STUDIO 7 MULTI SPORT

# Coach-Athlete Q&A

**A look at some coach-replies to common questions by topic.**

# Fueling Strategies For Triathletes
# PRE-RACE & RACE DAY

In the previous articles, I suggested a supplement and fueling protocol for use during training. This article covers fueling requirements prior to and during a triathlon. Hopefully, you're already using your chosen E-CAPS supplements and Hammer Nutrition fuels in training. As is the case in any sport, you experiment with all aspects of your sport in training well in advance of the actual race and race day is not the time to test any supplement of fuel. Use the guidelines I've provided in the previous articles in your training, adapting according to your personal needs, and keep a written record of your intake, weather, workout intensity, and results. Come race time you'll be dialed in – supplement and fueling-wise - which means you can race with confidence.

All triathletes can benefit from taking Race Day Boost in the four days prior to the event (make sure you test it in training first). The product information is below. After that, I'll discuss the pre-race meal, followed by specific supplement and fueling suggestions for the various triathlon race distances – Sprint, Olympic, and Half & Full Iron – and then close the article with post-workout recovery suggestions.

## Four Days Prior To the Race – All Triathletes

**Race Day Boost – Take one (1) teaspoon in 4-6 ounces of a carbohydrate beverage 4x/day for four days prior to the event. For example, if your race starts on Saturday you would begin the loading dose on Tuesday). *This protocol MUST be tested during training.***

If you found a supplement that enhanced the functions and performance of your body's three energy production pathways, and also effectively buffered lactic acid, you'd take it, wouldn't you? Race Day Boost is that product—and yes, it's safe and legal! To tell you how Race Day Boost can help you to a triathlon PR, let's review a few basics of molecular-level energy production.

Our muscles rely on three different energy systems, or metabolic pathways, to produce ATP, the molecule directly responsible for muscle function. We have the ATP-CP system, the lactic acid system, and the oxygen, or aerobic, system. Every muscle fiber has all three of these systems available, utilizing each depending on the length and intensity of exercise.

The first energy system is the ATP-CP (adenosine triphosphate and creatine phosphate) system. ATP is the immediate source of energy for muscle contraction, breaking down to ADP (adenosine diphosphate) as it releases the energy to fire a muscle fiber contraction. This system releases energy very rapidly, but also depletes very rapidly, in just a few seconds of continued effort. It is the energy source used in brief, intense activities such as weightlifting or sprinting. Creatine phosphate, another high-energy compound naturally occurring in all muscle cells, also breaks down, releasing energy as it loses its phosphate group, but unlike ATP, it does not cause muscle contraction. Instead, the phosphate goes to an ADP, converting it back into ATP, thus replenishing the system. The sodium tribasic phosphate in Race Day Boost supplies phosphate groups used in the re-synthesis of CP and ATP, thus improving the performance of this short-term energy system.

The second energy system is the lactic acid system. A key feature of this system is its relationship with blood pH. Normal blood maintains a slightly alkaline pH of 7.3 to 7.4, optimal for the enzymes that produce energy via the lactic acid energy system. This system uses carbohydrates as fuel, primarily in the form of glycogen stored in the muscles. Our bodies break down muscle glycogen (a process known as glycogenolysis) into glucose, which then undergoes further breakdown via glycolysis. Glycolysis converts sugar to pyruvic acid, releasing energy and creating ATP. Glycolysis occurs with or without the presence of oxygen. At rest, glycolysis occurs at a slower rate sustained by the oxygen you take in (aerobic glycolysis). As you begin to exercise, the rate of aerobic glycolysis increases. As intensity of exercise increases, aerobic glycolysis becomes inadequate to support energy production and the system switches to anaerobic glycolysis. Through a series of chemical reactions in muscle cells, the formation of lactic acid allows anaerobic glycolysis to continue. However, excess lactic acid accumulates during high intensity efforts, increasing the hydrogen ion concentration within the muscle cells and disrupting the ideal alkaline blood pH. This results in that all-too-familiar "burn" we all hate. Race Day Boost's phosphate salt buffers blood acidity and helps maintain this acid-alkaline balance by neutralizing excess hydrogen ions within the muscle cell. Effectively buffering excess lactic acid allows the lactic acid system to provide energy for a longer time.

