt you consume in your diet.”***

blood pressure nutrients, the researchers still found a correlation between high blood pressure and higher salt intake.

Emphasizing the importance of cutting salt intake, Dr. Queenie Chan, joint lead author of the research, states: “We currently have a global epidemic of high salt intake—and high blood pressure. This research shows there are no cheats when it comes to reducing blood pressure. Having a low salt diet is key, even if your diet is otherwise healthy and balanced.”

According to the Center for Disease Control (CDC), approximately 75 million American adults (29%) have high blood pressure—that’s 1 in every 3 American adults. High blood pressure greatly increases the risk for heart disease and stroke, the first and third leading causes of death in the United States.

The American Heart Association recommends no more than 2,300 mg of sodium a day and an ideal limit of no more than 1,500 mg per day for most adults. Unfortunately, Americans consume amounts that far exceed the AHA’s recommendations. This is why it’s crucial that you be more aware of your salt intake each day, and not just in your food. Salt is the primary ingredient in most electrolyte supplements and sport drinks on the market, oftentimes in amounts that are excessively high, and that’s cause for concern, especially in light of this new study. Hammer Nutrition’s fuels, however, contain a very modest amount of salt, complemented by a balance of potassium and other important minerals

**BOTTOM LINE:** If you really want to lower your risk of having high blood pressure, you still have to eat the best possible diet; there’s no getting around that. However, to get any value from the healthy foods you eat, helping to stave off high blood pressure and its harmful effects on your health, you absolutely **MUST** lower the salt you consume in your diet. **EN**

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*- Online Reviewer*



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## HAMMER ATHLETE

## MATT DRAYER

I've been an adventurer all my life. In high school and college, I would head off on mountain biking excursions and be gone for hours, sometimes covering fifty miles or more. After college I began expanding my pursuit of the outdoors to additional spheres – trail running, peak bagging, sea kayaking, and rock+ice climbing. In the early 2000s I discovered I had a passion for competitive endurance sports – adventure racing in particular – and discovered **Hammer Nutrition** and **Hammer Gel®**. I had experimented with many products, but Hammer Gel was the first fuel I found that actually WORKED for me.



I stepped away from the competitive endurance sports scene in the mid-2000s as my wife and I settled down in the Boston area to focus on careers and begin our family. However, in 2011 my competitive flame reignited, and I began training in earnest that winter for the 2012 Blackburn Challenge, a 20-mile open water kayak racing event. Remembering my experience with Hammer Gel, **I immediately placed an order with Hammer Nutrition. I won my class and set a course record** that season, and I attribute my ability to perform at such a high intensity for the three-hour event in large part to my use of Hammer Gel, **HEED®**, and **Perpetuem®**.

Over the past decade I've continued to pursue competitive and non-competitive athletic interests, particularly in the areas of sea kayaking and ice climbing. From open ocean crossings on a long skinny "surf ski", to climbing up frozen waterfalls and alpine gullies, I've learned to design training and fueling plans for my adventures similarly to the training and fueling plans

**"Why Hammer? Because it works!"**

I design for my competitions. **Hammer Nutrition continues to play a huge role in all of my preparation, performance and recovery** – and even more so as I've gotten...wiser...over the years. Let's just say that when you hit 45, **Daily Essentials** and **Recoverite®** are no longer just good ideas, they're necessities!

Coming back around to family, my son and daughter are now teenagers (how time flies), and it's been amazing to watch them discover athletic passions of their own. Both enjoy lacrosse, my daughter is experimenting with basketball, and my son plays on multiple ice hockey teams. As a parent, coach, and competitive athlete myself it's important to ensure that they understand the benefits of using well-made, purpose-built, performance-oriented products as opposed to the inferior stuff that's out there, and they each have their favorite flavors of HEED and Hammer Gel at this point.

I can honestly say that my athletic endeavors over the past decade would not have been as successful and enjoyable without Hammer Nutrition's outstanding products and top-notch support. When people ask me "Why Hammer?" my response is simply, "Because it works."

**- Matt Drayer**





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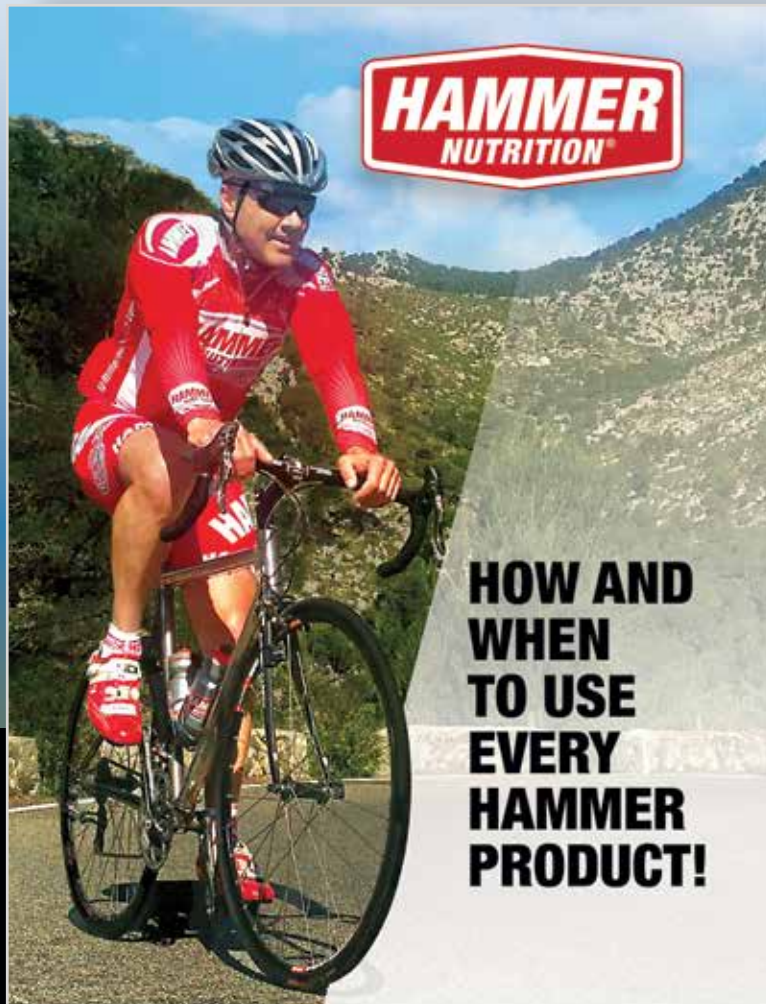
*5 Secrets of Success*, and *How to Hammer*.

Still have questions? Join us on live chat and get a complimentary personal fueling plan from one of our friendly experts. We're here to help.

**KEEP HAMMERING!**



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*How To Hammer* provides all the vital information you need to Hammer to the next level. The final word on usage, with advanced details and specific applications.



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WHEREVER YOU GO, **SHOW US HOW YOU HAMMER!**

Use the hashtag **#howihammer** to share your photos!



jacobhanes01



**Jacob Hanes** My second 25k is officially over, and it was done with a \$6 pair of trail shoes found at Salvation Army on the day of the event! @gwoodman2 & @hammernutrition Thank you for all that you do! #howihammer



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**Stefan Weiss** I run without music - Especially in the morning when the sun rises earlier again and you can hear the birds. Whether with or without music. Have a good run everyone. No matter where.  
#howihammer #hammernutritionGermany

At Hammer Nutrition we are excited to see what you have been up to every day! Whether training, competing, traveling or just out and about enjoying life - **Post it!** and show us how you Hammer.





jtsnyder57



**Joshua Snyder** Awesome race yesterday with a 2nd place finish in Cat 1 thanks to @hammernutrition for fueling my ride and @gigindustries for the action shots #howihammer



lucas\_almeidag



**Lucas Almeida** L'etape Ecuador  
What a nice experience competing in Cuenca, thanks for all the support and shouts on the road. This is the result of months of effort and constancy but that process is the most enjoyable part of this sport finding new limits and enjoying with friend.



soymarcis



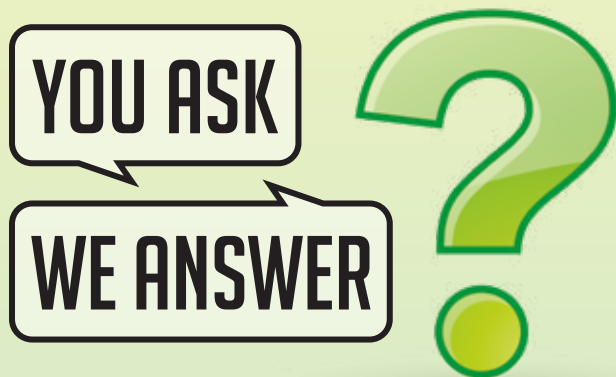
**Marcis / Trail** Two cool pictures from yesterday in Guadalix: Reaching the finish line with strength! Suffering but smiling #howihammer



HammernutritionMY



**Hammer Malaysia** May Good Luck and Prosperity follow you everywhere you go on this New Year and years after it. Wish you a Happy Chinese New Year of the Tiger 2022. #howihammer



# ASK HAMMER NUTRITION

answers by STEVE BORN

## QUESTION

My usual training routine is 30-45 minutes of indoor cycling or a treadmill run, immediately following with a 20-30-minute strength workout. Would **Recoverite**® or **Whey Protein** be better after that workout?

## ANSWER

Based on the workout combination that you're doing—aerobic exercise followed very shortly with a strength workout—I definitely recommend using Recoverite ASAP after that second workout.

The reason is because your cycling or running workout will cause some glycogen depletion. And since your next workout follows very shortly afterward—basically making it one long workout—your body will still be in “glycogen depletion mode,” even though it's now a strength workout that you're doing. As a result, to restock the muscle cells with fuel, and to help rebuild the muscle tissue, you'll need both the complex carbohydrates and the whey protein isolate from Recoverite to provide more-complete recovery from both workouts.

If you were doing a purely weight/strength workout only (no aerobic/endurance exercise), then yes, Whey Protein would be the more appropriate product... the carbs in Recoverite really wouldn't be needed.

One option that you might consider after your cycling/running-then-strength workouts is to add



½ scoop of Whey Protein to your 2-scoop serving of Recoverite. That will add 7.5 additional grams of whey protein isolate to the 10 grams you're getting from Recoverite.

Personally, I think this a really good idea as the extra protein (17.5 grams total) will provide additional support for muscle tissue repair, it will help reduce aches and soreness even more, and your immune system will undoubtedly benefit greatly. Speaking of which, the whey protein isolate we use in these two products is tremendously beneficial for the immune system and much more.

## QUESTION

I hear a lot of debate about complex carbs versus simple sugars for endurance fuel and energy. Which is more effective and why?



# ANSWER

Hand down complex carbs is the winner here, and here is a closer look at the science behind it.

