

ENDURANCE NEWS

A Hammer Nutrition Publication

The endurance athlete's comprehensive knowledge resource since 1992



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Recovery : A crucial component for athletic success *Steve Born*

Athletes tend to focus on training and neglect the recovery, specifically the critical step of refueling as soon as possible after each workout. Does this describe your routine? If so, that's really unfortunate because it's absolutely one of the most important things that you can do to improve your race day results. In fact, properly refueling your body immediately after your training session is as important as anything you did in the actual workout. When you give your body what it needs as soon as possible after exercise, it will respond wonderfully in the following ways:

Your body will be able to store more and more of a premium, ready-to-use fuel known as muscle glycogen.

You will strengthen, not weaken, your immune system.

You will "kick start" the muscle tissue rebuilding process.

The bottom line is that you can really give yourself a major advantage come race day if you'll take the time to put some quality fuel into your body as soon as possible after all your workouts.

If you're at all serious about performing better in your racing AND staying healthier, here's a saying you need to live by - "Once you've finished training, you're still not finished with training!" Here's what I mean: You must attend as much to recovery as you do to active exercise if you expect to reap the benefits of hard training. In other words, how well you recover today will be a huge factor in how well you perform

(see RECOVERY on page 4)

20 Good Years : Farewell E-CAPS

Brian Frank

As you may or may not realize, 2007 will be the 20th anniversary of the company that started in a two-bedroom flat in San Francisco. The 800 number used to ring on our home line, and I would fill 3-5 orders per day at the dining room table. Like the old commercial used to say, we've come a long way, baby. In the past 19 1/2 years, much has changed and a few things have remained the same. Our 800 number is still the same, I am still guiding every facet of our operation, and my commitment to meeting your supplement and fueling needs is unwavering.

However, when it comes to the name or "brand" that we are known by, that has seen some evolution over the years. Most of you won't know the whole

story, so let me take you on a short trip down memory lane. In August of 1987, I launched the company under the name of Hansen & Frank, Inc., Hansen being the maiden name of my father's second wife. We reasoned that many big companies featured two names with an ampersand between them, like Procter & Gamble or Abercrombie & Fitch, for instance. It didn't take us long to realize that that strategy wasn't working for us, so we came up with the acronym of CAPS which stood for Coenzyme Athletic Performance System. At the time, all of our products were coenzyme-based and came in capsules, or caps for short.

Unfortunately, someone in Ohio

(see E-CAPS on page 2)



Welcome

Brian Frank
Proprietor

Welcome to our biggest issue yet! Wow, what a great year it's been so far. I can hardly wait for 2007, our 20th anniversary year. But I'm getting ahead of myself. Strong growth continues to be our theme and the most obvious indicator that we are headed in the right direction, meeting your needs when it comes to supplements, fuels, and the information necessary to train, race, and maintain your good health. That's been my goal since day one, and I look to you to make sure we stay on track.

In a collective sense, we consider you to be the boss, so you should feel empowered to communicate your wishes and desires whenever you see something needing improvement or correction.

That's why your feedback, positive or negative, is always encouraged and valued. In fact, our entire staff reviews a monthly digest of all of the feedback we've received from our valued clients.

Each one is discussed, and, whenever possible, we act on it immediately. We offer multiple ways to reach us with

your comments, but I'd like to remind you all again that there is a special e-mail address that I personally monitor daily, suggestions@hammernut.com.

In the previous issue of **Endurance News**, I made the preliminary announcement that we had found a replacement for Dr. Bill. Unfortunately, for a variety of reasons, things did not work out, and after less than two months on the job I accepted the resignation of James Stevens. Everyone here at Hammer Nutrition wishes him the best in whatever direction his career takes him.

I knew Dr. Bill would be hard to replace, but I did not realize how hard. Luckily, he's not been very good at the whole retirement thing, and he continues to be involved with the endurance list, new product development, and consulting with Steve and I on a daily basis. He obviously enjoys what he does a great deal, and we are honored to benefit from his wisdom and "endurance." I have complete faith that the right person is out there and we will eventually find him or her; when that will occur is the only question. Of course, as soon as we find that special person, we'll let you know right away.

In this issue you'll find some photos and comments from riders who participated in our fifth annual Highline Hammer Weekend. For me, the coolest part of this event is meeting and really getting to know the clients who make

the trip up to Whitefish. It's so refreshing, invigorating, and encouraging to me that I'm still pumped from the experience a month later! I'm not just saying this; it really motivates me to keep on with the mission that I started in 1987. I can't speak for the rest of my staff, but that's why I do this event.

I know it's not realistic, but I'd like to meet all of our clients in this same way. Let me say this: if you come up to the Flathead Valley any time of year, please at least stop by our place to say hello. Depending on the time of year, we could go for a bike ride, hit the slopes, or do some skate skiing. If you don't pay us a visit, I'll be very disappointed.

Well, enjoy the rest of the issue and the coming Fall. Also, have a great Thanksgiving, Christmas, and New Year celebration.

Brian

Endurance News Staff

Editorial :

Steve Born, Dr. Bill Misner, Brian Frank

Editorial Contributors :

Nate Llerandi, David Levin, Jason Kinley, Bikin' Mike, Jim Bruskevitz

Copy Editor :

David Levin*

Layout :

Angela Nock

*Articles written by Dr. Bill Misner and third party contributors are not edited by David Levin

Our Mission

The objective of Endurance News is to provide you, the serious endurance athlete, with a valuable resource that you will find to be informative, educational, thought provoking and helpful in your ongoing pursuit of optimum performance and health.

Endurance News features insightful articles on diet, nutrition, training and other topics of interest for endurance athletes — written by myself as well as professional and elite amateur athletes and other experts in the area of nutrition and exercise. In addition, Endurance News will include articles highlighting new and existing E-Caps products and how to get the maximum benefits from them.

In reading this and future issues, please remember that the views expressed in this publication will always be biased in favor of a healthy diet, hard training that emphasizes quality over quantity, and prudent supplementation to improve health and performance. But above all, we at Endurance News believe there are no short cuts, and success can only come from hard work.

Back issues of Endurance News are available online at:
www.hammernut.com

Legal disclaimer: The contents of Endurance News are not intended to provide medical advice to individuals. For medical advice, please consult a licensed health care specialist.

The FDA has evaluated none of the statements in this newsletter.

53x11 Coffee : Creating a buzz

53x11 Coffee has only been available for a short time but it's already creating quite the stir. Check out these unsolicited testimonials and then order your own supply today!

"I recently received your coffee and tried The Early Break this morning. It is awesome, I loved it, best cup I have had in a long time. I am so glad Hammer Nutrition decided to promote your product!" - D.E.

"Just wanted to let you know I just opened my first bag of The Early Break and loved it! Really good body to the coffee and the aroma was incredible,. I'm looking forward to The Big Ring coffee on its way." - B.

The Early Break

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NEW!!! The Big Ring

Sumatra with a rich flavor, full body and low acidity.

12 oz. bag - \$12.95

53x11 Espresso blend coming soon!



(E-CAPS from page 1)

owned a business called Creative Athletic Products and Services, aka CAPS. They made softball equipment, but decided that we were infringing on their trademark. Rather than spend a bunch of money on lawyers, we changed our name once again, ushering in the Enerzymes CAPS era, "Enerzymes" being an amalgamation of "energy" and "coenzymes." As much as I love the man who came up with Enerzymes, it was just too funky to stick, so around 1990 I shortened it to E-CAPS. The idea was the "E" would now stand for "energy."

Whether it ever made sense to you or not is one matter, but when you see a name repeatedly for 16 years, it can't help but stick in your mind. E-CAPS was short, memorable, and descriptive, and I probably would have kept it had I not decided to launch a line of endurance fuels that I knew would have "Hammer" in the name. The first Hammer products came out in 1995, and for the past 11 years we have had two brands living in one company, like Siamese twins joined at the hip. This has, however, confused some of the customers most of the time, and complicated everything all of the time. E-CAPS

& Hammer Nutrition - is it two companies or one? Is it run by the same people? Who knows? Who cares?

Over the past decade, several marketing and brand experts have suggested that we consolidate or combine the two brands, so it's not exactly like this was my idea. However, at the beginning of this year, when I was thinking hard about 2007 and beyond, I made the unavoidable decision that E-CAPS had to be put out to pasture. We will head our entire operation and roll all of our products into Hammer Nutrition, the stronger of the two names. A single brand will prevent the confusion that has prevailed for the past 11 years, and make everyone's life here a lot simpler.

The new 2007 catalog will show up in your mailbox with just the Hammer Nutrition brand. No more E-CAPS. From us, you can expect the same people, same products, and same service, just an easier name to remember. Beginning in January of 2007, we will become Hammer Nutrition - Endurance Fuels and Supplements since 1987.

A Look Back In Logos



1987-1989



1989 - 1999



2000 - 2006

Helmets and ID's : Just a reminder

David Levin

Two years ago (EN #43) I wrote a short piece reminding our cyclist readers to wear their helmets because you never know when a truck will come too close and bounce you on your head, as had just happened to me then. I smashed my noggin again recently, this time without assistance from any vehicle. Even helmeted, I had a significant concussion that took many weeks to clear. When I realized how serious the accident would have been without head protection, I felt the need to push the safety button once more. Brian tells me, however, that our wonderful clients always take as much care for their safety as their health, and I'd be preaching to the choir. So here's a promise we can make together: you keep wearing your helmet, and I'll stop writing about my crashes.

A few months ago I added another piece of safety equipment, which I strongly recommend; it's a dog-tag type identification from RoadID that I wear on a neck chain. Identification, emergency phone numbers, blood type, allergies, and insurance info are invaluable data for emergency service personnel when you're unconscious or incoherent. The good folks who came to my aid had what they needed to contact my wife, care for my injuries, and streamline my transfer to the hospital. RoadID offers several styles; go to their website at www.roadid.com and find one you like. You can also see my Hammer-attired visage in the "Testimonials" section.

I consider ID and helmet as essential as air in my tires, and I hope you do, too.

Coffee's On!



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(RECOVERY from page 1)

tomorrow. Exercise, done properly, creates enough stress to your muscles and cardiovascular system to instigate a rebuilding and strengthening program, but without causing big-time damage. Your body responds by adapting to the stress you placed upon it. Too much exercise at once leads to over-training syndrome. If you train within limits, but fail to supply your body with adequate fuel and nutrients, you get pretty much the same thing: over-use symptoms, such as weakening, increased susceptibility to infections, and fatigue.



Carbohydrate replenishment - The sooner the better!

When you begin a workout or race, the first fuel your body uses is a stored carbohydrate known as glycogen. About 80% is in your muscle tissue, and the remainder in your liver. You've only got so much of this premium fuel, but its importance can't be overstated. In fact, several studies have shown that the pre-exercise muscle glycogen level is the most important energy determinant for exercise performance. Also, to have a good race or workout, you need to start with a full load of muscle-stored glycogen. In other words, athletes who have more of this readily available fuel in their bodies have a definite advantage. The good news is that you can substantially increase your storage capacity.

So how can you maximize your glycogen storage? You need a combination of training and replenishing. Training increases both muscle glycogen storage capacity and how efficiently your body uses it. Carbohydrate replenishment as soon as possible after exercise, when the body is most receptive to carbs uptake, maximizes both glycogen synthesis and storage.

Here's how your body does it: Along with insulin, which regulates blood sugar levels of ingested carbs, an enzyme known as glycogen synthase converts carbs from food into glycogen

and stores it in muscle cells. This also drives the muscle repair and rebuilding process. However, glycogen synthase activity is brief, peaking in the 0-30 minutes after exercise, then declining substantially for the next 90 minutes. To store as much glycogen as possible, you need to take advantage of this enzyme when it's most active. It's absolutely vital for maximizing the recovery process, and, to paraphrase the late Ed Burke (a well-known nutritional scientist), "The sooner you do it, the better."

Complex carbs vs. simple sugars

The one time where your body isn't going to put up much of a fight in regards to complex carbs versus simple sugars is right after a hard, glycogen-depleting workout. At this time your body is in such dire need of replenishment that it'll accept just about anything. That said, complex carbohydrates offer a distinct advantage over simple sugars. Here's why: Both simple sugars and complex carbohydrates (such as the maltodextrin we use in Recoverite) are high glycemic index (GI) carbohydrate sources, which allow them to raise blood sugar levels and spike insulin rapidly, both desirable functions post-exercise. However, complex carbohydrates, which again, have equally high glycemic indices and raise blood insulin spikes similarly, allow for a greater volume of calories to be absorbed compared to simple sugars. In other words, when you consume complex carbohydrates instead of simple sugars after exercise, your body is able to absorb more calories for conversion to glycogen, and without the increased potential for stomach distress that commonly occurs with too-high volume or concentration of simple sugar fuels.

Additionally, most of us already over consume simple sugars as it is. Numerous research clearly shows that sugar consumption in American is outrageously high; one report from the Berkeley Wellness Letter stated that each American consumes about 133 pounds of sugar annually... that's over

1/3 pound of sugar every day, 365 days a year! There is no doubt that excess sugar consumption is implicated in a number of negative health consequences; therefore, if there aren't any recovery-specific benefits to be derived from consumption of simple sugar post-workout, why do it?

The importance of quick replenishment of carbohydrates

The less-fit athlete or the one who has not been putting some carbs back into his or her body shortly after exercise sessions has very limited muscle glycogen available, perhaps as little as 10-15 minutes worth.

The fit athlete or the one who has been consistently refueling his or her body with carbohydrates immediately after exercise can build up a nice 60-90 minute reservoir of this premium, ready-to-use fuel.

Which would you rather have when the gun goes off - 15 minutes of on-board fuel or 90 minutes? The answer should be pretty obvious.

RULE #1 - As soon as possible after you finish your workout, before you get into the shower or before you kick back on the couch, consume approximately 30-60 grams of high quality complex carbohydrates.

Protein - Essential component for recovery

Carbohydrate intake promotes many aspects of post-exercise recovery, but it can't do the job alone; you need protein as well. Protein in your post-workout fuel provides these benefits:

Raw materials to rebuild muscles -

Whey protein is the premier protein source of the three branched chain amino acids (BCAA - leucine, isoleucine, valine) used for muscle tissue repair.

Enhanced glycogen storage -

Numerous research studies have shown that carbs + protein, versus carbs alone, is a superior way to maximize post-exercise muscle glycogen synthesis.

Immune system maintenance -

We strongly recommend whey protein, with its high levels of glutathione production-specific amino acids (see below).

(continued on next page)



(continued from previous page)

Whey is the superior protein source for recovery

Of all the protein sources available, whey protein is considered the ideal protein for recovery, primarily due to its high Biological Value (BV) rating. The BV is an accurate indicator of biological activity of protein, a scale used to determine the percentage of a given nutrient the body utilizes. In other words, BV refers to how well and how quickly your body can actually use the protein you consume.

Of all protein sources, whey has the highest BV, with whey protein isolate (the purest form of whey protein) having an outstanding rating of 154, and whey protein concentrate having a 104 rating. Egg protein is also an outstanding high-BV protein source, with whole eggs achieving a rating of 100 and egg whites an 88 rating. Soy protein ranks far below whey protein in BV ratings with a 49 rating, making it a less desirable choice for recovery. Note: Although it might not seem logical for a protein to have a score higher than 100, at the time the BV system was introduced eggs were found to have the highest BV, thus given a ranking of 100.

