
HAMMER NUTRITION®

# 5 SECRETS OF SUCCESS

***Fuel Right, Feel Great!*** ® Guaranteed since 1987!

# SOS

5 Secrets of Success for Endurance Fueling

## 1 Pre-Exercise Fueling

When and how much to eat before exercise.

**Page 4**

## 2 Calories Count

What and how much you consume during exercise can make the difference between a PR and a DNF.

**Page 8**


This book distills the knowledge we have gained over three decades of helping athletes successfully fuel for every endurance endeavor imaginable. You name it, we've done it, or helped other athletes do it. By following the guidelines revealed in this book, you too will accomplish your goals and become the best you can be.

Informed by rigorous science and proven in use, our methods and products are the surest path to optimal performance and health. We are so passionate about helping our clients that we literally wrote the book on it! We're pleased to say that more and more "experts" now sing our tune and champion our philosophy.

This book, like all our educational resources, is offered to all free of charge. If you have additional questions, please consult our website–or, better yet, call to speak with an expert client advisor. We're here to serve you!

Brian Frank

Brian Frank, Owner

products • knowledge • service
100% Satisfaction GUARANTEED SINCE 1987

**ON THE COVER:** Hammer Nutrition Hungary ambassador **Sára Nagy** enjoys the view from the top of Germany's tallest mountain, Zugspitze, while training for the Zugspitze Ultratrail.

Our Philosophy:

# LESS IS BEST

FOR SUCCESSFUL FUELING, LESS IS BEST!

## Our Recommendations

| | |
|---|---|
| **Calories per hour:** | 120 to 180 calories |
| **Fluids per hour:** | 20 to 25 oz |
| **Electrolytes per hour:** | 1 to 6 Endurolytes®, or<br>1 to 2 Endurolytes Extreme, or<br>1 to 2 scoops Endurolytes Extreme Powder, or<br>1 to 2 tablets Endurolytes Fizz |

Hammer Nutrition has advocated the "less is best" approach for more than 30 years. Proper fueling is achieved by consuming the least amount necessary to keep you feeling your best, hour after hour. This philosophy guides all our fueling recommendations.

What makes us so sure we're right? Beyond a wealth of scientific research, over 30 years of working with thousands of athletes has proven it! Follow this approach and you, too, will reach your fullest athletic potential, recover well, and feel great every day.

# 1 PRE-EXERCISE FUELING

WHEN AND HOW MUCH TO EAT BEFORE EXERCISE

## Our Recommendations

Three hours before exercise, complete your meal of 300 to 500 calories of low-fiber, easy-to-digest complex carbs and a small amount of protein.

30 minutes before, consume one serving of **Fully Charged** in 4 to 8 oz of water.

Want to "top up" right before you start? Consume a serving of **Hammer Gel®** 10 minutes prior to beginning your activity.

### OBSERVE THE THREE-HOUR RULE!

The timing of your pre-exercise meal is critical. Be sure to complete your meal no less than three hours before your workout or race, regardless of your event's duration. (That means the fork or spoon is down at 6 a.m. if your event starts at 9 a.m.) Three hours allows your body to fully process the meal and avoid intestinal distress. You'll feel "light on your feet" as your body devotes all blood and oxygen to your physical efforts rather than digesting your meal.

Eating within three hours of endurance exercise also raises blood sugar, which can seriously hamper performance. It reduces the body's ability to burn fat as fuel. A meal during this time will lead your body to burn through its limited reserves of stored carbohydrates (muscle glycogen) more quickly.

This combination of rapid glycogen depletion and decreased fat burning reduces endurance and performance. Though it may sound counterintuitive, the science is clear: for optimal performance, abstain from eating for three hours prior to your start time.

## PRE-EXERCISE MEAL

Consume 300 to 500 calories of mostly low-fiber, easy-to-digest complex carbohydrates and a small amount of protein.

The purpose of your pre-exercise meal is to top off the liver glycogen stores your body expends during sleep. Muscle glycogen, which constitutes about 80% of your total carbohydrate stores, remains intact overnight, so if you had a proper recovery meal after your last workout, your muscle glycogen will already be full. Since you only need to top off your liver-stored glycogen, a light meal of 300 to 500 calories is sufficient.