Phosphates also aid in improving the third energy system in the body, the oxygen energy system. This system uses primarily carbohydrates and

fats to produce ATP, but after 90-120 minutes of sustained exercise, this system starts to chew on protein, with about 5 - 15% of the energy coming from amino acids. The oxygen system can't produce ATP as rapidly as the other two systems, but it does produce greater quantities of ATP. It serves as the primary energy system of aerobic, or "conversational level," athletics. In other words, if you're breathing easily enough that you can talk while you're running or cycling, you're still in the aerobic mode. Even though it seems that you're always going anaerobic in a race, or at least going back and forth between all the energy systems, once you settle into a rhythm during the race, your body relies mostly on the oxygen 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.

The dose of sodium tribasic phosphate used in Race Day Boost exactly matches the dose used in all studies done with this nutrient, including one that showed an 8% improvement in performance in a 40k time-trial. Sodium tribasic phosphate improves all of the body's three energy systems, making it a superb ergogenic aid. In addition, we have added 500 mg of glutamine per serving. A full dose of four servings per day (2000 mg glutamine) enhances muscle and liver glycogen storage. During exercise, your body uses muscle glycogen stores more effectively than ingested carbohydrates, as the latter must first reach the bloodstream, and then go through chemical conversion before becoming available for energy. Improved glycogen storage capacity means improved endurance performance.

# The Pre-Race Meal – All Triathletes

If a pre-race meal is desired, you must complete the meal at least **three hours** prior to the start of the race or you will increase the rate of glycogen depletion and decrease your fat burning capabilities once the race begins. However, do not sacrifice sleep just to get up early to eat; it's neither crucial nor necessary. Muscle glycogen stores, the fuel your body will use first and foremost when the race begins, remain unaffected even after a nightlong fast. If you have been consistent in replenishing carbohydrates immediately after all your workouts, you will have stored in your muscles and liver enough glycogen to propel you through about 90 minutes of strenuous exercise. Remember, if you eat too close to the start of the race, muscle glycogen stores will be depleted much more rapidly, an obvious disadvantage. So, it's more important to refrain from eating too close to the start than to load up three hours before the gun goes off. Refer to the article "The Pre-Race Meal Simplified" in *The Endurance Athlete's Guide To Success* for detailed information.

If a pre-race meal is consumed I suggest a total of 200-400 calories primarily from complex carbohydrates (some soy protein is also acceptable) with no simple sugars and a minimal amount of fiber and fat. A two to three-scoop serving of Sustained Energy, a readily digestible source of carbohydrates and protein, provides approximately 49-73 grams of complex carbohydrates, 7-10.5 grams of soy protein, a minimal amount of fat, and a total of approximately 229-343 calories. It's a perfect pre-race meal.

All standard triathlon formats start with the swim, your hardest event for refueling; so you might desire some caloric consumption just before the start, especially if you feel hungry. Here's a better strategy than eating from one to three hours before start time: sip two or three servings of Hammer Gel approximately 5-10 minutes prior to the start of the race. By the time these calories are digested and blood sugar levels elevated, you'll be well into your race and the problem with elevated muscle glycogen depletion is no longer a physiologically an issue.