## BENEFITS OF COMPLEX CARBS OVER SIMPLE SUGARS

- Rapid energy (GI rating of 100, same as glucose). During exercise and immediately after, that is EXACTLY what you want.
- Longer-lasting energy (no “flash and crash,” “piece of paper on fire” effect)
- More calories can be efficiently digested from complex carbs than from simple sugar
- Less potential for stomach distress

For more than two decades, Hammer Nutrition has consistently and emphatically maintained that endurance athletes will perform significantly better if they fuel their bodies during exercise only with complex carbohydrates, avoiding simple sugars. Not surprisingly, Hammer Nutrition fuels are comprised only of complex carbohydrates (maltodextrin), with no added simple sugars (glucose, sucrose, or fructose).

Still, on an ever-increasing basis, companies continue to produce sports fuels composed of simple sugars, whether solo or in combination—and occasionally with maltodextrin included as well—touting them as a superior exercise fuel. These companies usually list a number of studies to back their claims.

So what is the best carbohydrate for the endurance athlete? Does maltodextrin stand alone as the premier source of carbohydrate energy—or do simple sugars and/or a combination of simple sugars reign supreme? To answer these questions, let's first take a look at how your body responds to different sugars. This involves a basic understanding of “osmolality.”



Read this article in its entirety online at [hammernutrition.com](http://hammernutrition.com)



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# 5 SECRETS OF SUCCESS FOR ENDURANCE FUELING

## #2 Calories Count

by STEVE BORN

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

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:

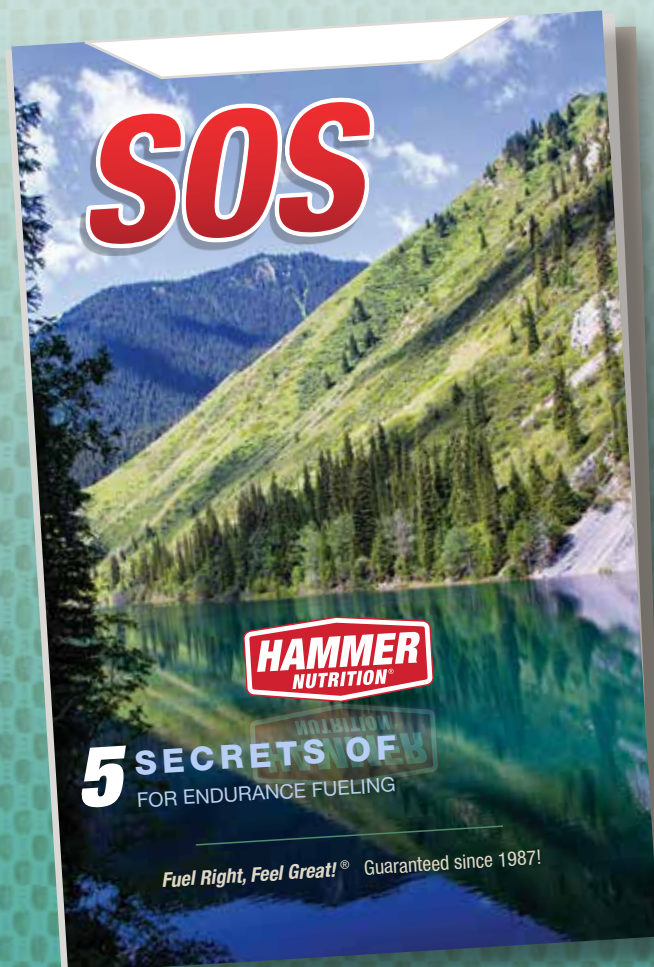
**it is ALWAYS easier to fix a ‘not enough’ problem than an ‘uh oh, I overdid it and now my stomach is rebelling’ problem.**

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! 

Learn more with a FREE online download today of our #1 publication, *5 Secrets of Success*, at [hammernutrition.com](http://hammernutrition.com).

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# CARBO LOADING

Start now and start right.  
Gradually is the way.

by STEVE BORN



**Carbo loading is not what you've been traditionally led to believe. It's less about what and how much, but when.**



As we roll into the summer months, but with many of your key events still possibly several weeks out, you might be thinking, “Carbo loading? Why now?”

Hear me out, though. I have no doubt that my rationale is sound and that, if applied consistently, you will experience noticeably higher quality and greater endurance in your training leading up to your events, as well as better performance in the events themselves. Oh yes, while you're at it in the “carbo loading” aspect, you'll also be doing something equally if not more important: recovering optimally between all of your workouts leading up to your races.

In my opinion, the right way—no, make that the only way—to truly “carbo load” is to do it g-r-a-d-u-a-l-l-y. Think of it this way: When you start your training season, you don't bust out with super long runs or rides, hill repeats, and high-intensity speed work from the get-go, do you? No, you start primarily with base miles, and then gradually increase the duration and intensity of your training so that your body becomes more accustomed to the stress you put on it, thus becoming fitter as the weeks go by. Additionally, you don't wait until the week before an event to start training, do you?



***“The time to begin gradually replenishing and maximizing muscle glycogen stores is now. Your body will thank you and the quality of your workouts and races will be your proof.”***

### **Of course not!**

These examples can be applied to “carbo loading” as well, which is more appropriately defined as maximizing muscle glycogen stores.

### **Muscle glycogen? What’s that?**

When you begin a workout or event/race, the primary fuel your body uses for the first 60 minutes or so is muscle-stored glycogen, a glucose polymer (complex carbohydrate) that contains tens of thousands of glucose units arranged in branched chains. As your stores of muscle glycogen become depleted, your body switches over to burning fat, along with carbohydrates and a small amount of protein consumed during exercise. You’ve only got a finite amount of this premium fuel, muscle glycogen, but its importance is hard to overstate. In fact, several studies have shown that the pre-exercise muscle glycogen level is the most important energy determinant for exercise performance. Bottom line: If you want to have the best event/race possible, you want to start it with as much muscle glycogen “on board” and ready to serve you.

Maximizing glycogen stores is so easy; here’s all you need to do!

1) You train intelligently and consistently.

2) You “refill the tank” with high-quality carbohydrates and protein ASAP (within the first 30 minutes, the sooner the better) after all of your workouts.

### **That’s it! That’s what “carbo loading” is all about.**

It is NOT what you eat (or how much) in the week before the event/race, and it’s NOT what you eat (or how much) the night before the event/race. It is the replenishment of carbohydrates and protein in the first 0-30 minutes (again, the sooner the better) after ALL of your workouts in the weeks and months leading up to the event/race.

Recall what I said earlier about training – you don’t try and to gain all of your fitness all at once; it’s a gradual process. Additionally, you don’t wait until the week before your event/race to accrue the fitness you need; by that time, it’s far too late to positively affect fitness levels. The exact same is true with about maximizing muscle glycogen stores (“carbo loading”). It is a gradual process, one that takes several weeks to happen, and it’s a process that really cannot be achieved in the week or so leading up to an event/race.

### **How it all works:**

Along with insulin, which regulates blood sugar levels of ingested carbohydrates, an enzyme known as glycogen synthase converts carbohydrates from food into glycogen and stores it in muscle cells. This also drives the muscle repair and rebuilding process. However, to maximize the recovery process, you need to take advantage of glycogen synthase when it’s most active. Carbohydrate replenishment as soon as possible after exercise, when the body is most receptive to carbohydrate uptake, maximizes both glycogen synthesis and storage.

Intake of protein along with carbohydrates is also extremely important in the glycogen restoration process. Protein, of course, is required for muscle tissue repair and for 38% over the first 4-hours of recovery.”

The oft-used phrase, “striking while the iron is hot” absolutely applies to many aspects of recovery, especially in regard to muscle glycogen synthesis and storage. That’s why, before you get out of your sweaty cycling kit or running clothes, before you hit the shower, before you do your stretching, and before you get horizontal and take a nap, put some fuel back into your body.

*Continued on page 59*



# and the hormone CORTISOL

by Dr. Bayne French *First published on Endurance News Weekly*

Brian asked me to write about stress. I thought he meant my stress, so I asked if I had 20,000 words to use. I also informed him the finished work would read more like a horror screenplay.

It turns out he felt readers (you) would be bored by reading about my stress, even the time when a Grizzly bear wanted to inflict much harm upon my person. Instead, he suggested, I focus on the myriad health consequences of chronic stress and elevated cortisol levels and how to ameliorate them. I agreed to proceed as long as he told me what ameliorate means (to improve or alleviate a specific condition).

## CORTISOL AND THE HPA AXIS

Hormones are substances (usually proteins but sometimes cholesterol-derived steroids) produced in one part of the body, travel via the bloodstream, and affect cells and organ

function elsewhere. They are made in meager amounts from numerous organs and interact with distant tissues via a receptor. Like a lock and key, the hormone's functions initiate once coupled with a receptor. And a wide array of functions there are! Growth and development, metabolism, bone density, immune function and inflammation, bowel function, mood, and even genes' expression are affected by hormones. **Essentially, hormones regulate all biological processes in the human body.**

The "HPA axis" is the hormonal intersection of the Hypothalamus, Pituitary, and Adrenal glands, serving as the brain/adrenal connection. In this trio, the hypothalamus, a master regulatory center of the brain, releases a hormone called CRH. CRH then takes an exhausting, several-millimeter journey to the pituitary gland and

stimulates the release of ACTH. This ACTH acts directly on the adrenal glands, resulting in cortisol release. So chronically elevated cortisol from excessive stress or a crappy diet originates from your brain.

**Cortisol is a steroid hormone made from that nasty stuff called cholesterol.** Bad cholesterol! Egg whites rule! (just kidding – I love the yolks). Anyway, the outer regions of the adrenal glands, perched on top of the kidneys, produce cortisol. The inner zones of the adrenals create other hormones like epinephrine (adrenaline). The disproportionate influence of the adrenal glands on health and other hormonal imbalances leads many practitioners within functional medicine to adopt the tenet "start with the adrenals" when addressing health problems and health in general.

The release of cortisol follows a rhythm, peaking in the morning known as the Cortisol Awakening Response, part of the Dawn Phenomenon (along with other hormones like glucagon, epinephrine, growth hormone, etc.). Time to get up! This very natural morning state is why low-carb eaters (who are good fat burners) commonly have "elevated" blood sugars in the morning. They get misdiagnosed with pre-diabetes when instead it's Adaptive Glucose Sparing and a natural Hunter-Gatherer place to be – but I digress. Cortisol peaks in the morning and declines throughout the day. At least it should follow that course.

*Continued on page 28*



# THE DOCTOR IS IN DR. BAYNE FRENCH, MD DC

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



Read left for Dr. French's first-hand (paw) take on stress management.