## BOTTOM LINE

Adopt and consistently follow these pre-exercise fueling recommendations and watch your performance soar! Properly timing your caloric intake before every activity will ensure you get the most out of your time, no matter your goals, intensity, or duration of exercise.

After 30 years offering this advice, we have yet to hear from a single person that it did not work. Apply this approach consistently and watch how well your body responds.

# HAMMER Quick Tips

## SECRET #1

Don't "carbo-cram" the night before. Real "carbo-loading" is achieved through proper recovery, day in and day out.

For dinner, eat light and clean. That means no refined sugar, saturated fats, or alcohol. Eat until you're satisfied and call it a night.

Sleep. Eat. Time your fuel before your start and enjoy a steady output all day.

If you must eat, consume Hammer Gel® within 10 minutes of starting.

# EXAMPLE RACE DAY PROTOCOL

If your event starts at 8:00 AM:

## 6:00 PM
### NIGHT BEFORE

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

## 5:00 AM
### 3 HRS BEFORE

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

## 7:30 AM
### 30 MIN BEFORE

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


## 7:50 AM
### 10 MIN BEFORE

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


## 8:00 AM
### HAMMER TIME!


**Sarah Carlson** smiles while prepping for a trail run in Whitefish, MT.

# START OFF RIGHT

# 2 CALORIES COUNT

WHAT AND HOW MUCH YOU CONSUME DURING EXERCISE CAN BE THE DIFFERENCE BETWEEN CRUSHING IT AND BEING CRUSHED

## Our Recommendations

Consume 120 to 180 calories per hour of activity.

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

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

As with every aspect of performance, proper nutrition requires planning and practice if you want to reap the benefits on race day. Here's the inside track on successfully fueling all your activities.

### CARBOHYDRATES

Athletes know "carbs are king" when it comes to fueling for endurance exercise. But you can't consume just any carbohydrate at any time. Here's what works:

**Complex carbohydrates offer steady, usable energy without stomach distress.**

Products containing simple sugars—typically sucrose, fructose, and/or glucose (dextrose)—must be extremely diluted (a 6 to 8% solution in water) to be digested. This solution is too weak to meet the caloric needs presented by endurance exercise. But, increasing the solution will cause the sugars to sit in the gut as fluids are recruited from elsewhere in the body. This "osmotic pressure" increases rates of dehydration and electrolyte depletion and often causes severe GI issues.

In contrast, complex carbohydrates (such as those found in HEED® and Hammer Gel®) can be efficiently digested at solution concentrations of up to 18%. You can therefore absorb sufficient calories to fuel your exercise hour after hour, without overconsuming fluids or causing digestive distress.

## FAST ENERGY WITHOUT THE CRASH

The complex carbohydrate source in Hammer Nutrition's fuels is maltodextrin. This easily absorbed starch elevates blood sugar rapidly for the quick energy you need during exercise. However, the body takes longer to break down the molecular structure of complex carbohydrates like maltodextrin, keeping blood sugar levels stable over time. While sugars spike insulin levels and then quickly drop them–leading to "peaks and valleys" of energy–complex carbohydrates raise blood insulin just as effectively, but without the corresponding "crash." Your energy will be stable and reliable, no matter the distance.

## AVOID MULTIPLE CARBOHYDRATE SOURCES DURING EXERCISE

Some sports fuels contain a mix of simple sugars and complex carbohydrates. However, like simple sugar alone, these blends are only absorbable at either very low solutions or exceedingly low heart rates (like when taking a brisk walk). If you want steady energy while pushing the pace, steer clear of simple sugars, regardless of what they're mixed with.



# HAMMER Quick Tips

## SECRET #2


Replenishing calories during exercise in amounts of 120 to 180 calories per hour supports efficient energy production. Plus, this won't interfere with your body's use of fatty acids for fuel.

During efforts of two hours or longer, about 5 -15% of calories used will come from protein, whether from fuel or muscles.

Plant proteins are preferred for use during exercise because their metabolization doesn't produce ammonia, which is a big factor in creating fatigue.


For two- to three-hour events or high-intensity workouts, a "carb-only" fuel may be more beneficial than a carb/protein fuel.

## FATTY ACIDS

Even the leanest athletes have vast stores of caloric reserves in the form of body fat, with larger athletes' bodies holding upwards of 100,000 calories of expendable energy. When exercise goes beyond two hours, these fatty acids should be the body's primary fuel, providing approximately 60 to 65% of your energy needs. However, when you consume too many calories, your body switches gears the use the food you've eaten and your carbohydrate reserves instead. In order to support your body's natural ability to efficiently access energy stores from fat, consume just enough calories to feel your best during exercise (no more than about 180 calories per hour).