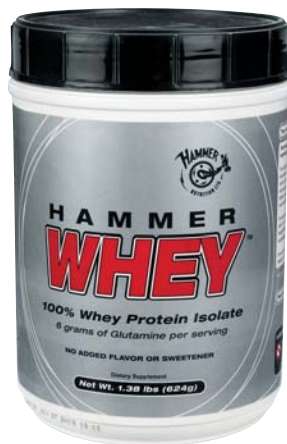
Afterwards, however, after once whey proteins started appearing it was found that they had a higher BV than eggs. In other words, the "154" ranking given to whey protein isolate (and the whey was "104" given to whey concentrate) result from the comparison to the original "BV standard bearer," egg protein.

Other standards that evaluate protein quality/effect also show whey to be a superb protein source. One of these methods, the Protein Efficiency Ratio (PER), while it admittedly has limited applications for humans (PER measures the weight gain of experimental growing rats when being fed the test protein), still shows that whey protein ranks the highest, with a rating of 3.6

(soy protein has a rating of 2.1).

Another protein measurement is the Protein Digestibility Corrected Amino Acid Score (PDCAAS). Nutritionists who disqualify the PER method for classifying protein quality (because it only references the amino acid requirements for lab rats), often will use the PDCAAS method for evaluating human protein requirements. According to this method, which utilizes an amino acid requirement profile derived from human subjects, an ideal protein is one that meets all of the essential amino acid requirements of humans. An ideal protein receives a rating of 1.0. Three protein sources - whey, soy, and egg - all have a 1.0 PDCAAS ranking.

Glutathione: your key to optimal immune system support & recovery



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 other two being catalase and superoxide dismutase. Many researchers rate glutathione as the number one antioxidant. Ward Dean, MD, a leading nutritional scientist, in his brilliant article

Glutathione: Life-Extending "Master Antioxidant," (www.vrp.com/art/1181.asp?c=1153774033109&k=vrpsearch.asp&m=/include/s/vrp.css&p=no&s=0) addresses the importance of glutathione, stating that "Glutathione is present in nearly all living cells, and without it they can't survive... glutathione has major effects on health at the molecular, cellular and organ levels."

One of the steps we can do to improve our recovery is to enhance/optimize body levels of this important antioxidant, and one of the best ways to do that is by consuming whey protein. Whey protein contains excellent levels of all three of the amino acids that comprise glutathione, as well as high levels of the

sulfur-containing amino acid methionine. The two sulfur-containing amino acids (cysteine being the other) are particularly important for proper immune system function and the body's production of glutathione. In addition, the amino acid glutamine has also been shown to help raise glutathione levels (note: Both Hammer Nutrition whey protein products - Hammer Whey and Recoverite - contain high amounts of glutamine). Other nutrients boost body levels of glutathione, and I'll discuss those below.

Bottom line: Adequate glutathione in the body will enhance your recovery and support optimal health.

Hammer Whey Protein/ Recoverite vs. Hammer Soy Protein

A comparison (approximate amounts per gram of protein) for glutathione production

Amino Acid	Whey Isolate	Soy
Cysteine	32 mg	13 mg
Methionine	20 mg	12.5 mg
Glutamic Acid	162 mg	186 mg
Glutamine	333 mg	10.5 mg

Branched Chain Amino Acids (BCAAs) - The essentials for muscle tissue repair

Of the nearly two-dozen different amino acids required by humans, nine are classified as "essential" because they cannot be synthesized by the body and must be derived from external food sources. Among these nine essential amino acids are the branched chain amino acids leucine, isoleucine, and valine. The term "branched chain" refers to the molecular structure of these particular amino acids. Up to 75% of the body's muscle tissue is composed of these three amino acids, and they are directly involved in the tissue repair process. BCAAs are present in all protein-containing foods, with whey protein being the best source.

Hammer Whey Protein/ Recoverite vs. Hammer Soy Protein

A comparison (approximate amounts per gram of protein) of BCAA (branched

(see RECOVERY on page 6)

(RECOVERY from page 5)

chain amino acids)

Amino Acid	Whey Isolate	Soy
Leucine	102 mg	72 mg
Isoleucine	62 mg	44 mg
Valine	54 mg	49 mg

After all the comparisons are made, soy protein is certainly an excellent protein source for a variety of health benefits. However, when it comes to enhancing recovery between workouts - maximizing glycogen synthesis, supporting immune system function, and rebuilding lean muscle tissue - you simply won't find a better protein source than whey protein isolate.

RULE #2 - After your workouts, consume 10-30 grams of protein, preferably whey isolate, along with your complex carbohydrates.

Antioxidants - Your immune system's ammunition

Our bodies need antioxidants to protect us from the damaging effects of free radicals. Free radicals (of which there are several types) are unstable atoms or molecules, usually of oxygen, containing at least one unpaired electron. Left unchecked, free radicals seek out and literally steal electrons from whole atoms or molecules, creating a destructive chain reaction. Excess free radicals, in the words of one nutritional scientist, "are capable of damaging virtually any biomolecule, including proteins, sugars, fatty acids and nucleic acids." Dr. Bill Misner writes, "Oxygen has the capacity to be both friend and foe. When energy fuels are metabolized in the presence of O₂, 5% of them create molecules that contain an odd number of electrons. If free radicals are not neutralized by on-site antioxidant body stores immediately, tissue damage occurs to absolutely every cell membrane touched by these imbalanced molecular wrecking machines. Some theorize soreness and stiffness result because free radicals and waste metabolites build up during either prolonged or intense exercise. The more volume oxygen that passes into our physiology for energy fuel metabolism, the more increased free-radical-fatigue symptoms may be experienced."

Those words should sound the alarm bells loud and clear, because as an athlete you consume huge amounts of oxygen and metabolize far greater amounts of calories than a sedentary person. This means you're generating



free radicals on the order of 12-20 times more than non-athletes! Additionally, during periods of highest training volume and racing stress, free radical production increases even more. While the benefits of exercise far outweigh the potential negatives caused by free radicals, excess free radical production and accumulation, if not properly resolved, may very well be the endurance athlete's worst foe. The human body can oxidize and decay, like rusting steel, from excess free radical production. Not only can this negate everything you've worked so hard to achieve in your training, but it can also result in severe consequences to your overall health. Clearly, the necessity of neutralizing excess free radicals simply cannot be overstated, which is why supplementation with a variety of antioxidants is recommended.

Antioxidants in Recoverite - cysteine*, methionine*, glutamic acid*, carnosine

Antioxidants in Premium Insurance Caps - Beta Carotene, Vitamin C*, Vitamin E, Zinc, Selenium*, Manganese

Antioxidants in Race Caps Supreme - Coenzyme Q10, Idebenone, Vitamin E, Trimethylglycine

Antioxidants in Mito-R Caps - Vitamin C (as ascorbyl palmitate)*, Vitamin E, Acetyl L-carnitine, R-alpha Lipoic Acid*, DMAE (Dimethylaminoethanol), PABA (Para Amino Benzoic Acid)

Antioxidants in Super AO - Enteric Coated Super Oxide Dismutase, Grape Seed Extract*, L-Glutathione*, Ginkgo biloba, Gotu kola, Vinpocetine

* - glutathione precursors and/or glutathione boosting nutrients

RULE #3 - Consume antioxidant-rich foods and take antioxidant supplements throughout the day, targeting primary intake post-workout.

Suggested products and doses can be found in the web version of this article.

Endurolytes Completely Vegetarian!

For a long time, one of the "Other Ingredients" in Endurolytes was whey protein, which was used as a lubricant/flow agent, necessary in the mixing and encapsulating process. Although the amount of whey protein was minuscule, it was still in there, which prevented the product from being completely vegetarian-friendly and/or allowable for use by those with extreme dairy-based allergies or intolerances. Now (actually, it's been this way for a while), we have replaced this small amount of whey with maltodextrin, so that Endurolytes is completely vegetarian friendly and acceptable for use by dairy-intolerant athletes. Please note that the labels on bottles of Endurolytes and on the website are up to date with this change from whey to maltodextrin. However, the 2006 Hammer Nutrition catalog, which was printed prior to this change occurring, does not reflect this change.



Pre-Race Training : The stress of tapering

Jim Bruskewitz

The emotions that color our training and racing are like a double-edged sword. We're drawn to the feelings of hard work, the completion of a tough workout, and the sweet ease, as well as the sour edge, that our form alternately can take while we move our bodies. These emotions regularly draw many to exercising over long enough periods of time that training becomes a lifestyle. The same feelings that draw us to sport also challenge our ability to rationally control what we do and when we do it. How many times have you found yourself reaching a bit deeper into the "candy jar of training" for another emotional training fix, only to find that you've over done it and can't stomach another trip to "the jar" without a much needed break. Given all the emotional upheaval of how we feel when we train and race, it is no wonder that sports are fraught with so many mistakes.

One emotional adventure that we all struggle with is the final taper and peak for the big race. Who doesn't get squirrely, feel out of sorts, and question their level of preparedness in the final week going into a big race? Unfortunately, these inevitable feelings beg us to make some final mistakes that can only take us away from what we've worked and planned for—a great performance.

Maybe just one more workout

When we find ourselves over our heads with these feelings of doubt, let's at least arm ourselves with some common sense to help guide us through the confusion. First of all, a great performance comes after we've rested and recovered from months of training. Not only do our muscle cells need to top off the fuel reserves (glycogen stores), but our circulo-respiratory, endocrine, and nervous systems need more time to recover than do the muscle cells. A gradual reduction in the training load over a couple of weeks, not just days, is needed for the kind of recovery needed for a great performance. If you are worried about losing the fitness that you've worked so hard to gain, remember that it takes four days of complete inactivity before a measurable decrease in fitness has occurred.

We don't lose fitness quickly, and we can't gain it quickly either. Does it

make sense to deliver a large enough training stimulus to gain a desired adaptation in the final two weeks before a big event? Let's consider what can and cannot be gained. The rate at which we significantly gain different kinds of adaptations depends on the adaptation. For instance, flexibility (resting length of muscle tissue) can be gained in a matter of minutes. Speed and strength gains take three to six weeks. Enzymatic adaptations, like improving one's pace at the anaerobic threshold (AT), take six to eight weeks. One's ability to use more oxygen by increasing the number and size of mitochondria (the sub-cellular site where oxygen is used to deliver energy) and the perfusion of blood vessels in the muscle bed to aid in the delivery of oxygen takes six weeks and longer—on the order of months. Heck, a stronger heart from endurance training will help one's performance too, but this takes years of extended training. The point is that even the first adaptations to come from training take at least three weeks of a specific training stimulus before they can be enjoyed.

Do you still want to ride 20k at tempo in the five days before a big event to know that you're ready? No adaptation will come in that time. You will get somewhat tired. You will somewhat deplete your energy stores. You will have collected some information regarding your race readiness, but at what cost? You will also have increased the likelihood that you will not reach your potential on race day. Very short bouts of tempo biking with complete recovery between bouts five days out from the competition could work as long as it doesn't add to the recovery process that is already time consuming. Stay active and back off on the training. For the last three or four days, a nice gentle warm up will steady your nerves and not get in the way of a great performance.

The challenge

Expect that you will question your fitness during your taper. Expect that you will be tempted to try something new just to give you that edge on race day. Expect that your body will feel weird during the taper. Expect that you'll get stiff, maybe sore, from doing little. Expect that it will be physically and emotionally uncomfortable. Expect that

with some light training and a lot of rest in the final days leading up to the race that when the gun goes off, all those anxious feelings will evaporate, leaving you with a body that can deliver the fitness you've developed throughout the season.

I have a suggestion that just may help you deal with the pre-race jitters. Step out of yourself and observe what you are feeling from a distance. Pretend that you are watching yourself. Do you look calm and confident, ready for action? If you do, great—move into that state and nurture it. If you look nervous and jittery, laugh at your feelings as though you're watching another competitor that is bouncing around like a pinball at registration. This will all pass when the race starts. Have fun with it and have a great race.

Jim Bruskewitz

Associate Lecturer - Kinesiology
University of Wisconsin - Madison
Age Group World and National
Triathlon Champion

www.enduranceperformance.com

Editors note : *Following on the heels of his 9th place overall finish at Muncie, Jim Bruskewitz turned in another stellar performance going 10:45 at Ironman Wisconsin which was good enough for 118th overall and won his 50-54 age group by 38 minutes! To say his performances this year have been impressive is a huge understatement. You rock Jim!*

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Riding Through The Desert : The Furnace Creek 508

Steve Born

As many of you know, the Furnace Creek 508 ultracycling race is one that's near and dear to me, having competed in it three times, the last time being a successful attempt at being the first rider to complete back-to-back 508s - a Double Furnace Creek 508, or Furnace Creek 1016, if you will.

Often referred to as "The Toughest 48 hours in Sport," the Furnace Creek 508 is celebrating its 23rd anniversary this year. Race director Chris Kostman writes, "This 508-mile bicycle race is

revered the world over for its epic mountain climbs, stark desert scenery, desolate roads, and its reputation as one of the toughest but most gratifying endurance challenges available, bar none. The course has a total elevation gain of over 35,000', crosses ten mountain passes, and stretches from Santa Clarita (just north of Los Angeles), across the Mojave Desert, through Death Valley, to Twenty Nine Palms."

This year's 508 has the largest number of entrants in the race's history, with a total of 185 athletes, represent-

ing 21 different states and 9 countries, competing in various divisions - solo, tandem, fixed gear, recumbent, 2-person teams, and 4-person teams.

For the past several years Hammer Nutrition has been a major supporter of this epic race, which begins this year on October 7. You can find more information about the Furnace Creek 508 and follow this year's race via the webcast at www.the508.com.



Steve makes his way through the desert during the 2003 Furnace Creek 508

Hammering the Nordic World

Steve Born

It's a warm, sunny day, about 85 degrees outside as I write this article, so it's a bit difficult to be thinking about winter and Nordic skiing. Still, with summer on its way out, with winter coming in the not-too-distant future, and with this being our last issue of the 2006 calendar year, it's absolutely the right time to talk about Nordic skiing, specifically our involvement in this great sport.

If you're lucky enough to live where winter means snow, if you're into the awesome sport that is cross-country skiing, and if you're into the racing scene, chances are you'll see the Hammer Nutrition presence at one of the major races. Among the many events we sponsor, a number of them are official American Ski Marathon Series Races:

Pepsi Challenge Nordic Marathon

Biwabik, Minnesota

Subaru Noquemanon Ski Marathon
Marquette, Michigan



Joe Jensen hammers at the 2006 Masters Nationals

Craftsbury Marathon

Craftsbury Common, Vermont

Wells Fargo Boulder Mountain Tour

Sun Valley, Idaho

City of Lakes Loppet

Minneapolis, Minnesota

North American VASA

Traverse City, Michigan

Minnesota Finlandia

Traverse City, Michigan

Great Glen to

Bretton Woods

Adventure

Gorham and Bretton

Woods,

New Hampshire

Royal Gorge's

California Gold Rush

Soda Springs, California

We're also very excited to support the AXCS National Masters Championships again in 2007, in Bend, Oregon, and several other races as well. As soon as we have the information available about any and all of the races we're sponsoring, we'll include it on our web site.

It's a bit early, I know, but I'm going to say it anyway...**THINK SNOW!**



Dr. Bill's Words of Wisdom

Bill Misner, Ph.D.

Director of Research & Product
Development Emeritus

"Evidence supports limiting sodium intake during rest and exercise. The harmful effect of more chronic sodium over-dose above the body's daily need is a real and present danger to compromise optimal health."



