



HAMMER
NUTRITION

ENDURANCE NEWS

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The endurance athlete's comprehensive knowledge resource since 1992

- Pg 2 Welcome
- Pg 4 From The Saddle Of Steve Born
- Pg 8 Product Spotlight : Anti-Fatigue Caps
- Pg 10 Pre-Workout/Race Fueling
- Pg 11 Phytoestrogens from Soy Protein
- Pg 12 Junior Development Cycling
- Pg 14 Salt Stains
- Pg 15 Hammer Partners
- Pg 16 Back Pain
- Pg 17 2008 Events
- Pg 18 Getting Faster As You Get Older
- Pg 20 Muscle Soreness / Weight Gain
- Pg 21 Improve Lean Body Mass & Fat Loss
- Pg 22 Sodium, Potassium, & Calories (oh my!)
- Pg 23 RAAM
- Pg 24 Half-Iron Distance Fueling Problems
- Pg 25 Come Visit Us In Canada & Hawaii
- Pg 26 Athlete Spotlight : Mike Llerandi
- Pg 30 What Story Will You Tell?
- Pg 31 Perpetuem Paste
- Pg 32 Diet Issues
- Pg 34 Nate's Corner
- Pg 35 Pearls of Wisdom from Dr. Bill
- Pg 35 Say Goodbye to Soni-Pure
- Pg 36 From Soni's Kitchen : Quinoa
- Pg 38 The Endurance Path Revisited
- Pg 40 Ironwoman
- Pg 41 Hammering in the Bay Area
- Pg 42 Get the E-Stim Edge
- Pg 44 Recovery Session
- Pg 47 From the Archives
- Pg 48 Functional Strength & Muscle Elasticity
- Pg 50 Swan Crest Run
- Pg 52 Race Report

The Safety of Stevia

Bill Misner, Ph.D. & Steve Born

We recently received the following email...

I've been a long time user of Hammer (originally E-CAPS) products. One of the reasons I like them so much is that they don't include artificial ingredients. I try not to consume anything that might be harmful to my health. I'm also a subscriber to Nutrition Action Health Letter put out by the Center for Science in the Public Interest, and have considered their publication reliable for many years. Their latest issue has a guide to food additives. They rated stevia: "Everyone Should Avoid.

Unsafe or very poorly tested and not worth any risk." Here is there specific analysis: "Small amounts are probably safe. High doses fed to rats reduced sperm production and increased cell proliferation in their testicles, which could cause infertility or other problems. Stevia can be sold in the United States only as a dietary supplement, but several companies are reportedly developing a stevia-derived sweetener and plan to seek approval for the FDA to use it in foods."

see *STEVIA* on page 6

Whey Protein Update

Brian Frank

This is a little story about the vagueries of the raw materials markets in the food industry. For those not interested in "the rest of the story," here's the short version: If you recently bought Hammer Whey protein from us or a retailer and thought it tasted extra funky, rest assured, there was nothing "wrong" with it and the issue has been remedied. Also, we now offer the whey protein in Vanilla and Chai flavors, which do a nice job of masking out the naturally occurring undesirable taste of raw whey without adding sugar or artificial sweeteners. For the rest of the story, keep reading... As any of you who have used our raw, unflavored, unsweetened whey protein isolate (WPI) know, it doesn't exactly taste like a milkshake when mixed in plain water. On the best day, the taste



could only be described as a slightly sour milk or some other dairy product. Without adding flavors or sweeteners to mask the normal flavor of straight WPI, this is to be expected. This is also why we recommend mixing it in fruit juice, making a smoothie, or holding your nose when you drink a serving mixed in water just before bed. However, in January, the supplier we had been getting our whey from for the past couple of years was sold and the new owners discontinued the 100% isolate product, opting to use a whey protein concentrate (WPC).

So, rather than lower the protein quality, we looked high and low for a new WPI supplier. Due to the bottom dropping out of the whey market, this proved rather challenging and we were forced to use a WPI coming from a mixture of cheddar and mozzarella cheese instead of the pure cheddar whey

see *WHEY* on page 3



Photo - Angela Nock

From the office of Brian Frank



Welcome to the 59th issue of Endurance News. Summer is here, training and racing is in full swing and it's time to enjoy the results of all of your hard work this past spring. I know I am and I sure hope you are too.

Whether this is your first issue, your 59th, or some number in between, I promise you that you'll find information on these pages that you won't find anywhere else -- information that will benefit your training, racing, and overall health. In this issue, besides all of the other great articles, you'll see some of the junior development programs we are supporting across the country. These programs, more so than any program run by a sanctioning body, are where the stars of tomorrow are going to come from. All of these programs are blessed with altruistic adults who put untold hours into training, mentoring, and maturing these kids into top notch athletes. They deserve our support and they deserve yours as well. Contributions of time, other resources and good old

cash are greatly needed and even more appreciated.

In the last issue, we teased you with advance notice of the exciting new flavors we've developed for some of our most popular products. Well, they've hit the streets and those of you who have already tried them seem to be in agreement with us, these new flavors rock! The melon HEED and the Strawberry Recoverite are simply the bomb! Even by "mainstream" standards, these taste amazing.

Also in this issue is my little story about our whey protein drama. The new Chai and Vanilla flavors are a savior here because they mask out the taste of the raw whey protein, which some find undesirable, and most find less than ideal. However, if you are a plain whey user, we've got new suppliers and it will taste as good as it ever did in the past. Ask for a sample of any of our new flavor items on your next order if you'd like to try before you buy. Don't blame me when you have to place another order because you liked the sample so much though.

For those of you going to Kona, whether to race or not, be sure to read the article about our open house and plan to come

by for a minute, or 60, or 90. I'm super excited to have Steve joining us for the first time in Hawaii.

I'm keeping my letter short in this issue 'cause it's a beautiful sunny day and I gotta get out and ride. I hope you have a great summer too!

Enjoy the Read!
Brian Frank
Proprietor

Endurance News Staff

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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 Hammer Nutrition 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 are available at www.hammernutrition.com

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Est. 1987

WHEY from page 1

we'd always used up until now.

While this might seem like an insignificant change, at least we thought it was, it did have a pretty negative effect on the already suspect whey protein flavor profile, and many of you found it objectionable enough to want to return it. As stated earlier, there was nothing technically wrong with this new protein. It was just that when the tastes from the two cheeses mixed together, it produced a compounded bad taste. However, that was the only WPI we could source at that time, so we decided to go with it instead of being back ordered indefinitely. Perhaps this was mistake, but it's water under the bridge now.

The instability in the whey market resulted in its gain in popularity in new mainstream premium food products (like Special K protein water). Historically, whey was used as a filler ingredient in all kinds of supermarket products because it was, well, ridiculously cheap. In fact, before the food industry started using whey as a filler, it was spread out in the fields surrounding the dairies because they couldn't get rid of it by any other means. Then it got so popular with these new premium products that the price went through the roof and we faced huge price increases and shortages at the end of 2006 and into 2007.

Well, the food industry responded to the spike in the cost of their cheap filler by replacing it with another cheap filler. Now everyone was sitting on growing inventories of whey protein with fewer buyers. In the short term, this has been a very frustrating problem, but in the long run, it will be good for us and you because the price should stay relatively stable for the foreseeable future.

The best news is that we have found two new suppliers for 100% WPI, and should not have any issues in the future with drastic variations in the taste of our plain or "raw" whey product, and of course, now there are the Vanilla and Chai options if you prefer. These flavored options are still ideal for the before bed HGH boosting dose mixed in water.

A. New. Look and flavor too!

The ultimate energy bar has a new look and a new flavor. Introducing Cashew Coconut Chocolate Chip. Tropical coconut, rich cashews, and dark chocolate create a satisfying combination. It, like our other bar flavors, is perfect for a healthy pre-race meal, post-workout recovery food, or healthy snack any time.



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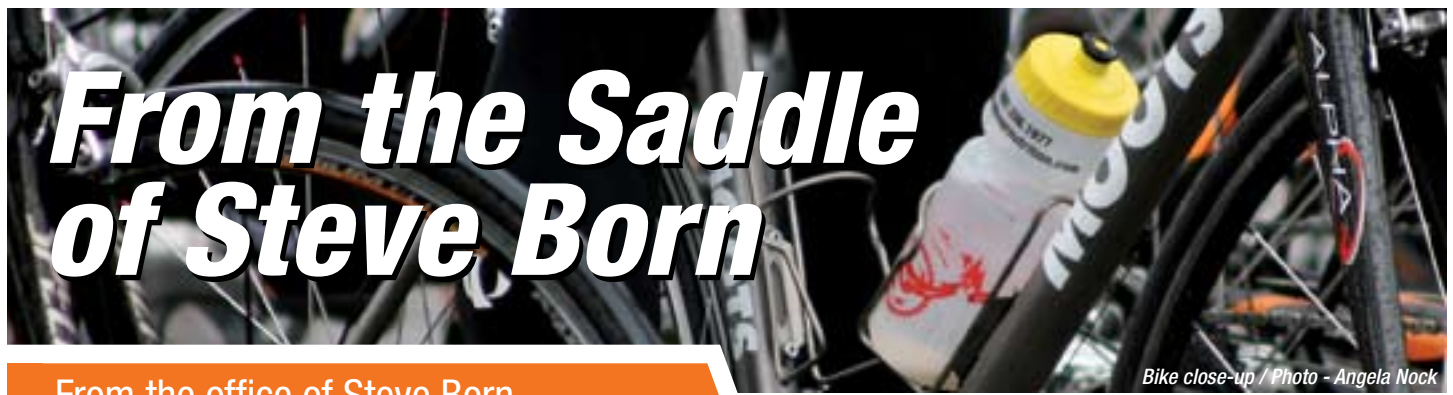
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ENDURANCE FUELS



From the office of Steve Born



Welcome to the 59th edition of Endurance News. It's been so long since my first contribution to EN that I can't even remember which edition

it was (it's in the low to mid 20s, I believe). Anyway, it's been a great eight years for me so far, and I'm looking forward to many, many more years of working here and helping you athletes.

Motivation

As most everyone knows, my chosen sport was ultra marathon cycling. From 1987 until I retired from active competition in late 2002 (after completing history's only Double Furnace Creek 508), I learned an awful lot about supplementation and fueling, which is information I am always eager to share with endurance athletes. The overwhelming majority of what I learned came via "the school of hard knocks," which is to say that I wasted more than my share of money on supplements and fuels that over-promised and under-delivered, and made more than my share of mistakes regarding fueling and supplementations. Some of those mistakes were really disastrous, with a couple of them nearly costing me my life. That's why I am so passionate about sharing my experiences with other athletes, so that they don't have to go down the exact same road I did and perhaps not spend nearly as much time, money, and energy as I did learning what I now know (which again, came the hard way).

And while I certainly don't consider myself to be a motivational speaker or anything like that, I have learned some motivation-specific things over the course of many years in the world of ultra marathon cycling. I wanted to share some of these with you and even though the details are based on ultra marathon events, I believe that the specifics are definitely applicable to anyone doing an endurance event. And yes, while some of these things may sound a bit esoteric, I still think they're of value and worth considering...