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



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# STRESS and the hormone CORTISOL

***“Lack of stress reprieve is a significant contributor to numerous diseases.”***

*Continued from page 26*

## Get tested. Learn to know when enough is enough.

Throughout our human experience, we have developed a sophisticated system for handling stressful situations of shorter duration like being mauled by some long-ago extinct predator, injury, clan gossip, or food scarcity. Many feel we are chemically less adept at dealing with our modern environment's constant and ongoing stress and longer lifespans. This lack of stress-reprieve is considered by many to be a significant contributor to numerous diseases.

Relatively small and temporary deviations from that pattern are common. Acute (traffic or a poor night's sleep) and chronic stress (ongoing stress from a medical disease, hating your job, dysfunctional marriage, politics) affect cortisol levels. Over time, heightened cortisol levels detrimentally impact numerous body systems, including mental health, sleep-wake cycles, bone

density, blood pressure, body weight, cravings, blood sugar, and inflammatory levels - all of which are important.

### CORTISOL TESTING

The extent of testing for cortisol in Western Medicine usually involves investigation for suspected Cushing's Disease and Addison's Disease. These are severe medical diseases of massive overproduction and underproduction of cortisol, respectively. Both are very uncommon conditions. However, disruptions to the HPA-axis and cortisol deviations from a regular pattern are more common. Mention this at your next exam, and your primary care provider's eyes will likely gloss over. He/she/they were not trained this way.

Anything that stresses the body may distort the curve: Injuries, over-training, infections, dysbiosis (distorted gut microbiome), toxins, food sensitivities/allergies, poor diet, and of course, emotional stress. There are several potential distorted curve patterns, and four-point testing is required to identify them.

Testing is best performed on

your own, using widely available saliva kits. Ideally, a Functional Medicine trained provider or Naturopathic Physician would help you interpret the results and offer personalized treatments. However, many interventions apply to almost everyone that can help restore normalcy to your freaky weird curve. I will touch on these modalities later.

One reasonably common cortisol curve variant is a flat curve that does not decrease appropriately but is continually elevated. Kumari et al (J Clin Endocrinol Metab 2011) found that this pattern was associated with increased all-cause mortality, including cardiovascular deaths.

Salivary testing is convenient, inexpensive, noninvasive, and accurate, particularly for cholesterol-derived hormones like cortisol. Furthermore, there is a strong correlation between salivary hormone levels and the blood levels of the hormone in its free/active/bio-available form. Collect saliva in the morning, upon waking. Again at noon, 4 pm, and before bed. Thus “four-point.” You spit into a container four times, get it?

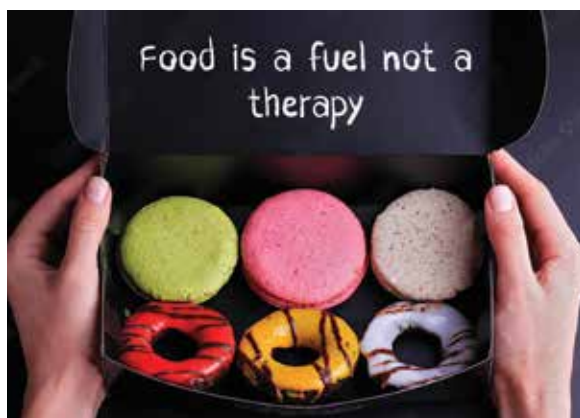


The closest thing to four-point salivary testing I do in the office is two separate blood tests, at around 8 am and 4 pm. Call it a poor man's four-point test, though a misnomer because it's way more expensive. Typical ranges in the morning are 10-20 mcg/dL and at 4 pm 3-10 mcg/dL. The morning value really should be a few points higher than the afternoon value, or you're likely dealing with a flat curve. For me, this acts as a general screen of the HPA axis. If abnormal, I urge further study with saliva testing.

## CORTISOL AND WEIGHT GAIN

A few studies agree that 70% of us will increase food intake when faced with stress, and 30% will take in less. But, like most human things, these diverging behaviors interplay between physiology (our cellular functioning) and psychology (our culture, upbringing, and what we're taught). Stress eating increases in those diagnosed with obesity, particularly those with high "cortisol reactivity." Herhaus et al (Translational Psychiatry Jan 2020) showed that patients with obesity with the highest cortisol release in response to stress were more vehemently driven to consume comfort foods, which of course, makes this very challenging disease even harder to treat. In addition, there are many neurologic and hormonal distortions within obesity that leaner-weight individuals do not possess, and distortion within the HPA axis is but one example.

*Continued on page 58*



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# DEAN KARNAZES KEEPS HAMMERING



by Dean Karnazes

First published in *Edurance News* issue # 123

Standing at the starting line I felt bloated, my stomach overstretched.

Perhaps it was to be expected. For dinner the night before, I'd eaten an outsized bowl of pasta. That could have been part of the problem. The other part quite possibly could have had to do with my breakfast earlier in the morning, which consisted of a bagel with cream cheese, a bowl of oatmeal with brown sugar, and a stack of pancakes smothered in maple syrup. I needed the carbs, or so I was told, in preparation for the nine-mile race I was about to run. The gun went off, and the pack surged forward. Everything went reasonably well for the first few miles. And then, quite abruptly, my condition began to deteriorate. My legs suddenly felt heavy, and my mind was in a fog. What was going on? I'd trained diligently for the race so I knew that wasn't the cause. The only reasonable explanation, I thought, was my diet. I hadn't consumed enough sugar.

By mile six, I found myself reduced to shuffling, the spring in my legs all but sprung. At mile seven, I started walking. The final couple of miles were spent in a humiliating walk/run just trying to get to the finish line. Next time, I thought, I should put more brown sugar in my oatmeal and more maple syrup on my pancakes. Such a rookie mistake I'd made.

This is what we endurance athletes were brainwashed to believe back then. Carbo loading was essential for peak performance so I continued down this path of pancakes and pasta.

Then, much to my delight, Gatorade started flooding the airwaves with their ads promoting the importance of carbs in an easy-to-consume beverage. In one 16 oz serving of Gatorade, I could get 34 grams of sugar. Perfect! I started swigging Gatorade by the case.

It's surprising that I was able to keep going as long as I did. Not knowing any better, I thought I was doing everything perfectly.

*Continued on page 62*



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"**Pelle Eccellente** is an excellent skin moisturizer. I use it on any dry skin areas, including face, as well as sunburn recovery. A small amount goes on easily with immediate relief to overly dry skin. Thank you! - John H.



"**Cool Feet** equals Happy Feet! On my feet and in my shoes Cool Feet eliminates hot toes and makes my shoes smell fresh. - Tiff R.



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# TOP NOTCH SERVICE



Hammer founder Briank Frank is always on deck at HQ, taking calls and shaping expert fueling plans for clients.

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Some issues need more time for an in-depth discussion, so call today for a free consultation.

You can also 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.

## Heres' what clients like you have been saying:



"What separates Hammer Nutrition from other companies is their support for their clients. Their customer service is a rare find in today's automated world. Brian Frank has assembled a team that genuinely adheres to taking exceptional care of people. Calling their 1-800 number to speak with a real persons is equally important as having the quality products. When you become a Hammer client, you join the Hammer family as well." - Mike Bitner



"I called the Hammer 1-800 number to inquire about my physician's recommendation for an Omega-3 supplement. To my surprise, the Hammer Client Service agent said that the brand my doctor recommended was a reputable company, and did not take the obvious opportunity to bash the competition. They took the time to investigate the cost difference per dose. While Hammer weighed in at only a slightly better value, I chose to purchase the Hammer EndurOmega because I was so impressed with the personalized, detailed, and thoughtful interaction with my Hammer representative." -Tom H.



"A friend from my triathlon club referred me to the Hammer Nutrition 1-800 numbers after noticing I was struggling with fueling and hydration. I was completely blown away by the knowledge and recommendations the Hammer agent provided. They addressed my problems completely and customized a nutrition plan for my upcoming race. Calling a company for help never felt easier! I'm so impressed by the accessibility Hammer offers their clients."

# HOUSEKEEPING from HAMMER HQ

## Important updates from BRIAN FRANK

With so many things in flux this year and all of the supply chains disruptions, inflation and what, I thought it'd be helpful to give you a bit of a heads up on what to expect to see, or not see from us in 2022. These issues are directly related to supply chain disruption, raw materials being unavailable and those that are often times being of unacceptable quality. Rest assured that I am doing every single thing I can to minimize the impact and inconvenience to you.

**Hammer Gel®** – Expect outages of nut flavors in pouches and

jugs to persist for 2022 and beyond. The inventory we have is all there is until a new manufacturer is secured. Other flavors may also be spotty, especially in jugs. So, if you have a certain flavor of Hammer Gel that you love, especially the nut ones, probably a good idea to stock up when you can.

**Enduro D** – main components hard to acquire, raws not passing spec, causing long term outages. This product is hoped to be back in stock by the time you read this and if it is, stock up.

Various powder fuels like **HEED®**,

**Perpetuem®** and **Recoverite®** may not always be in stock due to resin shortages preventing us getting needed jars and packaging containers.

**HEED**, **Recoverite** and **Perpetuem 2.0** delayed due to tapioca and other raw shortages. Hope to have these out by 3rd or 4th quarter of this year.

**Race Caps Supreme** – Idebenone and other raws very hard to get causing some outages. 10K units inbound, hope to avoid more outages this year.

**CBD softgels** – ongoing gelatin shortage making it difficult to maintain in stock status.



## When it's time to Make the call.

**TIME OUT: We know you don't have time for all the back and forth. Give us a call - we're here to help!**

At Hammer Nutrition we offer several ways to get in contact with us for your convenience including Live Chat and Email.

Many of our clients prefer quick texts or service replies they can read and answer later. And let's be honest, many folks simply despise talking on the phone. We get it.

However, some issues aren't so easily resolved. Text can become complicated to convey information, situation details and circumstances.

When your questions are more than a simple redirect, reset, or require "further review", now's the time to pick up that phone and give us a shout. Our experts are standing by to get you a quick and efficient "ruling on the field", to keep you happy and back in the game fast.

Our first priority, beyond your every athletic success, is your ultimate client satisfaction.

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## Hammer steps up to support NICA Mountain Bikes Leagues with Knowledge and Nutrition



Students take to the course for a NICA league race.  
Photo: Adam Hayes

We're very proud to announce our support for NICA mountain bike leagues across the country! NICA takes the guesswork out of junior offroad racing with coaching, teams, skills, and drills for students grades 6-12. By developing leagues for students to ride and race their mountain bikes individually and as part of teams organized around their school affiliations.

For the next 3 years, the Hammer team is supporting the largest movement in mountain bike history by getting more kids on bikes! Coaches and students alike will benefit from more than 25 years of close collaboration with junior development teams and have access to our experts that combined hold nearly 90 years of athlete-proven, sound nutritional programs - ensured to help more young riders Fuel right & Feel Great!