2006 Highline Hammer : What a weekend!

Brian Frank

It was another fabulous four days of cycling, eating, learning, and just hanging out in Big Sky country at the 2006 Highline Hammer. Hosted August 3-6 at our headquarters here in Whitefish, this year's event drew a record 42 clients, more than double the number from 2005. A total of 49 riders participated in Saturday's epic 136-mile loop through Glacier National Park.

So what was it like to be here? Listen to some of your buddies, or riders who could be your buddies if you come next year!

"This year's Highline Hammer was like a cycling summer camp filled with great rides, friends, delicious food, and time away without any hassle. From start to finish the organization of this weekend was flawless. Dennis picked us

up at the airport approximately 5 minutes after we got our luggage. Kadidja answered all our questions and took care of logistics. Bikes were put together before we arrived!! The food was delicious and ample. The Saturday ride was epic, photographers around every corner and sag support from beginning to end. The encouragement was awesome. All in all it was an awesome weekend enhanced by the Hammer staff and the beautiful mountains."

- Steve Chew

"Very well organized, staff was incredible - servicing all our needs, getting to use new products under actual riding conditions was great, food was top notch - delicious. Weather was perfect, view breathtaking, very diverse group of people - some incredible athletes, great fun

meeting everyone and hearing their stories. A 5-star getaway. So fun to meet all the people I talk with on the phone when placing orders etc. Great job, thank you for a wonderful ride weekend."

- Caroline Smith

"What a great concept. My favorite part was riding with Steve (3x RAAM, Ultra Cycling Hall of Fame, Double 508) on the final 42 miles of the Highline loop and seeing a brown bear cross the road 4 miles to the finish! It was well organized. Great having SAG, fun having your bottles filled by Brian! Opening your establishment to 40+ athletes, giving them a chance to try any of the Hammer products is awesome. I salute you! It was a lot of work for Hammer, but Kadidja seemed to have the organization under control. I am grateful for the experience."

-Suzy Degazon

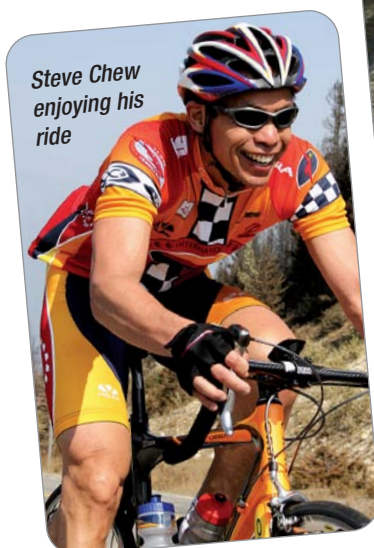
Plans for next year's event are already in the works. We're considering a two-ride schedule next summer, one in July and another in August. This will allow us to accommodate everyone who wants to attend and still maintain small group intimacy. Look for details in the February **Endurance News**. For other Montana riding options, read the JDRF article on page 11 of this issue.



Steve Born & Suzy Degazon make their way to the top of Logan Pass



Caroline Smith smiles for the camera



Steve Chew enjoying his ride



Hey, hey the gangs all here...2006 Group Picture



From the Archives

Bill Misner, Ph.D.
Director of Research & Product Development Emeritus

QUESTION : I received a notice of yours in the mail regarding the Daily Essentials and have a question. Where can I find the scientific studies or trials that back up your statements "improved recovery between workouts and races, enhanced support for the immune system and cardiovascular system", "greater endurance, better recovery, improved overall health, and potential life extension from healthier, more efficient mitochondria", and lastly "substantially increased endurance via more consistent and efficient energy production"? Thank you!

ANSWER : Your question is complex and is more responsively answered at www.hammernut.com in the Endurance Library section or those provided for each product. All E-CAPS and Hammer Nutrition products are formulated based on the evidence published in greater body of peer-reviewed science. Each product rationale should be reviewed. The supportive rationale references cited detail conclusive effects known & shown from substrate depletion-repletion cycles in complex energy-generating mitochondrion. Nevertheless an overview of 5 of over 100 substrates is reviewed. I chose these 5 substrates in terms of their importance to mitochondria function efficacy. The unmentioned others have similar supporting references in separate articles.

Mitochondrion Energy-Producing Units In Cells

Tiny mitochondria units, numbering as many as 2000 in each cell, are the central producer of energy for muscular contractions. Many substrates involved in gas exchange, pH balance, and waste carrier activities are recruited by the mitochondrion. The efficiency and rate of energy production are time- & volume-dependant upon the select substrate adequacy, without which,

energy production will deteriorate and subsequently fail. The mitochondria is a sausage-shaped organelle (structure) occurring in the cytoplasm of every living cell. It is the site of the cell's energy production. The number of mitochondrion in each cell varies according to the individual energy requirements for that cell - cardiac muscle (i.e. The muscles of the heart) contain several thousands of mitochondrion per cell while some other types of cells only contain only a few; however, the average number of mitochondrion in a human cell is 1,000. The inner membrane of the mitochondria contains the endogenous enzymes, coenzymes and endogenous proteins that generate our body's electron transport system (ETS). The intermembrane space is the space between the inner membrane and outer membrane of the mitochondria containing hydrogen atoms. The mitochondrial matrix is the innermost portion (space) of the mitochondria that contains the mechanisms for the Krebs cycle. The production of all cellular energy occurs in the mitochondria (by means of oxidation - using oxygen). The electron transport system (relating to energy production) occurs within the inner membrane (crista) of the mitochondria. The Krebs cycle of energy production occurs within the matrix portion of the mitochondria [1]. Energy can be produced during aerobic endurance exercise long enough to deplete many of the substances required and when that occurs the rate of energy production deteriorates.

Here are 5 of over 100 substrates required for energy production in time-dependant volume during prolonged aerobic exercise.

Substrate #1

ACETYL-L-CARNITINE (ALC) transports lipids into the mitochondria and helps to prevent the accumulation of toxic levels of lipids in the mitochondria.

Carnitine facilitates the transport of long-chain saturated fatty acids into the mitochondria. Carnitine molecules in the cytoplasm outside the mitochondria of the body's cells combines with a molecule of long-chain saturated fatty acid and a molecule of Acetyl Coenzyme A to form a complex that can penetrate the

wall of the mitochondria [2-6].

Substrate #2

One of the most important energy-dependant mitochondria metabolites is COENZYME Q-10. Coenzyme Q10 improves mitochondrial respiration in patients with mitochondrial cytopathies. After a six-month treatment with 150 mg coenzyme Q10 per day all brain variables were remarkably improved in all patients, returning within the control range in all cases. Treatment with coenzyme Q10 also improved the muscle mitochondrial functionality enough to reduce the average deficit to 56% of the control group. These in vivo findings show the beneficial effect of coenzyme Q10 in patients with mitochondrial cytopathies, and are consistent with the view that increased coenzyme Q10 concentration in the mitochondrial membrane increases the efficiency of oxidative phosphorylation independently of enzyme deficit [7]. Furthermore research demonstrates that coenzyme Q10 supplementation in rats resulted in significant increases in cerebral cortex mitochondrial concentrations of coenzyme Q10 [8].

Substrate #3

Due to its antioxidant properties, ALIPOIC ACID preserves mitochondria optimal function [9-10].

Substrate #4 - #5

VITAMIN C & E repairs damage to the mitochondria and facilitates the production of adenosine triphosphate (ATP) within the mitochondria. Ascorbic acid added to vitamin E exerts antioxidant effect to protect the membrane of the mitochondria from the toxic free radicals generated during energy production [11].

What Happens When Mitochondrion Function Fails

During prolonged exercise the blood sugar supply decrease. The liver starts an enzyme train to cannibalize lean muscle mass aminos and fat mass conversion including ketone bodies to keep up with energy demands, but as exercise continues spending beyond supply,

(see Dr. BILL on page 27)



Making A Difference : The Ride To Cure Diabetes *Bikin' Mike*

Steve's Note: As most of our readers know, the Diabetic and Wellness Foundation (DAWF - www.diabetic-sandwellness.org) has bestowed their seal of approval on Hammer Nutrition products. In June of this year, Team Type 1, a group of Type 1 diabetic cyclists, competed in the 8-person corporate division of the Race Across America (RAAM), fueled solely by "diabetic friendly" Hammer Nutrition fuels and supplements. After breaking all RAAM records (completing the 3052-mile course in 5 days, 16 hours, 4 minutes,) team leader Phil Southerland wrote to me saying, "Thanks to your products, and your crafty formula for using them, we had a very successful RAAM. I truly believe that it is because of Hammer Nutrition that we were able to not only set, but smash the record."

Prior to our sponsorship of Team Type 1, we began a partnership with the Ride to Cure Diabetes Foundation, helping to support their annual events. Thus, we were very excited when we found out the organization was planning an event right here in Whitefish...

The Ride To Cure Diabetes

The first call I got was from Carey Duke. He was an area cyclist who had a mission. He had heard of a ride called the Ride To Cure Diabetes that was scheduled for Austin, Texas in September 2002. With a wife and child who were dealing with Type 1 diabetes every day, he wanted to "ride for them" and help raise funds for a cure.

He told me that he wanted to train for this 100-mile ride and he needed my help. We got together and began working up a plan and then got busy riding and training for the big event. When it got closer to the date of the ride, he asked me if there was any way that I could go and ride with him. Having a good friend in Austin, I told him I would travel to Austin and offer technical support assistance to the event organizers. That way, I could be out on the road cheering him on without imposing on the event.

Long story short: the organizers and I hit it off from the very beginning. I helped them in many ways and they offered me a room, meals, and the chance to ride with Carey on the day of the ride. As we finished the ride that day, I knew that this event was going to be in my future.

Sure enough, the organizers called me later and asked me if I would be willing to join their National Support Staff, a group of volunteers who fly in and help them with each of their Ride to Cure Diabetes events. From that day forward, I went to every one of their events, building bikes, coaching cyclists, running errands, loading trucks, and anything else I could do to help.



What I enjoy most about these rides are the participating cyclists. Most of them are not avid cyclists, but instead are people with children, siblings, or spouses who have Type 1 diabetes. Motivated by a desire to help make a difference by raising money for a cure, they need and appreciate any and all assistance to help them achieve their goal of riding 100 miles. Over the years the ride program has improved and grown larger, adding new sites and raising more money.

Last year I got a call from Cindy Brothers, the manager of the ride program, asking me to join her on a trip to Whitefish, Montana to scout the location as a possible new site. Since Hammer Nutrition had been a big supporter of the ride program (by donating Endurolytes and Hammer Gel to all the rides), I called Steve Born for assistance. He met with us when we arrived and spent a great deal of time driving us around town, showing us possible routes and later introducing us to the fine folks at Glacier Cyclery.

Between all this help, we found our routes and designed our event. Later, Steve and Peggy helped us even more

(see JDRF on page 23)

Ride In Montana *Brian Frank*

In 2007 you'll have two more opportunities to discover, or revisit, the Flathead Valley and our Whitefish headquarters, and to meet and ride with our staff. If you'd like to come to Montana next summer to do some riding, but the Highline weekend is too ambitious for you, doesn't fit into your schedule, or is simply filled up, consider one of the JDRF (Juvenile Diabetes Research Foundation) rides that will take place in Whitefish. It does entail a good bit of fund raising, but you will support a very worthy cause. As an incentive to do the fund-raising, you will be rewarded with an all expenses paid trip to Whitefish for the ride.

Dates of next year's JDRF event are not yet confirmed, but based on this year's success, it's pretty well a done deal. Although we offered quite a bit of help, as detailed in Mike's accompanying article, I am committed to stepping up our involvement in the JDRF "Ride for a Cure" rides in Whitefish in 2007 and beyond. Besides product and equipment support, we plan to have several staff members, including Steve and myself, present for the whole weekend. We'll do the ride, lead a tour of our facilities, and possibly even host a mixer and/or brief clinic at our headquarters.

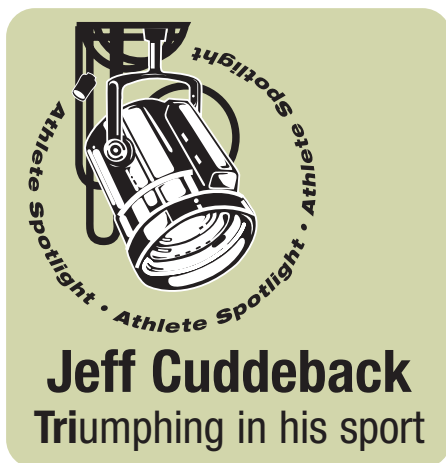
We have yet to set the Highline dates or decide if we will schedule two separate rides. We just wanted to get you thinking about it sooner rather than later. Look for more details in the next issue of **Endurance News**.

"I participated in the recent JDRF Ride to Cure Diabetes in Whitefish, on behalf of my daughter Mabel, who was diagnosed with Type 1 diabetes five years ago.

I want to thank Hammer Nutrition for your support of this event. Everyone in Whitefish gave our family a great welcome, and we really enjoyed our stay. ***It was my first chance to use Hammer products, and I completed all three stages of the ride, covering 120 miles in eight hours, my best performance ever. I'm a Hammer convert!***

I'm planning to return to Whitefish for the ride next year, and I hope Hammer will continue to support this event."

Charles Plueddeman



Our Athlete Spotlight for this issue is one of our long-time clients and all-around great guy, Jeff Cuddeback. An outstanding athlete, Jeff's a three-time NCAA All-American swimmer who has been on the triathlon scene since 1983, with multiple top Ironman finishes. A much sought-after coach with 20 years experience and an M.A. in Exercise Physiology, Jeff knows how to do it and how to help you do it, too. Check out his coaching service, Triple Fitness Training, at www.jeffcuddeback.com.

Jeff's list of accomplishments are so lengthy, I think they'd fill a book! (hint: Jeff, you should write a book about your triathlon experiences!). Seriously, Jeff's accomplishments are numerous and incredible, and among them are age-group records (35-39, 40-44, 45-49) at the Ironman World Championships. While the 40-44 and 45-49 were broken in 2005 (the 45-49 record by a scant 12 seconds) under the best conditions in years, Jeff still holds the 35-39 record set in 1993 with a time 8:49:57, one of the oldest records on the books.

In addition to that, Jeff is a four-time national triathlon champion. His most recent accomplishment is an age-group (M45-49) win at the recent Ironman Canada (August 26). Jeff's time of 09:34:04 was over 20 minutes faster than the second-place finisher in the age group and fast enough for 24th place overall.

EN: First of all, congratulations on a great race in Penticton. It was great to see you there. With the weather being quite warm and with residual smoke in the air from nearby fires, it made conditions even more difficult. Was that on

your mind when you started the race?

Jeff: I was very calm pre-race. Lined up right up front at the swim start and felt absolutely great in the water. I had a couple good swim workouts the 2 weeks leading up to the race and felt I could go 52 minutes for the swim. The pros started 15 minutes before the rest of us, so it would be the best amateurs only up front, and this affected the speed of the lead pack. I was looking at my watch and was thinking we're going too slowly; I'm not going to do 52 minutes. I was tempted to pick up the pace and leave the safety of the pack, but it was just so comfortable there that I knew it would be a mistake. I exited the water in 53 minutes and felt terrific. The smoke had absolutely no effect on my performance. I thought we had a great day to race, and I never felt any smoke at all.

EN: Overall, how do you feel your race went?