- 1) When you're in a race, don't let what anyone else is doing affect or influence what you're doing. My father, who was on all my RAAM crews, used to remind me that I had no control over what any of the riders were doing and, as a result, I shouldn't waste any precious energy worrying about what they were doing. What was under my control was knowing what was right for me in terms of pacing, sleep break strategies, etc., and that's what I needed to focus my energy on. Speaking purely in RAAM terms, when you reach day five, day one is going to seem like it was a month ago so you don't want to go out too hard at the start, which is a common mistake that so many riders make. The way I see it, if someone goes out harder than I know I can or should, and is able to maintain that pace throughout the race, they're going to beat me anyway. Bottom line is to not let what any other competitor may be doing influence how you do

your race.

- 2) Make every minute count. Don't stop unless it's necessary, and if you do, make it profitable. When you do the math it really adds up over the course of a long distance race. Referring again to RAAM, if I were to ride an average of 20 hours a day and take a mere 5 minutes off every other hour (which doesn't sound too unreasonable, given the nature of RAAM), that's a total of 50 minutes for every 24 hour period where no forward progress has been made. Over the course of 10 days that's over 8 hours where no progress was made. That's huge! In all honesty, a good reason why I was successful in most of my races wasn't because I was terribly fast or anything like that, but rather because my crew and I were very good about not wasting time with unnecessary stops and/or overly long sleep breaks; we treated all stops like mini "Indy 500 pit stops," knowing that every minute counted. Efficiency is key – you don't want to rush through things haphazardly, but you don't want to be lethargic either. Be efficient and it'll definitely give you an advantage, and you'll be rewarded by the time the race is completed.
- 3) Everything gets better. I realize it sounds a bit esoteric but (again, speaking in RAAM terms) the long, dark night will eventually change to sunrise;

see STEVE on page 5

STEVE from page 4

the long and seemingly endless climb will eventually have a summit; the wind will sooner or later stop, and you'll feel a whole lot better staying on the bike and working through it and making progress (slow as it may sometimes seem) than you will by getting off the bike and complaining about it.

- 4) Everyone is hurting out there so don't feel as though you're alone in what you may be feeling. It doesn't matter if you're in first place or last place; everyone is going through the same things mentally, emotionally, and physically. Also, no matter what you may think at times, you are not the slowest person out there. Bottom line is that it's really easy to psych yourself out, especially the longer into the race you get, so you simply have to remember that you're not alone in feeling what you may feel (and you will probably go through every permutation of emotional feeling there is)... trust me, everyone is feeling the same darn thing.
- 5) An inch is a cinch and a yard is hard. Endurance races are too long to think of them in their entirety, especially when you're already hurting and/or tired. In RAAM terms, you can't think about Kansas when you're still in Arizona (or, if you're doing an iron-distance triathlon, you can't think about mile 13 on the run when you're one-third the way through the bike portion). Why? Because it's simply too much for the mind to comprehend and it can really psych you out. Instead, break the race down into lots and lots of little pieces, meaning have lots of milestones to reach along the way. When you get to one destination/milestone you've accomplished a goal; now it's time to get to the next one and accomplish another goal. Breaking up the race into much smaller segments (an inch is a cinch) is a much better way to approach it than thinking of it

as a whole (a yard is hard).

- 6) Past doesn't necessarily mean prologue. Even if you're currently feeling kind of lousy, it doesn't mean you can't and won't feel better later on. A former RAAM winner once told me that doing RAAM (and I'd imagine this would be true for any endurance/ultra endurance race) is basically problem solving on an ongoing basis. To me, this simply means that things may not always go according to plan, the original "game plan" may not always go the way you want it to, so you have to be flexible and work



through the current situation/problem, knowing that it can (and usually does) get resolved.

- 7) Take the race element out of it. Forget about it being a race and just do what you love doing, which is riding a bike, swimming, running... whatever it is that you do. Getting too hung up on the fact that you are in a race can drain your energy and negatively affect your performance, while also taking a lot of the fun out of doing it in the first place. That kind of defeats the purpose, don't you think? I've personally found that when I don't focus so intently on the race I end up doing better anyway.
- 8) Success doesn't necessarily mean winning all the time. Former RAAM winner and one of the greatest endurance

athletes I've ever known, Michael Secrest, said that many years ago and I've never forgotten it. In fact, the full quote became my "mantra" of sorts and it's how I approached all my races: "Success doesn't necessarily mean winning all the time. Success is having the courage to face your fears while still having the guts to go on." That's an attitude worth adopting, wouldn't you agree?

Special "Shout Out"

I am completing my column for this edition of Endurance News from a hotel room in Burley, Idaho, where I spent the past weekend working at the annual Vikingman Triathlon (www.vikingman.org). The next race I'll be attending/working is the Battle at Midway Triathlon (www.bamtriathlon.com), and since it's fairly close to where I'm currently at, it made sense to stay in the general area versus driving 600+ miles back to Whitefish, then 700+ miles down to Midway, Utah only a couple days later.

Anyway, my "shout out" this issue goes to Lisa Clines, the race director of the Vikingman Triathlon. Not only is Lisa a very good triathlete in her own right (and an avid Hammer Nutrition product user), this past weekend she proved to me, and to all the racers, that she's a darn good race director as well. This is especially impressive considering this is the first race she's directed. Now, the weather in this area of southern Idaho is usually quite mild in mid-June but it wasn't that way at all come race time, which made it extremely difficult for all involved. That includes (perhaps most of all) the race director.

The day before the race it was cold, windy, and rainy... thankfully, packet pickup and the expo were indoors. The morning of the race greeted all of us with partly cloudy, yet thankfully dry, skies. Unfortunately, it was VERY COLD for most of the race - 38 degrees at the start, getting up to only 58-60 degrees at the most (it seemed colder than that). It was also VERY WINDY all day long, more than I'd ever seen in this area of Idaho (and since I lived and trained fairly close to here for 8+ years I know

see STEVE on page 7

STEVIA from page 1

I'm not sure what the distinction is between small amounts and high doses, but when I am training hard I am consuming a quite a bit of Heed and Recoverite, which both contain White Stevia. My 14-year-old son is also a regular user. I've looked at what is on the Internet about it and it seems fairly consistent with what the newsletter says, with the health food industry taking the position that it is safe and regulatory agencies in both the US & Europe saying it is not. It is also unclear to me how it can be legal to use it as a sweetener in a product when it is only approved as a dietary supplement. I'm interested in your position on this topic.

The replies from Steve and Dr. Bill

Steve:

I found the following information at <http://en.wikipedia.org/wiki/Stevia>. It's quite interesting and confirms my belief that stevia is not only extremely safe, but healthy as well. Here's a portion of the information from Wikipedia...

"A 1985 study reported that steviol, a breakdown product from stevioside and rebaudioside (two of the sweet steviol glycosides in the stevia leaf), is a mutagen in the presence of a liver extract of pre-treated rats — but this finding has been criticized on procedural grounds that the data were mishandled in such a way that even distilled water would appear mutagenic. More recent animal tests have shown mixed results in terms of toxicology and adverse effects of stevia extract, with some tests finding steviol to be a weak mutagen while newer studies find no safety issues.

Other studies have shown stevia improves insulin sensitivity in rats and may even promote additional insulin production, helping to reverse diabetes and metabolic syndrome. Preliminary human studies show stevia can help reduce hypertension although another study has shown it has no effect on hypertension. Despite these more recent studies establishing

the safety of stevia, government agencies have expressed concerns over toxicity, citing a lack of sufficient conclusive research.

Indeed, millions of Japanese people have been using stevia

comment: Too much of any substance, solid or liquid may be toxic if too much is consumed. The term 'LD50' describes the oral dose required to kill 50% of the lab animals.

Table 1 compares the LD50 of these common substances

TABLE 1

SUBSTANCE	LD50 GRAMS/KG BODYWEIGHT
Water	180.0 grams/kilogram
Stevioside	15.0 grams/kilogram
Vitamin C	12.0 grams/kilogram
Sodium Chloride	3.0 grams/kilogram
Arsenic	0.76 gram/kilogram

Note: For a 165 lb. athlete, that translates to 1125 grams (112,500 mg) of steviosides.

Reference: Akashi and Yamamoto

for over 30 years with no reported or known harmful effects. Similarly, stevia leaves have been used for centuries in South America spanning multiple generations in ethnomedical tradition as a treatment of type II diabetes."

reported a Stevia-LD50 was 15g/kg in oral administration (1975). 15g/kg means 15 grams of Stevioside for every 1 kg (2.2 lbs.) of body weight.

Bottom line: Considering the safety record of stevia, plus the fact that its LD50 is 5x higher than salt, and even higher than vitamin C, the tincture of stevioside formulated in Hammer Nutrition products should not be of any concern.

In my opinion, and I'm quoting Dr. Misner here (so it's his opinion as well), stevia "is a completely safe natural nutrient and a much better choice than sugar added to sweeten foods." Dr. Misner, in an email I have on file from him, stated that he can find nearly 700 references on Medline "to imply a carcinogenic relationship of cancer to dietary sugar." Interestingly, however, the "regulatory agencies" consider sugar to be GRAS (generally recognized as safe). In my opinion, that gives a fairly clear indication as to why it's only approved as a dietary supplement.

More information can be found at:

- <http://www.raysahelian.com/stevia.html> (Note: Dr. Ray Sahelian is a very well-respected nutritional scientist)
- <http://stason.org/articles/wellbeing/health/Stevia-The-Sweetest-Substance-on-Earth.html>
- http://www.cookingwithstevia.com/stevia_faq.html
- http://www.organicconsumers.org/articles/article_7140.cfm

Dr Bill:

Steve is absolutely correct and I have little to add, except a perceptive



STEVE from page 5

how windy it can get). The wind was constant, at least 25 mph all day long, with gusts much stronger than that. I have to admit that I was so glad to not be racing or race directing; all I had to do was keep everything in my booth from blowing away.

Anyway, Lisa and her staff/volunteers came through with a world-class effort despite the less-than-ideal conditions. All day long she remained enthusiastic and was tireless in her efforts in making sure that the all the racers' needs were taken care of. I tend to think that being a race director is one of the hardest, most thankless jobs there is, but Lisa—especially in this, her first race as director—proved more than up to the task. So a special “shout out” to you, Lisa, and all involved in putting on this year’s race. The Vikingman half iron distance triathlon is a great event and offers a very triathlete-friendly course. So next year, if you’re planning a mid-June half iron tri, you owe it to yourself to check this one out.

Oh yes, I’d be remiss if I didn’t mention that two Montana-based athletes won the race. Jay (Coach Jay) Marschall, from Billings, MT, won the men’s division in 4:49:34, and Kaylene (Kay) Uibel of Kalispell, MT (just south of Hammer headquarters), won the women’s division and placed 8th overall in a time of 5:18:59. Both are outstanding times, especially given the extremely cold and windy conditions that prevailed. Great job Jay and Kay!

