

ENDURANCE

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NEWS

IN THIS ISSUE

Beat the Heat

10 Tips to keep your cool

A Balanced Diet

The Big Myth

Ultra Alert

Staying Focused overnight

PLUS

CBD

What you need to know

BEING FRANK

A WORD FROM BRIAN FRANK

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

Welcome to the 138th issue of *Endurance News*, our big “summer” issue, marking the peak of our 37th year in business. I have to say that your content coming in just keeps improving, and this issue proves it! Thank you to everyone who helped make this issue so impressive! **Keep it coming!**

I appreciate each one of you who takes the time to show us how you Hammer and share your brand experiences with us and the rest of the world. For me, this is where the rubber meets the road and epitomizes the authenticity and transparency that I crave (and I think you do, too!) and have sought to maintain since day one. Keep sending in your stories, photos, and good times! We’re listening and eager to engage with you as much or as little as you want.

In addition to the awesome **From Our Athletes**, affectionately known around here as “FOA” content, we’ve got a whole

summer’s worth of informative articles, yummy recipes, and other news to help you make the most of our favorite time of year! Whether it’s Dr. French’s update on **CBD**, my article on “**The Myth of the Balanced Diet**”, or Steve’s piece on the virtues and superiority of **Maltodextrin** over sugar, there’s an article with your name on it. But, if you only read one article in this issue, please read the “**Perils of Loading**”!

With the latest “high carb” craze coming out of Europe, I’m happy to provide some sanity to this discussion. Don’t miss my article and video on **how to fuel for optimum endurance performance**. Hint – it’s not stuffing 100 grams of sugar per hour down your gullet!

Since the last issue of EN landed in your mailbox, we’ve made massive updates to our websites.



Our # 1 way of generating new clients is back!

Our **Win/Win/Win Referral program** gives you a 25% store credit and a 15% discount to the person you refer, and we get another satisfied client!

Subscribe and Save is live! You can now receive any fuel or supplement automatically at 30, 60, or 90-day intervals. You have total control over managing your subscriptions. You can easily add items, advance, delay, skip shipments, and more.

Yes, I said **sites** plural because we have a screaming B2B site for our dealer that's now also viewable by the general public.

Dealers wanted! —but only the right kind, and you can help us find them. So, if you know of a retailer whose business philosophy is similar to Hammer's (Customer First, always!), please refer them to us so we can connect. There's a QR code and link to the dealer referral form on **page 35**; be sure to check it out.

Enjoy your summer, reading this issue, life in general, and pass it on!

Brian Frank

Brian Frank

Owner and Founder of
Hammer Nutrition



**Have a FUN and Safe
SUMMER!**



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 hires photos to photos@hammernutrition.com.



Reed Sandstrom taking in the views after conquering a tough climb in Glacier National Park, Montana.

ENDURANCE NEWS

The informed athlete's advantage since 1993
AN EXCLUSIVE PUBLICATION OF:



STAFF

Publisher and Editor-in-Chief
Brian Frank

Assistant Editor
Steve Born

Contributors
Dean Karnazes, Laura Labelle, Camryn Lingle
Mackenzie Grover
Designer
Adrian Villanueva

MISSION

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

OUR GUIDING PRINCIPLES

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

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

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

OUR CORE VALUES

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

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

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



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4952 Whitefish Stage Road
Whitefish, MT 59937

800.336.1977 • hammernutrition.com

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ON THE COVER: Gabrielle Suver putting in the work during a training swim. Photo: John Riordan

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The Perils of

LOADING

Don't even bother
IT DOESN'T WORK

CARBS

- We typically eat too much as it is.
- Just makes the body work harder.
- Fills you up uncomfortably.
- Leads to increased fat.

WATER

- You're not a camel.
- Too much dilutes electrolytes.
- Makes you lose electrolytes by urinating them out.

SODIUM

- We typically consume too much as it is.
- We jettison out the excess anyway to avoid toxicity.
- Consume a reasonable amount from start to finish.

STEADY
is the name of the game.

NO BIG CHANGES
leading up to race day.

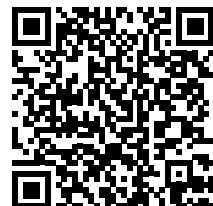
TRAIN to race.
RACE like you train.



Cynthia Salazar is off to an early morning start at the San Diego half marathon.

“The idea of loading anything in the days prior to a big event is not only outdated but completely counterproductive.”
- Brian Frank

Watch Brian's video
HERE for more details





**Keep going
Strong, all
summer long!**

- Rock-solid energy
- No sugar crash
- No GI distress

12 Amazing Flavors!
Nocciola, Peanut Butter and
Peanut Butter-Chocolate are Back!



***FREE FLASK** with 26 Serving Jugs

“AS ADVERTISED! Using Hammer Gel from the flask is so efficient. I notice consistent energy throughout my rides with a big sip every 45 minutes to an hour.” - John W.



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High Calorie vs. Low Calorie Fueling

Know your **MCPH**

by BRIAN FRANK

For 37 years, I've been pondering the question of how many calories per hour one should consume when exercising, whether for an hour, 3 hours, 6 hours, or 12 hours during multi-day events.

Less is Best!

This question vexes many athletes, and unfortunately, there is so much myth and misinformation surrounding it. When I first started (in the 1980s), the experts of the day, or the "high-calorie" crowd, were saying 400 calories per hour, even 600! Silliness!

Maybe that's what you're burning. It doesn't matter. You can't consume anywhere near that much for very long without negative consequences. Unfortunately, today we have a new generation of high calorie advocates, pushing supposedly "new" high-carb fuels to support their absurd claims.

Oh, there's some research, ... sort of. The outcome of a couple of questionable studies touting 90 grams an hour of carbohydrates is the basis for the "new" 100 grams per hour or intake. Take a little closer look at that research—test subjects exercised for 205 minutes, operating at 50% of max watts! Only about half of the subjects were even

able to complete the 205-minute test. What? That's a successful outcome?

That's right. They were walking along at a 90-100 beat per minute heart rate, whereas we exercise at heart rates 50% higher than that!

As I said earlier, this is pure silliness. It doesn't matter whether you are a road racer, triathlete, ultra cyclist/runner, or any other sport. As a result, **I've developed the concept of minimum calories per hour—MCPH.** Remember our Hammer tagline—Less is Best!

This is the number you want to know. You want to determine your minimum calories per hour that allow you to exercise at the limits of your ability and fitness, not slow down, not suffer GI distress or any other cramping or problems like that, and burn a maximum of fat at all times. **It comes down to about one calorie per pound of body weight for most athletes.**

That usually ends up being the sweet spot, plus or minus a few. So for most athletes, we're talking 100-180 calories an hour, maybe over 200 for large athletes and those Ectomorph body types with their hummingbird metabolism. But nowhere near the 360-400 calorie per hour

craziness we're hearing. This high-calorie take also contradicts human physiology. The human liver can return about 1 to 1.4 grams of carbohydrate per minute into Glycogen. I don't think you can "train" your liver to almost double that production.

Four calories per gram, 60 minutes in an hour, gives a theoretical ceiling of 240-276 calories per hour. So why try to exceed that? And more to the point, why try to stuff so many calories down your throat when you just want to pedal, swim, bike, run, or whatever? You will get sick, not go faster!

If you don't already know your personal MCPH, work on determining it now. You'll be happier, your stomach will be happier, and you can forget about all the high-calorie Fuss and muss. So Less is Best! 100-180 calories an hour. One calorie per pound of body weight, and you'll be in the ballpark. You can always add more if needed.

Hammer on!

Watch Brian's video here to learn more.



THINK MORE CARBS = MORE SPEED?

Test it for yourself

Maybe you've heard about the supposed "breakthrough" in fueling that calls for athletes to consume 100+ grams of carbs PER HOUR from a 2:1 ratio of sucrose and fructose! However, in an apparent case of one-upmanship, some claim they consume 120 grams per hour (480 calories)! It's like we all got teleported back to the 1980s!

Unfortunately, it's physiologically impossible for two reasons. The first is carb-to-glycogen conversion in the liver – All existent research says that between 4 and 4.6 calories per minute, or a maximum of 240 to 276 per hour, can be converted to glycogen for energy expenditures. But before it gets to the liver, you have to get all of that through the stomach, which is the other elephant in the room - stomach osmolality – a very delicate balance between liquid and carbohydrates must be maintained (280-302 mOsm), or the stomach will cease draining and fill up like a balloon. The % concentration of carbs in water and the type of carbs determines this, with sugar being a much lower % than complex carbs. Rough calculations suggest that the number would be around 70-80 fluid ounces to get 100 grams of sucrose/fructose/glucose to pass through the stomach. Imagine drinking 4-5 21 oz. bottles per hour), while riding/running at or near AT for 4 + hours.

To add more fuel to the fire, three plus decades of experience working with thousands of athletes and all of the research says the higher the intensity rate, the fewer calories can be consumed/digested/converted, not the opposite.

Until these high-carb advocates can explain how to overcome these two enormous physiological limitations, I call bull.

Alternatively, my "Less is Best" fueling philosophy results directly from dealing with athlete after athlete who could not consume even 60 grams per hour without getting sick and having a bad day. Instead, we seek to provide only as many calories as your body can use, regardless of how many you are burning. Of course, when fueling light, you can always add more if needed. The same cannot be said for high-carb.

If you DO want to try mega-calorie fueling, we certainly make several products to get you there. **Hammer Gel**, **Perpetuem**, and **Sustained Energy** come to mind. Do your own test – choose a long ride or run that's well over 3 hours that you've done before. Do it once following my prerace/pre-exercise meal timing and MCPH. Measure performance using a watt meter and or elapsed time/perceived effort. Do it a week later while consuming 100 grams/400 calories per hour. Compare the two. Report your findings to me, regardless of the outcome.

**Endurance
Diesel :
Now even
better!**



Sonia Ajuha keeps Perpetuem on hand for the long hike up.

- New 2.0 Tapioca formula
- Steady energy, hour after hour
- Spares muscle, burns fat

- Caffe Latte
- Chocolate
- Vanilla
- Orange
- Strawberry



"I have been a Hammer sponsored athlete for 20 years and **Perpetuem** continues to be a crucial part of my nutrition. At 52, I recently won LOTOJA, beating out girls 20 years younger!" -Jenn H.



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10

TIPS TO BEAT THE HEAT

Simple strategies to Hammer strong in rising temperatures

by STEVE BORN

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

1) Train in the heat.

Heat acclimatization and fitness reduce fluid and electrolyte losses by up to 50%.

2) Stay properly hydrated all day long.

Since approximately 60% of your body is comprised of water, it's vitally important to maintain optimal hydration status all day long, especially if you're going to be exercising in hot weather. Unfortunately, many people live in a state of perpetual dehydration, and that negatively affects their athletic performance and health. Starting now, gradually increase your fluid intake — primarily from pure, clean water — so that the total number of ounces you're drinking on a daily basis equals 0.5 to 0.6 your body weight in pounds (e.g., a 150-lb athlete should consume 75-90 ounces of fluids daily, in addition to what is being consumed during exercise).

3) Drink appropriate amount of fluids during exercise.

Don't assume that you can drink unlimited amounts of water or fluid during exercise and that all of it will be absorbed, with the excess excreted in sweat or urine. You will instead bloat, overly dilute your blood, and perhaps even develop water intoxication (i.e. hyponatremia). Keep fluid intake during exercise between 20-25 ounces per hour, plus or minus 3-4 ounces, depending on your weight and the weather. If you feel you need more fluids than what you normally consume, experiment in training, keeping in mind that you will require additional electrolytes to match your increased fluid intake.

4) Increase your Endurolytes dose or use Endurolytes Extreme.

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

5) Avoid foods and fuels that contain short-chain carbohydrates.

Simple-sugar-based fuels require more fluids and electrolytes for digestive purposes. Stick with the complex carbohydrates (maltodextrin) in Hammer fuels.