## PROTEIN

For activities lasting longer than 90 to 120 minutes, 5 - 15% of your calorie expenditure will come from protein. If your fuel doesn't supply protein, your body will scavenge it from muscle tissue, causing muscle fatigue and breakdown, post-exercise soreness, and a weakened immune system.

To avoid this muscle cannibalization, your fuel should incorporate protein in a ratio of about 8:1 (by weight) of carbs to protein. Sustained Energy, Perpetuem®, and Perpetuem Solids meet this requirement and are your best fuel choices for long-duration exercise. For these sessions, use a fuel containing protein from the get-go.


**Michael Desa** of the Hammer-sponsored Team Fremont leads the pack during the Snelling Road Race. Photo: Katie Miu





## THE GRAY AREA: 2-3 HOURS

During “gray area” workouts and races—those over 2 hours and up to 3 hours or slightly longer—the issues involving ammonia will be very minimal because you'll have completed your workout or race before they truly become problematic. That’s why you can use either a “carb + protein” fuel or a “carb only” fuel . . . whichever you find works best for you. The longer you go, however, the more problematic the ammonia issues will be, which is why your primary fuel should contain both carbs and protein for any exercise longer than three hours.

# FUELING

120 to 180 cal/hr

## FACT:

During athletic activity, your body can't process calories to match what it expends. If you want to achieve your best performance, **DO NOT** follow the "calories out, calories in" protocol recommended by some "experts."

## HEED®
## Hammer Gel®
## Perpetuem®

- **Rock-solid sustained energy**
- **No sugar crash**
- **Buffers lactic acid**
- **High-glycemic-index (GI) complex carbs**

These three fuels will fuel your exercise hour after hour, without overconsumption of fluids or digestive distress.


**Steven Terry** runs the 50K race at the North Face Endurance Challenge Series in San Francisco. Fueled by his favorite Hammer products, Steven podiumed in his age group.
Photo courtesy of North Face


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# 3 PROPER HYDRATION

WHAT YOU NEED TO KNOW TO STAY IN THE FLOW

## Our Recommendations

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

| | |
|---|---|
| **Average athletes or average temps:** | 20 - 25 oz of fluids per hour (approx. 590 - 740 ml) |
| **Lighter athletes or cooler temps:** | 16 - 18 oz of fluids per hour (approx. 473 - 532 ml) |
| **Heavier athletes or hotter temps:** | up to 28 oz of fluids per hour (approx. 830 ml) |

Water is the most critical component in exercise fueling. It cools your body, transports nutrients, and allows healthy cellular functioning and energy release. But many athletes have trouble gauging how much fluid to drink. Many attempt to replace fluids at the same rate they're lost through sweat. While this may seem sensible, in truth it is a recipe for disaster.

The fact is you can finish an activity of any length with a water weight loss of 2% without suffering any performance declines or health impacts. So forget the advice to "drink to replace."

Instead, abide by the following principle:

**Your body cannot absorb fluids at the same rate it loses them.**

On average, you lose about one liter, about 34 oz, of fluid per hour during exercise—and even more in extreme heat or humidity.

**Research has shown the optimal average water intake to be one water bottle (20 - 25 oz) per hour.**

The goal with hydration, like caloric consumption, is to consume an amount your body can process without causing additional side effects. Research by Dr. Tim Noakes, who collected data for ten years from some 10,000 ultra runners, shows that most endurance athletes can efficiently absorb 16 to 24 fluid oz per hour and that

consuming more than this does not improve performance. In fact, overconsumption can have grave consequences. When blood sodium concentrations become too low, performance immediately declines.

In severe cases, excessive fluid intake can overwhelm the body's levels of electrolytes, leading to water intoxication or dilutional hyponatremia, which can be fatal.

## GOOD HYDRATION STARTS BEFORE YOU EVEN GET MOVING

### BOTTOM LINE

By hydrating properly (taking in 20 - 25 oz of fluids per hour), you'll attain peak performance with less fatigue, bloating, and cramping. You'll feel better before, during, and after you exercise.