I’ll be on the road a lot this summer and I hope to see you at one of the races I’ll be attending. If you do happen to be attending or competing in one of these races please do come by the Hammer booth; it’d be great to see you!

Have a great summer!



HOT TIP

Race Day Boost for cycling stage races

If you’re a cyclist involved in a multi-day stage race, this Race Day Boost protocol - while not having any specific scientific studies to back it - has been proven quite successful with hundreds and hundreds of cyclists over the years:

- 1) Follow the same 4-day loading protocol as is usually recommended: Take 1 level teaspoon of Race Day Boost 4 times per day, for 4 days prior to competition. We suggest mixing each teaspoon serving in 3-4 ounces of warm/hot water. After the powder dissolves consume immediately. 2-4 ounces of fruit juice and/or ice can be added if desired. Do not take Race Day Boost the day of the event.
- 2) Take 1 level teaspoon of Race Day Boost with your recovery drink as soon as

possible after the race, with another dose of Race Day Boost (mixed in warm/hot water as described above) later in the day/evening.

- 3) Follow this twice daily “maintenance dose” protocol after each stage.

- 4) Do not take Race Day Boost in the morning prior to the start of the next stage.

Following this protocol will help you reap the powerful ergogenic benefits of Race Day Boost for every stage of the race, but without overwhelming your body with too much of the product. Of course, make sure you test Race Day Boost in your training prior to using it in a race.

PRODUCT SPOTLIGHT

Anti-Fatigue Caps

The endurance athlete's secret weapon



Steve Born

This product was featured in Endurance News at about this time in 2005, a full three years ago. And while I'm not usually in the habit of recycling old material, I do believe it's justifiable here, especially since it's been three years since it was discussed. I also feel compelled to do so because this happens to be my favorite product in the entire Hammer Nutrition supplement line. Here's the history as to why this is so...

Several years ago, as the desire to improve my athletic performance naturally via the use of nutritional supplements intrigued me more and more, I came upon a section in a book by Dr. Michael Colgan that discussed ammonia and its detrimental effects on performance. Colgan wrote:

"A second inhibitor of exercise, happening simultaneously with the accumulation of acidity, is accumulation of ammonia. All anaerobic and endurance exercise produces oodles of the stuff. Bad news! Ammonia is toxic to all cells, reduces the formation of glycogen, and inhibits the energy cycle. It has devastating effects on brain function. We still don't know how much it contributes to fatigue, but we do know that the higher your blood ammonia, the poorer your performance. So the second thing that a successful ergogenic supplement has to do is reduce ammonia

accumulation."

(Colgan, Michael. Optimum Sports Nutrition. New York: Advanced Research Press, 1993, pp. 282-3)

Well, Colgan's words were all I needed to begin my investigation to determine which nutrients could aid in the removal of performance-robbing ammonia. I only had to read a bit further to get some answers. Later in his book, Colgan discussed the tremendous losses of glutamine during exercise and why it wasn't the best idea to replenish these losses with supplemental glutamine. Instead, he suggested a nutrient called OKG (ornithine alpha-ketoglutarate).

"... glutamine is not used with catabolic patients because it adds to the ammonia burden. To overcome this problem researchers in France developed alpha-ketoglutarate, which has the same carbon skeleton as glutamine, that is, provides a substrate for glutamine, but contains virtually no ammonia. Far from adding to the ammonia burden, alpha-ketoglutarate acts in the body as an ammonia scavenger. Ornithine also acts as an ammonia scavenger. The combination of the two is a potent way to reduce your ammonia burden." (pp. 377-78) (note: bold mine).

I immediately began taking OKG supplements in my longer workouts and races, and I could really see a difference in regards to less fatigue. As a result, I wondered if there were other ammonia-scavenging nutrients I could consider. After quite a bit of research, I located two more likely substances in a book by James Balch, M.D. – the amino acids aspartic acid and citrulline. Balch had this to say about these two amino acids:

"Because aspartic acid increases stamina, it is good for fatigue and plays a vital role in metabolism. Chronic fatigue may result from low levels of aspartic acid, because this leads to lower cellular energy. It is good for athletes, and helps to protect the liver by aiding in the removal of excess ammonia. ... Citrulline promotes energy, stimulates the immune system...and detoxifies ammonia..." (Balch, James F. Prescription for Nutritional Healing. Garden City Park, NY: Avery Publishing Group, 1997, pp. 36-37)

Bingo! Ammonia scavenging nutrients #2 and #3 discovered! Now all I had to do was find a source from which to buy them (which I eventually did), and then assemble, in my own kitchen, ammonia-fighting packets to take during my events. And that's just what I did for many years in my ultra cycling career.

see AF on page 9

AF from page 8

Fast-forward a few years

Now, the original Anti-Fatigue Caps product was pretty darn effective, though it contained only the aspartic acid component (in the form of potassium/magnesium aspartate). After discussing my successful, long-term usage of OKG and citrulline with both Brian and Dr. Bill, and how effective it was for me and several other riders I turned my “secret potion” on to, we decided to add OKG and citrulline to the existing Anti-Fatigue Caps formula. I’m very thankful we did and that it’s an all-in-one formula, because it sure makes things a lot easier than taking the three different components separately. Brian and Dr. Bill took the product formula one step further by adding the patented Enzyme Enhancement System™ blend of digestive enzymes to ensure maximal absorption.

Needless to say, it’s an amazing “ammonia scavenging” product, and there’s nothing like it that I know of in the supplement industry, and here are the reasons why...

A major enemy of endurance athletes is the accumulation of excess ammonia, which compromises athletic performance big time. Your body produces ammonia during exercise as a natural by-product of protein metabolism. It doesn’t matter what type of exercise you do, aerobic or anaerobic, you will still produce ammonia; it’s unavoidable. Problems arise during longer distance efforts (approximately 3-5 hours and beyond) when ammonia accumulates in the blood, and then ends up in muscle tissue. Repeating Dr. Colgan’s statement from earlier in the article, “Ammonia is toxic to all cells, reduces the formation of glycogen, and inhibits the energy cycle.” One study examined the changes in blood ammonia levels in humans during exercise and determined that the higher the blood ammonia, the poorer performance will be.

One way to help prevent excess ammonia accumulation is to use Perpetuem or Sustained Energy as your primary fuels during workouts and races that exceed two or three hours. These supply an adequate amount of protein to prevent the “cannibalization” of your lean muscle

tissue, that is, when your body literally feeds upon itself, metabolizing the protein from lean muscle tissue to satisfy energy requirements. This complicated “amino acids-to-glucose” process produces huge amounts of ammonia as a by-product, which again, is a primary culprit in fatigue. So the first step to preventing fatigue is to prevent muscle cannibalization by using a fuel with the right amount of the right (non-ammonia producing) protein. Use Perpetuem or Sustained Energy and you’ve got that covered.

During your longer workouts and races, it’s an excellent strategy to go beyond that first line of defense and provide your system with additional ammonia-removal support. That’s where Anti-Fatigue Caps comes in. It’s a one-of-a-kind product combining a potent arsenal of three known ammonia-scavenging nutrients— aspartate, l-citrulline, and OKG.

The Anti-Fatigue Caps Formula

Potassium/ Magnesium Aspartate

Aspartate – I think what Dr. Balch says about aspartic acid is about as good as it gets regarding the benefits of this amino acid: “Because aspartic acid increases stamina, it is good for fatigue and plays a vital role in metabolism. It is good for athletes and helps to protect the liver by aiding in the removal of excess ammonia.”

Studies (Agersborg and Shaw 1962, Hicks 1964, Gaby 1982) have shown that a magnesium + potassium + aspartic acid combination provides substantial benefits in the prevention of fatigue. Aspartic acid also combines with other amino acids to form molecules that absorb toxins and remove them from

the bloodstream, aids the function of RNA and DNA, and helps to protect the liver. Additionally, the potassium/magnesium aspartate compound increases production of a key substrate, oxaloacetate, which is involved in energy production.

L-Citrulline – Citrulline is an amino acid found in plant foods such as onions and garlic. Citrulline detoxifies ammonia and, like aspartic acid, is used to treat of fatigue. It promotes energy and stimulates the immune system.

OKG – Both ornithine and alpha-ketoglutarate (OKG) provide a readily available, non ammonia-producing source of glutamine in the body. Glutamine is depleted at high rates during exercise but cannot be replaced with regular glutamine as it creates excess ammonia on its own. OKG increases the amount of glutamine in the muscle and also helps prevent muscle catabolism. Repeating Dr. Colgan’s quote from earlier in this article: “Both ornithine and alpha-ketoglutarate act in the body as an ammonia scavenger.”

Now, if all Anti-Fatigue Caps did was aid in the removal of excess ammonia it’d be completely worth it. However, these nutrients do more than that and provide these additional benefits:

- More consistent energy from the conversion and increased production of a key substrate, oxaloacetate
- Support in the prevention of muscle tissue catabolism from effective, non-ammonia producing glutamine replenishment



*Karen Hunnicutt
Photo : Dan Aggar*

see AF on page 10

Pre-Workout/ Race Fueling



Professional triathlete
Matt Seymour fuels right.
Photo - Joe Aspatore

Steve Born

Q: *I've always assumed that when you train, you shouldn't take in any carb-type fuel for at least 40 minutes into the workout, (unless it's your second workout of the day). As I understood it, this was because of two reasons:*

- 1.) *You have glycogen built up in your system from the night before.*
- 2.) *The faster you fuel, the faster your muscles go through your glycogen stores.*

So by waiting to fuel you were trying to train your muscles to go through their glycogen stores more slowly. Is this true? Can you essentially train your muscles to store more glycogen?

A: Unless there is some research available that I am unaware of, I do not believe that it's necessary (nor beneficial) to prolong fueling after exercise in the hopes of "training the body" to preserve its glycogen stores.

When we consume carbohydrates upon waking, prior to a morning event, what we are accomplishing is topping

off liver glycogen stores, which were depleted during the night to sustain metabolism. None of these AM-consumed carbohydrates find their way into muscle glycogen stores; that (muscle glycogen storage) cannot be influenced/affected without the glycogen synthase enzyme, which is only present and/or highly active after a glycogen depletion exercise session. Once liver glycogen stores are topped off, excess blood glucose levels—in the words of Dr. Bill—"needlessly raise hormones to initiate fat store mechanics."

So the goal with the pre-race meal is to top off liver glycogen stores and it takes only a small amount of carbohydrates to accomplish this; you don't need to consume an 800+ calorie "mega meal" as some would suggest. By completing food consumption three hours prior to the start of a prolonged training session/race, insulin levels are allowed to go back to waking fasting levels. However, if fuel is consumed sooner than three hours prior, insulin levels are still elevated and active, which means that muscle glycogen oxidation rate is also high. In other words, by eating too close to the start all the hormonal influences of

insulin will still be elevated and active, and that will increase the rate at which your body depletes its glycogen stores.

As Dr. Bill puts it, "For a fit athlete doing a two-hour event or more, eating carbohydrates sooner than three hours prior to the event start will make a significant [negative] difference. To the degree insulin levels are elevated at the start of a race, the greater the body spends its muscle glycogen for energy production. The lower the insulin levels at the start of the event, the better your body spares available muscle glycogen stores. If you are doing a sprint event lasting 2-120 minutes, you can consume carbohydrates up to one hour before with no issues with energy reserves."