Jeff: I was very pleased with my swim and bike. I live in Central Florida where I train everyday in high humidity and 90 plus degree temperature. Canada was such a nice change with temps on the bike 10 degrees cooler and low humidity. For the most part I felt very good on the bike. My only disappointment was how poorly I rode Richter pass. I was riding very well until I hit Richter. Ideally I would have liked to ride Richter in training before the race because it was more difficult than I expected. Riding Yellow Lake was very cool because there were so many fans cheering; it was almost Tour de France-like. Of course the mostly downhill last 15 miles was very fun, too.

I was most disappointed with my run. The first half of the marathon I never really got into a good rhythm. My legs didn't feel particularly bad; I was just kind of going through the motions. After my second unsuccessful Portalet break at mile 12, I began to wake up. I received some additional fluids at Special Needs, and that really helped. The temperature by this time had risen to a high of 93 degrees and the headwind we had going out was now at our backs. It was getting hotter and I was thinking, "These are my kind of conditions. This is still a lot easier than Florida-lets get going." I actually ended

up negative splitting the marathon by 6 minutes, but I had given up too much the first half.

EN: How would you rank this effort compared to some of your other races?

Jeff: I think I gave an honest effort for the most part, but truthfully I was a little disappointed with my run. I should have/could have run better the first half, and I think the reason was I just wasn't trying hard enough. I was very happy with my bike and don't think I could have ridden much harder.

EN: Speaking of other races, could you give us a list of your primary accomplishments/race results throughout your over 20 years in the sport?

Jeff: I've been racing since 1983, so this is my 23rd season of competition. I started when I was 24 years old and I'm 48 now. During that time I have had an opportunity to race at the very elite age group level and early on in my career as a second tier pro, when it didn't take much to call yourself a pro. I have been an overall USAT National Champion, a World Champion, and several times age-group National Champion. I was the first person ever to win the "Triathlon Triple Crown" by winning my age group at USA Nationals, ITU World Championships, and The Hawaiian Ironman in the same year. I have been named Triathlon Magazine Amateur Athlete of the Year, Master of the Year, and in 2003 my Hawaii race was named the amateur "Race Performance of the Year." I am also the only person to ever hold three simultaneous Hawaiian Ironman age group records.

One of the things I'm most proud of is my longevity in the sport, and except for the rare occurrence I have remained remarkably injury free (knock on wood) all this time. This may be because I have learned how to balance extremely hard training with active recovery and total time off. I also have a real passion for the sport and love the challenge of getting back in shape after a layoff. One thing that is really cool is experimenting with your body in training and learning what it can and cannot handle. A goal of mine is to absolutely minimize the insidious and incremental decline in performance as I age.



EN: Of those accomplishments do you have a top two of your most satisfying races?

Jeff: Probably I'm most proud of my 1993 Hawaiian Ironman where I set my first age group record. About as close to a perfect race as I've ever had.

Another very proud moment was the Ironman qualifier in Muskoka, Canada in 2003 (2K swim, 35 mile bike, 15 K run). There was only one slot for my age group and it was a cold, raining day on the bike. I hate the cold and had a miserable bike and started the run in fifth place, 5 minutes down on the age group leader. Remarkably though, when I got off the bike my legs felt great. I kept thinking second place means nothing; this is my "Olympic qualifier." It was probably the best run I've ever done, and I won the slot. Having my wife Kim to greet me at the finish made it all the more special.

EN: If you had to pick one race where everything fell into place perfectly, which race would it be?

Jeff: The 1993 Hawaiian Ironman, as I mentioned, was probably the race I was best physically prepared for. Everything fit and I'm not sure how I could have gone any faster.

The 2003 Hawaii was one race that I am very proud of, not so much for how fast I went, but for sticking to my race plan and persevering. In 2003 Rob Barel returned to Hawaii to race as an amateur. Rob is the great triathlete who was on the 2000 Netherlands Olympic team, former Nice Triathlon Champion, and back in the day 4th place overall at Hawaii. I knew if I were going to win I would have to beat Rob. He passed me early on the bike and then much later had a mechanical and lost a couple minutes. I kept expecting him to re-catch me on the bike but he never did. My race plan was to go extra hard with one hour to go on the bike. When I got one hour out I tried to make an extra effort to go harder still (this is the point of the race where most people just want to get off the bike and be done). I knew if I was going to beat Rob I had to go hard now! After the bike I felt just awful for the first 18 miles on the run and actually had to take short walking breaks the first hour. I kept

thinking "I know I'm fit, I know my legs will wake up, just keep pushing." I really struggled to hold it mentally and physically together. Finally exiting the Energy Lab, I began to feel better. I pushed that race as hard as I could, chasing a record and knowing a world champion was tracking me down. After the race Rob said "Jeff, I saw you up the road 300 meters (at around 90 miles)



but I couldn't catch you. You just pulled away. You had a great race."

EN: Conversely, what's the worst experience you've ever had in a race, and what did you learn from it?

Jeff: My worst physical experience came in the 1989 Hawaiian Ironman. My first time in Hawaii in 1985 I went to experience the course and participate in the entire drama of the event. I was a complete novice that first Ironman and drank way too much water and peed 9 times on the course (4 on bike and 5 on the run). I figured I lost close to 10 minutes just in pee breaks. I also ate figs on the bike (because I heard Dave Scott did) and had a major blowout at mile 15 on the run. So in 1989 I came back to race it! First mistake from 1985 was too much fluid, so in '89 I drank much less and didn't have to pee at all (probably not a good thing; we didn't even think about electrolytes back then). Unfortunately, I was extremely dehydrated and on the verge of bonking with 10K to go on the run. I kept consuming

the Exceed calorie drink that was at the aid stations (and not drinking water) because I felt I needed the fuel. As I drank the Exceed my stomach just kept getting more and more bloated. But I was running really hard and passing competitors. In 1985 I had finished 20th overall and my goal this year was to crack the top 20. After running very hard for the last 2 miles I had passed 5 guys, hammered down Palani Hill, and had moved into 18th place. I envisioned accomplishing my goal and kept pushing very hard. Just as I turned on to Alli Drive (exactly at the same spot where a couple years later Paula Newby Fraser had her meltdown) with just 400 meters to go, the lights went out.

Out of the blue, I felt like somebody just cold-cocked me. My low back muscles completely gave out on me and I hunched over at my waist unable to stand up. I didn't collapse to the ground, but I couldn't stand either. I started to lose all neurological control, and my entire body was shaking. I was twitching all over and couldn't control my body's movement. After what must have been 20-30 seconds I somehow willed myself forward to continue, but I was now no longer running. I half shuffled, half walked to the finish line. All I knew was that I was not going to crawl and somehow when I crossed I was going to wave my visor in celebration (very weird thoughts to be sure). All 5 guys that I had just passed re-passed me in that quarter mile. When I finished I collapsed in the arms of the catchers who whisked me to the medical tent. They took a rectal temperature and I had a reading of 105.8 degrees. They packed me in ice, gave me 2 IVs and I blew my guts out. I remember Scott Tinley lying on the cot next to me eating an entire package of Pringles Potato chips. He was lying there munching on his chips and just looked at me as I blew lunch and said, "Not cool man, not cool." I'll never forget that entire episode.

I learned a lot from that experience. I learned the absolute importance of having a proven hydration and nutrition plan. I learned that I had the mental ability (or stupidity) to absolutely disregard the vital messages my body was sending me. And I also learned that in

(see **ATHLETE SPOTLIGHT** on page 15)

Complex Carbs or Multiple Carb Source : Which is better?

Steve Born

Q: I recently read an article in a bicycling magazine about a study that suggested that a combination of simple and complex carbs allows for a larger uptake of glucose into the system per hour than maltodextrin alone. What is your response?

A: We're certainly not going to argue with the results of the series of studies authored by the famous Dutch sport scientist, Asker Jeukendrup. In general, he found that a blend of carbohydrates increased oxidation rates, which means higher amounts of energy were produced. While some research showed that complex carbohydrates allowed upwards of 4.6 calories per minute to be converted to energy, most of the research has shown that complex carbohydrates allowed for 4.0 - 4.1 calories/minute, or approximately 1 gram/minute. In one

of Jeukendrup's studies he found that cyclists who ingested a 2:1 mixture of maltodextrin and fructose were able to oxidize up to 1.5 grams of carbohydrate every minute. In another study - using a mixture of glucose, fructose, and sucrose - oxidation rates peaked at 1.7 grams per minute.

However, the intensity of the cyclists in the study was only 50-55% maximum power output, which I think we'd all agree is very much a recovery pace, if that. Therefore, an interesting question to then ask would be whether or not these results would be transferable to athletes competing in higher intensity bouts of exercise and/or longer than the 2.5 hours that the studies were based on. I don't have the answer for that, though I can say that an overwhelming majority of the athletes we've worked with, athletes engaged in typical 75-

85% efforts and/or in multi-hour endurance events, the combination of simple sugars and long chain carbohydrates, and in amounts higher than 4.0 - 4.6 calories per minutes, have not yielded positive results, but did increase performance-inhibiting, stomach-related maladies.

Bottom line is not whether or not Jeukendrup's published studies are disputable, but rather if the results of these studies would work in faster paced, longer duration bouts of exercise.

Hammer Camps : Come train with us!

Brian Frank

Over the course of the past several months, I've developed an increasing interest in doing our own version of the increasingly popular "training camp" concept. Between the planning and execution of the annual Highline Hammer event and my experiences over the past 10 years participating in European tours, I've got a pretty good idea of what it takes to make for the most enjoyable and educational experience possible. The idea is to tie together our nutrition and fueling philosophy with the expertise of coaches we work closely with like Jeff Cuddeback and Jim Bruskowitz in the plush, turn key facilities offered by The Cycling House in Tucson, to create a one of a kind 3-5 day experience.

Essentially, we'll be living together for the duration of the camp which will allow for ample one on one time with



Steve, myself, the coach and the elite cyclists that will be your domestiques during rides. That will allow us to tailor everything to your specific and individual needs. From airport pick up to airport drop off, you will be pampered like never before - from building and tuning your bike to gourmet meals, personalized fully sag-supported daily training rides and tons and tons of education in an informal, living room discussion type of setting, I truly believe these camps will be one of a kind. Go to www.thecyclinghouse.com to get a good idea of what it will be like.

For 2007, I'm thinking of doing a 3-5 day camp during the 2nd week of January and again the 2nd week of February in Tucson. I'd also like to do a

longer camp in Spain in early April and then in 2008 add a 2nd extended European camp in the first two weeks of June riding in the lake region of northern Italy. Of course, the Spanish and Italian camps would be more like 10 days long. Each Tucson camp will be limited to 8-12 athletes and with an estimated price of around \$400 per day, these will be somewhat exclusive. European camps could accommodate 12-16 athletes and would most likely be less per day, exclusive of airfare.

If joining us for an experience like this sounds intriguing to you, please let me know. I've set up a special e-mail address for this purpose:

hammercamp@hammernutrition.com

Send any feedback or suggestions you have to me here or a quick note indicating your desire to participate in one of these camps and I'll build a list from there and continue to finalize plans over the next two months.



(ATHLETE SPOTLIGHT from page 13)

rare cases when the individual is totally ignoring the messages the body is sending, the innate intelligence of the human body will find a way for the individual to pay attention. For me my weak chink in the armor was my low back muscles. My body, by causing my back to spasm, forced me to stop and likely thwarted serious and potentially very dangerous heat exhaustion/heat stroke. I'm convinced that if I hadn't been forced to stop when I did I would have done serious harm to myself. As it was, after the IVs and a couple hamburgers I felt much, much better. For the record I went 8:52:28 and finished up 23rd overall, 1 hour and 8 minutes faster than I did in 1985. Not a bad day.

EN: Could you give us a brief synopsis of what your training program looks like as you're preparing for a half or full iron-distance race?

Jeff: I just try to stay real consistent with my training. I like to ride and run at least 5 days per week, sometimes more. Most of my runs are bricks with the exception of my long run. I like to do sustained efforts on the bike and runs that are significantly faster than race pace. As I age, I think this is extremely important when doing Ironman training in particular. I also try to negative split each workout, especially the run, and will often do short intervals the second half. I am not a slave to the training log and absolutely listen to my body now. When it tells me I'm tired I have no problem turning around and going home.

EN: I know that as I've gotten older I've focused more on the quality in my training versus the quantity, and, having done that, I've seen better results. Would you agree with that line of thinking?

Jeff: Absolutely. Too many older athletes I believe get caught up with just logging miles at the expense of their speed. When I was 30 I could do a ton of mileage and still be fast. Now if I don't do speed work, I just get slower.

Well, I hope I'm more laid back now than before. By this I mean I don't get too stressed if I can't get 100% of the workout completed as planned. Also, I know there is great value in repetition of training and skill development. Some days I work just on running form or

cycling techniques, and over 50% of my swims are all drills. I believe the body really appreciates this active recovery. For example, I do a significant amount of stationary bike training working on technique, spinning, and isolated leg training, as well as interval training. In the earlier days I never did trainer workouts, I just went out and hammered every single time.

EN: Can you give us a description of your daily supplement regimen is?

Jeff: As you know I've been with your company since the early 1990s. There are so many excellent supplements that it sometimes becomes difficult not to want to take everything. I try to keep it simple and use the supplements that I know my body needs, like the Daily Essentials. Also, I take 2-3 Super AO's everyday in training. I started using Super AO when I turned 44 while training for Florida Ironman. After doing very little training through July of that year I put together an 11-week crash program to qualify for Hawaii. Every week I was amazed by how good I was feeling. As the training progressed my goal of simply qualifying evolved to actually winning the age group. The only thing different I had done in my Ironman prep from previous years was that I was taking Super AO. After the second week I felt the difference and was able to string together several consecutive days of high quality training. Florida Ironman was an excellent race and I went 9:11 and finished as first masters. I also use Xobaline on a daily basis as well as Anti Fatigue Caps, Sustained Energy, and Perpetuem.

EN: Tell us a little bit about Triple Fitness Training

Jeff: Triple Fitness Training is my private coaching company designed specifically for triathletes. I have a Masters in Industrial/Organizational Psychology as well as a Masters in Exercise Physiology. For more than 10 years I have been coaching triathletes of various abilities ranging from the novice to the elite age grouper and professional. I strive to match the athlete's family, career, and social demands with their goals and level of motivation into a realistic and individualized training schedule that will maximize the athlete's potential for improvement. This is accomplished after we mutually set our

short-term and long-term goals for the season and beyond. I feel I am uniquely qualified to provide excellent coaching as I can draw upon my years of experience as a competitive triathlete and also personally relate to the challenges my athletes encounter. I am still competing at an elite level while experiencing all the outside influences (family, career, etc.) that impact one's ability to train and race as desired, just as my athletes experience.

EN: What are your future goals?

Jeff: I would love to go back to Hawaii and race as a 50 year old. In the past I went to Hawaii about every 5 years, so it will be time. I hope to qualify next year at Florida Ironman in 2007 for Kona 2008. Of course, there also is this issue with wanting to stay competitive with the younger guys. I hope to always stay fit enough so that when I'm at a race, I actually feel like I'm racing and not going through the motions.

EN: What are some primary tips/helpful hints that you can offer to aspiring triathletes, based on your wealth of knowledge and experience?