## HAMMER Quick Tips

### SECRET #3

- Hydrate effectively all day, every day.
- During exercise, practice measured fluid consumption, adjusting intake to match temperature and sweat rate.
- Do not attempt to replace the fluids you lose with an equal amount.
- Don't try to super-hydrate prior to exercise.


# DAILY HYDRATION

## FOUNDATION FOR SUCCESS

To meet daily hydration needs outside of exercise, aim to take in 0.5 to 0.6 fluid oz of pure, clean water per pound of body weight. This amount is in addition to the fluids you take in during activity.

| BODY WEIGHT | WATER CONSUMPTION |
|---|---|
| 100 lbs | 50 to 60 oz |
| 110 lbs | 55 to 66 oz |
| 120 lbs | 60 to 72 oz |
| 130 lbs | 65 to 78 oz |
| 140 lbs | 70 to 84 oz |
| 150 lbs | 75 to 90 oz |
| 160 lbs | 80 to 96 oz |
| 170 lbs | 85 to 102 oz |
| 180 lbs | 90 to 108 oz |
| 190 lbs | 95 to 114 oz |

**Ryan Ingham** runs the Javelina Jundred 100 mile race in Scottsdale, AZ. Ryan fueled his run with Anti-Fatigue Caps, Endurance BCAA+, Hammer Gel, Endurolytes, Sustained Energy, Recoverite, and Tissue Rejuvenator. Photo: Kris Przeor

# KEEP THE FLUIDS FLOWING

# 4 ELECTROLYTE REPLENISHMENT

RESUPPLY THESE VITAL MINERALS TO FINISH STRONG

## Our Recommendations

To keep your body functioning smoothly through a long workout or race, replenish the full spectrum of electrolytes consistently and completely.

*Note: Extreme conditions may warrant higher levels of electrolyte replenishment. Use the tear sheet on page 31 to plan your intake.*

Electrolytes are like the motor oil in your car: they don't make the engine run, but they're absolutely necessary to keep everything operating smoothly. Just as you wouldn't wait for your engine to seize before you top off the oil, don't wait to cramp up before you replenish electrolytes. Long before you cramp, your output will suffer from mineral depletion.

### ELECTROLYTES 101

The goal of electrolyte replenishment is smooth, uninterrupted, uncompromised performance. Without the proper levels of electrolytes, your body can't carry out critical body functions such as muscle contractions, normal heart rhythms, and nerve impulses, all of which are critical for performance and health.

### SALT TABLETS ARE 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 many types of electrolytes.

Your body has very effective mechanisms for monitoring and conserving its stores of sodium. Consuming excessive amounts of sodium interferes with this natural process. If your body detects a drastic increase in sodium from outside sources (salty food or electrolyte products too high in sodium), your body will

stop filtering and recirculating sodium and instead begin purging the excess. The immediate results of this are swelling and elevated blood pressure, with extreme cases resulting in lethargy, muscle weakness, seizures, and even death.

## SKIP THE SALTY FOODS

A similar process occurs if your diet routinely includes high levels of sodium. Consistently consuming excess sodium encourages the body to routinely dump sodium. If you're consuming more than 2,300 milligrams per day, sodium loss during activity will be increased, increasing your risk of cramping and the need for electrolyte supplementation.

By building your diet around natural, unprocessed foods, you will consume sufficient sodium without interrupting your body's natural regulatory processes. The average person stores 8,000 milligrams of dietary sodium in body tissues. Reducing sodium in your diet and replenishing sodium levels during exercise with the minimum amount necessary will enable your system to make the best use of your stores. Attempting to "sodium load" prior to activity triggers your body to rapidly dump it during exercise, perpetuating a cycle of high-sodium consumption and expenditure.


# HAMMER Quick Tips

## SECRET #4

Electrolyte replenishment is important regardless of outside temperatures.

The body only needs 500 - 2,300 milligrams of sodium a day, an amount easily supplied with natural, unprocessed foods.

Intake of high levels of sodium leads to increased sodium loss during exercise, which leads to more required sodium later on.

Adding **Endurolytes®**, **Fizz**, or **HEED®** to your water bottle is an easy way to help replenish electrolytes consistently throughout your workout or race.

## FULL-SPECTRUM ELECTROLYTE REPLENISHMENT

Proper electrolyte replenishment requires a consistent approach that properly balances all the necessary minerals—not just "salt."