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# Sprint Distance Triathlons

### Pre-Race Supplements

Race Caps Supreme – **For athletes weighing less than 150 pounds or ANY athlete under the age of 20 the suggested dose is 2 capsules (with or without food) one to three hours prior to the start of the race. Athletes**

**weighing more than 150 pounds should take 3 capsules. The primary nutrients in Race Caps Supreme are the "spark plugs" your body needs to convert food and oxygen into energy. This dose gives your body the raw materials it needs to ensure efficient and consistent energy production.**

Mito-R Caps **– The perfect companion to Race Caps Supreme, Mito-R Caps significantly amplifies that product's benefits and supports optimal functioning of the mitochondria, the energy-producing organelles in the cells, which enhances efficient energy production. In addition, the nutrients in Mito-R Caps protect mitochondrial DNA from free radical damage, which occurs naturally, but in even higher volumes during exercise. Suggested dose is 2 capsules one to three hours prior to the start of the race.**

**Endurolytes –** Take 1-6 capsules one to three hours prior to the race start to ensure proper electrolyte levels for the race. The amount you take is of course determined by what you've been using in training, while also taking into account the race day weather.

**Premium Insurance Caps -** If you consume a pre-race meal, you can include 2 or 3 capsules of Premium Insurance Caps. This will provide antioxidant and B vitamin support. However, niacin (vitamin B3) has a tendency to inhibit fat utilization, so you need to maintain the three-hour pre-race meal gap. If you don't take a pre-race meal, skip the dose of Premium Insurance Caps.

### Fueling and Supplements During the Race

Because most triathletes will finish a sprint race under 1:40 there is most likely no need to consume any fuel or supplements during a race of this distance. Muscle glycogen stores plus any calories consumed in the pre-race meal or in the 5-10 minutes prior to the start of the race should very adequately satisfy energy requirements throughout the entire race, and your pre-race consumption of Endurolytes should fulfill your electrolyte requirements. Water alone should be all you need during the race. Still, it's a good idea to carry additional calories and electrolytes with you just in case the race takes you longer than you're expecting (over 1:30). If this is the case, 1-2 scoops of Hammer H.E.E.D. during the bike portion will easily fulfill a good portion of your fluid requirements, along with any additional caloric and electrolyte requirements, for the remainder of the race.

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# Olympic Distance Triathlons

### Pre-Race Supplements

Race Caps Supreme **– For athletes weighing less than 150 pounds or ANY athlete under the age of 20 the suggested dose is 2 capsules (with or without food) one to three hours prior to the start of the race. Athletes weighing more than 150 pounds should take 3 capsules. The primary nutrients in these products are the "spark plugs" your body needs to convert food and oxygen into energy. This dose gives your body the raw materials it needs to ensure efficient and consistent energy production.**

Mito-R Caps **– The perfect companion to Race Caps Supreme, Mito-R Caps significantly amplifies that product's benefits and supports optimal functioning of the mitochondria, the energy-producing organelles in the cells, which enhances energy production. In addition, the nutrients in Mito-R Caps protect mitochondrial DNA from free radical damage, which occurs naturally, but in even higher volumes during exercise. Suggested dose is 2 capsules one to three hours prior to the start of the race.**

**Endurolytes –** Take 1-6 capsules one to three hours prior to the race start to ensure proper electrolyte levels for the swim portion of the triathlon. The amount you take is of course determined by what you've been using in training, while also taking into account the race day weather.

**Premium Insurance Caps -** If you consume a pre-race meal, you can include 2 or 3 capsules of Premium Insurance Caps. This will provide antioxidant and B vitamin support. However, niacin (vitamin B3) has a tendency to inhibit fat utilization, so you need to maintain the three-hour pre-race meal gap. If you don't take a pre-race meal, skip the dose of Premium Insurance Caps.

## Swim-to-Bike Transition (T1)

At T1, before getting on the bike, I suggest consuming 2-6 Endurolytes, washing them down with some of your fuel mixture. This will help replenish the electrolytes used during the swim and provide sufficient amounts for the first hour of the bike portion. A few seconds spent at the transition to replenish electrolytes and a few calories will more than repay you during the ride because it allows you to focus solely on establishing a smooth pedaling rhythm during that crucial initial portion of the bike phase. To expedite this even more quickly have the Endurolytes ready in a small container such as a pill bottle, film canister, or "quick coin" coin purse/pill holder. Carry additional electrolytes with you during the ride (the "quick coin" pill holders work perfectly for this) and take a second dose after the first hour is completed.