Also, remember that in hot weather your ability to process calories will most likely diminish; adjust your caloric intake accordingly.

6) Use Liquid Endurance prior to your hot-weather workouts and events.

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

7) Pace yourself accordingly.

If the weather is hot, and especially if you're not acclimated, it can't be "business as usual" when it comes to your pace. Until your body adjusts to the heat, slow down in deference to the weather.

8) Use caffeine with caution.

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

9.) Get wet.

During the hottest weather conditions, sponge yourself off with cold water, while taking short periodic breaks from race pace.

10.) Know the symptoms of overhydration and dehydration.

Stop immediately if you feel lightheaded or queasy or get the dry chills. No race or training is worth compromising your health.

EN



At home, the beach, or at the kiddos' soccer practice, keep your crew cool all summer - Freeze up some HEED POPS!

- Sustained energy with no crash
- Reduces muscle cramps
- Buffers lactic acid

■ Lemon Lime ■ Orange

■ Cherry Bomb*

*Contains Caffeine



"The Cherry Bomb flavor is outstanding! I have been a Hammer Nutrition user since the early 1990s, and have used every flavor of HEED. Great flavor and it holds up well as the day and the bottle heats up." - Chris H.

NO
SIMPLE
SUGARS



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LIQUID ENDURANCE



The Right way, The ONLY way to pre-load water

by STEVE BORN

Mike Alessi, on the podium at the 2022 Loretta's Lynn's Amateur National Championship.
Photo: Mike Vizer

The official day of summer is just about upon us and if the weather isn't already hot where you live, believe me, it will be soon. And of the factors that can negatively impact our workouts and races, hot weather—or, more specifically, the inability to deal with hot weather—tops the list, partly due to the increased potential for dehydration and the issues associated with it. As one study states, “Dehydration in athletes alters cardiovascular and thermoregulatory function and may inhibit endurance exercise capacity if fluid loss exceeds 2% of bodyweight (BW).”

When exercising in hot weather, your body's core temperature increases dramatically. Your internal cooling system responds by sweating. However, unlike your car's radiator, which recycles its coolant, your sweat evaporates or drips away, and it's gone. Obviously, rehydration is your

basic strategy, but there are two incorrect tactics that athletes employ:

1) Dramatically increasing fluid intake in the days leading up to an event. The problem with this tactic is that suddenly increasing daily intake overly dilutes 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.

2) Greatly increasing fluid intake during a hot-weather workout or race. While there are some allowances, primarily for heavier athletes, to increase normal hourly fluid intake (16-26 ounces) by two, maybe three ounces during hot-weather exercise, any more than that will put you at the

serious health consequences caused from overhydration. How serious, you ask? Serious enough to kill you. That's right; there have been incidences of “death by water intoxication,” formally known as dilutional hyponatremia. During exercise, we **MUST** remember the sage advice of hydration expert, Dr. Ian Rogers: “We can no longer assume that excess fluid taken during prolonged exercise will just be passed out in the urine,” understanding that serious consequences can result from the consumption of too much fluid.

Glycerol and its Beneficial Effects on Hot-Weather Exercise

Back in the late 80's, University of New Mexico scientists researched glycerol, a well-tolerated, naturally produced metabolite of fatty acid

oxidation, and its hyperhydration potential for improved exercise performance in hot weather.

They hypothesized that after ingestion, “glycerol will move out of the bloodstream and become evenly distributed throughout the body’s fluid compartments,” and found that “glycerol added to water has been shown to deter the effects of hypohydration for up to 4 hours.”

Their findings showed that glycerol added to water created a state of hyperhydration and would benefit athletic activity in hot weather by lessening the possibility of hypohydration (dehydration) and its subsequent negative effects. Their initial research results have been validated by numerous studies since then, including:

“Glycerol-containing beverages create an osmotic gradient in the circulation favouring fluid retention, thereby facilitating hyperhydration and protecting against dehydration. Many studies have shown that increases in body water by 1 L or more are achievable through glycerol hyperhydration.”

“Glycerol-induced hyperhydration (GIH) has been shown to increase endurance performance (EP).”

“The effects of glycerol hyperhydration on thermoregulatory and cardiovascular physiology include higher sweat rates, reduced heart rates and core temperatures, increased forearm blood flow, and favorable subjective responses including reduced thermal sensation, thirst sensation, environmental symptoms questionnaire scores, and RPE (Rate of Perceived Exertion). These effects have been associated with performance improvements including increased endurance time to exhaustion (up to 24%), increased work and power (up to 5%).”

Liquid Endurance: Your Ticket to Beat the Heat!

Read this article in its entirety and more on *Endurance News Weekly*.

hammernutrition.com



Hyper Hydration on demand



Hammer athlete, Jason Poole keeps his cool when the trail heats up.

- Increases heat tolerance
- Maximizes cellular water levels
- Aids dehydration prevention



“DEFINITE LIFE SAVER for me! I’ve used **Liquid Endurance** for two summers working State DOT maintenance outdoors in the heat and humidity. Not once have I experienced any heat-related illness.” -Mark W.



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Letters from Hammer Clients

JEFF AGARD



Dear Brian,

In 2019/2020, we had a group go to Kilimanjaro, and we had asked Hammer to support us in our endeavors. We had 5 in our group summit, and we had all the support from Hammer we could ask for, including product of all types. You guys even gave us a banner, which we proudly displayed on the summit.

Two of us from that hike in 2019/2020 just got back from Aconcagua. We decided not to ask Hammer for support, but we both carried and drank **Recoverite** after the long days of hiking and trekking. We love that stuff, keeping us from being sore. It's truly magical.

We did not make the summit of Aconcagua due to winds and weather conditions, but Hammer still helped us along the way.

The picture is at Camp 2, Nido de Condores at about 18,000'.

Best regards,

Jeff

JOHN LOVE

Dear Hammer Friends,

I was so delighted to receive the generous Hammer shipment of nutrition and clothing. Thirty years ago (1995) I began my marathoning journey, prompted at the prospect of trying to achieve a fitness lifestyle that would help me live beyond the 56-year ceiling at which my father and grandfather died of heart attacks.



The joys of running in different places and making new friends as I ran were also great motivators in that effort. Unfortunately, cramping and fading badly during the latter stages of my early marathons almost ended my marathoning pastime much too early. But a friend suggested that I try **Hammer Endurolytes** and **Hammer Gel** and I was able to finish marathons and enjoy the journey with the confidence that I had a solid nutritional foundation.

I will never be confused with being a fast runner (Marathon PR of 4:23 about 20 years ago), especially compared to those who are featured in your *Endurance News* publications. My place and joy are found in the back of the

pack, enjoying the journey and companionship of others. The items that you sent me have already been put to use. I have enclosed some pictures of the 100th marathon celebration and a medal (dated 1/6/24 but rescheduled to 2/17/24 because of severe weather). The warm welcome that my wife Margo and I received when we visited your Whitefish location was something I have related to many people. But now, you have outdone that again.

Southern hospitality is a real thing, but the welcome that we were afforded and the affinity that I feel for Hammer is something very special to me and my family.

Thanks again, **John**



SEND US YOUR LETTERS!

Drop us a line, share a tip, or tell us about your latest adventure.
support@hammernutrition.com

PETER MILLER



Hi Hammer,

I have been using **Perpetuem** for many years. It was very useful for training for my return from bone cancer and a bone marrow transplant! Last year, I followed Brian's advice as closely as possible. I won the Senior Men's 6 hour World Time Trial Championship, November 5, 2023.

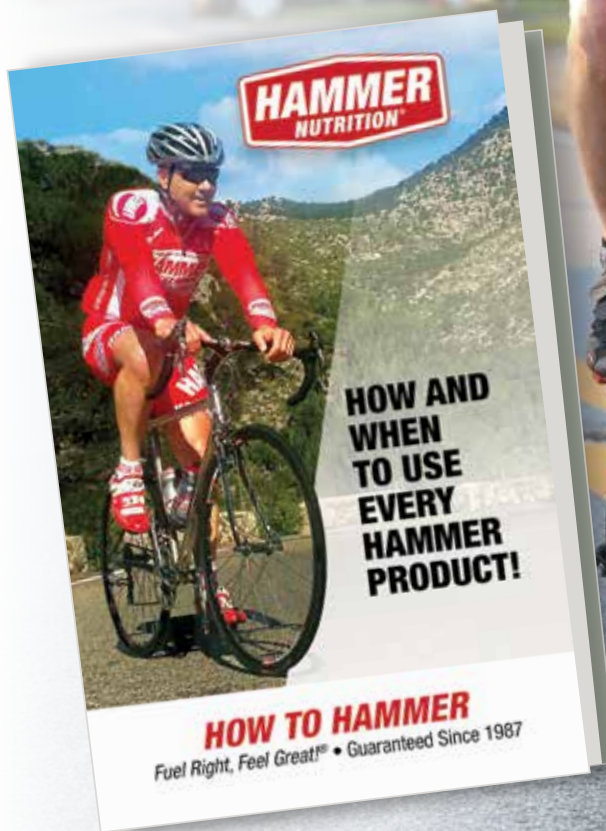
Seriously, in the past year, I read everything sent out by Hammer and watched the videos. My category in the 6-12-24 Hour World Time Trial Championships in Borrego Springs, CA was the Men's 70+ Category. I took 1st place with 94.8 miles in 5 hours 52 minutes.

Thank you Hammer, and Thank you Brian!, **Peter**



HOW TO HAMMER

Comprehensive Product Usage Manual



Hammer athlete, John "Jack" Finucan spins to an impressive finish at the 2023 Riverfront Triathlon, NS Speed.



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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.

ENDUROLYTES[®]

FIZZ

The Deliciously Refreshing Way to Replenish Electrolytes

Smart athletes know that proper fueling during exercise requires more than replenishing calories and fluids. It involves consistent and adequate electrolyte support as well. And it's not just to help avoid cramping. Optimal functioning of the digestive, nervous, cardiovascular, and muscular systems depends on having adequate electrolyte levels in your body!

Remember, just as you shouldn't wait until you're out of energy before you consume more calories or dehydrated before you drink fluids, you never want to wait until you start cramping before you replenish electrolytes. By that time, the proper functioning of those aforementioned bodily systems has already been in a downward spiral for a while.

At Hammer Nutrition, we offer a variety of options to fulfill this all-important component of your fueling. One of those options is **Endurolytes Fizz**, and it's the ideal one if you prefer drinking your electrolytes rather than taking capsules.

Simply add these rapidly dissolving tablets to your water bottle to create a delicious, never overtly-sweet, effervescent electrolyte drink—the same full-spectrum electrolyte support that made Endurolytes capsules famous. Endurolytes Fizz is available in four refreshingly pleasant-tasting flavors: Lemon-Lime, Mango, Grape and Grapefruit. It's virtually calorie-free (a mere seven calories per tablet) and contains no sugar, artificial sweeteners, or preservatives, of course.



One Endurolytes Fizz tablet equals approximately two Endurolytes capsules. The tablets break at the center to allow for personalized dosing, helping you to meet your specific—and often ever-changing—electrolytic mineral requirements with great precision, no matter what the weather throws at you!

By the way, Endurolytes Fizz is NOT just for athletes! This is an ideal product for construction workers, landscapers, truck drivers, and even retired grandparents working in the yard. If what you're doing—work, play, exercise—involves sweating, give Endurolytes Fizz a try. We guarantee you'll love how it tastes, and even more, how it works! **EN**

When it comes to answering the question “How good is Endurolytes Fizz?” our clients are our best salespeople! Check out this small sample of online 5-star reviews!



“I pop one in a 16-ounce bottle of water and drink when I get thirsty during my 6.5-mile hikes which I take 3 or 4 days a week. It keeps me hydrated really well during the hottest days. I usually refill my water bottle and have another Fizz on the return trip.”