NICA leagues are present in many states near you, including NorCal, SoCal, Texas, Utah, New York, Tennessee, Wisconsin, Alabama, Idaho, Northern Nevada, Southern Nevada, Virginia, Pennsylvania, Arkansas, North Carolina, Maryland, West Virginia, Oregon, New Jersey, Montana, Florida, Indiana, South Carolina, Missouri, Ohio, Kansas, Nebraska, Kentucky, New Mexico, and Delaware Interscholastic Cycling Leagues.

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

# HAMMER ATHLETE ROD FAVARD

*“Nutrition and pacing two things that are key. I am grateful to have Hammer’s support for one, so I only need to focus on the other.”*



Rod Favard competes in the Bandera 100K with a final time of 08:28:39. Photo: Let's Wander Photography

The crux of any ultra over 50 miles for me has always been nutrition. Getting calories, fluids, carbohydrates, and electrolytes in your system is quite literally the only thing that can allow you to move through that distance, let alone move through it quickly. Historically most of my races in the 50–100-mile distance have resulted in painful cramps, unresponsive legs, long stretches of walks feeling sorry for myself, and remarkable positive splits through the second halves. I attribute this 100% to my fueling. There is always a point where my stomach turns and nothing sweet (carb and calorie rich) will sit kindly in there. I decide to skip an hour and wait for my stomach to settle before putting anything else in there, setting myself for absolute failure by falling behind on my carbs/electrolytes/calories per hour.

On Saturday, January 8th, in pursuit of a Golden Ticket to Western States at the Bandera 100k, I managed to not only run but almost negative split the second half of the race, catching 10 people and racing up to 4th place in one of the most competitive ultras of the year in the country, thanks to Hammer Nutrition. Hammer makes consumption easy and my body is able to process and utilize the energy from their products quicker than any other brand I have tried in the past. My personal strategy was to consume a Hammer Gel every 30 minutes over the course of an 8-hour race (yes, I had 16 Hammer Gels!!). My stomach did not turn once and my palette

truly enjoyed the subtle flavors of Vanilla and Raspberry which I alternated between to keep it fresh.

Hydration was another key factor in my success on the day. It is not enough to just drink water as your body sweats out key salts that retain the water in your cells to be used in the metabolic cycle that allows you to keep pushing with no hiccup in your step. At every aid station, with the help of my crew who had my bottles ready for me, I guzzled down 500mL of Strawberry Hammer Heed mixed with 1 ounce of Hammer’s Liquid Endurance, which is hyper-hydrating formula that uses Glycerol as the main active ingredient to maximize intracellular water retention. If you are a heavy sweater and are trying to perform in the heat, you must try this product. I truly believe this was a key reason for my non-declining muscular function throughout the race and I plan to use this in every warmer competition I do in the future.

This is my first longer distance ultramarathon using Hammer products and I cannot stress how key their formulas and blends were to my success at Bandera. Nutrition and pacing are everything in these races. I am grateful I have Hammer’s support to take care of one of those things so I only need to focus on the other. EN



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- Powerful immune support
- Improves insulin sensitivity

## Super Immunity Kit

Immunity Kit + Clear Day and AO Booster

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*"A great combination of ingredients. All I know is that I have hardly been sick since I have been taking them and that says a lot. Thanks Hammer!" - Merville H.*



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# ENDURANCE NEWS

## REMEMBERS EN ISSUE #92

### 2014

## Ask Hammer

### Straight talk

**Do endurance athletes really need as many carbohydrates we've previously been told? What is Hammer's position on low carb diets?**

First, let's clarify the term "carbohydrates." Not all carbs are the same. There are some very good carb sources, some carb sources, and some carbs that should be consumed in moderation.

Most athletes need more good carbs. Good carbs include greens (such as lettuce and spinach), cruciferous vegetables (like broccoli, kale, and bok choy), and vegetables with water content (like zucchini). These are more than adequate for post-workout replenishment and they are not associated with inflammatory and/or degenerative diseases.

"Bad" carbs include wheat and sugar; you should eliminate them from your diet, both for optimal health and peak performance. The third group of carbs—starches and grains like rice and potatoes—can be bad when consumed in excess, but in moderation can be helpful for controlling weight. The key is to eat them only after you have met your dietary requirements by consuming an abundance of "good" carbs, along with lean protein and high quality fats.

Many who follow "low carb" diets use it as an excuse to avoid eating healthy carb vegetables, yet they still end up consuming refined sugar and wheat. In fact, the average American eats over 150 pounds of refined sugar each year, several times that amount of wheat. This is precisely why we face epidemic levels of obesity, diabetes, and inflammatory degenerative diseases including cancer. Meanwhile, companies continue to sell sugary sports drinks, gels, candies, and jelly beans—touting them as the best source for athletes.

Consuming the right carbs in the correct volume, timing, and during exercise as well on a daily basis, is beneficial for health and fitness. Athletes do NOT need wheat or refined sugar; they should avoid consuming these carbs in their diet and especially during exercise. The only time I recommend consuming low fiber, high-glycemic index complex carbohydrates (like maltodextrin) is immediately before and during exercise. The volume should be between 120 and 180 grams per hour, depending on your size and the intensity of the exertion.

## Seasonal Reminder

### Catching up on Carbs

Carbs, carbs, carbs, - it's carb mania out there with so much misinformation swirling about. Are carbohydrates good, are they bad, what is a complex-carb? Should I carbo-load, or avoid them entirely?

I sought to address this madness back in Endurance News Issue #92, and we continue to answer your questions daily on our Live Chat Support, as well as with related topics on *Endurance News Weekly*.

You will find a few such articles in this issue of Endurance News, penned to further dispel the many myths about carbohydrates, and redefine their attributes as biologically necessary fuel. For example, as an athlete you've undoubtedly heard about "carbo-loading". Flip to page 24 to learn that this term is not what you've been lead to believe (gorging on pasta and beer

the night before a race). "It's less about what and how much, but when".

Then, follow on over to page 60 to read my article "The Perils of Loading". We run this piece nearly every start-up season as a reminder to get you going on the right foot, so all of your hard training won't be for naught.

Additionally, as always, we offer clear explanation of the proven best complex carbohydrate sources in our products to maximize your overall performance.

Keep Hammering!

- Brian Frank



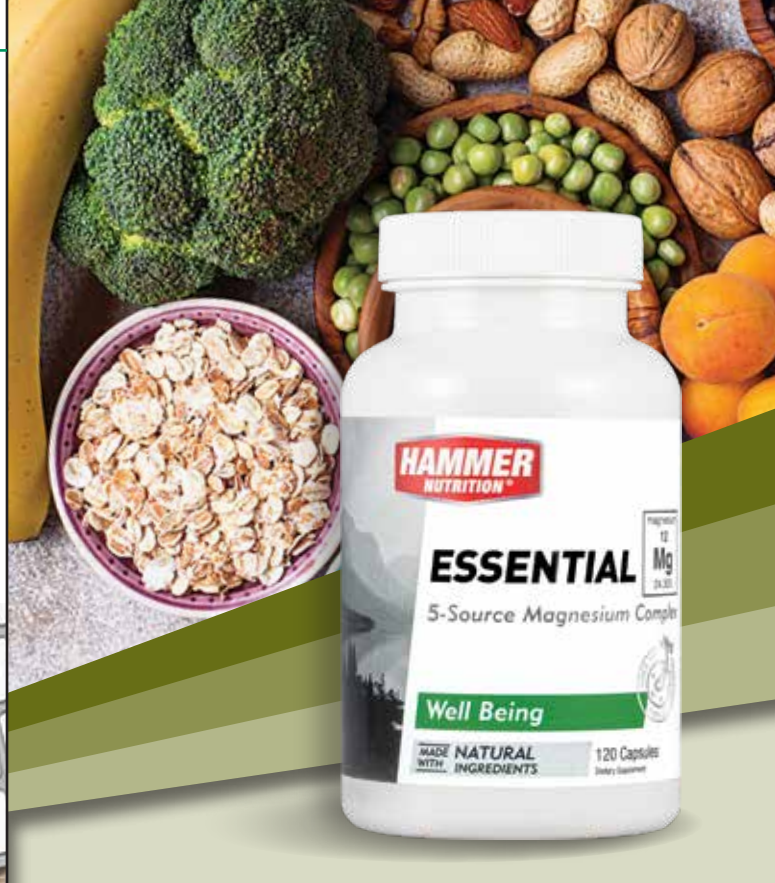
Read the original story in *Endurance News* at [hammernutrition.com](http://hammernutrition.com)

until you're satisfied, and less than prepared for an endurance several days.





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



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*"I use **Essential Mg** as an add-on to drive my triathlon training recovery. Great product to maintain proper key levels within and across recovery." - Daron H.*



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# essential Magnesium

## Higher levels of Magnesium Associated with Lower Alzheimer Disease Risk

by STEVE BORN

I realize I must sound like a broken record, but seriously, is there anything in human health that magnesium doesn't have its hand in? The latest research reveals another profound benefit of this all-important mineral—a strong potential for protection against Alzheimer disease.

The goal of the study was explained by Dr. Ke Du and associates:

Alzheimer's disease (AD) remains a medical and social challenge worldwide. Magnesium (Mg) is one of the most frequently evaluated essential minerals with diverse biological functions in human body. However, the association between circulating Mg levels and AD remains controversial.

Magnesium plays a critical role in nerve transmission and

neuromuscular conduction in nervous system and has a protective effect against excitotoxicity inducing neuronal death. The aim of the present study was to gain additional insights into maintaining an adequate nutritional state for Alzheimer disease prevention or treatment.

21 studies published from 1991 to 2021 that involved 2,113 men and women, and that reported the relationship between serum, plasma or cerebrospinal fluid levels of magnesium and the risk of Alzheimer disease were reviewed.

- 18 of those studies compared serum or plasma magnesium levels in participants with Alzheimer disease with healthy participants. Those with Alzheimer disease were found to have lower magnesium levels

of the mineral, regardless of age or sex.

- The other 3 studies showed lower levels of magnesium in cerebrospinal fluid in Alzheimer disease patients as compared to healthy subjects.

### CONCLUSIONS:

Analyzing all 21 studies revealed a significantly decreased level of magnesium in Alzheimer disease patients in comparison with healthy controls.

The researchers summarized: "Our analysis concluded that circulating magnesium levels in Alzheimer disease patients were significantly lower than those in healthy controls, providing more evidence that magnesium supplementation or magnesium rich diets possibly

*Continued on page 62*



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32 Servings **\$59.95**

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*"After a long ride I was too tired to do anything but sit on the couch. When I started taking **Recoverite** that all changed. It helps me stay fueled so I can get on with my day. It's a game changer for me!"*  
- Bicycle Jim



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# COFFEE Benefits Digestion and much more!

by STEVE BORN

Over the years we've written about studies showing coffee's beneficial effects in many areas of health. Earlier this year, a review published in the journal *Nutrients* provides more reasons why coffee should be considered a super-healthy beverage.