Dr Bill also writes, "During exercise insulin release is inhibited because sympathetic nervous system hormones are released and concurrently exercise augments muscle uptake of glucose from exogenous intake accompanied by lower insulin levels and effects."

see FUELING on page 11

AF from page 9

- Additional support in the prevention of cramping due to the aspartate component being chelated to magnesium and potassium

Anti-Fatigue Caps may not be the premier supplement in the Hammer Nutrition line (I'd give the nod to Premium Insurance Caps, Race Caps Supreme, and Mito Caps there) but oh, does it ever work well under specific conditions and for certain applications. It's been a long-time "secret weapon" of

mine and it's definitely a product you should consider, too.

You wouldn't need to take Anti-Fatigue Caps daily, but it can be an invaluable ally during major endurance circumstances, such as an extra-long workout, an Iron-distance tri, or to make a great day out of that epic ride. I think it's a good idea to always have a bottle at hand, even if it's only used infrequently. Stored correctly, the product is stable for several years.



Phytoestrogens from soy protein

Problematic for athletes, especially male athletes?



Bill Misner, Ph.D.

Phytoestrogens from plant lignans or isoflavonoids from at least 15 plants behave within the body like weak estrogens. Phytoestrogens are so chemically similar to estrogen that they bind to the estrogen receptors on the cells within the body. It should be emphasized that they do not initiate the same biological effects that true estrogens exert.

Phytoestrogens paradoxically act as anti-estrogens, effectively diluting the impact of the body's own production of estrogen, because they occupy the same receptor sites (estradiol receptor sites) that would otherwise be occupied by endogenous estrogen. Therefore, plant phytoestrogens protect the body from the detrimental effects of excessive estrogen. The healthy foods and supplements that introduce phytoestrogens into the diet are Mexican wild yam, black cohosh, red clover, licorice, sage, unicorn root, soy, flax seeds, and even tiny sesame seeds. None of these foods are associated with behavioral change or hormonal modification.

Consuming GMO-free soy protein generates anabolic sequences desirable for the health-conscious male and female endurance athlete, especially the 40-and-over athletes. If allergenic, thyroid, or digestion issues are present, then another protein should be selected. Soy's phytoestrogen properties block the effects of potent endogenous estrogens, with no known gender effects to males or females as reported from the literature. The net result from soy protein consumption is anabolic lean muscle mass gain. While I regard soy as an excellent dietary protein, alternating soy with other lean dietary proteins during training presents a responsible and defensible rationale.



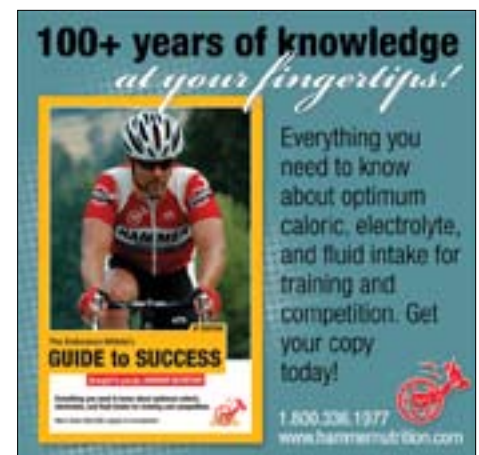
FUELING from page 10

The take-home points from all this are that:

- Insulin is **THE** hormone involved in regulating the effect of carbohydrate metabolism. If it's elevated then carbohydrate metabolism/glycogen depletion rates are also elevated.
- During exercise, the amounts and effects of insulin are minimized due to the influence of other hormones.

As a result, unless one consumes more calories during exercise than can be effectively replenished, the effects of insulin during exercise are minimal and thus, there is no need to postpone fueling after exercise commences in the hopes of preserving muscle glycogen stores.

For more detailed information regarding pre-workout/race fueling, see the article "The Pre-Race Meal" in The Endurance Athlete's Guide to Success.



Junior Development Cycling

Hammer Nutrition supported teams

Steve Born



While we at Hammer support pretty much everything associated with “endurance,” we have to admit that we have a special affinity for cycling. So much so that we’ve become more and more passionate about supporting teams that focus a good portion of their energy on the development of their junior members, the riders that represent the future of professional cycling and who may very well be tomorrow’s major tour contenders.

Here are some of the clubs that we’re currently supporting, along with their web sites and some information from their respective web site:

Team Devo

www.teamdevo.net

The future of American competitive success in mountain bike racing can be found in our nation’s junior cyclists. DEVO is committed to ensuring that these riders are respected, promoted and given every opportunity to improve and reach their goals.

DEVO is an internationally recognized cycling team that develops young competitive cyclists in the disciplines of mountain bike, road and cyclocross. For ten years, DEVO has been to junior cycling what Little League is to baseball. We continually search the U.S. for talented cyclists ages 13-22 and read through dozens of resumes to find quality athletes with strong scholastic backgrounds to invite into the program. DEVO provides a nurturing team environment and coaching support to help these competitors succeed in reaching their goals and realizing their athletic potential.

Team Rubicon

www.trubicon.org

At first, Rubicon was created as a women’s only team, believing that the team should encourage and support this often overlooked and unsupported group of competitive athletes. However, the team soon realized that it could help another poorly represented demographic in the cycling world: youth cyclists. Succumbing to their nurturing sides, the team decided to adopt young people interested in cycling into the Rubicon fold.

U23 DEVELOPMENT FOCUS

- Create opportunities to help develop young athletes.
- Focus Rubicon’s young athletes by
 - training
 - coaching
 - national race / pro race selections that will showcase talent
- Develop professionalism in young athletes on and off the field of play.
- Connect with pro teams and governing bodies to create opportunities to move young athletes up to the pro level.

Tieni Duro Junior Cycling

Development Team

www.tieneduro.org

Tieni Duro Junior Cycling Development Team is a non-profit organization focused on developing young cyclists into capable, safe, competitive racers. Our mission is to create an environment where boys and girls reach to achieve their personal best through cycling and competitive sportsmanship.

At Tieni Duro, we believe the lessons learned from cycling are metaphors for life. These lessons include developing personal discipline on and off the bike, overcoming hardship, developing an ability to “dig deep”, and most of all sacrificing yourself to bring honor to your teammates. In races, our boys and girls are expected to conduct themselves in ways that reflect positively on their team, their families, and themselves.

We recognize that we are fortunate to live in an area that has a rich tradition of bicycle riding and racing. We also understand that with the area’s strong tradition comes a deep responsibility for our youngsters to reflect positively on the cycling community as a whole. This includes riding responsibly, learning proper technique and etiquette, and “giving back” to our community. To that end, our program includes specific skills clinics, in-class training, and ongoing efforts to bring the benefits of cycling to others in our community less fortunate than us.

Founded in 2002, Tieni Duro has grown organically through the commitment and passion of its founders and supporters to produce nationally ranked Junior Cyclists and numerous high-performing young adults. We intend to become the premier junior amateur cycling team in California and remain a Top 10 Nationally ranked team while having fun and great experiences together on and off the bike.

Tieni Duro is a Junior ONLY program. As the cyclist turns 19, it is time to move on to a different team to continue their growth. Some riders will go on to ride for their collegiate team, while

see *CYCLING* on page 13

CYCLING from page 12

some will look for placement on a U23 Development team. Tieni Duro is constantly keeping in touch with various Pro and Development teams. For those that are capable of moving up to race competitively at the U23 level, we will provide recommendations to the various U23 Development teams.

Montana Junior Cycling

www.jedzilla.org

The purpose of the Montana Junior Cycling Foundation is to promote competitive cycling in all it's different disciplines to 13 to 18 year olds throughout the state of Montana.

The Montana Junior Cycling Foundation (MJCF) will promote competitive cycling through member's participation in races, group rides and one on one interaction with riders through the encouragement of coaches and mentors. The MJCF motto will be: "Safety, Fun and Racing, through Coaching, Competiton, and Education."

JET Cycling

www.jetcycling.net/index.html

JET Cycling has a vision to grow the sport of cycling in North America. Our goal is to develop a junior cycling development program that rivals that of club sports.

Junior Cycling is the foundation of our future in the sport. Without a solid base, we have no chance of growing the future of professionals in cycling.

JETCycling is dedicated to making sure we train, teach, and race in a healthy, happy, and fun environment.

More information and sponsorship

For more information about these teams, please visit their web sites. Also, we're always looking for high-quality junior development teams to consider sponsoring. If you're a member of such a team, or know of a team that Hammer Nutrition should be sponsoring, please email us at sponsorship@hammernutrition.com from September 1, 2008 to November 30, 2008

JET Cycling Junior Girls - Race Report

Here is a picture of our Junior Girls. L to R – Rachel Cross – California Criterium State Champion, Millie Tanner - #1 in Southern California and Nevada Region, Colleen Cross – #2 in the Southern California and Nevada Region, and #1 in Track! Thank you to Hammer Nutrition for helping us and giving us the products to succeed. We use HEED, and Recoverite. Plus the Hammer Gels are awesome.

Fueling is a very important part of our routine and we need every ounce of energy to compete. We are thankful for a product that helps us with our performance.

Thank you.
Jet Tanner



Rubicon - Race Report

Enumclaw Stage Race:

The guys are starting to click now, first up the Enumclaw stage race. The guys opened up with at 10k time trial followed by a criterium and road race. In the evening session on Saturday was the criterium. Roman had taken the lead in the TT sitting in 11 place, on GC. So Josh, Logan, Carson made sure nothing got away, setting up Roman and Sean for the finish. Roman took 6th in the criterium, moving Roman up to 7th on GC.

The road race saw rides from strong teams such as Hegman-Bergman, BMC and others try and launch riders off the front to gain seconds to move up on GC. On the last lap, Logan and Shaun worked to bring back the break, but two riders stayed away –however Carson watched over Roman in the race and with the last 300 meters to go, Carson sprinted taking Roman with him and placing Roman 4th in the day's stage with Carson in 5th. The teams effort kept Roman safe in 7th over all GC and moved Carson up to 10th.

Ballard Twilight Criterium:

Ballard Washington again hosted the Ballard twilight criterium and the guys in yellow made the trip up to Seattle to race it and hand out LIVESTRONG wristbands to the kids. We took about 50 wristbands up and they where all gone is a short amount of time. The game plan, set Shaun up for the win. Josh, Logan, Roman and Carson worked pretty hard to make sure nothing got too far out of reach that couldn't be brought back. Josh went on the attack a couple of times, as shown in photo 2 above. Shaun stuck to Roman's wheel like glue as the lap counter showed 5 to go. Two guys got off the front and we thought they would be caught by the last lap, but they managed to stay

away from a hard charging field (dang) and Shaun took 4th with Roman in 5th.