Jeff: Consistency in training is far more important than duration, especially for novice triathletes entering sprint or Olympic distance races. Have patience with your fitness. If you do one or two events per day in training, you are going to improve. Sprinkle in some tempo efforts in all three disciplines. Avoid the gray zone in your training when you neither go easy enough to provide active recovery, nor hard enough to force an adaptation effect. Don't do the same kind of training every day, but add variety to each workout. Lastly, if you aspire to do Ironman, give yourself several years experience before doing one. And don't let your first marathon be in the Ironman!

Jeff, it's been great catching up with you, I just wish we had more time and space to talk further. I want to congratulate you on your superb accomplishments over the years, for your most recent effort at IM Canada, and I wish you the best of luck in all your future endeavors, as well as continued success with Triple Fitness Training.

Compex : Off-Season is Compex season

Jason Kinley

The season is almost over, so I have begun evaluating the year. What could I have changed or done better? How much more suffering could I have really endured in training and racing? How many more times could I stand riding in cold, wet weather for 100 miles?

These thoughts all come to mind to many of us, and we use them to plan for a better season next year. We often look ahead to next year immediately after an absolutely grueling race; in fact, I already started planning how to improve my performance at next year's Endurance 100 mile mountain bike race just 12 hours after I finished.

For off-season training we usually turn towards the weight room and resistance training. Most of us begin to become re-acquainted with the equipment by using a resistance that allows 12-15 repetitions. After the initial adaptation phase, we move into the strength phase, which involves a much larger mass (weight) and increases the risk for injury. This is followed by explosive strength and then endurance in the weight room and in training in the pool, on the bike, or on the run.

What if you could replace the risk of injury and the inconvenience of going to the gym and at the same time achieve even better results than you thought possible? Welcome the Compex E-stim muscle stimulator. This device can make you stronger and faster than you thought possible. It reduces injury risk and can help return your fitness base lost due to an injury in a fraction of the time required by conventional rehab protocols.

The Compex works by passively recruiting muscle fibers through applied electrical stimulation. This stimulation causes the muscles to contract and relax at set frequencies. These frequencies determine the muscle fiber to be stimulated, either fast-twitch, slow-twitch, or a combination of the two. The duration is also pre-selected depending on the program being chosen.

The body's natural muscle recruitment process actually generates its own electrical current. Each motor neuron has a certain action potential (the

amount of current needed to stimulate a neuron or cell), measured in millivolts. As the body supplies more current, it will recruit more fibers, similar to an ice cube tray being filled. If you fill the water at one end, it will eventually spill over to the next well and on down the line.

The problem is that we are not able to recruit a large number of our own muscle fibers because we cannot generate enough charge to create the "spill over" effect. The Compex can help us to tap into these fibers because it supplies the charge. This means more fibers become available for training and racing because the neurons do not need as much of a charge to stimulate them. This is similar to riding 100 miles for the first time, which can be a difficult experience, both physiologically and psychologically. Once it becomes more frequent, riding 100 miles becomes familiar, so you know what to expect, and your muscles have adapted to that level of usage.

By applying the principles of recruitment, we can engage more muscle fibers. This allows us to receive the muscular benefit of strength training using a heavy mass, but without the associated risk of injury. Below is an objective view of my own personal experience using the Compex.

Compex vs. Traditional Training

This is the question many people ask, including myself, when I first started using the device. I decided I should compare actual test data using traditional strength training versus the Compex. In 2004 the subject was a 23-year-old male with a mass of 71 kg (156.5 lb). The exercise chosen was a seated leg press with the sled on an angle of 45 degrees, and resistance set at 85-90% of the 1RM weight 340 kg (750 lb) for 3 sets of 3-6 repetitions. The

strength program was continued for two months using the seated leg press, leg curls, and leg extensions. At the end of two months, the 1RM leg press increased from 340 kg (750 lb) to 567 kg (1250 lb).



Michael Frommlet
'compexes' after the
2005 Highline Hammer

In 2006 the subject was a 25-year-old male with a mass of 72 kg (159 lb) who used the Compex Sport model Strength program on the quadriceps only. The subject had not done any resistance training for two years (since the conclusion of the last strength program). Pre-Compex 1 RM was 362 kg (798 lb) using the same type of leg press as used in 2004; post-Compex strength program 1 RM was 596 kg

(1314 lb.)

Using only the Compex demonstrated an increase of strength over pre-testing and an increase over the 2004 results. For this subject, Compex was a more effective method of strength training than resistance training. Also, the subject achieved this result using the Compex only on his quads; had the device been applied to his glutes and hamstrings, the increase likely would have been greater.

PRE-PROGRAM

Resistance Training 2004

1RM 340 kg (750 lb)

Compex Strength Program 2006

2006 362 kg (798 lb)

POST PROGRAM

Resistance Training 2004

1RM 567 kg (1250 lb)

Compex Strength Program 2006

596 kg (1314 lb)

Compex Models & Programs

Which Compex should you purchase, and how will you use it? These are two big questions. There are two units available - the Fitness model and the Sport model. The Fitness model has three programs: Resistance, Endurance, and Active Recovery. The Sport model has those three plus Potentiation, Strength,



and Explosive Strength.

Each program has a specific function:

- **Resistance** is similar to going into a gym and doing 3 sets of 12 repetitions.
- **Strength** is equivalent to 3 sets of 6 reps. Compex eliminates the risk of injury associated with traditional strength training using free weights or machines.
- **Explosive Strength** enhances interval training by replicating the firing of the muscles in the same manner.
- **Active Recovery** is like receiving a massage; the higher the intensity, the deeper it works.
- **Potentiation** is a very short, useful, warm-up program. It lasts about 3 minutes and is equal to the muscular warm-up of riding for 45-60 minutes.
- **Endurance** works the muscles in the same manner as if you rode your bike for 2.5-3 hours.

If you are looking at the Fitness model, I recommend starting in the off-season with the Resistance program for about 4 weeks for an adaptation phase. This is if you will then be going into a gym to go into lifting heavy resistance for pure strength training. If you are not, then use the Resistance program for about 12-14 weeks and the switch over to the Endurance program. Active Recovery can be used every day, and I encourage its use at least every workout day.

The Sport model has more programs that need to be looked at in regards to your sport. Ultra cyclists, ultra runners, Ironman competitors, and adventure racers have a different tempo and intensity in their events, than track racers, criterium racers, Olympic distance tri-athletes, and anyone else competing in shorter events. This needs to be looked at when laying out your off-season program. For specific advice, please feel free to contact us. Below is a general guide.

Begin with Resistance for about 4 weeks as an adaptation phase and then switch over to the Strength phase for 8-12 weeks. This is where things can change slightly depending on the length of your events. For shorter distance athletes I recommend then changing to the Explosive Strength for 4-8 weeks, depending on when your season starts.

This can be used on the same days as your interval training, and I encourage you to do so. Use the Compex Explosive Strength after the intervals, not before, as you do not want to fatigue the muscle. Then switch to the Endurance program for about 4 weeks as you then begin to slip into your normal training. The goal is to have the program completed about 4 weeks prior to the start of your season or your first big race.

If you are a longer distance athlete, I still feel the Explosive Strength program has its place, but I suggest that 4 weeks is plenty of time if you choose to use it. The Endurance program will be a larger part of your pre-season and in-season work.

The one area I did not address specifically above is the level or intensity at which you should use the different programs. The initial level for all programs will vary by individual as everyone has a different level at which they can begin based on feel. When changing from one program to another (Resistance to Strength phase) be sure you reduce the intensity, as the muscle is fired differently between programs. I do recommend around 15-25 mAmps to begin with for all programs. Increase to the highest possible mAmps you can tolerate on all programs except the Active Recovery. I recommend you begin the Active Recovery program no higher than 40 mAmps. The program will automatically adjust from there.

Using the Compex can help you achieve and surpass goals like never before. You can find out more about this amazing product on our website, www.hammer-nutrition.com; the Compex link is on the left side of the home page. Also, please remember that we love to help our customers, so please call if you have any questions about the Compex.

Train hard, train smart, rest well, and above all, have fun!

Jason Kinley is a member of the Hammer Nutrition staff. His degree in Exercise Science gives him a great background for his role as a Client Advisor and his experience racing 24hr solo events gives him unique expertise when he's at the races helping the athletes. Be sure to look for him on course manning the Hammer tent.



**Build strength,
power &
endurance for
\$29.95!**

'Try Before You Buy' a Compex for 30 days. If you are not completely impressed and amazed by the Compex Sport or Fitness Trainer, return it and owe nothing. If you choose to purchase the unit after 30 days, pick from 2 money-saving options!

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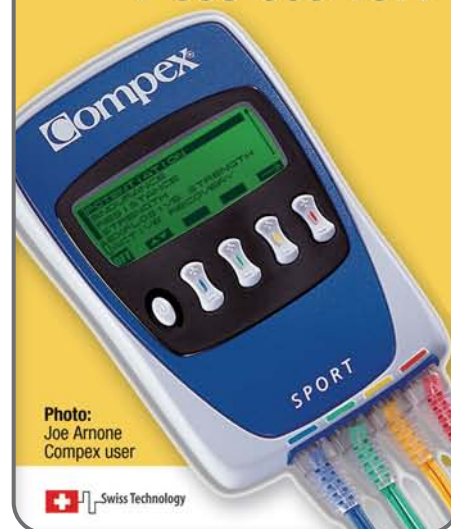


Photo:
Joe Arnone
Compex user

Swiss Technology



Welcome to the late summer/early fall issue of Endurance News. It's our biggest issue yet!

I know I must say it at this time every year, but where did the summer go?!? Can you believe it's darn near autumn? Anyway, I hope you've had a great summer, filled with lots of great workouts and races. As you read through this issue, you'll probably notice that it's loaded with more race results and testimonials than ever. We've dedicated more space for results/testimonials, but it's still only a small representation of what we receive. More and more athletes are finding out about the benefits of our supplements, fuels, and knowledge resources... and it's all good!

Races, races, and more races!

As most of you know, I manage (with superb help from Carole Arthur) all of our event sponsorships. This year looks like it's going to be our best year ever; we've got over 1700 events on the calendar so far, so we're right on target for the 2000 mark. That's right, 2000 races sponsored by Hammer Nutrition! Already this year we've handed out 416,640 bags, nearly matching last year's total of 420,858 race bags, and we still have three months to go. We could reach the half-million mark! Event sponsorships start tapering off in October, but only slightly. Look at the following sample of our October events, and you'll see some big-time races:

Virginia Double & Triple Iron Triathlon
www.usaultratri.com
Furnace Creek 508
www.the508.com
Canandaigua Ultra Run
www.canlake50.org
Savannah River/ Augusta Canal

Adventure Race
www.kandoadventures.com
Arkansas Traveler 100 Ultra Run
www.runarkansas.com/AT100
Croom 50K Trail Run
www.wecefar.com
Land Rover Pumpkinman Triathlons/USAT Club National Championships
www.bbseendurancesports.com
Texas Time Trial Ultra Cycling Race
www.tt24tt.com
Great Floridian Triathlon Festival
www.sommersports.com/events/greatfloridian
North Carolina Triathlon Series Championship Invitational
www.set-upinc.com/rp5/nctschamp
Solvang Autumn Double Century
www.planetultra.com
Whiskeytown 50K Trail Run
www.whiskeytown50k.sweatrc.com
Death Valley Fall Century & Double Century
www.adventurecorps.com

Also, while our November sponsorship calendar remains incomplete, we do have these fine events already on board:

GoLite USARA Adventure Race National Championship
www.usaranationals.com
Helen Klein Ultra Classic
www.ultrarunner.net/hkmain.html
Rockledge Rumble/2006 RRCA Texas 50k State Championship
www.nttr.org/html/rockledge_rumble
Nevada Silverman Iron-distance Triathlon
www.silvermannv.com
Miami Man International & Half-Iron Duathlon/Triathlon
www.multirace.com
Ultracentric Ultra Run/2006 National 24 Hour Run Championship
www.ultracentric.net

I've said it before and I'll say it again: If you're doing a triathlon, mountain bike race, road or ultra cycling race, adventure race, or ultra running race, there's a good chance you'll see a Hammer Nutrition presence there. We sponsor so many events because it's good marketing, but equally important is that we want to support endurance sports. As we approach that 2000-event mark for the year, our slogan "We Support Your Sport" means more now

than ever.

The Endurance Athlete's Guide to Success - The 100,000 mark is imminent!

Our popular fueling handbook/resource has been in print for nearly four years now. When Brian and I wrote the first edition of this booklet, a slender 22 pages, we both hoped that it would be of some help for endurance athletes. Now we know without a doubt that it has had a definite impact, as we're nearing the 100,000 mark of hard copies. Add in some 13,000 downloads a month from the website, and you know that "The Guide" is truly on its mission of guiding endurance athletes to their best performances and overall health.

Needless to say, these numbers far exceeded any of my wildest expectations, so it's very heartening for me knowing that this little booklet has helped so many athletes take the guesswork out of what constitutes proper fueling. If you haven't yet read *The Endurance Athlete's Guide to Success*, I encourage you to do so; it contains much vital information. Get a hard copy (that is, paper copy, not a hardback book) for \$1.99, or download a free copy from our website at www.hammernut.com/downloads/fuelinghandbook.pdf

On behalf of all the Hammer Nutrition staff, I want to thank you for helping us to have another great summer season. It's because of you that we're enjoying another record sales year, and we sincerely thank you for that. If you've completed your competitive season, I hope you had a good one, and please check out my article on post-season supplementation. If you still have competitions on your calendar, I hope they go really well for you, and definitely check out Nate's and Jim's articles on tapering, as well as Jason's article on the Compex.

Remember, we're here to help you achieve your performance goals and keep you in top health. When you have questions about supplementation or fueling, please contact us by phone or email.

Have a great autumn!
 Steve Born



USAT & Hammer Nutrition Partnership : It's official!

Steve Born

If you're a multisport athlete, you probably belong to, or have come in contact with, USA Triathlon (USAT). The hard-working folks at USAT serve duathletes, triathletes, and aquathletes in their passionate endeavor to set a personal best. USAT coordinates and sanctions both grass-roots and elite multi-sport events across the country and strives to create interest and participation in those programs. The 60,000-strong membership of USAT includes coaches, officials, parents, and athletes of all ages.

Although we have been sponsoring hundreds of USAT sanctioned/partnered events over the years, it's now official: we recently signed an official agreement with USAT, effective through the end of 2007, which will provide more visibility for both entities. Also, Hammer Nutrition is the official supplier of gel nutrition for USA Triathlon, USAT Grand Prix events, and USAT owned and partnered events.

What does this mean? Well, it doesn't mean merely cutting a check and calling it good. It means that our commitment to multisport athletes, race directors, and events, as stellar as it's been, will continue to grow and increase. In 2007 you'll see Hammer Nutrition's presence at even more multisport races, as well as USAT camps & clinics, along with support for Team USA athletes. We've been involved in multisport races from the very beginning, and now, with our partnership with USAT confirmed, that involvement is at an all-time high.

Some of the premier USAT events we sponsored in 2006 include:

USA Triathlon Collegiate National Championship

Reno, NV

USA Triathlon Short Course Duathlon National Championship

Mason, OH

USA Triathlon Haul to the Great Wall Series

Long Beach, CA

USA Triathlon Intermediate Distance Age Group National Triathlon Championship

Kansas City, MO

USA Triathlon Sprint Distance National Championship

Guntersville, AL

USA Triathlon Youth National Championship

Wisconsin Dells, WI

USA Triathlon Club

National Championship

Las Vegas, NV



In addition, Hammer Nutrition has sponsored several USAT camps, clinics, expos, and banquets throughout the US. Lastly, 2006 was the inaugural year of the USAT Grand Prix Series. According to the USA Triathlon website (www.usatriathlon.org/Events/2006_Grand_Prix/GP_Triathlon.htm), "The aim of the Series is to showcase a selection of the best USAT sanctioned events and to give each race the opportunity to exhibit its individual characteristics on a national stage. The races in the Series were selected based on strict criteria that included sanctioning compliance, safety, quality, and athlete support. Each year, USAT will select Grand Prix events based on their previous year's evaluation. This will allow each race to showcase their individual characteristics on a national stage."