“I use Endurolytes Fizz before, during, and after any exercise. It's a great way to help get your body properly hydrated and keep it that way.”

“Best tasting stuff on the market. I use this on my short runs as well as my long runs.”

“I did my first 45K two weeks ago and had these as part of my hydration plan. Wow, this made the difference between suffering the last two hours and completing with a smile on my face.”



**All bubbles,
No troubles**

- Light and effervescent
- Excellent electrolyte source
- No artificial ingredients or sugar



“FIZZ is my go-to especially on hot/humid days. I like the convenience which is easy to pack and toss in a water bottle. It also provide quick relief for night leg cramps.” - Patrick T.



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SECRETS OF SUCCESS

SOS

4

Resupply these vital minerals to
Finish
Strong!



Photo by Gabriel Ervin for Fwuel Media

In addition to replenishing calories and fluids, proper fueling during exercise requires consistent and adequate electrolyte support. While it's usually easy to get your calorie and fluid needs dialed in, proper electrolyte replenishment requires a bit more effort. This is because your specific electrolyte requirements will not only differ from another athlete's—sometimes by a lot—but will also change constantly, depending on your fitness level, acclimatization level, and training duration and intensity. In fact, changes in the weather may alter your electrolyte requirements during a workout or race, so that what you need at 2 p.m. may be completely different from what you needed at 9 a.m.

Many athletes neglect consistent electrolyte replenishment because they've "never had cramping problems." But even if you've never suffered the painful, debilitating effects of cramping, you still need to provide your body with a consistent and adequate supply of electrolytes. Why? Because proper function of the digestive, nervous, cardiac, and muscular systems depends on adequate electrolyte levels. That's why we're fond of saying that electrolytes are comparable to the motor oil in your car—they don't make the engine run, but

they're required to keep everything running smoothly.

Now, let's get back to muscle cramping. Though there are many theories as to why it happens, it usually involves improper hydration and/or improper electrolyte replenishment. No one wants to cramp, of course, but remember, cramping is a long way down the road of electrolyte depletion. You never want to reach that point, it's extremely painful and your performance has already been severely compromised for some time. Just as you don't wait until you're dehydrated or bonking before you replenish fluids or calories, don't wait until you're cramping before you replenish electrolytes.

BOTTOM LINE:

The consistent replenishment of electrolytes is as important as the calories you consume and the water you drink during exercise.

SALT IS NOT THE ANSWER

Salt tablets are an unacceptable choice for electrolyte replenishment for two important reasons:

1) They can oversupply sodium, overwhelming your body's ability to regulate electrolyte and fluid balance.

2) They provide only two electrolytes—sodium and chloride—when your body requires a full array of electrolytic minerals.

THE ANSWER?

The Hammer Endurolytes® family of products

Proper electrolyte replenishment during endurance exercise requires a gradual, consistent approach that incorporates all of the electrolytes—not just salt—and in amounts that do not override normal body mechanisms. Hammer Nutrition's **Endurolytes** products help your body maintain proper electrolyte levels no matter the conditions or duration of exercise. They allow your body to perform better under the demands of exercise by:

- Ideally fulfilling the body's electrolytic mineral requirements
- Optimizing multiple bodily functions
- Helping you avoid the unpleasant issues associated with electrolyte imbalance

Whatever your weight, body type, fitness level, or what the weather throws at you, one of Hammer Nutrition's Endurolytes products will satisfy your body's all-important electrolyte requirements in ideal fashion, hour after hour.

SOS WATCH NOW FOR SUCCESS TODAY!



Video Series



Brian Frank takes in an evening ride on the back roads at Hammer HQ.

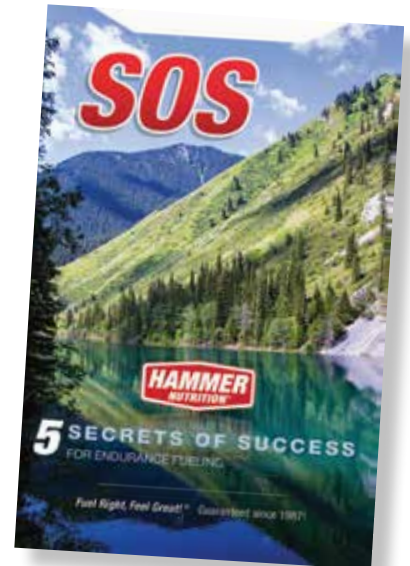
For over 37 years, we have been THE fueling experts! Our “Less is Best” fueling protocols have helped countless athletes successfully fuel for every endurance endeavor imaginable - without cramps or GI distress! You name it, we’ve done it, or helped other athletes do it. By following the fueling practices revealed in this book, you’ll be able to Fuel Right and Feel Great for anything you do.

Informed by rigorous science and proven in use, our methods and products are the surest path to optimal performance and health.

If you have fueling questions feel free to call to speak with one of our friendly, knowledgeable client advisors. We’re here to help!

Brian Frank

Brian Frank, Owner



WATCH NOW →





QUESTION

What are the differences between Anti-Fatigue Caps and Endurance BCAA+?

Anti-Fatigue Caps

contains nutrients that neutralize excess ammonia, which is a primary cause of fatigue, and an issue that all endurance athletes must deal with. Information about the ingredients in this unique product:

Potassium/Magnesium Aspartate

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

production. Lastly, the compound provides the minerals potassium and magnesium to help provide protection against cramping.

OKG

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

Endurance BCAA+

supplies the key amino acids—the BCAA (leucine, isoleucine, valine)—that the body needs to satisfy a small percentage of its energy requirements during prolonged bouts of exercise, helping to protect against lean muscle tissue breakdown. BCAA supplementation has

also been shown to decrease the perception of fatigue on both a mental and physiological basis.

Two capsules contain:

- L-Leucine – 400 mg
- L-Isoleucine – 200 mg
- L-Valine – 200 mg

L-Alanine – 100 mg

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

Reduced Glutathione – 100 mg

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



Pure energy on demand

Lindsey Dwyer Bates trains on the dusty roads of Colorado.

- Increases power output
- Improves repeatability of high-intensity efforts
- Helps you finish strong



“Used **Energy Surge** during training for and during the VT Grand Fondo. It definitely helped me climb the 4 gaps and more. First time I was able to climb 10,000+ ft in a single ride!” - Rick D.



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Get more answers to your **FREQUENTLY ANSWERED QUESTIONS** online **HERE**.



6 reasons TAPIOCA is TOPS!

Talking 2.0

by STEVE BORN



The original **HEED®**, **Perpetuem®**, **Sustained Energy**, **Recoverite®**, and **Organic Vegan Recoverite®** formulas used corn-derived maltodextrin (complex carbohydrate), which was actually an outstanding maltodextrin. However, we never stand on our laurels, and when it comes to possibly improving a product, you can bet that we're going to give it our full attention and effort.

As Brian Frank states,

“My policy is simple: Any time I can improve a product, I will—and so I did.”

That's exactly the case with the **newer 2.0 formulations**

which contain a cassava root/tapioca-derived maltodextrin. And while corn-derived maltodextrin was indeed excellent, tapioca-derived maltodextrin is even better... whenever possible, “better” is what we are always striving for when it comes to Hammer Nutrition products!

Six Advantages of a Tapioca-Derived Maltodextrin

1 Tapioca requires far less processing than corn.

2 Unlike corn, there is no GMO content in tapioca to begin with, so even though every single batch of the corn-derived maltodextrin we used in our products always tested at 0ppb (parts per billion) for GMOs, going with tapioca just saves us that hassle.

3 Tapioca maltodextrin has lower amounts of sodium and higher amounts of naturally occurring potassium. Given that most everyone consumes far too much sodium as it is, having more potassium and less sodium is a definite plus.

4 Tapioca maltodextrin has a more-alkaline pH than corn-derived maltodextrin. Considering that we athletes are “acid-producing machines” during exercise, a more-alkaline pH is a highly desirable during-exercise feature/benefit.

5 Tapioca maltodextrin has a lower Dextrose Equivalent (DE) than corn maltodextrin, which means fewer naturally occurring monosaccharide and disaccharide (short-chain sugar) content, and a much higher percentage of polysaccharide (complex carb) content—in essence, a more “complex” complex carbohydrate—for even longer-lasting energy and endurance.

6 Tapioca maltodextrin has same Glycemic Index (GI) as other forms of maltodextrin, so you get the fast-acting energy that you're looking for.

Summary

Echoing Brian's words, even though corn-derived maltodextrin was definitely a good one, when we find an even better one—in this case, a tapioca (cassava root)-derived maltodextrin—we're absolutely going to go with it. Making great products even greater? That's just the Hammer way, and you—our valued clients—are the ones who benefit! **EN**

Recover Right with Recoverite!



Now in a
FULL
slim-line
container.

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

■ Caffé Latte ■ Chocolate ■ Vanilla
■ Orange ■ Strawberry

Now made with Tapioca Maltodextrin
for superior taste and performance!



“As an older athlete, I have relied more on rest and proper post-workout nutrition to stay competitive. **Recoverite** continues to be an integral part of my training program. I use it as a delicious rehydration supplement post efforts and know I am rebuilding muscle mass everyday.”
- M. Burkhardi.

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CBD

Part One

by Dr. Bayne Fench, MD DC

CBD is cannabidiol.

We'll call it CBD because "cannabidiol" is a lot for a mountain fella from Eureka, Montana, to say, spell, or pronounce.

Let's start with a review. What we're talking about is cannabis. It's all about cannabis. Cannabis is not a colloquialism or slang. It's Latin and a genera of plant in

the family Cannabaceae. Hemp is Middle English, referring to the same damn thing. Don't ask me what "middle" means; I have enough trouble with "English."

Carl Linnaeus, the Father of Taxonomy, was born on a glorious Swedish day in 1707. I know it was glorious because I nailed a giant Brown trout on a Green Weenie that very morning. Carl disappointed his parents by turning away from the priesthood, silly boy, and instead was interested in critters. Clever boy. Although I'm well versed in disappointing my parents, Carl came to understand redemption. His method of categorizing critters has remained durable. So when he puts cannabis as an entire genre, I listen.

But this is where it gets confusing. What about the species? We all know that species follow genus. Well, for cannabis, "species" is in

quotations. There is ONE species called sativa. Cannabis sativa L. The L is for Mr. Linnaeus. There are, however, subtypes and subspecies that have been cultivated for various purposes. Are you with me?

So what is "marijuana"? It is a Mexican Spanish term and has no unified definition. It refers to cannabis.

No review would be complete without a discussion about our endocannabinoid system (ECS). Understanding that we each possess this microscopic system is important to view then how CBD and related compounds might benefit us.

The ECS consists of a couple of chemicals that we make in our body (AEA and 2-AG). These compounds interact with docking ports (receptors) on our cells and exert a variety of effects. Other similar compounds from

plants also interact with these receptors. Many scientists feel that this system acts as a means of communication between virtually all the cells of our body and is involved in myriad processes involving pain, inflammation, mood, immune function, and metabolism.

So why do we possess this massively complicated signaling system? Because we're vastly complicated and shaped by survivalistic (notice I didn't say 'evolutionary') pressures. And we've interacted with this cannabis/hemp/marijuana/reefer/dope/grass/Mary Jane plant for a very, very long time, perhaps all starting in the Altai Mountains of Asia. Growing up I obsessed about the Altai Mountains, with its giant rams.

What point am I making? There is something interesting biologically going on here. We are perfectly suited to come into contact with cannabis and its compounds. There is biochemical evidence that favorable things thus occur.

What are those favorable things? Depends on who you talk to. I'm all about the Empiric Method... listening to people, making notes, remembering, observing. In this era of medical snobbery of evidence basis, the power of empiricism is understated.