Endurolytes are designed to meet your body's complete electrolyte requirements, which include sodium, chloride, potassium, magnesium, calcium, and manganese. These minerals help counter the effects of overheating, optimize bodily functions, and enhance performance, especially for activities that last longer than two hours.

We don't formulate Endurolytes to reflect the amount of electrolytes lost through exercise. As sweat loss varies greatly from person to person and depends on climate, there is no "one size fits all" approach to replenishment. It is essential that you correlate your dosing to dietary habits, the climate, and active temperatures.

When selecting your dosage, it is important to remember that the human body can assimilate only about 1/3 of the electrolytes it loses during exercise. Trying to replace more than this could cause gastric distress, edema, muscle spasms, cramping, and a host of other performance-wrecking symptoms.

Hammer's Endurolytes products help your body maintain proper electrolyte levels regardless of conditions or duration of exercise. They allow your body to perform better, especially in heat, by providing a full range of minerals in a proper balance that helps the body's normal control systems perform.

## BOTTOM LINE

Salty Foods and salt tablets won't cut it when it comes to electrolyte replenishment. Instead, adopt a low-sodium approach in your daily diet with mineral-rich whole foods. During exercise, provide your body with comprehensive electrolyte support without compromising internal regulation.

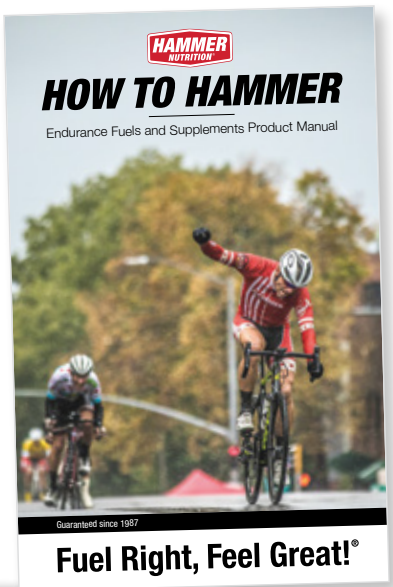
**Jeff Shehan** trains on the trails of Herron Park, Whitefish, MT.

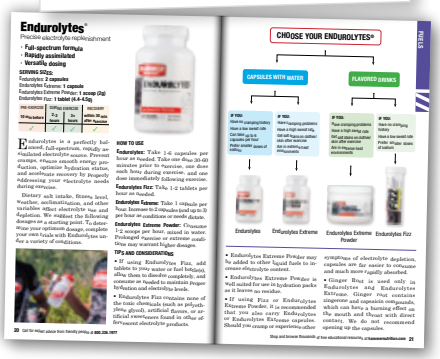
**Chris Schmitt** competes in the Hammer-sponsored Nacho Stand Classic 3/6 hour Endurance MTB race. Photo: Wingfoot Photos

# ESSENTIAL KNOWLEDGE

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

**GET YOUR FREE COPY TODAY!**
**hammernutrition.com/how-to-hammer**



# COMPLETE
## Electrolyte Support

Salt tablets provide only two of the electrolytes your body requires. Endurolytes® provide the full spectrum, with complementary micronutrients. Precisely formulated without excess salt, refined sugars, or artificial ingredients, our full-spectrum electrolyte products support peak performance in the toughest conditions.

**Calcium:** Necessary for normal heart rhythm, healthy nerve transmission, and strong muscle contractions. During exercise, calcium-dependent enzymes produce energy from fatty acid and amino acid conversion.

**Chloride:** Critical for maintaining a proper balance and consistency of body fluids and electrolytes.

**Manganese:** Trace amounts help convert fatty acids and protein into energy.

**Sodium:** The average athlete already has a vast store of available sodium, so consuming excess amounts can cause serious problems. **Endurolytes** contain moderate amounts of sodium for proper replenishment.

**Magnesium:** Required for many of the enzymatic reactions for converting fuel to muscle energy.

**Potassium:** Needed for optimal concentrations of sodium.


**Cameron Kruse** sets up camp while on an expedition in Nepal for National Geographic. Cameron and his crew fueled the trip with Hammer Nutrition fuels and supplements. Photo: Corey Robinson

## ORIGINAL ENDUROLYTES® CAPSULES

Ideal for athletes consuming a low-sodium diet. Introduced in 1996, this full-spectrum, proportionally balanced electrolyte supplement provides 100 milligrams of sodium chloride. Depending on heat stress levels, 1 to 6 capsules per hour are recommended.