Next up for the team in Yellow -

July

- 8-13 – Cascade Classic (NRC)
- 16 – Gastown Criterium, BC Superweek Vancouver Canada
- 17 – Tour de Burnaby, BC Superweek, Vancouver Canada
- 18-20 – Tour de White Rock, BC Superweek, Vancouver Canada
- 18-20 – Alpenrose Velodrome Challenge, Portland, Oregon * Track
- 25-26 – FSA Grand Prix / NW Velodrome Championships * Track
- 27 – Vancouver Court house Criterium, Vancouver WA

August

- 6-10 US National Road / Time Trial Championships (Elite & U23), Orange County, CA
- 8 – Portland Twilight Criterium
- 13-17 Tour of Utah (NRC)

Salt Stains

What do they mean?

Steve Born

We receive a variety of questions on numerous occasions regarding this topic, primarily these particular questions:

- “What does it mean if you are encrusted in salt after long workouts?”
- “Is that a sign you took too much or too little electrolytes?”

Dr. Bill replies: Salt stains are the result of a high perspiration rate for evaporative cooling, a survival priority. Core overheating drives the body to profusely sweat copious loss of waste byproducts including mineral salts. What individual loss of what mineral could be confirmed by lab blood serum mineral profile following an exercise-induced salt stain event.

Sodium is not the only mineral the human body must monitor levels of when it is overheated, though it also is a survival chemical when volume is

compromised. I therefore hypothesize that Endurolytes—with a broad spectrum of electrolyte mineral dose—keeps mineral balances from triggering hormone-messenger alarms that contribute to muscle fatigue, spasms, cramping, and eventual failure. This hypothesis is supported by compatible doses determined by anecdotal reports from the field of endurance athletes comparing effects of no Endurolytes with favorable applications. A more precise test would be to measure serum electrolytes with and without using Endurolytes to determine if compatible dose reduces your electrolyte loss.

We know consuming high sodium converts into high sodium loss in sweat and urine. We know consuming low sodium converts into lesser sodium loss in sweat and urine than high sodium. Therefore, replacement of low sodium with other potentially depleting electrolytes during high sodium sweat

loss predictably lowers sodium in sweat loss. [This is] because the body perceives low sodium transit as those unnecessary to excrete, because as such electrolyte balances in moderation reduce the need to activate survival excretion pathways. Hypothetically, this is rational.

Steve’s note: Some salt stains are to be expected as perspiration dries on the body and clothing. However, large amounts of salt stains on the clothing suggest that you may simply be sweating more profusely during exercise than others... more sweat = more salt stains. Additionally, what Dr. Bill writes (“... consuming high sodium converts into high sodium loss in sweat and urine”) suggests that salt intake during exercise and/or in the diet may be too high, which is something to monitor and address. Ideally, daily sodium intake closer to 2000-2500 mg/day instead of the 7000-8000 mg/day that the majority of Americans consume.

HOT TIP

Satisfying hydration requirements prior to a workout or race

Here are a couple recommendations for ensuring that you’re properly hydrated prior to the start of a workout or race:

*** 80-100 ounces (roughly 2.4 - 3 liters) of water during the four hours prior to the start of the race; ceasing consumption about 20 minutes prior to allow the stomach to empty.

*** 500 ml (about 17 ounces) of water about two hours before exercise.

*** One liter of water (about 34 ounces) in the two hours prior to the start of the

race (about 17 ounces per hour), ceasing consumption about 20 minutes prior to the start.

Each of these recommendations has at least some research backing. Still, you need to determine what works best for your system and the particular logistics of the race or training session ahead. Also, if your workout is in the 2+ hour range or longer, make sure you’re drinking water only (no calories for 3 hours prior to the start!). If it’s under 2 hours then the use of HEED is perfectly acceptable.

Become a world-famous athlete!

Okay, so maybe ‘world-famous’ is a bit of a stretch but we do want to include YOU in our 2009 catalog, other printed materials, or on our website. Round up those awesome action shots of you doing what you do and send them in. Please put PHOTO SUBMISSION in the subject line and include the name of the race and any photographer information in the body of the message. Copyright-free photos are preferable.

Send copyright-free photos to :
anock@hammernutrition.com

Partners

Hammer Nutrition supported organizations



Steve Born

In addition to the hundreds of Hammer Nutrition sponsored athletes, teams, and coaching services—not to mention the 2000+ events we sponsor annually—Hammer Nutrition supports a number of organizations as well. Here are some of the primary organizations we support, with a brief synopsis from their web site about each:

Diabetes Training Camp

“Diabetes Training Camp is a unique fitness, exercise and multi-sport training camp geared towards all persons with diabetes.” For more information, go to www.diabetestrainingcamp.com.

Diabetes Sports and Wellness Foundation

“Diabetes Sports and Wellness Foundation (DSWF) inspires and empowers people living with Type 1 diabetes to embrace health, fitness, and well being through an active lifestyle. Our goal is to give diabetics the practical tools, programs and resources and confidence to start living an active lifestyle today.” For more information, go to www.dswf.org.

Juvenile Diabetes Research Foundation International

“JDRF is the leading charitable funder and advocate of type 1 (juvenile) diabetes research worldwide. The mission of JDRF is to find a cure for diabetes and its complications through the support of research. Type 1 diabetes is a disease which strikes children suddenly and requires multiple injections of insulin daily or a continuous infusion of insulin through a pump. Insulin, however, is not a cure for diabetes, nor does it prevent its eventual and devastating

complications which may include kidney failure, blindness, heart disease, stroke, and amputation. Since its founding in 1970 by parents of children with type 1 diabetes, JDRF has awarded more than \$1.16 billion to diabetes research, including more than \$137 million in FY2007. In FY2007, the Foundation funded 700 centers, grants and fellowships in 20 countries.” For more information, go to www.jdrf.org.

FCA Endurance

“FCA Endurance is a Sport-Specific Ministry (SSM) of the Fellowship of Christian Athletes.” For more information, go to www.fcaendurance.com.

International Christian Cycling Club

“IC3 has members all over the world and organized rides all over the United States. Our Mission: To unite Christian cyclists for a worldwide testimony in lifestyle, training, and sportsmanship. To expose each cyclist we encounter to the love and peace of Jesus Christ, so they may want to have a relationship with Him.” For more information, go to www.christiancycling.com.

International Christian Triathlon Network

“The International Christian Triathlon Network is a network of individuals, ministries and organizations that love the Lord and are involved with the sport of triathlon. Some of the ministries and organizations involved are, Athletes In Action, The Fellowship of Christian Athletes, Christian Broadcasting Network, ANC Racing, Step up to Life, Trinity Triathletes and Iron Prayer Services. The purpose of the ICTN is to engage and link together triathletes around the world, equip them to serve the Lord and encourage them in their faith. The ICTN is not a ministry in and of itself, but is a network of those who are interested in seeing the love of God spread throughout the triathlon community. We will promote all ministries and organizations interested in this.” For more information, go to www.ictri.net.

We’re honored to be affiliated with such great organizations. To find out more about any or all of them, please visit their respective web sites.

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Back Pain

Brian Frank

Back pain? Been there, done that. I ruptured my L5* in January of 2004, and it would not heal or respond to a full year of physical therapy (PT) and exercises done religiously; I was in constant pain and suffered muscle spasms. Additionally, I was off the bike and had to work lying on the floor with my laptop propped on my knees for two years before I figured it out. Let's just say it was very stressful.

**The symbols L1 through L5 represent the five lumbar vertebrae. The lumbar vertebrae are situated between the thoracic vertebrae and the sacral vertebrae in the spinal column.*

A book that I found most helpful is *Treat Your Own Back* by Robin McKenzie (available for \$10.95 from the "Books & DVDs" link on the Hammer Nutrition web site). This book deals only with restoring the lordosis of the lumbar spine. This is key because, due to poor posture and countless hours sitting on our bikes and at desks, we tend to straighten out the natural negative curvature in the lower back. For many, simply doing this exercise provides immediate, if temporary, relief from low back pain, stiffness in the lower back and sciatic pains. This is where to start.

Next, you must engage in a consistent core routine (read: done 3-5 times per week). It can be yoga or Pilates at your local studio or gym. I also highly recommend Graeme Street's popular DVD series *Cyclo-CORE* training. We offer a *Cyclo-CORE* package which incorporates his most popular DVD's and includes a free \$39.95 gift bonus when you buy from us. Click the "Books & DVDs" link on our web site to check it out.

Notice that no back muscle strengthening exercises are suggested. That's because almost none of us actually have weak back muscles. On the contrary, they're fried from over-use because your core muscles are not doing their share of the work. Develop the core and the back muscles can finally relax a bit.

The last step in getting back pain free is realizing that chronic back pain is almost 100% stress caused; it's "the new ulcer." Now don't get me wrong – someone who injures their back, does 3-4 months of PT, and is able to resume their pre injury activities with no recurring pain or muscle spasms is the exception. That person really did have a legitimate back injury that responded properly to

treatment. I'm talking about the other 99% of us who experience back pain that is not caused by a single trauma, is non-responsive to PT, and core strengthening exercises only keep it at bay. It usually flares up at times of maximum stress.

If you can see a connection between stress and your back pain, reading Dr. John Sarno's books may very well change your life. It certainly did mine. His book *Healing Back Pain* is an oldie, but it's my favorite and his best seller. It's available for \$13.99 from the "Books & DVDs" link on the Hammer Nutrition web site.

Note: This article, as well as a couple others in this issue of Endurance News, first appeared as an email reply on the Endurance List forum. If you're not yet a member of the Endurance List, you're not only getting this information 1-3 months later than list members do, you're also missing out on a wealth of other useful information. It's easy to join the Endurance List, and there's no cost whatsoever. Click the "HAMMER FORUM" link—found in the left column on the home page of the Hammer Nutrition web site—for information on how to become a member.

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2008 Events

See you at the races!

Out on the course with the Hammer trailer. Photo : Angela Nock



Steve Born

It's safe to say that we're smack in the middle of the busy season, especially in regards to the number of events we sponsor. Every year we increase the number of events we support and our goal this year is to exceed 2000 events and—in addition to the other products we supply the races, such as HEED and HEED cups—provide over 1,000,000 samples, product brochures, and goody bags. That's right, one million samples of Hammer Nutrition products, brochures, and goody bags!