## Bike Fuel And Supplements

FUEL - **The fueling requirements for the swim portion are easily met through your muscle glycogen stores + any pre-race calorie and electrolyte consumption. The middle leg of the triathlon affords the best fueling time for the rest of the race. It's the right time physiologically, and on the bike you have the easiest intake.**

During this portion of the race you can carry all your nutrition in one water bottle. Based on how long you anticipate your bike portion to be, mix the appropriate amount of either Sustained Energy or Perpetuem in a 20-25 ounce water bottle (dosage suggestions below), sip from it during the bike portion, and augment with additional water to fulfill hydration requirements (remember that most athletes benefit from a fluid intake, from ALL sources, of 20-28 ounces hourly). To maintain optimal palatability of your fuel mixture you can make it the night prior to the race and freeze it overnight (this is especially helpful if race day looks like it's going to be a hot one). Or, you can make it first thing in the morning using ice-cold water and ice cubes. Using an insulated water bottle is an excellent idea to consider as well.

### Calories - Suggested Doses:

**Up to 120 pounds:**
Sustained Energy – 1.5 scoops/hour **or**
Perpetuem – 1 scoop/hour

**120-155 pounds:**
Sustained Energy – 1.75 - 2 scoops/hour **or**
Perpetuem – 1 – 1.5 scoops/hour

**155-190 pounds:**
Sustained Energy – 2.25 – 2.5 scoops/hour **or**
Perpetuem – 2 scoops/hour

**190+ pounds:**
Sustained Energy – 2.5 – 3 scoops/hour **or**
Perpetuem – 2.25 – 2.5 scoops/hour

SUPPLEMENTS - **If your race will be in the 3-4 hour range, I suggest taking 1-2 Race Caps Supreme and 1-2 Mito-R Caps halfway through the bike portion. If your race is in the 2.5-hour range or shorter your pre-race consumption of these supplements should be sufficient. Don't forget to take another dose of Endurolytes after the first hour is completed.**

## Run Fuel

Depending on how long your run portion takes you may or may not need to consume any calories during the run portion. Muscle glycogen stores + pre-race food consumption + bike fuel should satisfy your energy requirements for the entire race if you'll be finishing the race under three hours. If your run portion is going to be close to or over an hour then yes, you should carry some fuel with you. Hammer Gel's superb complex carbohydrate formula, it's long "shelf life" once mixed (something that carb/protein drinks can't claim), and its relative ease of consumption make it the fuel of choice during the run portion. Consistent, reliable energy without the concerns of stomach distress, so common with many other energy gels and sports drinks, are Hammer Gel's hallmarks. You can easily tote up to five servings in the Hammer flask, or you can use single serving pouches and vary your menu. If carrying a fuel bottle is not a hassle for you, consider using Hammer H.E.E.D. to fulfill at least a portion of your caloric needs. Suggested doses for both Hammer Gel and Hammer H.E.E.D. are below.

Especially in hot weather races it's a good idea to take 2 – 6 Endurolytes at T2, or shortly into your run, to help prevent the possibility of cramping during the run.

### Calories - Suggested Doses:

**Up to 120 pounds:**
Hammer Gel – 2 servings/hour (or 2 pouches) **or**
Hammer H.E.E.D. – 1 to 1.5 scoops/hour

**120-155 pounds:**
Hammer Gel – 2.5 servings/hour (or 2 pouches) **or**
Hammer H.E.E.D. – 2 to 2.5 scoops/hour

**155-190 pounds:**
Hammer Gel – 3 servings/hour (or 3 pouches) **or**
Hammer H.E.E.D. – 2.5 to 2.75 scoops/hour

**190+ pounds:**
Hammer Gel – 3 to 3.5 servings/hour (or 3 pouches) **or**
Hammer H.E.E.D. – 3 scoops/hour

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# Half and Full Iron-Distance Triathlons