Read this article in its entirety and more on [Endurance News Weekly](http://EnduranceNewsWeekly.com).
hammadnutrition.com



Photo by Gabriel Ervin for Fwuel Media

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SAVE 5% ON FUELS AND ONE
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- Add and remove products to your subscription on the fly. Seasonal adjustments are made easy.
- You have full control over your subscription -modify, skip, pause, and gift your renewals as you see fit.
- Manage your subscription online anytime.
- Enjoy sale-like pricing all year long - save on your schedule.

Race Day Boost

Peak Performance



by STEVE BORN

We could easily call this product “**Personal Best in a Bottle**” because for the decades-plus that we’ve been selling Race Day Boost, that’s exactly what athletes have said they’ve experienced after using it. But Race Day Boost (often referred to as simply “RDB”) is an equally appropriate name because it does just that—it gives athletes a potent, tangible boost in race performance that augments the hard work they’ve put into their training.

The key to Race Day Boost’s effectiveness is trisodium phosphate (aka “sodium tribasic phosphate” or simply “sodium phosphate”), a compound with a wealth of research behind it, dating back to the 70’s, that supports its proven positive benefits for athletic performance. Sodium phosphate enhances functioning of all three of the body’s ATP-producing energy systems—the ATP-CP system (short-term), the lactic acid system (medium-term), and the oxygen/aerobic system (long-term).

1. The ATP-CP (adenosine triphosphate and creatine phosphate) system

- The trisodium phosphate in Race Day Boost supplies phosphate groups used in the re-synthesis of

ATP and CP, thus improving the performance of this short-term energy system.

2. The lactic acid system.

- The trisodium phosphate in Race Day Boost buffers blood acidity and helps maintain a more-ideal acid-alkaline balance by neutralizing excess hydrogen ions within the muscle cell. Effectively buffering high blood acidity allows the lactic acid system to provide energy for a longer time.

3. The oxygen/aerobic energy system.

- Phosphates form part of a compound found in red blood cells known as 2,3 diphosphoglycerate (2,3-DPG). This molecule helps release oxygen from hemoglobin into the muscle cells. An increase in 2,3-DPG will improve the availability of oxygen to working muscles for the process of creating ATP (energy).

The “boost” you get from Race Day Boost

- More efficiently produced energy = more energy
- Less lactic acid build-up
- Greater endurance
- Up to an 8% improvement in exercise performance

For decades, Hammer athletes have reported experiencing their **PERSONAL BEST IN A BOTTLE !**

Important Note

Every four-capsule dose of Race Day Boost contains 1,000mg of trisodium phosphate, 440mg of which is comprised of sodium. The standard loading dose protocol is four servings a day for four days, so you’ll be adding 1,760mg of sodium to your daily total. Over the course of four days that’s an additional 7,040mg of sodium being consumed. The majority of athletes already consume far more sodium than is necessary from their diets, so it’s extremely important to lower your dietary sodium/salt intake, especially when doing a loading dose of Race Day Boost.

Summary

For roughly three decades, endurance athletes have unleashed the power of Race Day Boost to propel them to top performances and personal bests in their “A” races. Race Day Boost flat-out works; its simple formula belies its profound effectiveness, helping to increase cellular energy production and buffering performance-robbing acidity. Whatever the duration of your event, a four-day loading dose of Race Day Boost before a key race can make a noticeable difference in your performance. This is a special product for special events, and with important races coming up soon, now is the time to include Race Day Boost in your arsenal. **EN**

Get the **BOOST** you need!



Jordan Taylor speeds through the bike portion of the Panama City Beach Ironman. Photo courtesy of Jordan Taylor.

- Optimizes aerobic capacity
- Increases endurance
- Helps reduce that muscle burn feeling



"I'm racing the entire SCORE Baja season in the over 60 Pro Class. I pre-loaded **Race Day Boost** as directed, had ZERO arm pump and was able to ride safely at a higher pace for much longer. Super impressed! This will be my forever secret weapon." - Kevin W.

Make it a KIT

All 3 Race Day Essentials combined to achieve **Your Next P.R.!**



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#howihammer



@hammernutrition



March is Women's History Month! We want to shout out our incredible Hammer Ladies! These women are extraordinary athletes, mothers, daughters, friends and colleagues ...



@sofia_poporopos23



HAMMER GEL! We've decided Tropical Flavor is for riding and Peanut Butter is for swimming. #howihammer



@jcartwright519



It's race day baby! Back on the east coast this weekend in Detroit. Good vibes here, let's keep that ball rolling! #howihammer



@fitvivruns



10 miles this afternoon. Week 3 of my new training season and completed 40 miles as promised. #howihammer

Where "Social" is SOCIAL, NOT Sales!



@run_n_shoot



Fueling and gear were key to running at the high altitude Chaski camp in the Atacama Desert. Started every adventure with Hammer... #howihammer



@aubrey.athletics



I am super stoked to announce that I will be partnering with @hammernutrition for the 2024 season ... #howihammer



@hammernutritionve



Todo listo en nuestro stand de la Expo @maratoncaf. Energia de la buena disponible para todos! Ven a conocer nuestro productos, tambien podemos ayudarte durante el maraton. #howihammer



@stufi_trail



Cloudy Mood on #longrunsunday. #howihammer

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SCAN NOW
to start
watching
TODAY!



now offers more ways to learn about all your favorite products and winning fueling protocols now **DIRECTLY ONLINE.**

WATCH AND LEARN

Follow along with **KNOWLEDGE** and **EXPERT ADVICE** from from Hammer owner and founder, Brian Frank, as well as other seasoned Hammer Athlete contributors.



Here, hold my Gel
**IT'S TIME TO
PLAY!**



Look for video links at the bottom of nearly every product page across our website with new content being added regularly.

Also find video links following Articles and Guides within our extensive Knowledge Base section.

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ALEXANDRA LEWIS

Alexandra rides horse Alexander Hamilton, owned by Stevie and Dylan Delahunt of Bend, OR. Photos courtesy of Gore/Baylor Photography.

TEVIS CUP 100 / WESTERN STATES
FOUNDATION RIDE
ROBIE PARK, LAKE TAHOE, CA
JUL. 29, 2023
100 MILES 20:55:02
33RD OA

My journey with Hammer began when I was diagnosed in 2021 with STAGE 3C breast cancer; it had moved into my lymph nodes, and at the time I did long distance Endurance Racing on horseback, up to 50 mile races and was already using some of the Hammer products. I was extremely ill after my treatment and surgeries, and didn't know if I would ever race again. I reached out to your company to get help dialing in my nutrition for race

days...I so badly wanted to try another 50 mile ride after treatment. My first 50 back to the sport was a very challenging one, with tough terrain; it was the Arabian Horse Association Endurance Nationals in Idaho, 2022. I had been dreaming of an AHA Nationals ride for ten years with my horse! With the help from your nutritionist, I was able to fuel with your products and got through this ride stronger than I imagined I ever could!! My nausea was kept at bay, I fueled so well, and my dizziness was resolved due to what I added to my routine by Hammer.

I utilized this same routine through training and more competitions, and then following year, ONE YEAR after my Mastectomy, 6 months of the strongest chemo, 36 rounds of the strongest Radiation, while I was STILL in treatment, I had the opportunity to ride the toughest one day, 100 mile endurance ride on horseback in the WORLD!! The Tevis. I'm attaching the photos from the ride for you to view. It was the ride of a lifetime, I had

been dreaming of this ride for 20 years!! When my cancer diagnosis came, I didn't know if I would ever make it to the Tevis, and now was my chance. I came in 33rd of over 100 riders, with less than a 50% completion rate for this ride!!!

Read this and other athlete stories online today!



HAMMER Must-haves

Perpetuem, PHOOD, HEED, Hammer GEL, Endurolytes Fizz, Endurolytes Extreme, Essential Mg, Phytomax, Fully Charged

BEFORE YOU HEAD OUT

ENDURANCE NEWS

WEEKLY



Hammer athlete, Aidan Jarvis, conquers the rugged trails of Glacier National Park.

Read more, Learn More, Anytime.

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!

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

Every week we bring you news you can use, including ground-

breaking nutritional research from around the world, further professional insight regarding the many uses of our various products, and success stories from our athletes.

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Tested, Trusted, and Proven for over 36 years



Red Zion has energy to spare after training laps at her local natatorium.

Race Caps still reign SUPREME!

- Prolongs endurance
- Helps increase energy
- Supports overall health



"I have been using Race Caps Supreme for over 37 years. It has never let me down, both for competing and recovery." - Ken J.



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HOUSEKEEPING

from **HAMMER HQ**

Important updates
from BRIAN FRANK



Since the last issue of *Endurance News* came out, there's been a lot going on behind the scenes at Hammer HQ. Here's a quick rundown of what's going on this summer.

HAMMER GEL JUGS

Most flavors, except nut flavors, are in stock and taste great. We continue to see thickening over time, which has been intermittent with several flavors over the past couple of years.

We continue to work with our manufacturing partner to understand and correct why this is happening. In the meantime, if you have a jug that thickens up, add an ounce or two of water and shake vigorously to thin it out. I usually do this in my flask anyway; it makes it easier to get most of it out!



RED HIGH-FLOW FLASK CAPS ARE HERE!

If you still have one of the flasks with a white cap, please ask for a new one, two or three, or an entire flask with your next order.



HAMMER BAR MAYHEM

After producing our Hammer Bars almost flawlessly for 20 years, the supply chain, labor, and equipment availability issues plaguing our manufacturing industry caught up with them. It's been a rough past 12 months, but they have turned a corner and are now up and running two daily shifts. By the time you read this, all but maybe one or two flavors will be back in stock.



WEBSITE ENHANCEMENTS



HAMMER REFERRAL PROGRAM GETS A MODERN UPDATE!

Get rewarded for doing what you are already doing anyway! Thirty years ago, before everything was digital and internet-based, our analog referral program was one of our most effective ways of acquiring new clients.

Win #1: You get 25% off your first order as a “thank you” for referring your friends, family, and acquaintances.

Win #2: Your friend gets 15% off their first order.

Win #3: It was done by word of mouth, printed cards with your client #, calling our 800 #, etc. Well, that all broke about ten years ago, and we've been working to

revive it ever since. I'm pleased to announce that it's back and easier to use than ever! 100% digital and can be shared with friends and family via text, email, social media, etc. Scan the QR code to see all the details and get your custom referral link!



Or visit hammernutrition.com/pages/referral-program to learn all about it. **Thank you in advance for helping spread the good news about Hammer!**

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We are rebuilding our dealer network and B2B website to support them. We want new dealers, but only the right kind! So, if you know of a retailer whose business philosophy is similar to Hammer (Customer First, always!), please refer them to us so we can connect. Of course, it's easier than ever! All you have to do is click the "dealer locator" button on the top left of every page of our website. Below the "search" button is our dealer referral form link. Fill out what you can, and we'll take it from there!



Click the QR code to go directly to this page: hammernutrition.com/pages/refer-a-store.



STAY ALERT at night during Ultras

by STEVE BORN

If you're doing an ultra-distance race, one where you may possibly be racing through the night and into the next day, chances are you'll need something to help you stay alert. Here are Hammer Nutrition's safe and highly effective product offerings, most-to-all of which you can use at the same time:

1 Take 1 serving of **Fully Charged** every 3-4 hours. Among the numerous benefits this amazing product supplies, two amino acids in Fully Charged—taurine and tyrosine—enhance focus, alertness, and concentration without stimulating the nervous system. Fully Charged also contains a small amount of caffeine—approximately 10-15 mg per serving—courtesy of the green tea extract in the product.

2 Take 1-2 capsules of **Endurance BCAA+** prior to the race and each hour during. The primary components in this product are the three branched chain amino acids (BCAA), l-leucine, l-isoleucine, and l-valine. Among their many benefits, research has shown that BCAA supplementation helps decrease the perception of fatigue on both a mental and physiological basis.

3 Take a capsule of **Super Antioxidant** every 1-2 hours during nighttime hours. The Ginkgo biloba and vinpocetine components in the product not only provide antioxidant support, they also have circulation-enhancing benefits and are purported to have cognitive/alertness-enhancing benefits as well.