We've already been sponsoring a majority of the Grand Prix races, some of them for years. This year we've sponsored:

St. Anthony's Triathlon

St. Petersburg, FL

Turtleman Triathlon

Shoreview, MN

Tugaloo Triathlon

Lavonia, GA

Westchester Triathlon

Rye, NY

Carpinteria Triathlon

Carpinteria, CA

Brandywine Valley Duathlon

Delaware City, DE

Lazy E Duathlon Formula 1

Guthrie, OK

Shamrock Duathlon

Glastonbury, CT

Apple Duathlon

Sartell, MN

Tri the Parks Du-Mistletoe St. Park

Elberton, GA

July 4 Duathlon

Sunrise, FL

RattleSnake Duathlon

Aurora, CO

Clemson Triathlon

Clemson, SC

Breezy Point Triathlon

Norfolk, VA

Lifestyles Realtors Beaches

Fine Arts Sprint Series

Ponte Vedra Beach, FL

Ann Arbor Triathlon

Pinckney, MI

Quad Cities Triathlon

Davenport, IA

Musselman Triathlon-Sprint

Geneva, NY

Breath of Life Ventura

Triathlon-Sprint

Ventura, CA

Mountain Lakes Triathlon

Guntersville, AL

Stonebridge Ranch Triathlon

McKinney, TX

Powerman Alabama Duathlon

Irondale, AL

Powerman North Carolina

Carrboro, NC

Powerman Ohio

Mansfield, OH

That's an impressive list all right, but we're aiming to sponsor even more of these great events in 2007!

We're excited about this partnership with USA Triathlon, and we look forward to serving the USAT membership with high quality products at their camps, clinics, and races. Additionally, members will soon be able to purchase Hammer products online at their website, www.usatriathlon.org.

Product Spotlight : Off-Season Supplement Suggestions

Steve Born

Note: The original version of this article first appeared way back in 2000, in EN #29, with an updated version appearing last year at this time, in EN #48. I don't usually like to recycle articles, but this one's always been one of my favorites, and I believe the information provided is useful and worth repeating.

For many of us, the competitive season is fast coming to a close. If that's the case for you, if your in-season training and racing schedule is winding down, you know it'll soon be time to look back and evaluate all the things that went right, as well as the things that need improvement; it's an ideal time to set your goals for the next season. Dr. Bill Misner has suggested that "preseason goals should be realistically set at 1-3% above personal bests at each distance with planned training peaks set to meet those goals methodically." If you're like most athletes, you'll probably be doing some form of aerobic cross training outside your primary sport, as well as weight training. But the day-to-day training, the accumulation of several hours spent running, cycling, swimming, or whatever your training involves, is definitely on the decrease. When I lived in Southern California the off-season simply meant fewer miles on the bike. But ever since I moved to a colder climate, I have used cross-country skiing and weight training (and now the Complex as well!) as my winter training in preparation for the cycling season. So I try to stay active all year round even if the duration and intensity is less than during my main season.

Whether or not you stay active year round, when your main competitive season ends, does that also mean the end of your supplement program? I don't believe it should, and later in the article you'll find my supplement suggestions for the off season. If you plan to remain active, training frequently and racing occasionally, you can stay pretty much on your competitive season regimen. If you're still active, then your body will still need its nutrients. You cut back on the dosages if you're not training as heavily, but definitely continue your supplement program. The three Daily Essentials - Premium Insurance Caps, Race Caps Supreme, and Mito-R Caps -

should be year-long constants.

Free Radical Neutralization - Important All Year Round!

Louis Pasteur, recognized as the father of microbiology, once said, "The key to medicine is host resistance" and this is where antioxidants excel. Antioxidants strengthen our immune system, increasing our resistance to many types of toxins, bacteria, viruses, and degenerative diseases. They accomplish this by neutralizing excess free radicals. Over half a century ago Dr. Denham Harman first proposed the theory of free radicals and the role they play in age-related diseases. Back then, when aging was primarily believed to be more of a mechanical issue due simply to many years of wear and tear on the body, Harman's theory on free radicals was, well . . . radical. Now, however, while we have identified many factors that contribute to the aging process, the Free Radical Theory of Aging is widely accepted as one of the primary, if not THE primary concept as to the cause of accelerated aging and/or age-related diseases.

Researchers Bradford and Allen write, "A free radical is simply a molecule carrying an unpaired electron.... All free radicals are extremely reactive and will seek out and acquire an electron in any way possible. In the process of acquiring an electron, the free radical... will attach itself to another molecule, thereby modifying it biochemically." [R. Bradford & H. Allen. Oxidology. Chula Vista CA: R.W. Bradford Foundation, 1997. Pp. 64-65.] Leibovitz and Siegel state: "However, as free radicals (FRs) steal an electron from the other molecules, they convert these molecules into FRs, or break down or alter their chemical structure. Thus, FRs are capable of damaging virtually any biomolecule, including proteins, sugars, fatty acids and nucleic acids." [Leibovitz, B. & Siegel, B. (1980) "Aspects of free radical reactions in biological systems: aging" J Gerontol 35: 45-56.]

So even though some free radical activity in the body is actually a beneficial thing, allowing free radicals to accumulate and go unchecked - which

they easily do, overwhelming the body's built-in antioxidant defenses - is definitely not beneficial. Dr. Bill says, "The human body uses free radicals to destroy specific microbes; however, when free radical volume accumulates in time or in high volume, mutagenic activity or degenerative disorders may occur." Free radicals are now believed to be a primary culprit behind a wide range of diseases including cancer, cardiovascular disease, Alzheimer's disease, and Parkinson's disease.

A good portion of free radical damage results from oxidation. Oxidation itself, however, is not a toxic process. For example, oxidation converts the food we eat into the fuel our muscles use. It is a vital, life-sustaining process, but it is not 100% efficient, and the metabolism of food, especially foods that are high in fats, produces high amounts of free radicals. Dr. Bill elaborates: "Oxygen has the capacity to be both friend and foe. When energy fuels are metabolized in the presence of O₂, 5% of them create molecules that contain an odd number of electrons. The conversion of blood sugar, muscle glycogen, and fatty acids occur by oxidation. During this process pairs of hydrogen atoms are released like guided missiles, resembling a minute micro-level war causing devastating destruction to underlying tissues and cells. If Free Radicals (FRs) are not neutralized by on site antioxidant body stores immediately, tissue damage occurs to absolutely every cell membrane touched by these imbalanced molecular wrecking machines."

In other words - and I'm paraphrasing this from a source I can no longer recall - "the very thing that helps give life (oxygen) is also what's killing us."

Free radicals are higher in people who:

- * Exercise beyond 90 minutes duration at a time.

- * Exercise above 80% VO₂ Max

- * Have a high body fat percentage - (above 15% males, above 20% females)

- * Eat Animal Meats and Dairy Products

- * AGE—>Older (above 40) = More Free Radicals

- * SIZE—>Bigger (above 200 lbs) = More Free Radicals



Oxidative damage occurs at higher levels during intense and prolonged exercise, but it is a continual process, occurring on easy workout days and even non-workout days, simply through the process of making energy. Environmental pollutants and ultraviolet radiation also generate free radicals, and so does stress of kind. You might be taking a break from full-time training and racing, but free radical production never takes a day off. For that reason, you should never take a complete break from free-radical neutralizing supplements.

Speaking of supplements, here are my suggestions for an off-season program.

Premium Insurance Caps - Every athlete I've designed a supplement program for, or given supplement advice to, knows that I consider a multivitamin/mineral supplement the foundation of any program. Premium Insurance Caps has no peer in this category. It's especially important during the competitive season because you're depleting these basic nutrients at very high rates, nutrients that maintain optimal performance of many bodily functions, including the protection and enhancement of the immune system. It's important to replenish our bodies with these basic nutrients during the off-season as well, if only because our food supply is severely lacking in these important vitamins and minerals. I often recall something Dr. Misner wrote, and his words have been instrumental in why I believe supplementation with a multivitamin/mineral product is so important: "Athletes today ingest only 11% of the organic nutrients from their food sources that the athletes of the 1940's enjoyed. Modern science has concluded that marginal nutritional deficiency and imbalance is directly responsible for 644 diseases or disorders."

One of Dr. Misner's most recent research articles, "Food May Not Provide Sufficient Micronutrients to Avoid Deficiency," which was published in the prestigious Townsend Letter for Doctors and Patients (April 2005 #261, pages 49-52), along with the paper (NIH State of Science Conf., Bethesda 14-16 May 2006, for Am J Clin Nutr) of another

of nutritional science's brilliant minds, Dr. Bruce Ames, provides evidence that supports the notion that food alone does not supply all the micronutrients we need to prevent deficiency. The key thing to take away here is that there is an ever-growing body of research that is indicating that food alone may not provide enough of the micronutrients needed to prevent a deficiency. When you think about that, it's pretty sobering: Our food supply may not provide enough of the nutrients needed to prevent a deficiency disease, let alone enough to promote optimum health. That, in my opinion, makes supplementation a necessity.

Taking Premium Insurance Caps daily will amply replenish vitamins and minerals, supplying what the diet cannot, and also provide basic antioxidant support. You may not require the full two-packet dose (which we recommend for days with workout sessions over 1.5 - 2 hours), but the consistent intake of one half to one packet (4-7 capsules) per day will help provide the nutrients your body needs that it cannot get in adequate amounts from our food sources.

* Antioxidants in Premium Insurance Caps: beta carotene, vitamin C, vitamin E, manganese, selenium, and zinc

Race Caps Supreme - This product is a "must have" during the competitive season as its nutrient components powerfully support enhanced energy production, endurance, and recovery. The primary nutrients in Race Caps Supreme - Coenzyme Q10 (CoQ10) and idebenone - are vital for the production of adenosine triphosphate (ATP), the basic energy molecule of each cell, and this is but one reason why it's such an important "during season" supplement.

However, as impressive as the performance-specific benefits are, the general health benefits are even greater, and that's why Race Caps Supreme is on my year-round supplement

list. Books have been written on CoQ10's antioxidant benefits, and you could spend an awfully long time on the internet reading about the other numerous benefits of this incredible nutrient. Here are but a few:

- * Improves blood circulation and aids in lowering blood pressure
- * Alleviates asthma and allergies
- * Helps alleviate chronic fatigue syndrome
- * Prevents the oxidation of lipoproteins, thus potentially reducing the risk of plaque formation in arteries.
- * Prophylaxis and therapy for heart disease, cancer, periodontal disease, and neurodegenerative diseases such as Alzheimer's disease and Huntington's disease



Some experts believe that idebenone, a synthetic variant of CoQ10, is a more powerful antioxidant that yields even greater benefits, and that's saying something. In fact, idebenone is such a potent antioxidant that it is used to protect organs that have been removed from a donor for transplant.

With Race Caps Supreme you have these two powerful substances, plus vitamin E, which itself is no slouch in the antioxidant line-up. All three substances are premier antioxidants and cardiovascular health nutrients. Speaking of cardiovascular health, Race Caps Supreme also contains trimethylglycine (TMG), which not only has antioxidant properties, but even more importantly, is involved in the process of methylation which helps lower elevated homocysteine, which is implicated in cardiovascular disease. TMG, folic acid, and vitamins B12 and B6, (all of which Premium Insurance Caps contains), are the key donors and factors in the methylating process. One nutritional scientist writes, "If your body runs low on methyl donors or methylating factors, the body's essential detoxification and repair functions are impaired. Among other things, the body begins to have difficulty keeping

(see PRODUCT SPOTLIGHT on page 22)

(PRODUCT SPOTLIGHT from page 21)

up with the job of recycling homocysteine back into [the amino acid] methionine. The accumulation of homocysteine in the blood is a clear danger signal that methylation is impaired. It is also a direct threat to your health in and of itself."

The specific dosages I suggest in the article "The E-CAPS Daily Essentials" (you can find that article in the Getting Started section of the Hammer Nutrition web site) would be very applicable during this time of the year.

* Antioxidants in Race Caps Supreme: CoQ10, idebenone, vitamin E, Trimethylglycine (TMG)

Mito-R Caps - I think the most exciting anti-aging research that I've read about in the past few years is that of Dr. Bruce Ames regarding the effects of two nutrients, acetyl l-carnitine (ALC) and r-alpha lipoic acid (r-ALA), on mitochondrial health. Ames' landmark studies found that both ALC and r-ALA (both ingredients in Mito-R Caps) played vital roles in improving mitochondrial activity and cellular metabolism, which is beneficial not just for athletic performance, but even more so for general health. The anti-aging implications of the ALC/r-ALA combination are staggering when you think about the potential they have for delaying, and even possibly reversing, mitochondrial aging, which would mean that the millions of energy-producing "furnaces" in our bodies might possibly be restored to more youthful levels.

ALC is probably the most widely researched form of carnitine, one that not only enhances the use of fatty acids for fuels in the mitochondria (helping to make more energy available to cells and tissues), but also most readily crosses the blood-brain barrier, helping support a number of brain and nerve functions and helping prevent neurodegenerative diseases.

As an antioxidant, r-ALA is uniquely both water and fat soluble, and thus

can neutralize free radicals in both fatty and hydrous cellular regions. It also boosts the activity of other antioxidants, including vitamins C and E, CoQ10, and glutathione. And there's even more! This stuff is amazingly versatile and active. It also stimulates the production of glutathione, which might be the overall champion antioxidant. No wonder



so many nutrition experts refer to it as "the universal antioxidant." In addition, r-ALA plays an important role in controlling blood sugar, thus helping with the prevention of Type 2 diabetes.

What Dr. Bill wrote when we first introduced Mito-R Caps is at the heart of why I recommend taking the product every day of your life: "The longer you can stimulate the lifespan or health of the mitochondria, the longer you will live and the better you will perform in endurance events. The athlete who has the most healthy/efficient active mitochondria is the athlete who performs at their best." As with Race Caps Supreme, the dosages I suggest in the article "The E-CAPS Daily Essentials" (again, you can find that article and dosage suggestions in the Getting Started section on the Hammer Nutrition website) would very much be appropriate during the off season.

* Antioxidants in Mito-R Caps: r-Alpha Lipoic Acid, vitamin C (as ascorbyl palmitate), vitamin E, DMAE (Dimethylaminoethanol), PABA (Para Amino Benzoic Acid)

Carlson's Norwegian Salmon Oil - Omega 3 fatty acids unquestionably belong in the year-round essential category. Among their many benefits

related to athletic performance, the components of fish oil (DHA/EPA) improve endurance by increasing mitochondrial efficiency via their positive effects on coenzyme Q10 and idebenone, two key substrates involved in energy production. The absorption rate of these two fat-soluble nutrients is greatly increased in the presence of a fat source, and there's arguably not a healthier fat than fish oil.