It would take the pages of three or more editions of Endurance News to list all the events we're sponsoring in the upcoming months, but here's a list of some of the primary events where Hammer Nutrition products will be:

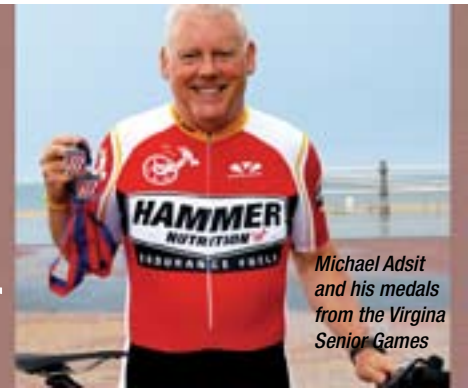
- **July 12-13:** Musselman Triathlon (Geneva, NY) – www.musselmantri.com
- **July 12:** Siskiyou Out Back Trail Run (Mount Ashland, OR) – www.siskiyououtback.com
- **July 12:** Muncie Endurathon (Muncie, IN) – www.muncieendurathon.com
- **July 13:** Chattanooga Waterfront Triathlon (Chattanooga, TN) – www.team-magic.com/tmtri/chattri.htm
- **July 13:** Donner Lake Triathlon (Truckee, CA) – www.changeofpace.com/Donner_lake_tri.html
- **July 19-20:** Race Across Oregon (Portland, OR) – www.raceacrossoregon.com
- **July 19-20:** Tahoe Rim Trail Run (Lake Tahoe, CA) – www.tahoemtnmilers.org/trt50
- **July 20:** Boulder Peak Triathlon (Boulder, CO) – www.5430sports.com
- **July 26:** Salomon/Endurance Sports Summer Groove 2008 15 Hour Adventure Race (Pentwater MI) – www.endurancesports.biz/08summergroove/08summergroove.shtml (and) www.gravityplay.com/adventureracing/summit.html
- **July 31-August 3:** Mountain Race Across the Summits (Steamboat Springs, CO) – www.geminiadventures.com/mtrats.html
- **August 3:** Troika Triathlon (Spokane, WA) – www.racecenter.com/troika
- **August 10:** Sylvania Triathlon/Duathlon (Sylvania, OH) – www.eliteendeavors.com/race_sylvania.htm
- **July 26-27:** Adventure Xstream Summit Country Adventure Race (Summit County, CO) – www.gravityplay.com/adventureracing/summit.html
- **August 10:** 5430 Long Course Triathlon (Boulder, CO) – www.5430sports.com
- **August 17:** Pigman Triathlon (Cedar Rapids, IA) – www.pigmantri.com
- **August 23:** Bulldog 50K and 25K Ultra (Calabasas, CA) – www.trailrunevents.com/bd
- **August 23:** Lean Horse Ultra-Marathon (Hot Springs, SD) – www.leanhorse.com
- **August 23:** Half Vermont Journey (Salisbury, VT) – www.vermontsun.com/halfvermontjourney/
- **August 24:** Steamboat Springs Triathlon (Steamboat Springs, CO) – www.5430sports.com
- **August 24-30:** Bicycling Tour of Southern Utah (St. George, UT) – www.planetultra.com/Utah/index.htm
- **August 30:** Stump Farm 12 MTB Race (Green Bay, WI) - www.wemseries.com/stump_farm.html
- **August 30-31:** Grand Teton Races (Alta, WY) - www.dreamchaserevents.com/gtr
- **September 5-7:** Tahoe-Sierra 100 Mountain Bike Endurance Race (French Meadows, CA) – globalbiorhythmevents.com
- **September 6:** EnduraSport EnduraSport Pennsylvania – The Quakerman Triathlon (Nockamixon State Park just outside of Philadelphia, PA) – www.genesisadventures.com
- **September 6:** The Pumpkinman Triathlon Festival (South Berwick, ME) – www.pumpkinmantriathlon.com
- **September 6:** Great Illini Full and Half Distance Triathlon (Neoga, IL) – www.mattoonbeachtri.com/GreatIllini/index.html
- **September 7:** Firmman Half Iron Tri (Narragansett, RI) – www.firm-racing.com
- **September 7:** Big Kahuna Triathlon (Santa Cruz, CA) – www.firstwave-vents.com/kahuna

This is just a small segment of the races we're sponsoring in the next couple months! We're constantly adding new events to our calendar and updating our web site, so make sure to check out the current list of 2008 Hammer Nutrition sponsored events on the Events page of our web site.

Getting faster as you get older

The ultimate cycling club & resource center

Bill Nicolai



Michael Adsit and his medals from the Virginia Senior Games

But I thought we were supposed to get slower

Yes, you are supposed to get slower. The aging process at the cellular level, the natural decline of the ability to produce energy, the decline of ambition and enthusiasm, all these will tend to slow you down. But there is an offsetting factor which is the difference between your present fitness and the innate potential you possess as a living human being. Unless you can accurately say that there is absolutely nothing you can do to improve, then there is the possibility of getting faster and, in a sense younger. So, if you are not presently at the limits of human potential in your age range, you probably can get faster and the issue becomes how to accomplish this.

Physiological verses Chronological age

There is no doubt that you will be a day older tomorrow than you are today and a year older in 12 months. But if you increase your fitness it is possible to offset that by becoming just a bit more physically able in that time. As a measure of fitness, the speed with which one does an athletic event is a good measure, not just to compare with others, but as a gauge of one's own progress in training. There does not seem to be any limiting age where one cannot improve fitness. So rather than "gracefully" accept the infirmities of age and resign yourselves to a gradual decline, I propose that the objective be to increase fitness and speed. Note that I am not saying that you should try to just arrest the decline, but that the goal should be to actually get faster. For most of us this is a reasonable and obtainable goal. Put in a stark and

succinct form you have two choices: Get faster, or get older

Training

I am not going to spend much on this subject since it is so amply covered and well understood by most athletes, and certainly those who read Endurance News. The intricacies of base training, speed work, training cycles, heart rate zones and etc are probably well understood by the readers of this publication and are amply covered by authors in great detail, here and elsewhere, I am not going to concentrate on that, but will talk about some other less well know factors that will make you faster.

Nutrition

Strangely, the knowledge of which foods to eat that will be best for you is not very well known or understood by many athletes. The best summary of the principles are found in the January edition of Endurance News in an article "24 Helpful Hints" by Dr. Bill Misner. I agree with all of his suggestions and will offer my own commentary on some of his points here and add a few of my own observations.

Low Glycemic index foods—I have found that eliminating white bread, white rice and pasta is highly effective. Low glycemic index foods such as cooked whole barley, short grain brown rice and breads made only with unrefined whole grain flours and nuts are effective ways to do this.

Lots of fresh vegetables and fruits and legumes. These seem to really satisfy the appetite without contributing extra

unneeded body fat. In the six months over this last winter where I lost seven pounds I made no attempt at reducing my food intake. I just paid attention to what I ate, not how much.

My view is that my hunger is a good guide as to how much to eat, rather than attempting to control food intake according to some artificial arithmetic regarding calories. I would point out that wild animals that eat the natural food they obtain from their environments never seem to exhibit unhealthy amounts of body fat. I suppose they achieve this by eating when they are hungry and not by counting calories. I believe that we have the same ability that they have, as long as we consume food very close to its natural organic state and not the stuff sold in packages in stores. Stated succinctly, we should eat like other animals and avoid anything with a bar code on it.

Avoiding the use of alcohol—even in moderation. This is one of Dr. Misner's most emphatic recommendations and I have found in my own experiences that as much as I would like for him to be mistaken, he is, as usual, correct.

Food to consume while in the act of exercise

It is not possible to consume natural occurring organic foods in the original form while actually exercising. At such times, where nutrition is very important, it is best to consume the products that have been proven to be effective and safe for endurance training and competition. Readers of Endurance News and the Endurance Athlete's Guide

see *FASTER* on page 19

FASTER from page 18

to Success will find all the information necessary regarding such foods in those publications.

Supplementation

As endurance athletes, we require unusual amounts of food. Even the best food choices will leave you short of essential micro nutrients and Vitamins. Because it is impossible to consume adequate amounts of essential nutrients from food alone it is a good idea to supplement

It is advisable to engage in supplementation of major known vitamins (Insurance Caps), joint and ligament support (Tissue Rejuvenator) and micronutrients (Phytomax). Given the high nutritional demands of a training athlete supplementing these substances makes good sense.

While exercising I also supplement with co-enzyme Q10 and Idebinone (Race Caps) plus R-alpha lipoic acid and L-carnatine (Mito Caps) and I have found that ATP and Anti-Fatigue caps are also useful.

Electrolytes are essential and I use varying amounts of Endurolytes. This formula is proven successful by thousands of athletes and is a better choice than consuming salt or electrolyte containing beverages. The reason this is so is that your requirement will vary with your personal physiology, heat and humidity. You will have to learn from personal experimentation what will work best for you. I use a base level of two caps per hour, even in cold weather and increase it up to six per hour or even higher in extreme conditions.

Hydration

Personally, I drink water. Since this is the beverage of choice for most all living things it is recommended that you consume it in adequate quantities in its normal pure form. As with hunger, I think that thirst is a good indicator of how much to consume. As a cross check, Steve Born's guideline of 16 to 24 ounces per hour is useful. I don't like to confuse things by mixing water with other substances to get my hydration. Somehow it just seems simpler to do

it this way, but I know others who use mildly caloric beverages such as HEED to good effect.

Injury

In order to get faster you must exercise, you cannot exercise if you become injured. So many Athletes leave the field of play by sustaining avoidable injuries. The cause of most injury is poor technique. Poor technique usually occurs due to a lack of mindfulness while exercising. Some people think that by exercising harder, they will improve, and in a limited sense this is occasionally useful, but this only applies if correct technique is used. Because it is possible to make an activity harder by doing it incorrectly, that is often done by athletes in search of speed. Poor technique done with great effort will never be faster, but it will probably cause injury, especially while running. This fact is somehow not understood, sometimes by even very talented athletes and they are forced into extended periods of recuperation from injury that reduce fitness. Sometimes the athlete will try to make up for these periods by assuming even greater efforts when they feel sufficiently recovered and then the cycle repeats. This eventually leads to a person causing such grave injury that they cannot continue to exercise at all, and they give up. Then they are out of the game and inevitably will get slower and older. So, using proper technique and staying out of this grim cycle is your only choice.

Rest and Recovery

Proper rest—most athletes somehow fail to recognize that all of the gains of exercise come while resting. The training we do breaks down tissues and enables gains that come as a repair response when we rest. High quality rest and sleep are absolutely essential to maximizing fitness. Given the choice between another workout and a mid day nap, I unhesitatingly recommend that you take the nap, it will benefit you more.

Final Perspective

I think too many people get caught up in comparing themselves to others. To me it is an odd fact that despite the necessity of striving to be always faster,

the placing in athletic events doesn't really seem to matter. Often this is determined by who shows up the day of competition. What does that have to do with my own accomplishments? How fast I am with regard to others says nothing about the progress I'm making. So I like to keep the competition private, just me verses my own potential. This has resulted in a 20 year path of discovery and, yes, I'm still getting faster.

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Muscle Soreness/ Weight Gain



Coach Al Lyman, CSCS

I've been an endurance athlete (running and cycling) for many years. I do yoga and cross country skiing as a change of pace. A few years ago, after my first cross-country ski workout of the season, I experienced delayed onset muscle soreness, which I kind of expected. I remember that it seemed to last longer than usual, but I wasn't really concerned at the time. Lately, however, my muscles almost never feel really good. There always seems to be some soreness or stiffness. Is the honest answer that this is the result of many years of intense exercise and the natural aging process? I still exercise hard but I don't recover as fast from the workouts. I really enjoy the workouts and the effect they have on my body with respect to weight control. I know that I will gain weight if I back off, and at my age, it is much harder to lose weight once I gain it. I've actually tried to modify my diet, shifting the balance to more protein, but I am disappointed in the results. The area between my knees and my navel is fatter. Any advice on combating the muscle soreness and the dietary issues?