4 Use **Caffe Latte Perpetuem** as one of your main fuels, as it contains 15mg of caffeine per scoop. Caffe Latte Perpetuem Solids is also a great option, with every 3 chewable tablets containing 30mg of caffeine.

5 Use one of the caffeinated versions of **Hammer Gel** on occasion. Each serving of Espresso Hammer Gel contains 50 mg of caffeine and each serving of Tropical Hammer Gel contains 25 mg. By using these flavors of Hammer Gel, you will be providing your body with complex carbohydrates for long-lasting energy (no “flash and crash”), as well as a sufficient but not too-high dose of caffeine.

Also try Cherry Bomb **HEED** for a refreshing pick-me-up with 25mg of caffeine as well. EN



The Pre-exercise Ignitor!



Mason Klein Dakar 2024 soars through the dunes of Saudi Arabia. Photo courtesy of Klein Off-Road Racing.

- Increases energy
- Improves power output
- Improves focus

Taurine
Tyrosine and
Tea to get you going,
Naturally!



"I love **Fully Charged** mixed with HEED for the gym and on the bike. No jitters like other pre workouts and no crash. Just clean energy as it should be!!" - Jerrod P.

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Which Protein is the Best?

by DEAN KARNAZES

If you're like most athletes, you know protein has something to do with muscle. But protein is much more than that. Like carbohydrates and fat, protein is a critical nutrient your body requires every day to function properly. Protein helps repair damaged cells and tissue throughout your body, it is used in hormone synthesis, and protein plays a number of other critical roles, including keeping your bones strong (calcium doesn't do it all alone!).

Yet, just like with carbohydrates and fats, there are different forms of protein and different sources to get this protein from, and they have different effects on performance. By eating the right

type of protein at the right time you can maximize all the benefits protein has to offer!

Let's start by explaining how the body assimilates dietary protein. Whether from an animal source or plant source, protein is digested in two places: the stomach and the small intestine. In the stomach special acids and other chemicals break down protein into amino acids; in the intestine these amino acids are further broken down into organic compounds so small they can work their way into the bloodstream. It's here, in this combination of which amino acids the digestive process releases and how quickly they enter the bloodstream, that sets one protein

source apart from another.

For this story we'll focus on two popular sources of protein:

WHEY protein and PEA protein.

Let's start by explaining that whey protein is derived from milk, which may not be suitable for people with dairy allergies, while pea protein is vegan. Once whey protein is consumed it results in a rise in amino acids circulating in the bloodstream, which makes it a good choice for post-workout recovery. This is because 1-2 hours after you exercise your




Dean Karnazes supports Hammer Nutrition on a visit to Hammer HQ in Whitefish, MT.

body experiences a spike in protein synthesis. If you consume whey shortly after working out your body can absorb the amino acids during this window when it most needs the raw materials to rebuild. Another great thing about whey protein is that if you have some prior to sleep it boosts the release of human growth hormone (hGH), which the body utilizes for a great number of important functions.

Pea protein is vegan and hypoallergenic, so it's suitable for vegans and those with milk allergies. Pea protein is digested at a medium rate, which helps prolong satiety and placate hunger. The only downside to pea protein is that it's not considered by some to be a complete protein, due to its too-small amounts of the essential amino acid, methionine, so it needs to be combined with other protein sources for use as a primary dietary protein. That's why Hammer Nutrition Organic Vegan Protein also contains other all-organic protein sources—pumpkin, Sacha Inchi, spirulina, and chlorella—making it a complete protein, along with providing some other great benefits.

And when it comes to whey protein, **Hammer Nutrition Whey Protein** is derived from 100% whey protein isolate, which is the most bioavailable protein on the planet. It's also blended with L-Glutamine, making it ideal for maintaining and repairing lean body mass, supporting gut health, strengthening the immune system, and accelerating recovery.

During a challenging 6-day self-supported race across the Atacama Desert in South America I used a combination of whey and pea protein nightly for both calories and recovery. Since bulk and space are important considerations during any self-supported race (everything you need must fit into the pack you're carrying on your back) the powdered form of these proteins minimized weight and could be reconstituted with the daily allotment of water. The formula worked well and I managed to win the race overall and finish without excessive wear-and-tear on my body.

I hope this primer on protein helps provide the information you need to make informed decisions on how best to choose your protein source and when best to consume this protein. Experiment and find what works for you, and Hammer on! 



Your Muscles' Best Bet!

- Maintain lean muscle mass
- Strengthens immunity
- Accelerates recovery

-  Chocolate
-  Vanilla
-  Strawberry



"I have been supplementing with **Hammer Whey Protein** while recovering from hip surgery and my healing progress has surprised my health care team. I have been using it for recovery for quite some time." -Beverly O.



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FREE Hammer CBD Stick



Use Promo Code **BALM38** to receive one free **30MG CBD Balm Stick** with any purchase. Offer expires 8.31.24

800.336.1977

Your Kidneys Love COFFEE

by STEVE BORN

In the past few years, I've read a lot of research about coffee, and I have written quite a few articles about that research regarding coffee's benefits for many aspects of human health.

One of the most eye-opening studies that we at Hammer Nutrition have come across over the years was reported way back in late 2018 on page 42 of *Endurance News* #112. "Reduced Risk of Dying Prematurely for Coffee Drinkers" discusses research involving nearly 500,000 men and women. The findings were thus: coffee drinkers reduced their risk of premature mortality by a factor

of 6% (less than 1 cup of coffee daily), compared to 14% (8+ cups of coffee daily). Remarkable!

After reviewing much research on coffee's benefits over several years, I have concluded that coffee is one of the healthiest beverages in the world. This study dramatically solidifies that belief.

Bottom Line: Drinking coffee is one of the best things you can do to promote many aspects of health, highlighted by its ability to decrease premature mortality risk.

The good news on coffee continues!

A new study from the Johns Hopkins University School of

Medicine, published in the journal *Kidney International Reports*, shows that coffee consumption is linked to a reduced risk of Acute Kidney Injury (AKI). According to the National Kidney Foundation, AKI is a "sudden episode of kidney failure or kidney damage that happens within a few hours or a few days. Such damage causes waste products to build up in the blood, making it hard for kidneys to maintain the correct balance of fluids in the body."

The number of hospitalizations from AKI has significantly increased over the years from 953,926 in 2000 to 1,823,054 in 2006 and 3,959,560 in 2014. Forward eight years, and the trend has undoubtedly risen even more; it's certainly a serious issue.

In this study, researchers used data from over 14,000 adults (median age 54) enrolled in the Atherosclerosis Risk in Communities Study. Participants were surveyed seven times over 24 years as to the number of 8-ounce cups of coffee they consumed per day: zero, one, two to three, or more than three.

The results showed a 15% lower risk of AKI for participants who consumed any amount of coffee versus those who did not. Those in the group that drank two to three cups a day had a 22%–23% lower risk.

Read this article in its entirety and more in Issue 131 of *Endurance News*.
hammernutrition.com



**Hit the trails
Ready to Roll!**



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



ASK AN ADVISOR how to **SUBSCRIBE-n-SAVE!**
Get your coffee delivered automatically every month.

All 53x11 blends are available in 12 oz. Ground or Whole Bean bags

WE'RE BREWING UP SOMETHING

NEW



Powder coated, stainless steel, insulated tumblers and mugs, laser etched right here at Hammer HQ.





This is a hot topic for us, one that we've been quite vocal about more than a few times. Why? Because, even after 3.5 decades, we still hear it every day: "I don't need to take vitamins. I eat a good, balanced diet." And just as it was the case so many years ago, it's even truer today—you cannot obtain all of the nutrients your body requires solely from your diet.



Here's why:

There has never been a single clinical study that documents what comprises a balanced diet nor one that has demonstrated one's ability to meet basic nutrient requirements through whole foods alone.

Studies show that food alone does not supply all the micronutrients we need to prevent deficiency, let alone achieve optimal health. Nutritional scientist, Bruce Ames, bluntly states, "Inadequate dietary intakes of vitamins and minerals are widespread, most likely due to excessive consumption of energy-rich, micronutrient-poor, refined food. Inadequate intakes may result in chronic metabolic disruption, including mitochondrial decay." Another study concluded: "Nearly the entire U.S. population consumes a diet that is not on par with recommendations. These findings add another piece to the rather disturbing picture that is emerging of a nation's diet in crisis."

The Daily Value (DV) standard was set a few decades ago, and it's basically a "one size fits all" approach to nutrient needs, as it was/is based on the intake needed for a healthy 5'9" 25-year-old healthy male weighing approximately 145 pounds. Like the Recommended Daily Allowance (RDA) or the Reference Daily Intake (RDI), the DV is essentially the minimum amount needed to avoid a deficiency disease; it has nothing to do with optimal health.

Very few of us have routine access to fresh, locally grown foods. Much of our diet comes from foods grown far away, picked when unripe, and then sent packing. Nutritional content is questionable and usually depleted.

Even if we could obtain all the nutrients we need from our diet, it's highly unlikely that any of us eats an ideal diet as consistently as we think we do. The USDA states: "To promote your health, eat a variety of fruits and vegetables—at least 2 servings of fruits and 3 servings of vegetables—each day" but really, how many of us do that with any kind of consistency? And that figure may be on the low side, thanks to research from Dr. Dagfinn Aune, who concludes "Our results suggest that although five portions of fruit and vegetables is good, ten a day is even better."

With this said, please understand that we're not suggesting that you can neglect your diet, take scads of pills, and have all of your nutrient needs covered. Supplements should never take priority over the consumption of a healthy diet. At Hammer Nutrition we emphasize both quality nutrition and prudent supplementation. First and foremost, your primary nutritional goal is to consistently consume a healthy diet, which means:

Eating fresh, locally grown organic fruits and vegetables as much as possible

Avoiding packaged, processed foods and junk foods, and foods containing processed seed oils, and artificial sweeteners, colors, flavors, and preservatives.

Minimal sodium and low-to-no refined sugars

We believe that the primary reason to try and eat the healthiest diet possible—primarily a variety of fresh fruits and vegetables—is NOT so much for their vitamin and mineral content, but instead for the nearly countless health-benefiting phytochemicals that are only found in fruits and vegetables. For example, research has shown that a naturally occurring flavonoid found in various fruits (mainly strawberries) called fisetin has strong antioxidant, neuroprotective, and cardio-protective properties. Eating lots of strawberries will help you get sufficient amounts of this amazing phytonutrient.

Bottom line: If you want to look, feel, and perform your best, the first step is always a diet dominated by nutrient-dense whole foods. But that alone will not suffice—supplementation has to be a part of modern life.

To augment the minimal amounts of vitamins and minerals supplied in the daily diet, and to obtain ideal amounts of these vitally important nutrients, **you must supplement.** If you want to achieve your best performances in your exercise sessions and events—and, even more importantly, enjoy optimal health (not minimal, optimal!)—then daily supplementation is a necessity, not an option.

The best "starting point" for every person—regardless of age, activity level, or dietary habits—is **Premium Insurance Caps.** This wide-ranging multivitamin and mineral complex offers a bountiful array of highly absorbable vitamins, minerals, and key auxiliary nutrients, specifically formulated to fill in the gaps left by the modern diet. A couple daily doses of 2-3 capsules are a surefire way to ensure that you have what you need to thrive. **EN**

Watch Brian's video here to learn more.



REFERRAL PROGRAM



TELL A BUDDY, A FELLOW ATHLETE, COWORKER, OR NEIGHBOR



It **PAYS** to **HAMMER!**

Share the benefits of Hammer with your family* and friends – Get **FREE** product credit!

It's a **WIN-WIN-WIN**

- Share the good news about Hammer with anyone* who has NEVER ordered directly from Hammer Nutrition with your [Referral Link](#).
- **THEY WIN**
They place their first order, using your unique code. They receive a 15% discount!
- **YOU WIN** You get 25% of their order subtotal as store credit!
- **WE WIN** We add another satisfied client to the Hammer Family.