### Pre-Race Supplements

Race Caps Supreme – **For athletes weighing less than 150 pounds or ANY athlete under the age of 20 the suggested dose is 2 capsules (with or without food) one to three hours prior to the start of the race. Athletes weighing more than 150 pounds should take 3 capsules. The primary nutrients in these products are the "spark**

**plugs" your body needs to convert food and oxygen into energy. This dose gives your body the raw materials it needs to ensure efficient and consistent energy production.**

Mito-R Caps **– The perfect companion to Race Caps Supreme, Mito-R Caps significantly amplifies that product's benefits and supports optimal functioning of the mitochondria, the energy-producing organelles in the cells, which enhances energy production. In addition, the nutrients in Mito-R Caps protect mitochondrial DNA from free radical damage, which occurs naturally, but in even higher volumes during exercise. Suggested dose is 2 capsules one to three hours prior to the start of the race.**

**Endurolytes –** Take 1-6 capsules one to three hours prior to the race start to ensure proper electrolyte levels for the swim portion of the triathlon. The amount you take is of course determined by what you've been using in training, while also taking into account the race day weather.

**Anti-Fatigue Caps** – Unlike the shorter duration events, ammonia production and accumulation will be an issue. To help prevent the performance-inhibiting consequences of excess ammonia, taking 2-4 Anti-Fatigue Caps one to three hours prior to the start (and during the race) is recommended.

**Premium Insurance Caps -** If you consume a pre-race meal, you can include 2 or 3 capsules of Premium Insurance Caps. This will provide antioxidant and B vitamin support. However, niacin (vitamin B3) has a tendency to inhibit fat utilization, so you need to maintain the three-hour pre-race meal gap. If you don't take a pre-race meal, skip the dose of Premium Insurance Caps.

## Swim-to Bike Transition (T1)

At T1, before getting on the bike, I suggest consuming 2-6 Endurolytes, washing them down with some of your fuel mixture. This will help replenish the electrolytes used during the swim and provide sufficient amounts for the first 30-60 minutes of the bike portion. A few seconds spent at the transition to replenish electrolytes and a few calories will more than repay you during the ride because it allows you to focus solely on establishing a smooth pedaling rhythm during that crucial initial portion of the bike phase. To expedite this even more quickly have the Endurolytes ready in a small container such as a pill bottle, film canister, or "quick coin" coin purse/pill holder.

The Race Caps Supreme, Mito-R Caps, and Anti-Fatigue Caps taken prior to the start should still be sufficient until you are in the first hour of the bike leg.

## Bike Fuel And Supplements

**FUEL -** The fueling requirements for the swim portion are easily met through your muscle glycogen stores + any pre-race calorie and electrolyte consumption. The middle leg of the triathlon affords the best fueling time for the rest of the race. It's the right time physiologically, and on the bike you have the easiest intake. You want to do the bulk of your fueling during the bike portion where consuming fuel is easiest and you want to use Sustained Energy or Perpetuem as your primary fuel used at this time. Of the two, I consider Perpetuem to be the most ideal fuel, especially in a full iron-distance race, though both are excellent choices. Hammer Gel alone, easily carried in a single-serving pouch or small flask, can satisfy energy requirements during the run portion, where carrying and consuming fuel creates more a bit of a nuisance.

Carrying enough fuel to satisfy a lengthy bike portion can be logistically challenging. One way to make this easier is to make concentrated solutions of Sustained Energy or Perpetuem. Depending on how long your bike portion is you can make all your fuel in one or two bottles. For example, if you find that 2 scoops of Perpetuem an hour is the right amount (suggested doses below), you can make a 6-scoop bottle and have three hours of fuel in one bottle. Drink one-third of that bottle every hour, augmenting with 20-26 ounces of fluid every hour (from other sources such as a hydration pack or system, or other "water-only" bottles) and 1-6 Endurolytes every hour (the dose being dependent on the weather/your personal needs), and your energy requirements will be fulfilled. By making these concentrated bottles of fuel you make things a lot easier for yourself logistically because you don't have to stop and make more - all you have to do is get more water along the way - and you don't have to rely on aid station food.