## ENDUROLYTES® FIZZ

Equal to approximately two capsules of **Endurolytes**, this product is for athletes who are unable to consume capsules while exercising and/or those who prefer flavor in their water.

## ENDUROLYTES® EXTREME CAPSULES

Triple the sodium, chloride, and potassium compared to original Hammer Nutrition Endurolytes, **Endurolytes Extreme** allows for a 3:1 reduction in the number of capsules consumed. For athletes who tend to consume a high-sodium diet (evidenced by salt stains on clothing and skin).

## ENDUROLYTES® EXTREME POWDER

All the benefits of our best-selling Endurolytes Extreme capsules in an easy-to-mix powder. This formula dissolves quickly and completely, with a subtle, natural watermelon flavor. With three times the sodium chloride and potassium, and a softer flavor profile than Fizz, this is the perfect solution for multi-hour bottles of fuel, those who dislike consuming capsules, and those whose electrolyte needs are high.

## HEED®

Hammer Nutrition's complex carbohydrate-powdered sports drink contains the same full-spectrum electrolyte profile as **Endurolytes**. Some athletes find that a scoop or two of **HEED** in their water bottle will keep them going strong for an hour or more. Others satisfy their complete electrolyte needs by consuming both **HEED** (an excellent base) and **Endurolytes** products.


A Hammer rider navigates the trails at Montana Enduro Series in Grand Targhee. Photo: Jason O'Neil

# 5 RECOVERY DONE RIGHT

FOR A BETTER PERFORMANCE TOMORROW, RECOVER RIGHT TODAY!

## Our Recommendations

Within 30 minutes after your finish, consume:

- 20 to 30 oz of water
- 30 to 60 grams of high-glycemic carbohydrates
- 10 to 20 grams of protein (preferably whey isolate)
- Complementary amino acids, micronutrients, and broad-spectrum CBD

Recovery involves rehydration, nutrient replenishment, and long-term mineral fortification.

### REHYDRATION

Rehydrate immediately following your exercise session and continue throughout the day. Consume at least 16 oz of water immediately following exercise and continue based on temperature, sweat rate, and thirst. You should consume at least 16 oz of water per pound of body weight lost during a strenuous session.

### MACRONUTRIENT REQUIREMENTS

The recovery process relies on two essential macronutrients: carbohydrates and protein. Consuming carbohydrates after exercise will replenish glycogen (carbs stored in muscles) and help your body assimilate protein.

Several studies have shown that pre-exercise muscle glycogen level is the most important determinant of energy use and exercise performance. Athletes who have more of this readily available fuel in their bodies have a significant advantage.

Fortunately, you can substantially increase your glycogen storage capacity through consistent recovery practices. To maximize glycogen storage and usage, always consume carbohydrates within 30 minutes of finishing your session.

### CHOOSE HIGH-GLYCEMIC COMPLEX CARBOHYDRATES

A high-glycemic complex carbohydrate is ideal because it raises levels of insulin in the blood. This is desirable after exercise as insulin drives the

storage of glycogen, stimulates protein synthesis for repairing and rebuilding muscles, and decreases muscle breakdown. Though simple sugars will also spike insulin levels, those levels rapidly drop again, leading to decreased energy for the rest of the day. Given simple sugar's inflammatory nature and propensity to cause stomach distress, it is a poor choice for recovery. Instead, choose high-quality complex carbs such as those found in Recoverite®.

## PROTEIN

Protein provides the raw materials your body needs to rebuild stressed muscles, enhance glycogen storage, and support the immune system. Whey protein isolate is the best protein choice for recovery.

Whey has the highest biological value (BV) of all proteins. BV is a measure of how well and how quickly your body uses the protein that you consume.

Whey protein isolate, the purest form of whey protein, has the highest BV of any known source at 154. Many other recovery products use less-absorbative whey protein concentrates which include production by-products, fat, and lactose. Hammer Whey Protein and Recoverite use the purest whey protein isolate on the market. It is 90 to 97% protein, derived from US-raised grass-fed cattle, and virtually free of fat and lactose.

# HAMMER Quick Tips

## SECRET #5

Consuming 30 to 60 grams of high-quality, complex carbohydrates immediately after exercise to restore glycogen.