Headed up by Dr. Astrid Nehlig, researchers analyzed a whopping 194 publications to review the effects of coffee consumption on digestion and the gut, and coffee's impact on organs involved in digestion. [1] Their findings suggest that moderate coffee consumption (defined in the research publications as 3-5 cups per day) provides the following beneficial effects:

- Stimulates the production of gastrin (a digestive hormone)

and hydrochloric acid (present in gastric juice). Both of these helps break down food in the stomach.

- Stimulates the secretion of the hormone cholecystikinin (CCK), increasing the production of bile, which is also involved in digestion.
- Helps increase the number of 'good bacteria' in the gut, especially Bifidobacteria
- Has protective effects against certain liver diseases, including hepatocellular carcinoma, the most common form of liver cancer.
- Reduced risk of gallstones.
- Potential lower risk of pancreatitis.

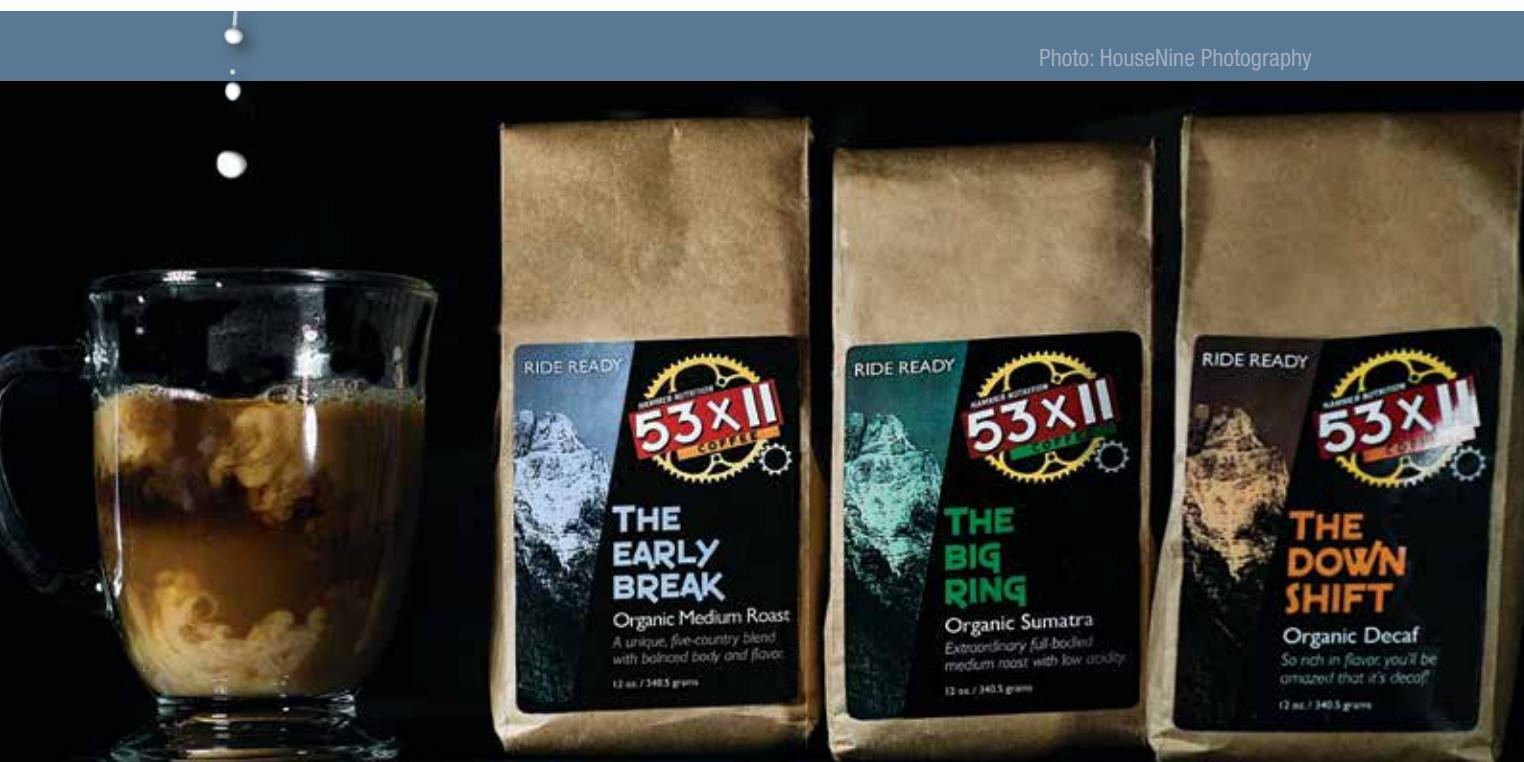
The review also found substantial evidence showing that there are no harmful effects

on digestive tract organs in association with drinking coffee.

Dr. Nehlig summarizes: "Contrary to some assumptions, coffee consumption is not overall linked to bowel or digestive problems. In some instances, coffee has a protective effect against common digestive complaints such as constipation. Emerging data also indicate there may be an association with improved levels of gut bacterial groups such as Bifidobacteria which have recognized beneficial effects. Although additional data will be needed to understand coffee's effects throughout the digestive tract, this is an extremely encouraging place to begin." EN

*References available upon request.*

Photo: HouseNine Photography







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FROM THE  
KITCHEN OF

# LAURA LABELLE





# Deliciously Healthy Recipes



## STRAWBERRY BLONDE SMOOTHIE

### INGREDIENTS

1 cup orange juice  
1 banana  
6 frozen strawberries  
1 scoop Hammer Vanilla Protein

### PREPARATION

Blend until smooth and well combined.  
Serve immediately

## BREAKFAST QUINOA

### INGREDIENTS

2 cups water  
1/3 cup raisins (or other dried fruit)  
Pinch of salt  
1/4 tsp cinnamon  
1 cup quinoa

### PREPARATION

In a saucepan, boil 2 cups water with raisins, salt, and cinnamon. Once liquid is at a rolling boil, add quinoa, stir, and reduce heat. Simmer until water is absorbed (approximately 5 minutes, as every stove is different). Remove from heat and let stand 5 minutes. Garnish with rice milk, fruit, and agave nectar. Enjoy!

## PAIRINGS

### Avacado Toast

Combine diced avacado and hard boiled egg until spreadable atop a slice of fresh whole grain/seed toast.

### Hammer 53x11 Coffee

Four varieties to choose from - each organically harvested and roasted in small batches for the ideal brew.



Looking for more  
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Download your  
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Hammer athlete, Jeff Shehan, ripping his way through the singletrack in Herron Park, Kalispell, MT.



*"Thank you **Hammer** for introducing **LifeBiotics** to your line up. Recent illness knocked me down hard, just never feeling quite 100% since. **LifeBiotics** pepped me back up right away! Here is yet another example of how Hammer goes out of their way to make sure we have access to the very best whether it's a Hammer exclusive brand or not. That's a class act!"*

- Online Reviewer

# LifeBiotics

## Super 15 is Here!

### Broad-Spectrum Simbiotic/Probiotic

- Promotes a healthy gut and immune system
- Contains billions of CFU's
- Provides powerful gastrointestinal support



60 Capsules \$29.95



Learn how LifeBiotics, Digest Caps and EnduroZyme are your knock-out trio for optimal digestive health.



# LifeBiotics Super 15

by STEVE BORN

*“All disease begins in the gut.” - Hippocrates*

**Digest Caps**, Hammer Nutrition’s original probiotic supplement, has been and will continue to be an important part of our Well-Being line of supplements. That’s because we, along with countless nutritional scientists, agree with Hippocrates, the “father of modern medicine,” who stated that “all disease begins in the gut.” Simply put, if your gut is unhealthy, your entire body—especially your immune system—will be negatively affected. That’s why Digest Caps, with its five strains of healthy bacteria, is such an important product to take on a daily basis.

However, there are times when even more probiotic support is needed, such as after a course of antibiotics (when ALL bacteria, both good and bad, are destroyed), during/shortly after a period of illness, or if you’re experiencing especially challenging digestive issues (e.g., excess gas, diarrhea, etc.) That’s when it’s time for the 15 powerful and multi-beneficial strains of healthy bacteria in Life-Biotics Super 15 to go to work, helping to tip the scales back in favor of the “good guys” in the gut, and allowing an accelerated return to normal GI tract functioning and better health.

**SUGGESTED USE:** During the aforementioned times when additional probiotic support is merited, two capsules daily of Life-Biotics Super 15 for two to four weeks saturates the GI tract with an extraordinary range and high amounts of healthy bacteria. This allows ideal re-colonization of healthy bacteria in the intestines and colon.


Once this two-to-four-week course is completed you can certainly continue using Life-Biotics Super 15 every day. However, at this point the amounts even one capsule of Life-Biotics Super 15 provides may not be completely necessary, so switching to Digest Caps on a daily basis—a “maintenance dose,” so to speak—is perfectly acceptable.

## How does EnduroZyme fit in?

While the quality of the food you eat is undeniably important, so too is making sure you’re efficiently digesting your food and absorbing the nutrients it contains. That’s where the enzymes in EnduroZyme comes in. These enzymes are powerful catalysts that help maintain efficient digestion and maximize nutrient absorption, and they play a vital role in every

chemical reaction that goes on in our body.

Well-known digestive health expert, Dr. Lane Lenard, states, “Without these crucial enzymes, food passes through the gastrointestinal tract without yielding its beneficial constituents. The result is poor nutritional status, which can contribute to numerous disease processes.”

Two EnduroZyme capsules prior to or during each meal ensures full breakdown and greater nutrient absorption of the food you eat. It complements probiotic supplementation with Life-Biotic Super 15 and/or Digest Caps perfectly, helping keep your all-important digestive system operating properly and at full capacity. 

Learn more about

LifeBiotics Super 15 here 



# FROM OUR ATHLETES



## JENNIE PHILLIPS

1<sup>st</sup> Place Age Group - Ladies 60+

“While Low Gap has been on the Grasshopper calendar for a few years now, this was the first time I had participated...and I am DEFINITELY going back! The route is gorgeous! While not stopping to really enjoy them, I did glance at some beautiful views, especially as I topped out at the dirt climb: could see the valleys and rolling mountains towards the northeast and a snow-capped Mount Lassen in the distance!