As always, cold is better: cold fluids taste better, are more refreshing, suffer less degradation, and absorb more quickly. Mix your fuels the night before and freeze the bottles. Using insulated bottles is an excellent idea to consider. Sustained Energy especially needs to be kept cold; when warm it has some palatability issues.

In addition to calories, you need to keep an eye on your electrolytes. Depending on the weather conditions, hourly consumption of 1-6 Endurolytes will keep your muscles (heart included) contracting on schedule *sans* cramping. Carrying additional electrolytes with you during the ride is easy using the "quick coin" pill holders, which keep the capsules dry and make consumption of Endurolytes a simple task.

## Calories - Suggested Doses:

**Up to 120 pounds:**
Sustained Energy – 1.5 scoops/hour **or**
Perpetuem – 1 scoop/hour

**120-155 pounds:**
Sustained Energy – 1.75 - 2 scoops/hour **or**
Perpetuem – 1 – 1.5 scoops/hour

**155-190 pounds:**
Sustained Energy – 2.25 – 2.5 scoops/hour **or**
Perpetuem – 2 scoops/hour

**190+ pounds:**
Sustained Energy – 2.5 – 3 scoops/hour **or**
Perpetuem – 2.25 – 2.5 scoops/hour

**SUPPLEMENTS –** In addition to your Endurolytes intake (which is part of your fuel, along with the calories and fluids you're consuming), I suggest the following supplements every hour, starting one hour into the bike: 1-2 Race Caps Supreme, 1-2 Mito-R Caps, and 1-2 Anti-Fatigue Caps.

Replenishing with Race Caps Supreme and Mito-R Caps will ensure adequate levels of these critical energy-producing nutrients. Even moderate exercise exhausts the nutrients in these supplements; replacing them during a strenuous triathlon becomes critical for top performance. Once depleted, you can only expect compromised performance and a very long day. The Anti-Fatigue Caps will help clear out any excess ammonia. It's a small strategy that can have significant benefits, especially prior to the run portion. An easy way to carry these three supplements is to use small zip lock bags and make hourly doses/bags prior to the race that contain the appropriate amount of capsules. Your dose of Endurolytes may change (if the weather gets hotter for instance) so keep those separate in the "quick coin" pill holders. For the other three supplements use the zip lock bags and every hour (beginning at the second hour) tear one open and allow the pills to fall into your mouth. Wash down with your fuel mix and/or water and you're set for an hour.

If you have been fueling your body properly, supplying adequate amounts of calories from Sustained Energy or Perpetuem, sufficient amounts of electrolytes from Endurolytes, and nutritional support from the above three supplements, you can enter the run with confidence. You will know and feel that you have provided your body with the right amounts of the right nutrients to maximize sustained energy production.

## Bike-to-Run Transition (T2)

If your last Endurolytes dose was longer than 20 - 30 minutes prior to T2 it's probably a good idea to take more at the transition, just to have them in your system prior to the run, where, like you did at T1, you'll be using a lot of new muscle fibers. If your last dose was 0-20 minutes prior to T2 you can skip this "at the transition" dose and start dosing into the run.

## Run Fuel

The physical demands placed on the body by running a half or full marathon immediately after dismounting from 56 to 112-mile all-out bike race are, to say the obvious, extreme. Because eating and drinking on the run can be difficult on one's digestive system (and face!), my key suggestion here is make sure you fuel properly during the bike portion. As mentioned earlier, your primary fuel should consist of some combination of Sustained Energy and Perpetuem, both of which satisfy energy demands more completely than carbohydrate-only fuels. Fuel requirements will vary with each individual, as well as with the different distances of triathlons, but sufficient fueling on the bike will set up the run ideally.