That's it! This easy program lets you share the Hammer love and reduce your costs, while helping others.

HOW TO JOIN + YOUR REFERRAL LINK

After your first purchase, you'll get a unique referral link via email. We'll also display it on your order confirmation page every time you place an order.

[Request a link](#) - if you've ordered before, and want a link sent to you, please contact us and we will be happy to provide it for you.



LEARN MORE NOW

SERVING UP SUMMER!



SEAFOOD TOSTADAS

Fresh shrimp and/or scallops (plan on about 2 per tostada) Grill or pan sear for 5 minutes each side until internal temp reaches 145° F. Cut into small pieces.

GET CREATIVE! Combine and stack whatever ingredients you enjoy.

Chop: tomato, yellow peppers, serrano peppers, purple onion, cilantro. Toss everything with lime juice, cumin, chili powder, salt & pepper to taste. Stack atop a crisp tostada chip of your choice.

Top with sliced avocado, Sriracha sauce and crumbled crema fresca.

TEXAS CAVIAR

Combine: Black beans, black eyed peas, yellow corn.

Chop: purple onion, bell pepper, cilantro.

Toss all ingredients with a simple Olive Oil & Vinegar dressing of your choice. Chill overnight before serving. Season to taste.

TIP: Go easy on the dressing. A light coating will do - you don't want "soup".

PAIR your meal with freshly sliced watermelon

PEACH Mo-HEED-To's

2 oz white rum

2 oz fresh peaches or peach puree

6-8 fresh mint leaves

1 Tbsp of HEED (any flavor)

1/2 lime

2 TSPN agave syrup

Club soda to top off

Serve over ice and enjoy!



Recipe images from "In the Kitchen"



by Nathan Moody for Hammer Nutrition.



With Hammer **In The Kitchen**, healthy eating never has to be boring



Download your **FREE** copy Today!



Share your creations!
#chefhowihammer



LIFE IS AN ENDURANCE SPORT®

EveryDay Athletes and Hammer Heroes doing Amazing things, Every Day!



GARY WENZL

Life is definitely an endurance sport for me... even trying to get a good night's sleep.

I recently babysat 5 of my 6 grandkids. I'm telling you, this was definitely the most physically challenging thing I have ever done in a long time. We raised 6 kids, but it's much harder on me now. And harder on me than a tough century ride with lots of wind and climbing!

I am so grateful for Hammer Nutrition's help to get me through the babysitting gig.

All of the **Daily Essentials**, **Superior Recovery**, **Endurolytes**, **BCAA+**, **CBD**, and most of the **Well Being** supplements and **Hammer Whey Protein** nightcaps have eventually made their way into helping me with my daily life.

Did a couple of ~55-mile rides, and it was awesome to be back on the again. My wife says I'm obsessed with biking, and I'm not telling her it's Hammer Nutrition's fault for helping me to keep going.



RICK DOMINGUEZ

THE HAMMER LIFESTYLE

I am a single dad, cook, shopper, home keeper, soccer coach, weightlifter and cyclist. The Hammer **Daily Essentials Kit**, **Endurolytes Fizz** and **Whey Protein** all help me stay in tip top form to keep up with my 13 year old son Ricky, and dog Minnie. My son also takes the **Premium Insurance Caps**, **Fizz**, and **Clear Day** to subside seasonal allergies, and can't forget the pup Minni, she takes her Hammer **Doggie Daily Essentials**.



HAMMER LEGENDS



STEVE KAPLAN

Dear Brian,

The products themselves are wonderful but what's more important than the material value of what you sent is the thoughtfulness and caring you have always shown me.

Reflecting on all the conversations I've had through the years with you, Steve Born, Dr Bill, Nate's TOW's, your support staff, and reading *EN*, I still find it amazing how lucky I have been.

As I approach my 70th birthday in June, I truly believe that my utilization of a wide variety of Hammer products and lifestyle philosophy has allowed me to feel and look the way I do. How can I possibly put a value on something so priceless?

I recently had a client tell me that he has cramping problems when he goes on his annual ski trip out west, so I got him a bottle of **Endurolytes** and he literally texted me from the top of a mountain that he was having the best trip he's ever had with zero cramping.

I'm just getting ready to go ride in my new cycling gear. Thank you so much for the year of support and KEEP HAMMERING!

- STEVE



Keller Norland finds lasting relief for the long haul.

- Made from USA organically grown hemp
- Helps alleviate aches and muscle tightness
- Helpful for numerous skin conditions



"I use Hammer CBD Balm during multi-day events or when I'm extremely fatigued. This stuff works for me!" - Jason G.



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Hammer's Brightest



MARIO ANDRES - Age 9

Everything started when Mario Andres began riding his balance bike at the age of 2. As he began gaining confidence, he was introduced to a new level. The competition started right after turning three, and he truly fell in love with cycling. Mario Andres kept on racing from a balance bike, then on to a 16" and just finished out his past season on a 20". Winning 1st at Baja California's State Championships, 1st in Tijuana and 1st in Ensenada, MX. Races are mostly in Tijuana (MX), Ensenada (MX), and San Diego, California. His passion for cycling has taken him to develop and improve skills that have led him to many podiums.



KODY ORLANDO - Age 14

Kody found his passion for running when he was just 9 years old. With the help of Hammer Nutrition he has quite a race resume including running XC and track for his highschool, running events, triathlons and the Grand Canyon Rim-To-Rim. He recently took 3rd place overall at the Disneyland 10K! He hopes to continue to progress in running and plans to complete a Ragnar and the Boston Marathon as age allows. Kody's favorite Hammer products are **Vegan Protein**, **Recoverite** and **Hammer Gel**.

KUDOS to these
 ★ **SUPER STARS** ★
Keep Hammering!



JACK BILLOWITZ - Age 15

Jack, a passionate cyclist since childhood, excels in cyclocross, mountain biking, and endurance races. In 2023, he conquered his first 12-hour and 100-mile MTB races. This year, he's targeting the Shasta Gravel Hugger, US MTB, Oregon MTB races, Oregon Triple Crown Gravel Series, MTB Nationals, and Eurocross Academy in Europe. Jack's not just an athlete; he's a science and data-loving student eager to share his insights with others. He relies on Hammer's **Anti-fatigue Caps** for peak performance.

Up-n-Coming Athlete's

LIZZY JONES - Age 25

Lizzie only began running two years ago but she is already crushing ultra trail races and taking podiums! Her results are impressive and she already secured wins at Scout Mountain 100, Antelope Island Marathon, Buckeye Marathon, and took first and a course record at Sri Chinmoy 13 hour. She also finished the gnarly Tahoe 200 Miler!

Lizzie resides in Moab UT and spreads the Hammer love not only at races but as a coordinator of Moab, Utah's local run club where she organizes weekly runs and promotes the running community in Moab.



BRIGETTE TAKEUCHI - Age 26

Meet Brigette Takeuchi, an elite Mountain Athlete from Snoqualmie, WA, excelling in Mountain Ultra Running and ski mountaineering. A talented outdoor photographer, Brigette is a force on the trails and slopes.

Recently, she clinched 3rd at the Kodiak 100k, securing a spot in the CCC (Ultra Trail du Mont Blanc Courmayeu-Champex-Chamonix), where she'll compete against the elite field for a podium finish. Brigette's record includes impressive FKTs like the Teton Circumnavigation. She fuels her endurance feats with Hammer's **Perpetuem** and **Gels** (Nocciola is her favorite!)



RYDER HOFELDT - Age 14

Ryder Hofeldt, is a Montana native who lives and breathes motocross—spending a majority of the year training and competing in local and state races. He was challenged by some of his best friends this past year, but Ryder ultimately took the state championship in the 85cc and supermini classes for the CMMX Series. He recently completed training in Georgia at MTF. Ryder eagerly anticipates working towards qualifying for the Loretta Lynn's AMA Championship. He'll be racing his first area qualifier in May. Ryder relies on Hammer Nutrition supplements in his daily routine, particularly favoring **HEED** and **Fizz**. Being founded right in Montana, he finds pride in using Hammer products and is excited to be a Hammer Scholastic Athlete!



FROM OUR ATHLETES **LARA** 5 Questions with **DALLMAN-WEISS**



Lara with teammate Stu McNate for the WIN! Photos: Allison Chenard and Lexi Pline

2024 US OlympicTrials
MIAMI, FL JAN 1-6, 2024
75+ miles / 14 hrs racing / 35 hrs on the water / 8 days
PLACE : 1ST Place OA



1. How did you get into racing?

I started racing on White Bear Lake, MN with my Dad. It was his passion and I just loved being on the water with him as a father daughter activity. I then took sailing lessons each summer and always raced around the midwest

2. How did you hear about Hammer Nutrition?

I sailed against an amazing female sailor and author named Carol Cronin who was a Hammer athlete and she was the first person I really talked to about fueling properly for our long days of racing.

3. What are your go-to Hammer products?

I am a **Hammer GEL** gal, we have very long days of racing and races are usually extremely physical so I need to take in calories without upsetting my stomach. Also I enjoy **Recoverite**, **Hammer Whey Protein** and **CBD Balm**.

4. I can't leave for a race weekend without ...

Our events last 6 days, and we usually spend a month at each venue so we can prepare and test equipment and study the typical weather patterns, so I have gotten really good at pre-planning my nutrition and flying it over to Europe. So, I won't be caught without my water bottle for hydration, some energy bars for snacking during travel, and a hand written letter from my mom reminding me of home!

5. What keeps you motivated and Hammering everyday?

Hands down, the vision of watching the American Flag being raised and hearing the national anthem at the Olympics! Also, being able to encourage young girls to chase their dreams.



HAMMER Must-haves

Hammer Gel, Recoverite, Hammer Whey Protein, CBD Balm

Read full stories, race reports, and reviews FROM OUR ATHLETES online!



SONIA AHUJA

MARIN ULTRA CHALLENGE
SAUSALITO, CA

50 MILES 9:25:51
PLACE : 1ST AG 40-9 / 3RD OA Female

Photo courtesy of Sonia Ahuja



HAMMER Must-haves

HEED, Hammer GEL, Perpetuem, Endurolytes

GABBY SUVER

TALLAHASSEE MARATHON

FEB. 11, 2024

26.2 MILES 2:54:07

PLACE : 1ST OA Female / 11TH OA combined

Photo courtesy of Gabby Suver



HAMMER Must-haves

Daily Essentials Kit Supplements, Endurolytes Fizz, Hammer GEL

WINNING RECIPE

CARLY LEE

TOR RACING GRAND PRIX

OA: 1ST Women Pro/AM • 1ST Moto 1 • 1ST Moto 2



HAMMER WINNING COMBO

HEED, Hammer GEL, Endurolytes, Race Caps Supreme, Tissue Rejuvenator

BIG BUCK GNCC

9TH in WXC



HAMMER WINNING COMBO

HEED and Hammer GEL

FROM OUR ATHLETES

CHRIS HAMMER

2024 AMERICAS PARATRIATHLON CHAMPIONSHIPS MIAMI
HOMESTEAD - MIAMI SPEEDWAY
MAR. 8, 2024
SPRINT DISTANCE 54:34
2ND OA (PTS5)

Photo courtesy of Chris Hammer



HAMMER Must-haves

Endurolytes, Hammer GEL, HEED, Recoverite



NICK LANNING

SCORE BAJA 1000 BAJA CA, MEXICO NOV. 19, 2023
4-man Team 1311 MILES 38:14:44
1ST AG / 16TH OA

Photos courtesy of Nick Lanning

NEW MEXICO RACE COLLECTIVE TARANTULA 100
RED SANDS OHV, ALAMOGORDO, NM
FEB. 18, 2024
124 MILES 3:52:36
3RD AG / 7TH OA



HAMMER Must-haves

Hammer GEL, Perpetuem Solids, Endurolytes, Race Day PR Kit

Nick refueling with Montana Huckleberry Gel at the Tarantula 100.