With January having been a totally dry month (unfortunate for our drought situation), the Low Gap dirt road was dry, with just an occasional small mud hole from the December rains. The 4WD vehicles definitely had their fun on this road, with huge ruts carved out by their 4WD tires...took some attention to navigate through some of these. The only rest stop on course was at the halfway point: the hard left turn onto the dirt on Low Gap Road. I did not need anything from the rest stop BUT did take the opportunity to down some supplements (**Anti Fatigue Caps**, **Endurance BCAA+**, and **Endurolytes® Extreme**) and a **Hammer Gel®**. Onward for the dirt haul now! Low Gap was a really cool, fun dirt fire road.

I hit the pavement and remembered that the finish line is a mere ¼ mile or so to the finish...so I rode hard just for the heck of it... definitely excited to have won my category! And actually was the fastest female 40+ years of age too (37 racers were 40 yrs or older). **Thanks Hammer for keeping me young !**”

Top step for Jennie! Photo courtesy of Brian Fessenden



## PAM LANDRY



Pam runs along on the Auburn Riverwalk in Auburn, Maine. Photo courtesy of Dana Landry

Running for 30 years, Hammering for 20!

"I took up running 30 years ago for stress relief when my son was diagnosed with several serious medical illnesses. Running offered me solace, energy, and a positive coping mechanism, along with some much-needed solitude to try to come to terms with the challenges that lay ahead. From there, I earned several coaching certifications and a Masters Degree in Sport Psychology and have been coaching and consulting with a wide range of athletes ever since.

My most used Hammer products are **Hammer Gel®**, **HEED®**, and **Perpetuem® Solids** for longer runs, **Endurolytes® Fizz** for shorter sessions, **Hammer Bars** for day hiking, and **Recoverite®** after every workout.

My future athletic goals are to continue to learn about the science of sport and to be able to train, race, and work within the running community for many years to come. I also intend to increase my volunteer roles in different areas of the sport and to continue to be a role model for my children and grandchildren and for other athletes and aspiring athletes of all ages."

## WENDY SKEAN

Ladies Age Group Esport National Champion 75-79

On Sunday, February 20, I was honored to race in the first USA Cycling Esport National Championships. The venue was the RGT Durango Iron Horse Classic course. It was 34.52 miles with 2093' elevation. My start line pack consisted of women 50 years old and up. There were only eight of us. I was the only one in the 75-79 age group, and the oldest competitor, male or female! With that small of a group I knew there wouldn't be much drafting as the younger and stronger riders would soon ride away... soon the race exploded.

Fortunately, I was joined by two teammates. We are category C racers. The others in the group were either A or B category. The three of us worked together taking pulls. We finished the first lap in 1:01. Aiming for



Wendy on a training ride from last season / Wendy on her way to an Esports win!. Photos courtesy Wendy Kean and Jeff Wolfe.

a negative split, I barely missed it with the second lap being 1:03. Still, I was very pleased as I had not been racing anything longer than occasionally an hour or so.

Even though it was only two hours I drank Chocolate **Perpetuem®** for fuel. Before the start, I took **Race Caps Supreme®**, **Mito Caps**, **Enduro BCAA+**, and **Anti-Fatigue Caps**. Immediately after finishing, I drank Chocolate **Recoverite®**. I am also pleased to say I was able to use the new and

improved **Seat Saver**. Sitting on the saddle inside for two hours is never that enjoyable and I am happy to say I was comfortable the entire time. I love the new consistency and ease of applying it!

I plan to race three or four more National Championship races so decided this is the start of my focused training. **With my trusty Hammer Nutrition products I know I will have the best races possible.**



# Mason Klein



Photo courtesy of RallyZone

Congratulations to Hammer Athlete Mason Klein on his spectacular finish at the Dakar Rally! Mason was able to endure the thousands of miles covered across 12 different stages to secure a solid 9th overall finish. Simply finish Dakar is no easy feat - placing in the top 10 is quite the accomplishment! Icing on the cake: This was Mason's

first attempt at Dakar and beat out former champions and veterans of the sport.

Mason had this to say regarding his Hammer regimen to fuel right and feel great:

"I am sure days like the last day where I really had to focus and push to keep myself top 10, it would have been a different

outcome. The finished between the top 10 guys came down to minutes, even seconds in my case. One wrong turn or loss of focus or a dip in energy could have caused a completely different outcome. I now have a program that I can modify for temperatures and distances. **There is no way Hammer won't be in my gear bag!"**

## Brandon Prieto



**Baja 1000  
1<sup>st</sup> Place  
Team win**  
First athlete  
representing  
Mexico to win the  
Pro Unlimited Class

Photo courtesy  
Brandon Prieto

Thanks to Hammer, at Baja my hydration, recovery, and focus were all on point!

Once I found which Hammer product work best for me, my health improved a lot. Having the right program is essential to recover with energy to continue.

## Colton Udall



**Baja 1000  
2<sup>nd</sup> Place  
Team win**  
Completed 700+  
miles of the 1000  
total alongside his  
teammates.

Photo courtesy  
Colton Udall

At Baja, Hammer Nutrition played the pivotal role in my focus and energy throughout. My will, training, and Hammer kept me going over 700 miles with energy to spare. My confidence in Hammer is without a doubt 100% !





## ***Lewis and Roy Block score Alfa Romeo KMW Win!***

Yep, you see those Hammer badges loud and clear and there's a winning reason why. In their fourth year racing together, Lewis and Block have discovered that consistency is the name of the game.

A recap from **racer.com** quotes, "The team finished third in the championship last season and sat down together after the year had concluded to see where they could improve both personally and as a unit. Block made a commitment to his team that he would improve his physical condition and complete a triathlon."

A triathlon? you don't say - a natural segway to Hammer Nutrition, fueling athletes of all disciplines of endurance sports (including auto drivers) to victorious success. It's what we do!

## ***Helio Castroneves Wins Rolex 24 Hr at Daytona ... again!***



Daytona Beach, Florida, Jan 30, 2022. Despite unprecedented cold overnight weather conditions, Helio Castroneves led his fellow Shank Racing Acura ARX-05 driver teammates to victory in the final 30 minutes of the legendary 24-hour race.

Catroneves was able to hold off Ricky Taylor of Wayne Taylor Racing just long enough to earn his second consecutive win, displacing WTR's potential record 4th win.

An elated Castroneves, "The Spiderman", celebrated with his signature climbing of the fence.

Both the Shank Racing and Wayne Taylor Racing teams are proud advocates for Hammer Nutrition, increasing due respect given to drivers as endurance athletes - leading by example, proving repeatedly that **a combination of good nutrition, solid training, and proper fueling are key to every success.**



## Sergio Lira



Brain Franks meets with Sergio to formulate a winning fueling plan. Photo courtesy of Sergio Lira

For years I struggled to find the magic combination for nutrition to compete and train from my Ironman competitions in Chile. I experienced stomach problems and cramping with all the other brands I had been trying. Enter Hammer Nutrition on the scene in Chile and my introduction to clean fuels.

I was lucky enough to meet with Brian Frank on one of his visits to Chile and discuss my fueling routine. He took the time to teach me how to fuel properly both during my training leading up to my races and during the race. Some of the best advice I received was to never try something new on race day and to always train with the products prior to my events. I



have since been doing this with great success and have learned how to fuel properly for each race.

I previously had issues with the changing climate of my races and the heat and humidity were big factors that I had not mastered. With the help of the Hammer Nutrition Chile team and Brian Frank, I was able to incorporate a fueling protocol that included proper electrolyte replenishment using **Endurolytes® Fizz** primarily. Previously I had used the gels as my primary fuel but after my discussion with Brian, I learned that I needed a different fuel for the longer distances which is when I started using **Perpetuem®** powder to increase the calories and add the protein necessary. I was surprised and very happy that I did not experience any of the stomach issues I had previously felt. I really liked the products and since that day have continued to use them for all my races and training. These fuels have changed the way I perform and race and I look forward to even more success in my future races in Chile and Ecuador!



## Mike Schifferle



"Iron Mike" earns his stripes competing across Europe. Photo courtesy of Remo Theony

Mike Schifferle, also known as "Iron-Mike" or "Mike the Machine" is pressing the limits and taking it to the next level in the European triathlon scene. In addition to his full-time job at the Police Department in Lucerne, Switzerland, Mike easily completes three Ironman events within a month. He truly exemplifies the 'work hard, play hard' motto and does it all with Hammer products.

The 48-year-old recently competed in the Ironman events in Thun Switzerland (1st AG, 31st OA), Vichy France (2nd AG, 12 OA) and Cervia Italy (1st AG, 8 OA). That's three podium finishes and he has plans to continue that through his races in 2022!





“I can rely on how I feel in my body,” he says and does not rely on a heart rate monitor, measuring the wattage or what the typical athlete would obsess on to achieve their training peaks. Mike relies on fueling his body well and listening to what it tells him back. His primary fuel in **Perpetuem®** which he uses throughout his races combined with his favorite gel, tropical for quick energy. He supplements his fuels with a regimen of **Endurolytes®** and **Anti-Fatigue Caps** to reduce cramping and to keep his legs feeling good throughout the race. For daily upkeep Mike sticks to a routine of **Vegan Recoverite®** and proteins as well as the vegan protein bars. He always takes **Tissue Rejuvenator** and increases his dose during the months where his training and racing significantly increases. This is a key element to his success in competing in back-to-back races.

While many competitors swear by technical gadgets and training numbers, he focuses on how his body feels and keeping himself healthy year-round. To date, ‘Iron-Mike’ has completed 96 Ironman’s in 39 different locations, more than any other athlete in his country. For a while he started as an amateur with the professionals and at the World Championships in Hawaii he was second best Swiss, twice.

Looking forward in October 2022, Mike will compete in his tenth World Championship in Kailua-Kona. Mike Schifferle has set himself the goal of 99

Ironman starts (99, not quite one hundred). After all, he adds with a smile, “nothing is perfect but 99% is pretty close. That works and it’s good to know that you still have the option to complete the mission.”



## Katerina Fenclová



Katerina Fenclova, Jirka Kolar and Michael Kubrycht showing off their hardware. Photo courtesy of Gladiator Races

Katerina Fenclová who is part of the Czech Hammer OCR Team won the first place at her category at Gladiator Race – Winter Josefov RUN 19th of Feb. 2022.

Hammer Nutrition supplements have become a part of my every workout. I became completely dependent on the **Hammer Gel®** (in a good way). I’ve tried a

few other brands before, but I’ve always been sick of them, I didn’t feel any positive effect and the taste was unpleasant, very artificial. Hammer flavors are just a different universe! Peanut butter-Chocolate, Hazelnut-Chocolate and Peanut butter are my favorite.

I drink **Endurolytes® Fizz** during trainings and **Recoverite®** afterwards. I also rely on **A0 Booster** and **Race Caps Supreme®** to enhance my recovery during hard training weeks so my body can cope with 5-6 workouts a week. I highly recommend Hammer brand to everyone, and everyone who has tried it, has also stuck with it, so there must be something to it!