For general health purposes, fish oils provide one of the best defenses against cardiovascular disease. For example, an ever-growing body of research suggests the consumption of fish oils may prevent atherosclerosis, angina, heart attack, arrhythmias, stroke, and congestive heart

failure. Fish oils help to reduce blood pressure, maintain arterial wall elasticity, and prevent blood clotting... they really are the heart's "best friend."

Newer research shows that fish oils have a positive influence on brain function and mood, including the alleviation of anxiety, insomnia, and other symptoms of depression. In addition, Omega 3 fatty acids from fish oil have been shown to provide impressive anti-inflammatory benefits by reducing specific pro-inflammatory cytokines and Series 2 prostaglandins, while increasing the level of anti-inflammatory Series 3 prostaglandins.

There are two essential fatty acids (EFAs) that we need for life itself - the Omega 3 fatty acids and Omega 6 fatty acids. Our bodies cannot make either of them, so it's necessary that we obtain them from dietary sources. However, while most of us consume an overabundance of Omega 6s, our Omega 3 intake is woefully lacking. In fact, while research points to a 1:3 Omega 3 to Omega 6 ratio as ideal, most people's diets show a 1:20 ratio, which is obviously very much out of balance. The bottom line is that we need Omega 3 fatty acids, and the best source for them is fish. However, consumption of certain types of fish (such as salmon, mackerel,



and sardines) two to three times a week is simply not possible for most of us. That's where the Carlson's Norwegian Salmon Oil supplement comes in. Two soft gels twice daily is a super easy way to make sure you obtain the essential Omega 3 fatty acids.

Phytomax - I wish I could say that my diet is excellent all the time. The truth is that it's not always possible, especially in the winter where I live, to obtain substantial amounts of vegetables. I have found this product to be a real benefit for helping provide additional nutrients not found in other foods or supplements. The vitamins, minerals, enzymes, and phytochemicals in Phytomax (I suggest three capsules daily), along with the vitamins and minerals in Premium Insurance Caps, will very much fulfill your nutritional "basics" and augment the nutrients you obtain in your diet.

One of the benefits of Phytomax is its ability to help promote optimum alkalinity in the body, which helps create the best environment for the health of the cells. Other benefits that can be obtained with consistent use of the product (and we hear these frequently from regular Phytomax users) are increased energy levels (but without the unpleasant side effects of stimulants), faster recovery, improved immune system function, improved moods and mental clarity, and a higher quality of sleep.

Super AO - This is a new entry in my off season supplement list and I'm including it for two reasons:

* Additional antioxidant support - As mentioned earlier, free radical production never takes a day off, and with the extraordinary antioxidant profile in this product - nutrients that augment, but don't replicate, any of the other antioxidants in the above-listed products - you have even wider-ranging support for the neutralization of free radicals.

* Cognitive function support - Two of the primary nutrients in Super AO - Ginkgo biloba and vinpocetine - are arguably the two most well known "brain" nutrients in use today, believed to enhance memory and alertness. In addition, both nutrients (along with

Gotu kola, another nutrient in the product) are believed to help increase circulation. Potential benefits of increased circulation include the ability to speed delivery of antioxidants throughout the body and helping eliminate metabolic wastes more quickly.

So for increased antioxidant support, plus support for enhanced cognitive function and circulation, taking a Super AO capsule at breakfast is not a bad idea. At the rate of one capsule a day, a bottle will last you two months, not a bad investment for all the benefits you'll receive.

Summary

One of the pieces of advice that has had the most impact on me as an athlete - and I hope it'll ring true for you as well - comes from sports nutrition expert Dr. Michael Colgan. In his book, *Optimum Sports Nutrition* [Advanced Research Press, 1993], Colgan suggests that we should, while we have the opportunity, make our athletic goals a major focus of our lives. In doing so, however, he urges that we understand that achieving excellence is not possible by doing things halfway.

This admonishment came to mind when writing this article because it emphasizes the concept that excellence in athletics (and overall health) isn't a half-hearted (or half-year) proposition. The off season may be a time for cutting back on heavy training, but it still requires a full time commitment to your athletic goals, especially as the focus shifts towards general health requirements and away from high-volume training. Maybe this is a good time to repeat another saying that I often quote: An endurance athlete is a healthy person first, an athlete second, and an endurance athlete third. A year-round supplement program is vital for making positive increases in both health and fitness. The program outlined in this article is an excellent one to follow because it comprehensively covers a tremendous amount of nutritional territory.

(JDRF from page 11)

by providing coolers, EZ Ups, and more products for the event. Ron at Glacier Cyclery loaned us 30 sandwich board signs that helped alert area motorists to our cyclists on the roadway. During the weekend of August 19, we hosted 200 riders at the Grouse Mountain Lodge in Whitefish and raised over \$800,000 to fund a cure for Type 1 diabetes. In fiscal 2006 the Juvenile Diabetes Research Foundation (JDRF) hopes to raise more than \$2.4 million through the Ride to Cure Diabetes Program.

The program is a series of private century rides, organized by the JDRF for donors raising \$3,500 or more. These donors are provided coaching as they prepare for the ride, as well as travel, accommodations and meals for the weekend event. It is a very high service level event that brings people together from all over the country to share their passion to fund a cure.

Along the way they discover a new passion - cycling, a sport that I discovered 32 years ago and instantly fell in love with. Being a part of the ride program has been an incredible gift for me by providing an opportunity to share my passion for cycling with others.

How can you help? Care to join us for a ride in Death Valley or Carmel, California, or Asheville North Carolina, or even up here in Whitefish? Maybe you would prefer to recruit and coach cyclists from your area and build a team to help fund a cure. Either way, we'd love to have you join us for the Ride To Cure Diabetes.

You can get more info on the Ride To Cure Diabetes at
www.ride.jdrf.org/index.html

The author, Bikin' Mike, has been pursuing fitness on a bicycle since 1974 and coaching cyclists since 1987. He first joined with the JDRF events in September 2002. You can find out more about Mike's coaching and his ventures with JDRF at his website www.bikinmike.com



Nate's Corner

Nate Llerandi

Get the Work Done Before Tapering

That big race of the season, the one your whole season is geared toward, should be an exciting time. You've put in the hard work and hopefully you're ready to put the hammer down. However, the final weeks leading into that big event can be some of the most stressful of the year.

This is when the doubts start to creep in. This is when you start doing things you shouldn't do during a taper. You start pushing harder to make sure you eek out every bit of speed for the race, or you do that "one last" track workout or long ride "just to be sure" your fitness is OK. Problem is, in the final weeks those workouts are the ones that can cripple your ultimate performance.

If the work hasn't been done before tapering begins, then it's too late. If you're still under trained - due to recent sickness, injury, laziness, etc. - still, the only way you're going to get your body totally prepared is by tapering and not by working harder.

I suggest a 2-week taper for Olympic distance triathlons and 40k TTs on the bike, or 10k runs. For marathons, Ironmans and ultra-cycling events, I give my athletes a month-long taper. Weekly volume tapers off dramatically, and the intensity of the hard workouts stays high though the volume of hard work done also decreases. During this decrease in overall work the body takes less time to recover from workouts and, thus, is able to top off its energy system stores - something it can't usually do during hard bouts of training.

Finally, don't misinterpret the "mid-taper blues", a period of time where you can feel sluggish. It's very common

to the taper process. Your body has been accustomed to getting hammered and all of a sudden you're being nice to it. It takes a while for the body to adapt and round the corner. If you encounter the blues, don't panic. You'll rebound quickly. When you do, you should be feeling more energetic, stronger, faster and confident.

Cutting down on duration, amount of intensity and, possibly, the number of weekly workouts is the way to maximize the taper process. Doing that last hard/long workout just to be sure your fitness is OK, is not the way to ensure great results.

Tapering

There is a lot of advice out there on how to rest/taper for your most important events. Some of it makes sense to me; some of it doesn't. Here is my advice on tapering. It is simple.

The longer your race, the longer you taper. The shorter your race, the shorter you taper.

Some coaches state the opposite. Their premise is that the more intensely you train (i.e., the higher the HR you sustain during your training), the more time you need to recover so you can peak for an event. False, I say.

Intense training makes you fast. Yes, added rest will allow you to be more "sharp" and, thus, quicker. But, if you rest too much, you'll lose fitness and be flat. So, for Olympic distance triathlons, for example, I recommend a 2-week taper for your most important race of the year. A 40k TT on the bike would call for a similar taper, or a 10k to half-marathon run.

For longer events, such as Ironman races, marathons or ultra events, I have my athletes taper for a month. Sounds crazy at first, you say? Not to me. What's crazy to me is "Triathlete" magazine publishing an article from a well-known coach on 13 weeks to a respectable Ironman, where in this article the coach suggests an athlete complete his/her longest run only 2 weeks before the main event, in excess

of 3 hours. In my mind, this approach will not lead to the best performance an athlete can demonstrate.

Long hours of training, in any discipline, pounds the body. You may be more sore or tired immediately following a hard interval workout, but the repercussions of a long-distance workout last far beyond the effects of an interval workout. For example, the rule of thumb for recovering from a hard run is: "Avoid hard running for the same number of days as miles you ran in the race." So, after a 5k, you would wait 3 days before running hard again; for a marathon, it would be close to a month.

Thus, I have my ultra athletes complete their longest week of training 4 weeks out from their main event. From there, each week (and each long workout) drops 20-25% until the final 2 weeks are pretty minimal in duration. To counteract the drop in volume, the athletes complete intervals at slightly higher rates of exertion than they are used to. However, this is counterbalanced with a higher work/rest ratio, which leaves the athletes fresher for each repeat, as well as fresher at the end of the workout.

The best thing you can do for yourself in the final weeks leading up to a major competition is to rest and relax. This doesn't mean "kick back in a chair", but rather significantly cut your volume and slightly increase the intensity of your hard workouts (as they get shorter as well). If you've put the work in and been honest with your efforts, you'll hit the starting line ready to turn in your best performance to date.

Nate Llerandi is a former national champion class swimmer/world class triathlete. He has been coaching since 1990 and creates programs for athletes of all sports and ability levels. You can contact him at natellerandi@yahoo.com

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Flavors : Apple-Cinnamon, Banana, Chocolate, Espresso, Orange, Plain, Raspberry, Tropical, Vanilla		
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Hammer Supplements

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Mito-R Caps	\$24.95	

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Super AO	\$39.95	3 @ \$34.95
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PARTNER PRODUCTS

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E-CAPS Tee	\$9.95	Blue/Green	s-xxl
Hooded Hammer Nutrition Sweatshirt	\$29.95	Grey	s-xl
1/4 Zip Hammer Nutrition Sweatshirt	\$29.95	Stone	s-xxl
Embroidered Polo Shirt	\$29.95	Blue/Red/Grey	s-xl

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Saltstick Capsule Dispenser	\$23.95
Quick Coin	\$0.75
Hammer Temporary Body Tattoo	\$0.25
E-CAPS Temporary Body Tattoo	\$0.25
Large Capsule Organizer	\$2.00
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E-CAPS Water Bottle, Large (24 oz.)	\$2.50
Hammer Gel Water Bottle, Large (24 oz.)	\$2.50
HEED Water Bottle, Large (24 oz.)	\$2.50
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Recoverite Shaker (26 oz.)	\$4.95
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(Dr. BILL from page 10)

mitochondrion energy production cannot keep up with demand resulting in exercise rate deterioration and eventually failure. Prolonging mitochondrial substrate deficits results in more than exercise fatigue state, it may create onset of serious harmful pathological conditions. Mitochondrial cytopathy is a term for general abnormalities in the function of the mitochondria. Impaired mitochondrial function or damage to the mitochondria of cells (especially damage to mitochondrial DNA) are fundamental causes of physical and mental fatigue, Chronic Fatigue Syndrome (CFS), Age-Associated Memory Impairment (AAMI), Fibromyalgia, Alzheimer's Disease, and Parkinson's Disease [12, 13, 14, 15].

Please review our Endurance Library or past issues of Endurance News on the Hammer Nutrition website [Steve's note: Also check out previous issues of the Journal of Endurance on the web site]. References 1-15 are cited below. Most of them are available in the National Public Library of Medicine (PubMed).

In addition to these comments, over a period of 10 years 1996-2006, I collected over 70 reported food list of foods consumed. Of those I noticed no one was getting from food the basic RDA/DRI minimum for vitamins and minerals. I selected the top 10 men and top 10 women from those 70+ menus and analyzed their actual micronutrient intake from food alone. They were deficient in 40% of the basic micronutrient requirement to prevent deficiency disease. Human cell health is highly dependant upon "Basic Essentials" at the deficiency-preventative disorder RDA/DRI level. Cell health is required of the energy-producing mitochondrion sub-cells will not perform effectively or efficiently. Yesterday, Wednesday June 7, 2006, the paper passed the science method peer review process and was published in the most recent issue of International Society Sports Nutrition Journal (JISSN) @: <http://www.sport-nutritionssociety.org/site/pdf/JISSN-3-51-55-06.pdf>

References

Available upon request

Hammer Nutrition/Multimedia Partnerships

In our continuing efforts to reach athletes with information regarding the quality of Hammer Nutrition products, the efficacy of our fueling recommendations, and how that combination will yield tremendously positive results in their workouts and races, we're excited to announce our partnership with two great coaching services/multimedia companies - Mach 3 Multisport and Cyclo-Core.

Mach 3 Multisport

Mach 3 Multisport is an Arizona-based company headed up by longtime Hammer Nutrition sponsored triathlete Brian Grasky. The Mach 3 Multisport DVD series covers a wide range of triathlon-specific topics, including a generous section devoted to Hammer Nutrition products, how best to use them, and other fueling strategies. Earlier this year I had the pleasure of flying to Tucson to work with Brian and his crew on this DVD set. Everyone was wonderful to work with, we all had a blast putting these DVDs together, and, as far as triathlete-specific information/helpful hints are concerned, Brian really knows his stuff. I think all the great info in this DVD series, including the Hammer Nutrition product/fueling segment, will be highly beneficial for all triathletes. We'll keep you updated on our website as to the ETA of this DVD set. Brian is currently updating his website - mach3multisport.com - so keep checking there as well.



Cyclo-Core

Cyclo-Core (cyclo-core.com) is owned by exercise physiologist and professional trainer Graeme Street from Connecticut. Graeme produces a number of cycling-specific programs, including a core training program series comprised of three different DVDs/CDs:

Cyclo-CORE - "The original cycling-specific core training and strength conditioning program that started a revolution. Developed to help avid cyclists build and maintain their core

strength, leg strength, endurance, and flexibility, all-in-one convenient, time-effective program."

Cyclo-ZEN - "The perfect complement to Cyclo-CORE, the yoga involved Cyclo-ZEN program will help you expand on your core strength and add in the much needed improvements in your flexibility, low back strength, leg power, muscular endurance, and mental toughness."

Cyclo-SPEED - "With the addition of anaerobic interval training, advanced flexibility techniques for power, and ground-breaking neuromuscular performance drills, the Cyclo-SPEED program is a force to be reckoned with!

And after using it to refine your skills and conquer your weaknesses...you'll be a force to be reckoned with, too."

Included in the Cyclo-Core series is an interview Graeme recently did with me regarding various aspects of supplementation and fueling. In this interview we talk about a variety of issues regarding supplementation and fueling, and we discuss how a number of Hammer Nutrition fuels and supplements can positively influence the cyclist's training program. The longer Graeme and I spoke, the more psyched we got about the subject, and it became evident that one small segment just wasn't going to cut it. I believe we now have a full CD, if not two, devoted to this interview.