WENDY SKEAN

FAT BIKE WORLD CHAMPIONSHIPS
LEADVILLE, CO
JAN. 27, 2024
21.89 MILES
3:12:28
1ST AG / Oldest OA participant

Photos courtesy of Wendy Skean



HAMMER Must-haves

Perpetuem, Race Caps Supreme, Mito Caps, Anti-Fatigue Caps, Endurance BCAA+, Recoverite

Read full stories, race reports, and reviews FROM OUR ATHLETES online!



JASON WHEAT

CAMELBACK RANCH, AZ

JAN. 1, 2024

124 MILES

2ND OA

Photo courtesy of Jason Wheat



HAMMER Must-haves

Perpetuem Solids, Hammer GEL, Hammer Bars, Anti-Fatigue Caps, Endurolytes Fizz



ACROSS THE YEARS 24 HRS. RUN, EAT, SLEEP, REPEAT



JOHN BENHAM

CAMELBACK RANCH, AZ

JAN. 1, 2024

100 MILES 26:27:36

4TH AG / 9TH Male

14TH OA

Photos courtesy of John Benham



HAMMER Must-haves

Perpetuem, HEED, Recoverite, Endurolytes Fizz, Anti-Fatigue Caps, Fully Charged, Race Caps Supreme



ERIN REEDY

CHAINRING MASSACRE

VALLEY VIEW, TX

FEB. 3, 2024

80 MILES

4:56:06

1ST OA

Photos courtesy of Erin Reedy



HAMMER Must-haves

HEED, Hammer GEL, Recoverite



FROM OUR ATHLETES

NATHAN RONDONI 14 YRS OLD

TBF MTB CHALLENGE

FOLSOM LAKE, CA

FEB. 11, 2024

14.8 MILES

1:02:38.434

3RD OA

Photo courtesy of Nathan Rondoni



HAMMER Must-haves

Fully Charged, Hammer GEL, HEED



JAMIE CAPOZZI

DEL DIOS TRAIL RACE

LAKE HODGES, ESCONDIDO, CA

JAN. 7, 2024

13.1 MILES

1:59:42

2ND AG / 22ND OA

Photo Credit



HAMMER Must-haves

Hammer GEL, Anti-Fatigue Caps

SAN PASCAL 20

FEB. 7, 2024

20 MILE TRAIL RACE

2:51:47

1ST AG / 2ND OA

HOT CHOCOLATE RUN

SAN DIEGO, CA

MAR. 9, 2024

15K (New PR in 5K, 10K, 15K!)

3RD AG / 43RD OA / 36TH Men

HALLIE MARKS

MILE MARKERS ENDURO

WICKENBURG, AZ

FEB. 17, 2024

85 MILES

3Hrs : 45Min

2ND Women / 54TH OA

Photo courtesy of Hallie Marks



HAMMER Must-haves

Hammer GEL, Recoverite

Read full stories, race reports, and reviews FROM OUR ATHLETES online!



KORYNNE COLLINS 16 YRS OLD

THE BEAR- MTB
BEAR CREEK LAKE PARK
LAKEWOOD, CO

MAR. 30, 2024
17.8 MILES 1:15:06

2ND AG / CAT 1: 15-18
3RD OA : including PRO/Open Women
Photos courtesy of Korynne Collins



ONE TO WATCH!



KEEP HAMMERING!



HAMMER Must-haves

Hammer Whey Protein, Recoverite, Huckleberry GEL



STEVEN TERRY

COLOSSAL VAIL HALF MARATHON
VAIL, AZ

DEC. 2, 2023
HALF MARATHON
1:43:03

1ST AG / 2ND OA
Photo: Tom Hauer



HAMMER Must-haves

Hammer GEL, HEED, Energy Surge, Fully Charged, Recoverite, Endurance BCAA+, Tissue Rejuvenator, Hammer CBD

THOMAS DISTEFANO

SWAMMIE SHUFFLE 200
VIRGINIA BEACH, VA

FEB. 25, 2024
200 MILES
72:30:00

3RD OA
Photos courtesy of Thomas Distefano



HAMMER Must-haves

Hammer Daily Essentials, Endurolytes, Recoverite, Anti-Fatigue Caps



TAMMY FARO

TOKYO MARATHON
TOKYO, JAPAN
MAR. 3, 2024
3 HR / 53 MIN
Has completed all six ABBOT
WORLD MARATHONS:
TOKYO, NEW YORK, BOSTON,
CHICAGO, BERLIN, LONDON
Photo courtesy of Tammy Faro



HAMMER Must-haves

Perpetuem, Sustained Energy, Endurolytes,
Hammer GEL, Recoverite

WAY TO GO LADIES!

Congrats to all of our Hammer
Athletes from around the world.



LUCIA COLL

MIFAFI ULTRA
MÉRIDA, VENEZUELA
45 K
1ST Submaster Class
4TH Women's
Photos courtesy of Lucia Coll



Czech Republic

MOIRA STEWARD

VALENCIA MARATHON
DEC. 3, 2023
2:25:36
Set a new Czech National Record
Qualified for the 2024 Paris Olympics
Photo courtesy of Moira Steward



HAMMER PARTNERS

Hammer Nutrition, thank you for your sponsorship and support of the Contra Costa Composite Mountain Bike Team. As you probably know, we are 39 young riders, 20 or so coaches and some wonderful and supportive families. We are members of the NorCal League, part of NICA (National Interscholastic Cycling Association). As a “composite” team, our high school and middle school racers come from an assortment of schools in the central Contra Costa County area—primarily the towns of Walnut Creek, Lafayette, and

Orinda.

We practice on the slopes of Mt. Diablo and the other hills in our area. Our kids bring tremendous enthusiasm and the joy of riding their bikes in the beautiful surroundings of Northern CA. Ft. Ord, was the first race ever for many of our racers and also the first time in that location for many others. We were able to place 2 of our riders on the podium on Saturday. Cody Olson took 4th place in 8th grade boys. Remarkable as he did not race in the league last year, so he was



**CONTRA COSTA
COMPOSITE
MTB TEAM**

seeded about 90 spots back in the field! This was only Cody's 2nd time racing – ever. Also, William Aliano placed 2nd in 6th grade boys. This was also only his first or second time ever to race, and his first time racing in our league.

Andrew Budisco Head Coach CCMTB



Photos by David Cervenka, CCC MTB Coach and photographer. @cccmteam



Hammer Nutrition has been a longtime supporter of the Minnesota Cycling Association, helping ensure that student-athletes and coaches attain their highest degree of health and performance. There are a lot of options on the market, but the education, high level of customer service and broad distribution network make Hammer Nutrition the first company MCA members look to for sports and nutritional support in all aspects of their lives.



All MCA races feature a Hammer Feed Zone with Hammer Gels and HEED sports drink at the ready.

In addition to covering the nutritional support of the MCA, Hammer Nutrition supports the MCA's scholarship and loaner bike fund. This program offers bikes

and covers rider fees for all student-athletes facing financial hardship. As a community focused organization, the MCA thanks Hammer Nutrition for helping get more kids on bikes in the great state of Minnesota!

Josh Kleeve Executive Directive

HAMMER EVENTS

PONY EXPRESS GRAVEL DASH



Pony Express Gravel Dash is one of Hammer's long standing partners and we are grateful for their support. We were honored to get an interview with Mark and Renee Hoffman, the co-directors of the Gravel Dash. Here is more from the organization about the event and its history:

The Pony Express 120 Gravel Dash began in 2014 as a Chamber of Commerce event by then Chamber Executive Director Brenda Staggenborg and Cycling Enthusiast Paul Brasby.

Hammer Nutrition has been a major partner with PXGD for 6 years, beginning in 2018.

The Pony Express Gravel Dash has grown each year from less than 100 in year one to 355 riders in 2023.

Why Marysville? The Blue River Rail Trail, from Marysville, North to Nebraska opened in 2010. Alcove Spring Historic Oregon Trail Park, South of Marysville has single track biking and hiking trails. All of these cycling opportunities have helped to grow the bicycle community in Marysville.

LOCAL EVENTS

We are proud to partner with many local events here in the beautiful Flathead Valley, Montana, USA! You will also find us onsite or well represented at the following events. See you there!

- DON'T FENCE ME IN**
5/1/24
Trail Running
pricklypearlt.org/events/dont-fence-me-in-trail-run-2024
- WHITEFISH MARATHON**
5/18/24
Road Running
whitefishmarathon.com
- HERRON HALF TRAIL MARATHON**
6/8/24
Trail Running
ftbraces.com
- BOZEMAN TRIATHLON**
6/16/24
Swim/Bike/Run
bozemantriathlon.com
- SWIM THE FISH**
8/11/24
Open Water Swim
whitefishwave.com

HVWC

HAPPY VALLEY WOMEN'S CYCLING

Hammer launched a partnership with Happy Valley Women Cycling in 2022 and it's been amazing to witness the growth and impact of this fierce group of women in the world of cycling.



HVWC is a community of women who share a passion for cycling and aim to empower women to start cycling and join our supportive community. Together, they share experiences and inspire each other to push their limits while training and racing. As we enter our sixth year, HVWC continues to evolve, hosting rides and events for women and young ladies of all experience levels.

As a community, HVWC strives to promote a healthy and active lifestyle for women, believing cycling is a great way to get and stay fit. They also believe that cycling with other supportive and inspiring women can be a great way to relieve stress and anxiety. If you're a woman looking to start cycling or seeking a supportive and empowering community, consider joining Happy Valley Women's Cycling for a ride, event, or race.

They are always looking to connect with new women who share a passion for cycling and a commitment to uplifting others. Follow them on Instagram and Facebook at Happy Valley Women's Cycling and be a part of their journey towards a healthier, happier, and more empowered you!

SEE YOU SOON!

UPCOMING EVENTS

- McDONALD FOREST 50K**
5/4/24 Corvallis, OR
Trail Running
mac50k.org
- MOHICAN MTB 100**
5/21/24 Londonville, OH
MTB
nuemtb.com/mohican-mtb-100
- 24 HRS OF RIVERSIDE**
5/25/24 Spokane, WA
MTB
24hoursofriverside.com
- ONONDAGAMAN TRI.**
6/1/24 Cassadaga, NY
Triathlon
coachmarkwilson.com
- CEDAR BLITZ**
7/8/24 Cedar Springs, MI
Gravel
cedarblitz.com
- GFNS ASHEVILLE**
7/14/24 Asheville, NC
Road Cycling
grandfondonationalseries.com
- YORK 38 SPECIAL**
8/17/24 Helena, MT
Gravel
york38special.org

Maltodextrin

The Superior Carbohydrate for Endurance Athletes



Setting the record straight on this oft-maligned athletic fuel source

by STEVE BORN

Will Turner is fueled for the long haul. Photo: Chris Destefano.

First, two quick definitions to start this article:

- 1** “Sugar” is defined as a 1-or 2-chain molecule (monosaccharides or disaccharides), and anything that ends in “ose”—glucose, sucrose, fructose, etc.—is classified as sugar, or more appropriately, simple sugar.
- 2** Molecules that contain many sugar units weakly linked together are called polysaccharides, known familiarly as complex carbs and starches, with maltodextrin—which we use in our fuels--being one of them.

As of late, maltodextrin has come under fire, with some actually saying that it’s worse than sugar. The chief accusations as to why maltodextrin is should be avoided are that it is:

- A high-Glycemic Index (GI) carbohydrate, ranging from 100—the same as glucose and higher than sucrose (table sugar at 65-72)—or higher. This means that

maltodextrin can cause a sharp increase, or spike, in people’s blood sugar shortly after they eat foods that contain it.

- It can lead to gut inflammation and possibly affect microbiome diversity.