# ENDURANCE NEWS **WEEKLY**

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

## Meet the Authors

**Brian Frank**



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

**Steve Born**



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

**Dean Karnazes**



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

**Dr. Bayne French MD DC**



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



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### “REFERENCES AVAILABLE UPON REQUEST”

You'll find this following many of our

**EN KNOWLEDGE RESEARCH**

articles here in *Endurance News*.

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

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



## ENDURANCE NEWS WEEKLY



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



# HAMMER EVENTS *are on*

## HAMMER TEAM WINS



**Feb. 18th-20th 2022**  
**Sonoran Desert, Tuscon, AZ**  
[epicrides.com](http://epicrides.com)



Celebrating a successful weekend at 24hrs Course in the Old Pueblo. Team “Pretty In Pink” led by Victor Sheldon and fueled by Hammer won. **Second win!**

Photo courtesy of Shelby Reynolds

## Desert Rats Trail Running Festival by Gemini Adventures



**April 6th, 2022**  
**Fruita, CO**  
[geminiadventures.com/trail-running-festival/](http://geminiadventures.com/trail-running-festival/)

Since 2003! Ultra trail running event on world class trails near Fruita, CO

## Belgian Waffle Ride



**April 30th, 2022**  
**San Diego, CA**  
[belgianwaffleride.bike/pages/california](http://belgianwaffleride.bike/pages/california)

Look for Hammer on course and at the expo. 12th year anniversary with a revised, dirtier, more entertaining route of 135+ miles, more than 50 miles of which are off-road.

## Epic Events - Whiskey Off-Road



**April 29th, 2022**  
**Prescott, AZ**  
[epicrides.com/events/whiskey-off-road](http://epicrides.com/events/whiskey-off-road)

Look for Hammer on course and at the expo. Starting on Prescott's historical (and lively) Whiskey Row and climbing into the beautifully distracting views of Prescott National Forest, riders will connect some of the area's most exhilarating (and challenging) pieces of singletrack – including the new Spence Basin trail network, double track, gravel roads, and the occasional paved segment.



# *a roll!*

## **24 Hours of Riverside**

Presented by



**May 28th, 2022**

**Spokane, WA**

**24hoursofriverside.com**



Presented by Hammer Nutrition. Look for Hammer on course and at the expo. Our own Ginjer Yachechak will be racing in the solo category.

New and improved version of a race that has been taking place for 20 years. Basecamp will be in beautiful Riverside State Park in Spokane, WA.

## **Ice Age Trail Ultra Trail Race**



**May 14th, 2022**

**Palmyra, WI**

**iceagetrail50.com**

The Ice Age Trail 50 is one of the oldest continuously-running ultra in the country. A unique course with natural features left when the glaciers retreated from Wisconsin more than 10,000 years ago.

# **UPCOMING EVENTS**

- ☐ **WILDHORSE**  
4/30/22  
DELLE, UT  
ridewildhorse.com
- ☐ **OREGON COAST GRAVEL EPIC**  
4/30/22  
WALDPORT, OR  
mudslingerevents.com
- ☐ **3/4 MINUS CYKELTUR**  
5/7/22  
SADPOINT, ID  
bikesignup.com
- ☐ **FOLSOM 100**  
5/14/22  
GRANITE BAY, CA  
ultrasignup.com
- ☐ **WHITEFISH MARATHON**  
5/21/22  
WHITEFISH, MT  
whitefishmarathon.com
- ☐ **NANNY GOAT**  
5/28/22  
RIVERSIDE, CA  
wildhorseracing.net

# CONTINUED ARTICLES

## DOWN AT THE HOP!

by BRIAN FRANK

*Continued from page 6*

I was fortunate to be there from Midday on Friday through awards ceremony on Sunday, along with my cousin Dr Stephen Legate, himself a 24HOP veteran. Besides having Hammer cooler filled with HEED in the staging tent, we set up our tent/tables bars right where riders came off course. On Friday afternoon and Saturday morning before race start, we filled several hundred flasks with Hammer gel and handed them out racers wise enough to take them.

After race start, Stephen and I kept the booth stocked with **Recoverite®**, **HEED®**, **Endurolytes®** capsules and **Fizz**, **Hammer Gel®**. I did nap between 11 pm and 1:30 AM and 4 to 7 AM, otherwise the booth was manned and served and endless stream of riders coming off course. It only took 3-4 hours before riders finishing their laps were reporting cramps and other maladies from their ill chosen fueling plan. Luckily, we were able to perform triage for the visitors to our booth, and get them ready for their next lap!

It was awesome to be able to connect with so many long term Hammer clients, hear their stories of discovery our products, learning how to fuel right from us, and the results

they have enjoyed since then. I will never tire of those interactions and look forward to more at **Whiskey 50** and all of the other events I hope to attend this year! Of course, being able to introduce my products to new comers to the sport, and who had never heard of Hammer or our fueling plans, is another awesome part of the experience for me.

### 24 hour MTB race winning fueling plan:

- Days before event – no change in eating or drinking habits while road tripping from SoCal to Tucson.

Friday night – healthy dinner, minimal alcohol (they're not saints!)

- Saturday morning – each rider ate freely from the time they got up until 3 hours before their first lap. Then, it was sipping water, some with Fizz, until 15 minutes before their 1st lap.

- 10-15 minutes before each lap, each rider took a Hammer Gel, **Fully Charged**, Endurolytes cocktail, souped up with a couple of **Anti Fatigue Caps** and **Endurance BCAA+**!

- On course for their approximately 1 hour lap – 1 to 1.5 scoops of HEED in their water bottle.

- Finish of each lap – Recoverite immediately after each lap, followed by a small meal (avocado/humus sandwich, etc. for example) and a nap!

**Wash, rinse, repeat! Easy peasy, lemon squeazy!**

**Celebrate the Victory with a beer!**

EN

## THE SCOOP ON SUGAR

by DR. BAYNE FRENCH

*Continued from page 10*



I enjoy endurance activities and have been accused of some outlandish pursuits replete with suffering and loss of sphincter tone.

Usually, I exercise on an empty stomach, but for races or longer training sessions, I fuel with a complex carb. I know of no head-to-head quality studies comparing a more complex carb like maltodextrin to a refined carb like sugar in regard to performance, inflammatory markers, recovery, etc. What is known is that maltodextrin has a significantly lower sugar content and it makes intuitive sense to me that there would be less metabolic perturbation.

As a physician with a great interest in leanness, wellness and disease prevention, I feel there is absolutely no place for sugar in the achievement of these things. So often I see wiry lean, high-sugar-consuming outdoor savages with their first heart attack in their 50's. I also commonly see sugar-eating endurance freaks who think the rules of biochemistry don't apply to them because of their fitness.

These individuals frequently exhibit the classic sugar-eating triad: insulin resistance



prediabetes, low HDL (an independent risk factor for heart disease), and high triglycerides. These are the same results found in obese patients with diabetes and heart disease. So I feel that sugar in all forms should be consumed next to never. **EN**

Read more about detrimental effects of sugar on *Endurance News Weekly*



## CARBO LOADING

by STEVE BORN

*Continued from page 25*



Do that, taking advantage of the glycogen synthase enzyme when it's most active, and you will enjoy a HUGE advantage over those athletes who either blew off post-workout refueling or waited too long to "refill the tank."

### Summary

Training causes physical stress and depletion. Recovery is when adaptation to that stress occurs; it involves improvements in muscle tissue rebuilding, glycogen storage, and immune system functioning. After a hard training session, your body is basically saying, "If there's another workout like this tomorrow, I better be prepared."

You can really give yourself a major advantage in all of your training sessions, and especially on the day of your event/race, if you'll take the time to put some quality nutrition into your body as soon as possible after all of your workouts.

Hammer Nutrition's high-quality complex carb + protein recovery fuels, Recoverite and Organic Vegan Recoverite will help you "refill the tank," effectively replenishing and maximizing muscle glycogen stores. That, in my opinion, is the true definition of "carbo loading" and the time to begin the process is now... trust me, your body will thank you and the quality of your workouts and events and races will be your proof. **EN**

*References available upon request.*

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# THE PERILS OF LOADING

by BRIAN FRANK

When you have a big event, competition, or adventure, DO NOT attempt to load carbohydrates, water, or sodium.

## IT DOES NOT WORK!

**Y**ou have almost certainly heard experts and veteran athletes say you should “race like you train” and “never try something new on race day,” right? Evidently, most athletes don’t think this applies to the days leading up to the event too. I constantly see athletes massively changing their calorie, fluid, and sodium intake just before a big endurance event. These practices contradict the old adages and human physiology!

Maintaining constant calorie, fluid, and sodium intake while simultaneously reducing expenditures in the taper phase leading up to your event allows you to “load” all of these things as much as possible.

Hopefully, you have read our fueling booklet, *SOS: 5 Secrets of Success*, and incorporated those practices immediately prior, during, and after your training and racing routine. But what do you do in the 72 hours prior to racing? Keep reading for the answers.

In the old days, athletes were erroneously told that consuming copious amounts of calories, fluid,

and sodium during endurance events would allow them to achieve optimum performance. In the 80s, 400–600 calories, 40–60 ounces of fluids, and 1–3 grams of sodium per hour were recommended. Whenever exercise or competition went beyond three hours, stomach and GI problems were almost universal. Today it’s rare to find anyone still advocating these crazy numbers, at least in the U.S. Europe and Asia are another story.

As you know if you have read our literature, we recommend hourly intakes of 120–180 calories, 20–25 oz of fluids, and 400–600 mg of salt (as part of a full-spectrum electrolyte replenishment product) as more reasonable and effective. We’ve been advocating this for three decades, and these numbers are now more or less the accepted wisdom.

Unfortunately, the myths regarding “loading” in the days leading up to a big, hot event are still surprisingly pervasive. So, let me dispel this one more time to help you avoid making these mistakes this year and beyond.

## DON'T DO IT!



### CARBS

We typically eat too much already. Increasing calorie intake during days of lower physical activity before an event only makes more work, fills your stomach and intestines, and likely leads to increased fat storage.



### WATER

We are not camels and cannot store water. Suddenly increasing daily intake by more than 10% will overly dilute the electrolytes in your blood, which increases the potential for serious issues associated with hyponatremia. Additionally, all that unnecessary water will excessively fill your bladder, causing you to prematurely lose electrolytes courtesy of frequent elimination.



### SODIUM

Again, we typically consume too much. Increasing it even more will not improve heat tolerance. In fact, it puts the body into survival mode where it seeks to jettison the excess to avoid toxicity. Whatever your normal daily sodium intake in the weeks prior to an event, keep it the same all the way up to race start. Then, from the start of the event, consume reasonable amounts throughout.



*"The idea of loading anything in the days prior to a big event is not only outdated but completely counterproductive."*

## WHAT ABOUT LIQUID ENDURANCE? **YES!**



When it comes to fluids, drinking excess amounts only increases the risk of overly diluting blood levels of sodium and other electrolytic minerals.