One common thread with all three companies - Hammer Nutrition, Mach 3 Multisport, and Cyclo-Core - is that we are undeniably passionate about helping athletes achieve better performances in their workouts and races, and improving their health in general. Needless to say, we feel these partnerships are a perfect fit with the Hammer Nutrition philosophies, and we're excited to be involved with these two great companies.

More details about both these projects will be posted on our website as they become available, so keep checking!

Race Report

Checking in with some talented Hammer athletes

From the President Ted Brooks

My accomplishment:
2006 NorCal/Nevada
District Criterium Champion

My Hammer/E-CAPS Formula:

Daily -

Premium Insurance Caps
Mito-R Caps
Race Caps Supreme

Short training (1-1/2 hours or less) days or short race

(Time Trial or Criterium) -

Hammer Gel
Race Caps Supreme
ATP100 (Time Trial)
Recoverite
Super A.O.

Long training (over 1-1/2 hours) or long race (Road Race) -

Race Caps Supreme
Hammer Gel (in bottle #1)
Sustained Energy, Endurolytes Powder
(in bottle #2)
ATP100 (Road Race)
Super A.O.
Xobaline
Recoverite

Occasional/as desired -

Hammer Bars

I just don't bonk any more these days, and cramping is very rare (never cramp even during intense training efforts). This stuff really works and makes a difference in my performance - there is no doubt in my mind.

Thank you HAMMER NUTRITION!

Ted Brooks
Il Presidente
Mako/Galaxy Granola Cycling Team

Back In The Saddle Again Monique "Pua" Sawicki

Monique "Pua" Sawicki sure knows how to return from an injury! At the Hammer Nutrition sponsored Endurance 100 Mountain Bike Race on August 26th, Pua not only won the overall female race, crushing the previous record time by 1 hour 56 minutes, she finished a whopping 1 hour 7 minutes ahead of the second place female. In addition, her time was the 3rd fastest overall, a mere 4 minutes behind the 1st place finisher!

Pua uses Hammer products exclusively. On her web site (www.teammata.com) she writes "You simply can't perform at your best without proper fueling and supplements, especially in endurance. Only one company has everything covered with only the best products available, Hammer! Hammer is a part of my everyday life, from my training to racing to recovery."

The Endurance 100 is considered the toughest endurance events around, certainly one of the most difficult MTB races, at 100 miles in length with 18,627 feet of climbing. Competitor (and sponsored athlete) Randy

Profeta recently wrote us saying, "I just wanted to say 'thank you' for your sponsorship of the Endurance 100 in Park City UT this past Saturday. With 100 miles of racing and about 20,000 feet of elevation gain on mostly single track terrain, this was the toughest endurance event I have done to date, even eclipsing solo 24-hour MTB racing and even the Furnace Creek 508. I was whipped when I finished."

Complete results can be found at www.thee100.com/main.html



Hammer Ambassador Bonnie Stoeckl

I consider myself privileged to be among those chosen to represent the company that has "set the bar" for all other companies dealing with athlete's nutritional needs. Your products are of the highest quality and NEVER fail to deliver on all advertised claims. I could not perform at the level I do without the assist of your products.

Share Your News!

Athletes....do you want the Hammer Nutrition community to know what you're up to? Have a great photo you want to share? Send a short email to anock@hammernut.com (please put Race Report in the subject line) about your recent accomplishments and we'll try to include it in our Race Report



Winning In Wisconsin Rebecca Rusch

Congratulations to Rebecca Rusch on winning the National 24 Hour Championship at the 24 Hours of 9 Mile event in Wausau, Wisconsin (a race sponsored by Hammer Nutrition). According to Rebecca's web site: "The race was shortened by 4 hours due to violent wind and rain storms, but that had no impact on Reba's decisive performance. From lap 3 to the end, she led the women's field and was increasing her lead by increasing minutes with each and every lap."



recently, in reply to my congratulatory email to her...

"Hey thanks!!! Fueled the effort on nearly 100% Hammer products - Perpetuem, Hammer Bars, Hammer Gel, HEED... just a few bites of sandwiches and bananas mixed in for variety."

Hammer Nutrition was also well represented in the men's division with Mark Henderson taking a 3rd place podium position and Ernesto Marenchin nabbing 5th place.

Though always seemingly on the go, Rebecca had a chance to email me

Complete results available at www.24-9.com

Masters Nat'l Champ Mark Tarr

We're glad Mark came by when he did – just in time prior to wrapping up this issue of **Endurance News** – because we now have the opportunity to brag about "one of our own" to all of you.

Mark stopped by to show us the impressive hardware that he earned by winning the M40-44 age group division at this year's USATF National 50-Mile Trail Championship in Crystal Mountain, WA. Mark's time of 7:57:51 placed him 10th overall in a field of 120+ runners. Now that's some fast running!

CONGRATULATIONS MARK!

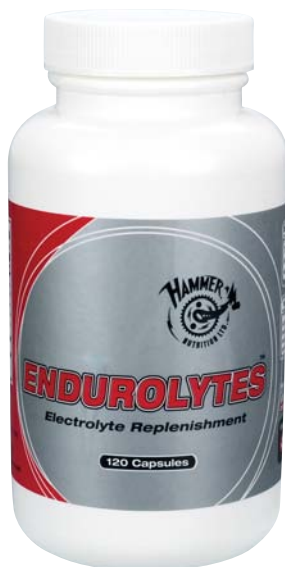
Results at www.seattlerunningcompany.com

An Endurolytes Episode Scott Delaune

A funny story involving Endurolytes occurred this past weekend at the Arizona State Road Race Championships. I made a suicide break right off the start line of a 78 mile road race. I was joined by another rider and after 17 miles, I reached for my scheduled dose of Endurolytes. I got one into my mouth when suddenly the pouch snapped out of my fingers, flew up into the air, and onto the ground. Since my move was strictly to set up my teammates for a counter-attack, I kept the pace as high as I could with no intention of even finishing the race.

At the first feed zone, however, I heard that my break partner and I had a 10 minute gap on the field. "Hmmm, I thought, 'this might stick.'" But if it was going to stick I needed to get the Endurolyte pouch back. On the next lap, I told my breakaway partner to be aware that I'd be stopping to pick up a bright orange pouch. He pleaded with me not to stop. He offered up his food and promised to give me anything I needed. Nope, no

deal. So when we came upon the pouch I screeched to a halt, grabbed the pouch, and sprinted back onto his wheel.



As I looked into the pouch, I was greeted by a pouch full of powder and crushed up cap shells. It had apparently been run over by a few chasing bikes and not a single capsule was intact. With nothing else to lose, I dipped my tongue into the pouch and got as much of the powder as I could. To make a long story short, I dropped my break partner, was eventually caught by two guys, and was out-climbed to the finish by one of them. But a wire-to-wire attack in a 78 mile road race is a new milestone for my cycling career!

Scott Delaune
Procon Cycling



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You Recover
Right!**

Order Today!

1.800.336.1977
www.hammernutrition.com

Race Report

Checking in with some talented Hammer athletes

Ciao to Cramps and Sayonara to the 'Safari Smell' : Pat Petrisky

I have competed in marathon and sprint canoe racing since 1972. Cramps have been a significant limiting factor until 2003. I finally found a powder mix of potassium and sodium plus other electrolytes that works for me. However, I did have cramping in one sprint race in 2005 even with the above mix.

This year is the first year I have used Hammer products. The Texas Water Safari is a grueling 265 mile non-stop canoe race. This year required very long (up to 20 plus hours) weekend training sessions plus the week day speed training in a low river and high temperatures. I used the Endurolytes in training and during

the race. I admit that I was cautious at first with the Endurolytes because the powder mix works so well. However, the training runs pushed me beyond previous limits. Since I was already at my max liquid intake per hour (with the powder mix), I augmented with Endurolytes. I am still amazed that I could paddle at such a high output for so long and not cramp. I do not normally write letters to manufacturers but Endurolytes really do work and I thank you for offering them.

Next Subject: Anti-Fatigue Caps. In my thirty plus years of racing the Safari I have always had the "Safari smell". It is a commonly discussed phenomenon among the racers. I did not believe my

teammates when they claimed Anti-Fatigue Caps eliminated this smell. This year (2006) is the first year I did not experience the "Safari smell".

I have been a physical fitness nut for a long time. My wife and I take an array of supplements daily. We visit a wellness Doctor regularly and stay fit throughout the year. I am truly impressed with Endurolytes and Anti-Fatigue Caps. They will be on my serious training runs from now on. And I will insist that my partners take them as well.

Sincerely,
Pat Petrisky

Great Result At The Great Buckeye : Bianca Simpson

A special "congratulations" to sponsored athlete Bianca Simpson. On August 8th she wrote Dr. Bill and me (Steve)...

"I just wanted to drop you both a quick note to let you know I did my first race back on Sunday after 3-4 months of letting my body recover from anemia. Thank you both for all your advice... my blood and iron levels are all ok now. I have been working closely with my two coaches (who also use your products) Cheryl Hart and Jeff Devlin. I finished 3rd at the Wilkes Barre Olympic distance tri in the Pocono Mountains in PA behind Karen Smyers. Even though I have just been doing very easy aerobic work I can see a silver lining."

Now, after 3-4 months of recovery, that result alone would be newsworthy. However, Bianca topped it in a big way. On August 27th, she won the women's division of HFP Racing's Great Buckeye Challenge half iron triathlon (a Hammer Nutrition sponsored event).

Bianca's time of 4:36:57 not only earned her the win, it was nearly 15 minutes faster than the next female finisher and good enough for 6th place overall!

I emailed Bianca to congratulate her and she replied...

"I enjoyed every part of my race yesterday. I could not have done it without my Hammer Gel and Endurolytes! I feel as though I am on the way back up and I hope in each race I progress a little more. Thank you for being the best sponsor and I felt proud to do as well as I did in a Hammer sponsored race. I hope I can set up stall [an expo booth] with you and encourage my fellow athletes on what 'real' nutrition is all about next year at Buckeye or in a near future race."

Congratulations again Bianca!

Complete results can be found at www.hfpracing.com

Muncie Man Blake Becker



Sponsored athlete Blake Becker successfully defended his title at the 2006 Muncie Endurathon, a Hammer Nutrition sponsored 1/2 iron

distance triathlon. In spite of the 90+ degree temperatures, Blake posted a 30:09 swim, 2:11:52 bike, and 1:26:38 run for an overall time of 4:10:47.

Hammer Nutrition athletes dominated this event with Zach Ruble placing second (for the second straight year!) in a time of 4:13:19. Adam Brown was the fifth place finisher in 4:24:47, and the ageless Jim Bruskewitz not only won the 50-54 division but finished ninth overall in a time of 4:31:09.

Complete results at
www.muncieendurathon.com
www.blakebecker.com



An X-cellent Adventure

Jeff "Landshark" Landauer

Boy, the past three weeks have been quite busy. A few weeks ago I did the Vineman Triathlon (iron distance) placing 2nd in my age group and 15th overall, then some friends and I drove up to Ogden, Utah for the XTERRA Mountain Championships. Needless to say I was pretty strung out from the Vineman but still managed 7th in my age group and 56th overall. Well with the XTERRA US Championships coming up Oct. 1st my friends and I were looking for a few more points to qualify so we headed up to McCall, ID this past weekend for the Wild Ride Off-Road Triathlon (part of the XTERRA point series). I'm pleased to say that I placed 1st in my age group and 7th overall getting maximum points towards my entry into the XTERRA Nationals! It was nice stepping on to the podium with the Hammer Nutrition colors on. Thanks for your support and faith in me!!! I'm looking forward to a week of recovery as I build up for XTERRA Nationals in October and the Ultraman World Championship, November 24th-26th.

That's the update for now.

Blessings,
Jeff "Landshark" Landauer

Cycling Master

Woody Cox

At the recent USA Cycling Master Track National Championships in Colorado Springs, Colorado, long-time client Woody Cox won two National Championship titles, setting two National records, one of which is also a World Record. The record was set in the men's 55-59 division of the 2000-meter time trial, where Cox won by a whopping 4 seconds in a time of 2 minutes and 24.439 seconds. Woody recently emailed us saying, "What is extra interesting is that I road a new bike at Nationals that I had only ridden 5 times before going to Nationals. My previous bike was a custom Corima track bike that was amazing so this was a real risk. The position on my new bike was totally different from my custom Corima but it worked. I set a new World record in the 2 K TT and was not really going for the record. I leave for UCI Masters Worlds in Manchester England on Sept 7th and hope to set another World Record. Thank you for helping make this all possible."



Full story and results can be found at
www.usacycling.org/news

What A Winning Streak!

Felipe Bastos

Although this is a little tardy (I received his email too late for including his results in the last edition of **Endurance News**), we want to congratulate sponsored athlete Felipe Bastos on his fantastic mid-season winning streak. Felipe wrote me saying, "I wanted to share with you my 3rd win in a row, 4th of the season. I took home the title of the Twilight Triathlon last night (July 30), and with a course record to top it off. I am happy to say my mid-season short course rendezvous went just as planned with 3 wins in different conditions and various tactics. Last night, though, I controlled the race and had a 2-minute buffer at the end of the bike, and extended my lead a few more seconds once the race was over. It was a great way to assess my mid-season fitness and now I feel ready for a couple of day's rest before starting my preparation for the Long Distance Pan American Championships."



In an amazing show of fitness (not to mention quick recovery) Felipe not only won this race, he also won the Lake Louisa Triathlon on the Thursday evening (just three days!) prior to the Twilight Triathlon, and the Jacksonville Triathlon the weekend before that. You've earned your rest, Felipe!



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The Back Page

The Hammer Top 10 : What makes Hammer Nutrition fuels great?

10. All Natural, Healthy, & Safe

Hammer products contain only the highest quality natural ingredients. We use no artificial sweeteners, colors, flavors, preservatives, or GMO derived proteins.

9. Knowledge

In addition to the personal advice from our expert client advisory team, you get invaluable knowledge resources in print, online, as downloads, email, and by phone. Plus, there's the online community of clients, coaches, and nutritionists to answer questions and recommend solutions. Best yet, it's all FREE.

8. Accessible Management

The company owner and senior staff are all accessible via phone, e-mail, and the Endurance List.

7. Value Hammer products are priced lower, calorie for calorie and mg for mg, than almost any other products on the market. Our products contain only what your body needs.

6. Flexibility

We formulate our products to work perfectly with one another. You have a full range of products to cover any sport at any distance and any intensity, and an almost endless combination of flavors and ways to mix your fuels.



5. Sodium Appropriate

Hammer products are low in sodium, desirable for both optimal health and optimal performance. We will not follow the high-sodium fad, or any other fad.

4. Diabetic Friendly

Hammer fuels are all endorsed by the Diabetes and Wellness Foundation. They are safe and widely used by athletes with diabetes,

hypoglycemia, insulin resistance, and fructose allergy.

3. Complex Carbs

You will find no added simple sugars (fructose, sucrose, dextrose, etc.) in Hammer fuels. This means steady energy with no stomach distress or blood sugar spikes and crashes.

2. Fully Guaranteed

It's easy to fuel right and feel great, no matter how long you go. If for any reason you are unsatisfied with any product, we will refund your money.

1. You

Yes, you are number one. We pride ourselves on our unequalled customer support, before, during, and after the sale. Your health and athletic success are the most important reasons for you to become part of the Hammer Nutrition family. We believe that about each of our clients, and we run our business accordingly. We are fully committed to your success, and your individual needs always come first.