Whey protein isolate (not concentrate) is virtually free of lactose and fat and is the best protein for recovery.

Using a 3:1 carbohydrate-to-protein ratio (such as found in **Recoverite®**) decreases muscle soreness.

A full-spectrum supplement like **Premium Insurance Caps** replenishes vitamins and minerals lost during exercise.

## SUPERIOR MUSCLE REPAIR

Compared to other sources, whey protein isolate is a superior source of branched-chain amino acids, including those most crucial to the muscle tissue repair process: leucine, isoleucine, and valine.

## IMMUNE SYSTEM SUPPORT

Whey protein contains excellent levels of the amino acids associated with immune system health. Poor protein status and chronic muscle breakdown lead to a decline in immune system health and eventually to many of the sicknesses and ailments associated with over-training.


Local OCR-phenom **Camry Penrod** mixes up some Recoverite after a training run in Northwest Montana.

## MICRO-ESSENTIALS

Research has revealed recovery benefits from the consumption of other key antioxidants and amino acids. While many nutrients will enhance recovery, we consider the following to be truly essential:

### L-GLUTAMINE

Preserves and rebuilds lean tissue, boosts the body's natural immune defenses, and aids gastrointestinal health.

### L-CARNOSINE

Offers antioxidant support. This nutrient neutralizes all forms of free radicals, thus helping to remove the "waste products" left behind after your workout. It also serves to protect body proteins.

### CHROMIUM POLYNICOTINATE

Boosts glycogen synthesis, thus improving your use of post-workout carbohydrates. Studies suggest that athletes who consume chromium along with ample carbohydrates can experience a 300% increase in glycogen synthesis.

# MAKE RECOVERITE®
## PART OF YOUR POST-WORKOUT ROUTINE

### THE PERFECT RECOVERY TOOL

Recoverite supplies everything your body needs to jump-start the recovery process. It offers easily assimilated complex carbohydrates from maltodextrin, and premium protein from whey protein isolate in the 3:1 ratio scientifically proven to speed recovery times. With all the essential nutrients as well as a full-spectrum blend of electrolytes, Recoverite is truly the perfect tool for the job.

If you want to feel your best, maximize your gains, and make the most of your time, recovery must be a priority in your training. Putting an emphasis on properly refueling when your body is at its most receptive — immediately following exercise— will help restore your body's premium fuel (glycogen), rebuild muscle, and strengthen your immune system.

Make Recoverite part of your post-workout routine. To further maximize recovery, consider Hammer Nutrition's line of supplements. Premium Insurance Caps, Race Caps Supreme, and our other high-potency nutritional supplements are 100% guaranteed to improve your health, recovery, and performance.


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

## BROAD-SPECTRUM CBD

Research continues to reveal bountiful benefits provided from the wide range of cannabinoids and terpenes found in the hemp plant. Topically applied Hammer CBD Balm will be especially beneficial for those particularly achy muscles and joints. Hammer CBD softgels or tincture will also help alleviate soreness and aches, which helps protect the muscle cells so that they can repair and grow without interference or delay. The broad-spectrum cannabinoids and terpenes found in Hammer CBD products also help the muscles relax, which helps relieve tension and minimizes delayed onset muscle soreness (DOMS). Perhaps the greatest benefit that regular use of Hammer CBD products provides is to enhance sleep quality and duration, both of which are vital for maximizing recovery from exercise and for overall health, especially in regards to repairing damaged proteins, removing cellular debris, stimulating muscle fiber and tissue growth, and optimizing immune system function.

## BOTTOM LINE

Get the most out of your training by giving as much attention to recovery as you do to training. Within 30 minutes of exercise, consume adequate complex carbohydrates, whey protein isolate, and antioxidants.

# RECOVERY MATTERS. DO IT RIGHT!


*(above)* **Mercedes Seigle-Gather** celebrates with Recoverite after finishing the 50-mile race at The North Face Endurance Challenge Wisconsin. Photo courtesy of The North Face.

*(below)* **Cameron Sanders** leads a winter bike trip across the frozen landscapes of Knik Glacier in Alaska. Cameron and his crew rely on Hammer to fuel them as they bikepack across the Alaska wilderness. Photo: @renaissance.cyclist

# SOS 5 SECRETS OF SUCCESS FOR ENDURANCE FUELING

Our Philosophy:

## LESS IS BEST

FOR SUCCESSFUL FUELING, LESS IS BEST!