Coach Al Lyman responds:

The typical muscle soreness that we, as endurance athletes, experience, comes from micro-trauma and tissue damage at

the cellular level. You train hard or long, damage your muscles, and you hope that they recover and rebuild so that when you stress and damage them again, you are better, faster, and stronger!

The problem that we all face is having the patience to allow this recovery process to take place. Yes, my friends, you need more time for recovery! This issue is compounded as we age. As we get older we just need more time to allow the healing process to take place.

If you're experiencing chronic soreness, assuming you are healthy and there are no other issues at play, the simple fact is that you are training too hard or too long too often and not allowing the recovery process to take place in between these sessions. Rest more, and you'll see the soreness dissipate. As you get older, accept the fact that while you NEED to keep the intensity within your training to continue to perform well and 'stay young,' you can't escape the fact that recovery does take longer, so you must give yourself the time to allow it to happen. At least one more easy or off day between "hard" sessions, or perhaps one more full rest day per week, that kind of thing.

Regarding the dietary issues, in addition

to the great information that Brian provides in his article, I will share that as we age our bodies seem to become more "efficient" with calories, and if we consume as many at an older age, as we did when we were younger, then over time, we can or tend to add on a little of that "bonus" fat you're describing. Also, since you are likely "borderline" over reaching (not quite over trained, but definitely on your way there, e.g. chronic muscle soreness), I believe that lack of recovery and overall chronic adrenal stress may disturb your body's ability to burn fat as a fuel source, and may end up preventing you from tapping into that fat for fuel, which could affect body fat levels.

Bottom line: REST MORE! On a routine basis, sleep more, take more recovery training days between hard sessions, and make sure you continue to strength train to maintain and even increase muscle tissue as you age, and follow the Hammer principles for meal timing, etc., to ensure you can access those FFA's [Free Fatty Acids] for fuel during training.

Coach Al Lyman, CSCS
Certified USA Triathlon Coach
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A Protocol That May Improve Lean Body Mass & Loss of Fat Mass

Bill Misner, Ph.D.

One question I receive repeatedly from competitive triathletes and cyclists is "How do I trim a few pounds fat off my waistline or hips? After training, athletes have stimulated appetites that lead to calorie excess and rebound fat weight gain above muscle mass weight gain. Muscle mass volume is nearly two times heavier than fat volume weight. During extreme exercise sessions the rate of fat vs. the rate of lean muscle loss favors muscle mass losses greater than fat mass losses. Why is this? Fat mass tends to be strictly reserved as a survival mechanism against starvation during high calorie metabolism. The body gives up more readily its lean muscle proteins than fat mass for calorie burning.

Hence we all observe fat mass gain more efficient than muscle mass gain. The answer therefore for short-term reduction of this observed phenomenon is intake of high protein, no carbohydrate with a modest digestive-inhibitor fatty acid donor in a solid-like paste form. From a variety of published research summaries, I hypothesized a post-workout meal consisting of 50-grams Glutamine-enriched Hammer Whey protein with 1 ounce whole almonds mixed with water in a "solid" paste-form more than fluid-form would suppress appetite for up to 6-hours. This protocol employed over a 10-day period may lead to fat-weight loss with no loss in lean muscle mass. Subjects are warned this protocol may also reduce muscle glycogen stores with dramatic reduction in endurance energy production. Athletes are strictly advised not to employ this practice more than 10-days.

This rationale is [hypothetical] supported:

Whey Protein Reduces Appetite

Whey protein suppresses food intake (Bellissimo et al. 2008). Suppression of food intake occurs after consuming WHEY PROTEINS by -28% compared to EGG ALBUMEN, -23% compared to CONTROLS, -20% compared to SUCROSE, and -9% compared to SOY. Acute appetite and energy intake are equally reduced after consumption of LACTOSE, CASEIN, or WHEY compared with GLUCOSE, which was consistent with differences in plasma ghrelin. Higher CCK responses after PROTEINS correlated with satiety but did not affect energy intake (Bowen et al. 2006). Whey, soy, and gluten similarly tend to reduce ad libitum food intake 3 hours later in lean and overweight males relative to glucose. Postprandial ghrelin, GLP-1, insulin, and cholecystokinin may contribute to this HIGHER SATIETY AFTER PROTEIN CONSUMPTION (Bowen et al. 2006).

Almonds (Fatty Acid Donor) Reduce Appetite

Energy intake recorded was a mean of -38% less calories after FREE FATTY ACIDS compared with triglycerides, and -33% less calories than controls. Free fatty acids empty from the stomach more slowly, with the effect of stimulating plasma cholecystokinin (CCK) and peptide-YY (PYY) resulting in suppressed appetite in healthy human beings (Little et al. 2007).

Solid Mix Paste With Solid Foods Almonds Reduces Appetite

The post-meal hunger is lower following the solid meal versus liquid meal-replacement for over 4 hours. Similar responses were observed with the desire to eat. The insulin and ghrelin composites

were lower following the solid trial compared to the liquid (Tieken et al. 2007).

Result

Following each workout I consumed a meal consisting of 50-grams Glutamine-enriched Hammer Whey protein with 1 ounce of whole almonds mixed with distilled water in a "solid" paste-format. In all trials, this protocol reduced appetite between 350-425 calories per trial.

Conclusion

This protocol utilized 10-workout days may reduce 1-2 lbs fat weight without compromising lean muscle mass weight. Total body weight remained the same and did not change in spite of calorie restriction imposed by the appetite suppression effect. This protocol should not be attenuated longer than 10 trials to prevent physiological adaptation to calorie restriction. Furthermore this protocol may inhibit performance due to the deleterious effect reducing muscle glycogen stores.

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Sodium, Potassium, and Calories (oh my!)

Steve Born

Question from an email we received: Can someone tell me the absolute minimum values an endurance athlete needs for sodium and potassium? A friend of mine is telling me I need at least 250 carb cal per hr, and to increase sodium to at least 500mg/hr and my potassium to 125mg/hr. According to him, these are minimums. I think that is high. Also, I have had some problems with cramping in the past so I purchased Endurolytes to give them a try... I am trying to figure out how many pills I need per hour on a difficult ride.

Steve's reply: In the article "Electrolyte Replenishment," which is one of the articles in The Endurance Athlete's Guide to Success, we wrote the following about sodium:

"SODIUM is the chief cation (positively charged ion) outside the cell. The average American carries 8000 mg of excess sodium in extracellular tissues. During endurance events, a minimum of three to four hours is necessary to deplete this mineral, which may result in symptoms of abnormal heartbeat, muscle twitching, and hypoventilation. However, if sodium is replaced at the same rate as depletion, it overrides the hormonal regulating mechanisms that enable the body to conserve electrolytes. Consumption of too much sodium will cause a variety of problems, the least of which is fluid retention. Therefore, we highly recommend a more moderate, body-cooperative replenishment of 120-240 mg/hr of sodium as sodium chloride."

Note: "Salt" (commonly called "sodium") refers to sodium chloride, which is 40% sodium and 60% chloride by weight. The recommended amounts given above for both electrolytes, sodium and chloride, when combined together equals 300-600 mg sodium chloride, our recommended

"salt" intake for the majority of athletes.

As far as potassium is concerned, the article contains the following information:

"POTASSIUM is the chief cation (positively charged ion) within all muscle cells. It is necessary for maintaining the optimal concentration and balance of sodium. Potassium deficiency symptoms are nausea, vomiting, muscle weakness, muscle spasms, cramping, and rapid heart rate. 75-150 mg/hr is an adequate replenishment amount. Even though 100-200 mg are lost in sweat alone (not counting internal muscle and cell use), if we try to replace it all at once, optimal sodium balance is altered. In addition, too much potassium is hard on the stomach and can cause severe stomach distress."

Further down in the article the following is written:

"Electrolyte expenditure, and thus replenishment, varies tremendously between athletes, and it can also vary considerably for one athlete during the course of an event. Sweat composition studies performed by Shephard, Noakes, Costill, Moody, and others, have shown in a variety of stress exercise forms that an acclimatized, fit athlete loses half of the electrolytes and fluids as an un-acclimatized, unfit athlete does. Event-specific training in both duration and intensity halve electrolyte and fluid requirements in an endurance event. Body weight, fitness level, weather conditions, acclimatization level, and biological predisposition all greatly affect electrolyte depletion and the need for replenishment. That's why the hourly Endurolytes dose can range from 1-6 capsules/hr. That being said, a good starting dose to consider is:

- Lighter weight athletes: 1-2 capsules/hour
- Medium weight athletes: 2-3 capsules/hour
- Larger athletes: 4-6 capsules/hour

Remember though, these are only suggested starting doses and the amount you need may be different, and may vary from hour to hour."

The amounts we typically suggest are the equivalent of 3-6 Endurolytes an hour, a very adequate, "body cooperative" replenishment dose for the average athlete. That said, there are many, many athletes who will do perfectly well on less than that; for example, many lighter weight athletes I work with rarely need more than 1-2 an hour. On the other end of the scale are a handful of athletes who—unless they take a 7th or sometimes even an 8th capsule an hour—will have cramping problems.

The bottom line is that there is no "one size fits all" amount, especially when it comes to electrolyte replenishment. Yes, we pretty much know what the upper end figure for calorie and fluid intake is for the vast majority of athletes; electrolytes, however, can be all over the board because of all the earlier-listed variables.

What causes cramping is a very difficult question to answer because there are many possibilities (see the article "Muscle Cramps" on the Hammer Nutrition web site for more details). One cause I often see is when athletes overhydrate and thus overly dilute the sodium and other electrolyte content in the blood. That's why our recommendations for fluid intake are

see SODIUM on page 23

SODIUM from page 22

20-25 ounces per hour, plus or minus 3-4 ounces hourly. That fulfills hydration requirements nicely, but without overwhelming the body with too much fluid, which, among other things, will cause dilutional hyponatremia.

Although it sounds very cliché, we are in fact “experiments of one” so it is only through thorough testing in training that you’ll find what works best for you under a variety of conditions. In *The Endurance Athlete’s Guide to Success* we provide suggestions—“good starting points,” if you will—that narrow down the possibilities from other sources’ recommendations (some of which were/are so wide-ranging that it’d be impossible NOT to fit in somewhere within the boundaries of those recommendations), and that will make it a lot easier for you to get your fueling dialed in and fine tuned.

We recently received this email from one of our clients regarding this athlete’s questions:

A few weeks ago I finished a double century in 100+ heat. At the end of that day I felt euphoric to have completed the ride without any stomach problems and for beating the tandems the first time ever on a 200-mile ride with only 8000 feet of climbing. The key was dialing back the calories (Perpetuem paste in a 6 shot flask) to less than 150 calories per hour between mile 80 and mile 180 and consuming almost 50 Endurolytes in 8 hours.

I can imagine you will still be tempted to skip to the chase and listen to your friend after reading Steve’s post, because:

- 1) Your buddy’s got so much experience.
- 2) He’s probably hard to keep up with most of the time.
- 3) And, after all, his “minimums” weren’t that much different than the information Steve pointed out.