While we do not disagree with either of these, our explanation of both will not only take the “fear factor” out of maltodextrin, it will

show why it is vastly superior to any short-chain simple sugar for the purpose of fueling the body during exercise and immediately afterward.

High Glycemic Index (GI)

Maltodextrin has a GI of 100 (some suggest even a bit higher), so it definitely goes to work fast. That’s a good thing because when you’re exercising/training/racing

you want that energy as quickly as possible, and that's what maltodextrin will do. It will increase energy levels as fast or faster than glucose and faster than any other simple sugar (especially fructose, which has a paltry GI of 19-25).

Inflammation/Negative impact to the gut

In every single article we've ever written about maltodextrin, we have NEVER recommended consuming it aside from during exercise (to produce energy) and immediately following exercise (for glycogen restoration). At all other times we recommend the consumption of low-to-medium GI carbohydrates. Now, if one is sedentary, then no, we absolutely do not recommend the consumption of any of the Hammer Nutrition fuels for the sake of covering one's eating requirements. But during exercise only, when energy turnover is high and maltodextrin's rapid digestion is experienced (more on that in a minute), any potential issue for gut inflammation and potential negative impact on gut microbiome is nil.

Another way to look at it is this: There are 168 hours in one week. If you're training a total of 15 hours a week (which is a lot!), you're consuming maltodextrin less than 1/10th of the time, a very small amount. The point is that you're only consuming a maltodextrin-based fuel during a fractional portion of the entire week, so, along with how rapidly maltodextrin works during exercise, any possible issues associated with maltodextrin will not occur. The real issues will happen when you indiscriminately consume lots of maltodextrin (or other high-GI carbohydrates) aside from during exercise and immediately following.

MALTODEXTRIN'S OTHER SUPERIOR BENEFITS

Longer-lasting energy

Because maltodextrin is comprised of hundreds of saccharide molecules all weakly bonded together, it will provide a much more consistent and longer-lasting energy than glucose or any other short-chain simple sugar, and without that undesirable "peak and valley", "flash and crash" energy that is typical with simple sugars.

Continued on page 62



HAMMER GEL + FULLY CHARGED + ENDUROLYTES

- Instant Power Burst with no crash
- A Flavor Blast in one convenient combo
- Mix it Up! and finish Strong



"Brian Frank introduced me to the Hammer Bomb, and I'll never race without. What a brilliant way to get everything I need in one easy flask."
- Online Reviewer



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Maltodextrin

More calories for energy with no stomach distress.

One of the very best features of maltodextrin is that you can digest/absorb greater amounts of calories from maltodextrin than from any short-chain sugar... as one nutritional scientist states, “maltodextrin allows one to swallow more energy in less volume.” With maltodextrin you get the full amount of calories that you need for energy production, and with no delay in exiting the GI tract.

Fuels containing simple sugars must be mixed at very calorically weak solutions in order to be digested with any efficiency, so your body won't be getting the right amount of calories it needs. However, when athletes try to make a “double-strength” mix of a simple sugar fuel, that too-high sugar mixture does not match body fluid osmolality parameters (280-303mOsm), which means it just sits in the stomach undigested for a lengthy period of time... and that means severe stomach distress. You won't have that issue with maltodextrin.

RATE OF SPECIFIC CARBOHYDRATE ABSORPTION

Intestinal absorption rate is most rapid with a glucose polymer (Maltodextrins), than from simple sugar solutions, permitting a higher total calorie absorption rate due to compatible osmolality levels. Body fluids are absorbed immediately across intestinal linings at an osmolality of 280-303 mOsm with no delay. In a fluid solution, calorie volume must be mixed at body-fluid osmolality levels in order for immediate absorption. When carbohydrates are mixed with water they are limited to the following body solution osmolality levels, otherwise absorption will be delayed until the stomach dilutes the hypertonic solution by withdrawing serum fluids.

CARBOHYDRATE	CALORIES	@AVAILABLE BODY FLUID OSMOLALITY 280-303 mOsm
Glucose	0.2	6%
Fructose	0.2	6%
Sucrose	0.4	7-8%
Maltodextrins	0.9 - 1.2	15-18%

But won't there be an insulin spike with maltodextrin?

Because of maltodextrin's high Glycemic Index (GI), many people ask about the insulin release that occurs. The answer to that is that, yes, maltodextrin does elevate blood sugar levels very rapidly and will cause an insulin release. This is not an issue during exercise, however, as Dr. Bill Misner explains: “During exercise, insulin release is inhibited because sympathetic nervous system hormones are also released and, concurrently, exercise augments muscle uptake of glucose from exogenous intake accompanied by lower insulin levels and effects.” Basically, what Dr. Misner is saying is that because energy turnover is very high, and with the release of specific central nervous system hormones, the body is able to deliver glucose to the muscles with very minimal (if any) insulin... insulin release is not a factor at all during exercise.

Maltodextrin after exercise? Absolutely!

Dr. Erik A. Richter writes, “Following exercise there is a need for refilling the fuel depots mobilized during exercise, particularly the glycogen stores in muscle. This process is facilitated by an increase in insulin sensitivity of the muscles previously engaged in physical activity which directs glucose to glycogen resynthesis.” Maltodextrin's high GI and its ability to deliver more

calories to the body compared to simple sugars makes it the ideal ASAP post-exercise carbohydrate. **Recoverite** and **Organic Vegan Recoverite** are PERFECT fuels for maximizing recovery.

One not-so-small thing

If you have not yet read Dr. Bayne French's outstanding two-part article on uric acid, I highly recommend you do so:

Part One



Part Two



The reason I bring this up is because so many energy gels and drinks are comprised of fructose. The article “Fructose—The Worst of the Worst” (<https://hammernutrition.com/blogs/endurance-news-weekly/fructose-the-worst-of-the-worst>) discusses why this simple sugar is the poorest carbohydrate source of them all. And guess what? Fructose—not maltodextrin, but fructose—is one of the chief culprits for uric acid production and, in the words of Dr. French, “its caldron of metabolic and performance-suffering effects.”

SUMMARY

Maltodextrin will never get “awesome for overall health so consume it all the time” status; it's not a perfect carbohydrate... nothing is. But it is, without question, the superior form of carbohydrate to consume during exercise and immediately after—far better than any simple sugar, especially fructose. When you limit maltodextrin consumption to those times only, you will NOT experience any issues at all, but you WILL enjoy superior endurance and recovery. We've been guaranteeing this for 36 years and we will keep guaranteeing it! **EN**

SHAKE THINGS UP and TRY IT OUT!

Immediately you'll notice a cleaner flavor profile without the corn aftertaste, and improved energy from this superior source of carbohydrates!

ADVANTAGES of tapioca-derived maltodextrin versus corn-derived include:

- 50% less naturally occurring sugars
- Tapioca far less processed than corn
- No GMO content
- Lower amounts of sodium and higher amounts of naturally-occurring potassium
- Less acidic, more-alkaline pH (very desirable!)
- Lower Dextrose Equivalent (DE), which means lower mono and disaccharide content, with a much higher polysaccharide content (a more "complex" complex carb) for even longer-lasting energy and endurance.
- The same Glycemic Index (GI) as other forms of maltodextrin, so you get the fast-acting energy you're looking for

My policy is simple: Any time I can improve a product, I will. - and so I did.

- Brian Frank

Read more about why Tapioca is Tops! on page 22, and get details about maltodextrin on page 20.

TRY ALL YOUR FAVES IN THEIR NEW 2.0 FORMULAS TODAY!



TALKING ABOUT 2.0

All your fueling favorites
NOW EVEN BETTER
Made with Tapioca



Riders take a break at the Cactus Cup. Photo: Lets Wander Photography

While exercising, do you prefer to drink plain water or a flavored drink? Determining which camp you fall into and taking that into account when devising fueling plans for multi-hour exercise can mean the difference between success and failure. Surprisingly, it's a question that many athletes have never really pondered when developing a fueling plan for a long, hot, and or logistically challenging event. This article and accompanying video will help you decide which paradigm fits you best and how to apply that to your fueling practices. Once you've determined your innate preference in this area, you can use fuels and products that suit you.

For this discussion, let's be clear that neither style is better; it's just a case of determining your preference.

The exception is when logistics override your natural inclination, i.e., you are in a self-supported situation and need to carry as many calories in as little space/weight as possible. In this case, having concentrated calories and picking up water as you go will be necessary, if not preferred.

Personally, I'm a water drinker.

Absent the need for calories, I always prefer to drink plain water, especially in extreme heat conditions. However, when helping athletes with their fueling plans, nearly 50% say they would rather have some flavor/taste in their bottle to encourage them to stay hydrated. Conversely, they tend to be averse to drinking plain water, especially when it's warm out. These athletes typically have trouble with multi-hour concentrated fuel mixtures, such as gel, because they tend to also go for flavored drinks rather than water. This can lead to over-consuming calories and other misses on fluids and electrolytes.

The General Idea

Water drinkers naturally prefer to have concentrated sources of calories and electrolytes, thus allowing them to drink water to meet their hydration needs. Drink drinkers prefer all-in-one or nearly all-in-one fueling systems with the desired amount of water, calories, and electrolytes in one solution/bottle. Below are examples of how each type can fuel.

Water

VS.

Drink Drinkers

by BRIAN FRANK



Ashton Harrison takes a break to top up with HEED before heading back out.

Water Drinkers

For exercise lasting one to two hours, I carry a flask of **Hammer Gel**[®], a bottle of water, and a capsule dispenser with **Endurolytes**[®], consuming each separately while riding. For longer rides, I add a multi-hour bottle of **Perpetuem**[®] (1.5 scoops per hour of expected exercise) and still carry a flask of Hammer Gel for variety and added calories if needed. Refill water bottles with water along the way. This system works really well for me and anyone who prefers water. **HEED**[®] and **Fizz** are products I do not use. Depending on temperatures, this allows me to drink 12-24 ounces per hour of plain water while still getting all the calories and electrolytes I need. However, this scenario would be problematic and unsustainable for someone who does not prefer to drink plain water.

Drink Drinkers


The drink drinkers' fueling protocol for exercise lasting for one hour or more hours usually involves "hourly" bottles that can be prepared in various ways. It can be as simple as 1 to 1.5 scoops of **HEED** per hour in mild conditions. 1-2 servings of Hammer Gel can also be mixed into a bottle instead of **HEED**. If heat stress is very high, 1-2 scoops of **Endurolytes Extreme Powder** can be added every hour or two. This keeps things simple in an all-in-one package.

When exercising beyond two to three hours, the hourly bottle options increase with **Perpetuem** and **Sustained Energy** as additional calorie sources, which can also be mixed into identical or different "hourly" bottles, depending on preference and logistics. This fueling format also requires



forethought in determining approximately how many total calories per hour, ounces/ml of fluids, and electrolytes you'll want hourly and mixing that all into one bottle.

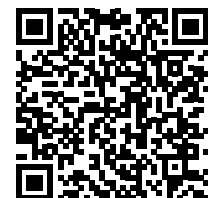
Hourly bottles can be a bit more complicated logistically. Still, they are necessary to keep you drinking the proper amount of fluid and simultaneously getting the calories/electrolytes you need. For more prolonged efforts, preparing "hourly" fuel bags with dry powder that can be carried and mixed along the way may also be necessary. Also, it's a good idea to have some extra electrolytes, just in case.

Hopefully, this article will give you the occasion to decide whether you are a "water drinker" or a "drink drinker." Of course, if you are unsure, call us; one of my staff or I will be happy to discuss it with you further. 

Learn more about proper hydration in our SOS online video series.

WATCH HERE

hammernutrition.com



Chris Hammer warms up for a "triple brick" workout (3x bike-run) at the Arizona State University track. Photo courtesy of Chris Hammer.



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"I have used **Tissue Rejuvenator** for years and believe it to be a big part of my speedy recoveries. At 76 years old, I'm still cycling over 100 miles a week. **Thank you Hammer!**" - Online reviewer