### 1 Pre-Exercise Fueling

Consume a 300 - 500 calorie meal 3 hours before exercise, then take one Fully Charged serving 30 minutes before, and "top off" with a Hammer Gel 10 minutes before you start.

### 2 Calories Count

Consume 120 - 180 calories per hour of activity, using complex carbohydrates like maltodextrin instead of simple sugars.

### 3 Proper Hydration

Hydrate properly by taking in 20 - 25 oz of water per hour. Practice measuring fluid consumption during exercise.

### 4 Electrolyte Replenishment

Avoid salt tablets and use Endurolytes to replenish your body with the full spectrum of electrolytes.

### 5 Recovery Done Right

Within 30 minutes of finishing your workout or event, consume water, high-glycemic carbohydrates, whey protein isolate, and antioxidants.

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**ON THE BACK COVER: Mindy Przeor** hammering through the Grand Canyon in record-breaking heat (95°F at the top, 115°F at the bottom). Hammer kept Mindy and her husband, Kris, hydrated and fueled correctly so they could adventure safely. Photo: Kris Przeor

**Gabrielle Suver** trains to maintain her status as one fo the highest-ranked duathletes in the US. Photo: Gregory Vazquez

**Alex Aguirre** rounds a corner at the Vail Lake MTB Series. Alex battled through the muddy course fueled exclusively on Hammer. Photo: Erick Gonzalez

# FUELING CHECKLIST

**Use the 5 secrets and put your plan into action.**

Fill this in, tear it out, and be prepared for amazing results!

## PRE-EXERCISE:

- ❑ 3 hours prior: eat 300 - 500 easily digestible calories
- ❑ 10 - 30 minutes prior: 1 serving **Fully Charged**
- ❑ other supplements as needed _____
- ❑ 5 - 10 minutes prior: 1 serving **Hammer Gel®**

## DURING:

**Endurolytes®:** electrolyte dosage varies by individual needs

- ❑ **Endurolytes®** _____ capsules/hour
- ❑ **Endurolytes® Extreme** _____ capsules/hour
- ❑ **Endurolytes® Extreme Powder** _____ grams/hour (2 grams per scoop)
- ❑ **Endurolytes® Fizz** _____ tablets/hour

**Caloric Fulfillment:** 120 - 180 calories/hour

- ❑ **Hammer Gel®** _____ servings/hour (90 calories per serving)
- ❑ **HEED®** _____ scoops/hour (110 calories per scoop)
- ❑ **Perpetuem®** _____ scoops/hour (135 calories per scoop)
- ❑ **Perpetuem® Solids** _____ solids/hour (100 calories per 3 tablets)
- ❑ **Sustained Energy** _____ scoops/hour (107 calories per scoop)
- ❑ **Hammer Bars®** _____ bars/hour (170 - 250 calories per bar)

## RECOVERY:

- ❑ **Tissue Rejuvenator**
- ❑ **Recoverite®**: 2 scoops in 4 - 8 oz water within 30 minutes of exercise
- ❑ **Endurolytes®**
- ❑ **Premium Insurance Caps**
- ❑ **Broad-Spectrum CBD**

Notes: _____

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For a complete guide to fueling, refer to Hammer's product usage manual, *How to Hammer* at **hammernutrition.com/how-to-hammer** or talk to an expert at **800.336.1977.**



# THE SECRETS TO YOUR SUCCESS

This handy guide distills the knowledge we've gained through nearly three decades of rigorous research and field testing. Put these principles to work, and you will succeed—we guarantee it!

- **Powerful recommendations for fueling and recovery**
- **Practical, time-tested advice**
- **Clear, concise information for peak performance**

1. **Pre-Exercise Fueling**
2. **Calories Count**
3. **Proper Hydration**
4. **Electrolyte Replenishment**
5. **Recovery Done Right**

**"Following these guidelines will give you every opportunity to race to your potential."**

*"Great source of information! This is the perfect guide for how and when to use the full array of Hammer Nutrition's endurance fuels. As an IRONMAN athlete, having a proper fueling strategy can mean the difference between getting a Kona slot and getting a DNF. Use the **Fueling Checklist** before every race and you don't have to worry about getting it right." - Online Reviewer*

HAMMER NUTRITION®

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