That said, there is a way to maximize cellular fluid storage, and that's via the glycerol component in **Liquid Endurance**. Glycerol is a naturally produced metabolite of fatty-acid oxidation, and it absorbs rapidly when taken with water or sports drinks, increasing the water content in blood, cells, and extracellular spaces. All three of these compartments contribute to sweat volume, resulting in a significant increase in cooling efficiency during prolonged exercise.

The key to maximizing—not over-supplying, but naturally maximizing—how much fluid the cells can hold is to use a specific amount of Liquid Endurance in a specific amount of water (ranging from 16–28 ounces) for a three-day period prior to a hot-weather workout or event. Follow product dosing instructions for best results. **EN**

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*"Fizz has become a staple in my ride routine and I never leave home without throwing one in my water bottle. They are always refreshing and are a summer must have!" - Dave H.*



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# CONTINUED ARTICLES

## STRESS AND CORTISOL

by DR. BAYNE FRENCH

*Continued from page 29*



Not everyone reacts the same to stress. Some dump cortisol, others exhibit small elevations. For example, Epel et al (Psychoneuroendocrinology Jan 2001) studied 59 healthy premenopausal women. Those that reacted to stress by releasing more cortisol ate considerably more calories, particularly sweets. You and I both know by now that insulin levels will surge over time, and the cascade of dysfunction resulting in obesity is well underway.

Steptoe et al (Int J Obes Relat Metab Disord Sept 2004) showed that men with the highest cortisol levels also had the most unfavorable waist/hip ratio (a measure of abdominal obesity). They also had the most unfavorable cholesterol panels (low good cholesterol and high total cholesterol/HDL ratio, both of which are unfavorable). As I've previously written, I see several male endurance athletes in their 30's and 40's. They want to know why they have a gut. It's inexplicable to them, given the amount of exercise they perform. Most follow a script—they train and race fueling with simple sugars. They eat carbohydrates throughout the day and commonly drink beer. With elevated cortisol, their

diet worsens their condition, given their anthropologically abnormal exertion levels. Cortisol readily interacts with abdominal white adipose tissue, and the gut develops. Aside from not liking it, their risk of heart disease and cancers is elevated with a suboptimal power to weight ratio, and consequently, they are not performing at their best.

Gyllenhammer et al (not affiliated with Hammer Nutrition), as published in Obesity Feb 2014, showed a strong association between cortisol and visceral adipose tissue (VAT). VAT is fat in and around the organs of our abdomen and is very unfavorable if not dying is something you desire. This study was performed at USC and involved 165 adolescents. Yep, young 'uns. Remember that lock and key analogy? VAT has a much higher concentration of cortisol receptors than other fat tissue. This high capacity to interface with cortisol has led researchers to hypothesize that cortisol can induce fat hypertrophy.

Read this article in its entirety on *Endurance News Weekly*



## MAGNESIUM LOWERS ALZHEIMER RISK

by STEVE BORN

*Continued from page 40*



...exerted promising preventive or therapeutic strategies for treating Alzheimer disease patients with a poorer magnesium status."

### How much magnesium do you need?

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 Optimal Daily Intake (ODI) standard of 500-750 mg of magnesium. Dr. Shari Lieberman, who developed the ODIs, states: "In order to attain a state of optimum health and disease prevention, we must take into our bodies' optimum (not minimum) amounts of vitamins and minerals.

Magnesium expert Mildred Seelig suggests even more precise dosages of 2.7 mg of magnesium per pound of body weight, with those under severe chronic stress or engaged in strenuous work/athletic training needing a dose of up to 4.5 mg of magnesium per pound of body weight.



## EXAMPLES:

- **Normal daily dose:** 160-pound person x 2.7 mg = 432 mg of magnesium daily
- **Moderate stress/medium training volume dose:** 160-pound person x 3.3 mg = 528 mg of magnesium daily
- **Severe chronic stress/highest training volume period dose:** 160-pound person x 4.5 mg = 720 mg of magnesium daily


The **Essential Mg** formula (100 mg elemental magnesium per capsule)

**Magnesium bisglycinate** is magnesium chelated (bonded) to the amino acid glycine and is touted for its high absorption rates. It's also the form of magnesium considered to have the least amount of potential to cause a laxative effect, common with forms such as oxide.

**Magnesium succinate** is magnesium chelated to succinic acid. This compound yields one the highest amounts of elemental magnesium while providing the body with a Krebs cycle intermediate that not only plays a role in energy production, but is also involved in the rebuilding of muscle fiber and nerve endings.

**Magnesium citrate** is magnesium chelated to citric acid, a key Krebs cycle intermediate noted for its ability to help alleviate fatigue as well as playing a role in relieving symptoms of asthma and hypertension.

**Magnesium malate** is magnesium chelated to malic acid and it's the most common form of magnesium used for alleviating fibromyalgia. Malic acid (malate) is a Krebs cycle intermediate, touted for its energy enhancing, fatigue-alleviating effects. Malic acid also supports enhanced exercise performance by counteracting the buildup of lactic acid.

**Magnesium taurinate** (aka magnesium taurate) is magnesium bonded to the amino acid taurine. Because both magnesium and taurine are associated with cardiovascular health, magnesium taurate is often referred to as the "heart health" form. Among its many benefits, taurine assists in regulating heartbeat and muscle contractions. 

*References available upon request.*

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# CONTINUED ARTICLES

## DEAN KEEPS HAMMERING

by DEAN KARNAZES

*Continued from page 30*

In 2008, I signed up for the 4 Desert Challenge. The format of these races was multi-day, six stages, typically 250 km in total, across the hottest, driest, windiest, and coldest deserts in the world. Oh, and they're self-supported, so you must carry everything you need in a pack (you are allotted a daily ration of water, thankfully).

Armed with my canisters of powdered Gatorade, I took up the challenge. During the Sahara Race, a particularly grueling run across endless mountains of soft and shifting sand, I found myself falling to pieces during the fifth day of racing, the notorious "long stage," which at this event was a hundred scorching, merciless kilometers. At the midpoint, I found myself in lockstep with another athlete, Ryan Sandes of South Africa. We decided to share some miles together; and, as we ran, it was clear he had a reserve of energy, where I was slowly unraveling. On top of bonking, the sugary and overly sweetened Gatorade was making me nauseous.

"Would you like to try some of this?" Ryan offered graciously.

"Sure," I said, having no idea what it was but knowing that nothing could be worse than what I was consuming. I unscrewed the cap from his flask and squeezed a swig in my mouth. Wow! It tasted

different from anything I'd tried before. Slightly sweet, but not overpowering, and smooth and silky on the palate.

"What is this?" I asked him.

"It's called **Perpetuem**®, by Hammer Nutrition."

That single slug of **Perpetuem** sustained me for an amazing duration. I was hooked.

I used **Perpetuem**® for the remaining races in the series and ended up winning the 4 Deserts Challenge. I also began to educate myself on proper fueling strategies rather than relying on glitzy TV commercials to tell me what to drink.

Turns out, not all carbs are created equal. Simple sugars, like those used in Gatorade and other so-called "sports drinks," can do more harm than good. They can cause your blood sugar levels to spike, and the corresponding release of insulin can ultimately reduce the amount of energy available, resulting in a crash. Nothing like hitting the wall because of a sports drink that's supposed to help you!

Hammer Nutrition products like **Perpetuem** and **HEED**® contain complex carbohydrates that are more slowly broken down and absorbed than simple sugars. This results in a longer lasting and more sustained release of energy.

Many of you reading this are wondering, "Why is Dean telling us this? It's common knowledge, sports nutrition 101."

I only wish everyone had this information. I've probably talked to more runners than anyone on earth (with the humble exception of Bart Yasso). My job entails traveling from one race and running event to the next, meeting and talking to people, giving talks, and signing books. It still amazes me how many people are unaware of the perils of refined sugar (even those running ultramarathons!).

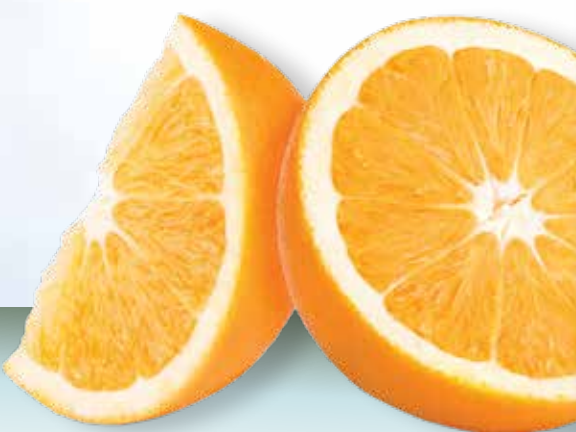
And this is precisely why I am so pleased to be joining the Hammer Nutrition family as an ambassador. Not only do I use and believe in Hammer Nutrition products, but I also want to help educate and inform fellow athletes about the importance of proper hydration and fueling strategies. Also, beyond fueling and hydration, Hammer Nutrition offers the highest quality supplements available to endurance athletes, and I always learn something about supplementation with each new issue of *Endurance News*. Hammer Nutrition truly is a single source destination in my quest toward becoming my best animal.

As we move into 2021, I'm looking forward to the future with promise and enthusiasm. We're transitioning into a post-Covid-19 world, and the days ahead are looking brighter. There will undoubtedly be challenges yet to overcome, but Hammer Nutrition gives me the strength and endurance to keep hammering. EN



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- Improves insulin sensitivity



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## STEVEN TERRY

Steven handily earned **1<sup>st</sup> Place** in his age group in the Aravaipa Running Coldwater Rumble 20M in Phoenix, AZ.

Key components of his success included: **Fully Charged**, **Hammer Gel®**, **HEED®**, **Energy Surge**. Photo: Jessie Ellis for Let's Wander Photography.



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***Friends don't let friends overpay for CBD!***

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## CBD Softgels

10 mg 4 ct	<b>\$0.17 per mg</b>
10 mg 30 ct	<b>\$0.13 per mg</b>
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25 mg 30 ct	<b>\$0.09 per mg</b>
25 mg 90 ct	<b>\$0.08 per mg</b>
50 mg 30 ct	<b>\$0.08 per mg</b>
50 mg 90 ct	<b>\$0.07 per mg</b>

## CBD Tinctures

Hydro 250 mg	<b>\$0.10 per mg</b>
Classic 250 mg	<b>\$0.08 per mg</b>
Classic 750 mg	<b>\$0.08 per mg</b>
Classic 1500 mg	<b>\$0.07 per mg</b>

## CBD Balms

30 mg 0.15 oz	<b>\$0.17 per mg</b>
500 mg 2 oz	<b>\$0.10 per mg</b>

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