During the run portion, where carrying and consuming fuel can be a real nuisance, Hammer Gel's superb complex carbohydrate formula, it's long "shelf life" once mixed (something that carb/protein drinks can't claim), and its relative ease of carrying and consumption make it the fuel of choice. Consistent, reliable energy without the concerns of stomach distress, so common with many other energy gels and sports drinks, are Hammer Gel's hallmarks. You can easily tote up to five servings in the Hammer flask, or you can use single serving pouches and vary your menu. If carrying a fuel bottle is not a hassle for you, consider using Hammer H.E.E.D. to fulfill a portion of your caloric needs.

### Calories - Suggested Doses:

**Up to 120 pounds:**
Hammer Gel – 2 servings/hour (or 2 pouches) **or**
Hammer H.E.E.D. – 1 to 1.5 scoops/hour

**120-155 pounds:**
Hammer Gel – 2.5 servings/hour (or 2 pouches) **or**
Hammer H.E.E.D. – 2 to 2.5 scoops/hour

**155-190 pounds:**
Hammer Gel – 3 servings/hour (or 3 pouches) **or**
Hammer H.E.E.D. – 2.5 to 2.75 scoops/hour

**190+ pounds:**
Hammer Gel – 3 to 3.5 servings/hour (or 3 pouches) **or**
Hammer H.E.E.D. – 3 scoops/hour

Finally, remember your critical need for enough, but not too much, hydration. Continue to drink up to 26 ounces of fluids per hour to maintain hydration and take an hourly dose of 1-6 Endurolytes to prevent cramping and ensure that your muscles contract properly and efficiently.

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# Post Race Nutrition and Supplements – All Triathletes

Recovery begins when the race ends. As soon as practical after you leave the chute and cool down it's time to replenish your body with high quality, easily digested carbohydrates and protein. The following are three superb recovery drinks possibilities:

- 1 – 1.5 scoops Hammer Whey + 3-4 servings of your favorite flavor of Hammer Gel in 6-8 ounces cold water. You can of course use more water than the 6-8 ounces suggested. However, both the Hammer Whey and Hammer Gel components will all mix quite easily in very little water, which may be desirable if you don't want to eat or drink much after a hard race.
- 1 – 1.5 scoops Hammer Whey + 2-4 scoops of Hammer H.E.E.D. in 12-24 ounces cold water.
- 1 – 1.5 scoops Hammer Whey + 2-3 scoops of Sustained Energy in 12-24 ounces orange juice.

In addition to “re-filling the tank” with calories, it’s essential to supply your body with key nutrients for enhancing recovery and supporting optimal immune system function. For that I recommend the following supplements and doses, part of which you can take with your post-workout fuel, and part over the next one to two hours.

**PREMIUM INSURANCE CAPS -** One full packet (seven capsules) will replenish the body's stores of essential vitamins and minerals including vital antioxidants.

**SUPER AO -** Two capsules will perfectly complement Premium Insurance Caps by providing additional antioxidant benefits while also enhancing circulation to help accelerate recovery.

**Race Caps Supreme** – 1 to 2 capsules provides excellent amounts of CoQ10 and Idebenone, both powerful antioxidants.

**Mito-R Caps** – 1 to 2 capsules provides several different antioxidants, including the mitochondrial-protecting nutrients acetyl l-carnitine and r-alpha lipoic acid.

**Steve Born is a technical advisor for E-CAPS with over a decade of involvement in the health food industry. He has worked with hundreds of athletes – ranging from the recreational athlete to world-class professional athlete - regarding their supplement/fueling program. Steve is a three-time RAAM finisher, the 1994 Furnace Creek 508 Champion, 1999 runner-up, the only cyclist in history to complete a Double Furnace Creek 508, and is the holder of two Ultra Marathon Cycling records. In February 2004 Steve was inducted into the Ultra Marathon Cycling Hall of Fame.**