If you do try his prescription, get the idea out of your head that his prescription is not “minimums” but rather just what he uses. When things go wrong for you, drop back to the “less is better” mantra before things go terrible, and be certain your buddy has different “minimums” when conditions are less than ideal.



Steve Born

As we reach our deadline for this edition of *Endurance News*, the 2008 Race Across America (RAAM), sponsored by Hammer Nutrition again this year, is nearing its completion. As of this morning (Friday, June 20th), the following male solo riders have completed the 3014-mile race:

1st – Jure Robic (Slovenia) – 8 days, 23 hours, 33 minutes. *NOTE: Robic has now won RAAM four times.*

2nd – Mark Pattinson (United Kingdom) – 9:17:29

3rd – David Haase (United States) – 9:23:19

4th – Franz Preihs (Austria) – 10:08:14

5th – Martin Jakob (Switzerland) – 10:19:59

6th – Scott McIntosh (United States) – 10:22:53

7th – Dr. Michael Nehls (Germany) – 10:22:58

8th – Julian Sanz Garcia (Spain) – 10:23:37

9th – Arvid Loewen (Canada) – 11:03:19 – 1st place men’s 50-59 division

10th – David Jones (United States) – 11:03:25 – 1st place men’s 60-90 division (see below for more)

11th – Doug Levy (United States) – 11:04:59 – 2nd place men’s 50-59 division

12th – Jim Rees (United Kingdom) – 11:08:18

13th – Julio Paterlini (Brazil) – 11:14:25

14th – Timothy Case (United States) – 11:18:24

Recumbent Division

1st – John Schlitter (United States) – 11:02:50 – *NOTE: This placed him 9th overall among the solo riders.*

Women’s Division

Sadly, Janet Christiansen, a Hammer sponsored rider, had to withdraw from the race for unspecified medical reasons with less than 300 miles to go. Christiansen had been leading the women’s division from the start until her unfortunate DNF. Thus, Caroline van den Bulk of Canada, who still has about 90 miles left as of this writing, will be the women’s division winner, with an approximate time of 13 days, 6 hours.

The big news of this year’s RAAM is the amazing David Jones, a Hammer Nutrition sponsored entrant. David set the 60+ record last year with a time of 12 days, 1 hour, 15 minutes. In this year’s race, Jones smashed his own record by nearly a full day with a phenomenal time of 11 days, 3 hours, 25 minutes, over 21 hours. CONGRATULATIONS David!

There are numerous stories on the RAAM web site, as well as stats for all the solo riders and teams at www.raceacrossamerica.org.

Resolving Half Iron Distance Triathlon Fueling Problems

Steve Born

I received this email from a male triathlete client of ours and felt the information was worth sharing...

Q: I've been using Perpetuem for several years with reasonable success, except that I tend to run out of energy at about mile 8 on ½ IM no matter how much I train... very frustrating. I was going back and reading some of the resources you have available, and I was wondering about osmolality. I use Perpetuem exclusively during my races, and I know that the osmolality is formulated to be where it should be. In addition, I take about 300mg of electrolytes in a single dose once per hour plus Race Caps Supreme without any additional water. Could this be increasing the effective osmolality of everything I consume into a range that slows my uptake of carbohydrates and contributes to my energy problem late in a long race?

STEVE: A while ago, Dr. Bill had tested the osmolality of the various Hammer Nutrition fuels and emailed us the results of those tests. According to the lab tests, 2 scoops of Perpetuem (260 kcal) + 3 Endurolytes (which includes 300 mg sodium chloride) mixed in a standard 25-ounce water bottle yielded an osmolality of 296 mOsm, which is within body fluid parameters (280-303 mOsm). As a result, I don't think that it's the combination of the supplements and fuels that are causing the problem you're experiencing. (Note: See the article "Solutions For Endurance Performance" at www.hammernutrition.com for more information).

That said, if you're using Perpetuem during the run portion of your ½ IM races that may (key word "may") potentially be the culprit, though this is just a theory of mine. My reasoning

is that for some athletes the ability of their digestive system to process calories during the running portion of a triathlon—especially a concentrated fuel such as Perpetuem (carbs+protein+fat)—is substantially more difficult as compared to during the bike portion. That's why I usually suggest using Perpetuem as the primary-to-sole bike fuel with Hammer Gel as the during-run fuel. The "downside" to using Hammer Gel only during the run is that yes, you will cannibalize a small portion of lean muscle tissue at that time (although there are some BCAA's in Hammer Gel that will help minimize this, albeit smaller amounts compared to what you obtain in a serving of Perpetuem). However, given the "upside" of Hammer Gel—the fact that it's so much easier to carry, consume, and assimilate—I think that very much tips the scales (in my opinion, anyway) in favor of Hammer Gel.

At the 8-mile mark of a ½ IM event chances are that your glycogen stores are greatly diminished, if not altogether depleted, so make sure you're consuming appropriate amounts of calories during your race. In addition, I suggest either:

- The consumption of a 300-400 calorie pre-race meal IF you're able to complete that three hours prior to the start of the race.
- The consumption of 1-2 servings of Hammer Gel (approximately 180-190 calories) 5-10 minutes prior to the start of the race, if a "normal" pre-race meal (completed three hours prior to the start) is not logistically feasible (and it's never feasible, in my opinion, to sacrifice sleep just to eat).

Either of these pre-race fueling strategies will top off liver glycogen stores without negatively affecting how your body is burning your limited amounts of muscle glycogen.

Speaking of which, make sure that you are refueling your body ASAP after each of your workouts. That is absolutely the best way to ensure, over time, that you accrue maximum stores of muscle glycogen. I am convinced that if athletes would do this—consume some fuel right away after all their workouts (and Recoverite is ideal for this)—they would experience better results in their races. Post-workout refueling is imperative for athletic success so make sure you do that consistently.

Other than that, I think that if you were to use appropriate amounts of Perpetuem as your on-the-bike fuel and Hammer Gel as your run fuel (with Endurolytes throughout, of course) you will be following a very sound fueling strategy, one that will help eliminate that dreaded "hitting the wall syndrome" that we endurance athletes have encountered on occasion.

Dr. Bill replied to my email with the following:

This was a wonderful reply on your part, well done. Here are a couple of ideas that are worthy of mentioning:

Most sports scientists consider the carbohydrate moiety the performance-limiting endurance calorie. Carbohydrate calories recruited for energy production have five delivery routes:

- (1) Oral dose small intestine during exercise



Attention all triathletes! If you're going to be at Ironman Canada or the Ironman World Championships in Kona, as a competitor or a spectator, then you'll want to read this.

We are renting a house, and doing seminars, in both locations and we'd like for you to join us. Here are the details.

Ironman Canada

For Ironman Canada Steve Born will be giving seminars at the Bike Barn located at 300 Westminster Avenue in Penticton. The seminars will be held Wednesday, August 20th - Saturday, August 23rd at 11AM and 3PM daily. Stop on by!

Ironman World Championships - Kona

For the World Championships, we've rented the "Hale Pu" house right on Alii Drive for the week prior to the race (October 6th - 10th). We'll have tables set out all day with fresh, local fruit and other healthy snacks to compliment the full array of Hammer products that will be available. Steve will be with us this year and both he and Brian will

give fueling seminars at 10AM and 2PM daily. Along with seminars we'll be having an informal get together nightly Monday - Thursday from 5-7PM. Non-alcoholic drinks and pupu's will be served. It'll be a great time to relax, fuel up, and get to know each other.

The house is located at 76-6168 Alii Drive just 2 miles from downtown Kona.

Photo Opportunities

One thing we'd like to do while in Hawaii is take advantage of the scenery, and sure-to-be-awesome weather, and get some photos of our athletes. We'd like to do this a couple of ways. First, if you're going to be racing in our kit, please email Angela at anock@hammernutrition.com with your race number. She'll be out on the course again this year taking photos and having the race number ahead of time will be helpful. Another way we'd like to get photos is to do a few photoshoots in the week prior. These will be candid shots with you in your race outfit and perhaps a few running and bike shots as well. Please contact Angela to set up a time during the week that

will work for you.

Finally, even if you are not competing in either race but you happen to be in the area, stop by...we'd love to meet you!



TRIATHLON FUELING from page 24

- (2) Endogenous liver glycogen
- (3) Endogenous muscle glycogen
- (4) Fatty acid metabolism
- (5) Lean muscle protein cannabolism

At the 8-mile mark (2.5-3 hours exercise @ 75% VO2Max), the athlete should expect to hit the proverbial wall. He might delay that by more endurance training or slowing the pace modestly, but it is predictably going to happen. I will add he may extend the 8-mile bonk time or possibly avoid it completely by tapering exercise and taking a 4- to

5-day course of Race Day Boost (RDB). We ought to ask:

- Is he tapering 7-10 days prior to his ½ IM?
- Is he doing some over distance work to drain glycogen stores prior to loading?
- In his glycogen recovery meal is he using Recoverite?

Glutamine in RDB spawns an increase in glycogen stores during a taper. The 11.0 pH of Sodium Phosphate coupled

with its sodium fraction lowers cellular pH, potentially prolonging the acidic pH & premature fatigue that occurs during prolonged exercise. It is worth a try as we are talking about completing the last 5.2 miles of the run portion in a ½ IM. That is extending his exercise efficiency around 40 minutes or so.

ATHLETE SPOTLIGHT

Mike Llerandi



Steve Born

Our featured athlete for this issue of Endurance News is Mike Llerandi, an incredibly gifted triathlete who's been a Hammer Nutrition client for a long, long time (when the client number is only three digits long, you know they've been with us for many years!). You might recognize the name because of another Llerandi, his younger brother, Nate, who provides "Tip of the Week" emails for the Endurance List, which are oftentimes used in the "Nate's Corner" portion of Endurance News.

However, what Mike should also be recognized for—and just as important as being the brother of Nate—is his list of accomplishments. It would take several pages to detail all of Mike's accomplishments but here's a synopsis from a career that started in 1983:

- * 14-Time Triathlon Today/Inside Triathlon All-American
- * 17 Ironman finishes
- * 9 Ironman World Championship Finishes

His most recent accomplishment was being crowned the 2007 Ironman 70.3 World Champion in the M40-44 age group.

STEVE: You set your personal record (PR) at Kona (9:21) when you were 42, and your age group win at Clearwater (4:04) was a PR for you at the 70.3 distance. Looking at these results, it appears that you're not slowing down at all. If anything, you're getting better as you get older. Would you say that's a fair assessment, and if so, to what do you attribute getting better as you get older?

MIKE: It's definitely true that my cumulative experience is really helping out at the longer distances, but I can

tell you that any explosive speed is long gone! The biggest change in my training focus over the past 5-6 years has been on the bike, where I've been working closely with Nate on focused interval work, and some dramatically longer over-distance work with the help of my good buddy, Chris Gebhardt. The results have played out nicely over multiple years.

STEVE: I know you've probably been asked this question dozens of times but could you share with us how you first got into the sport of triathlon? Also, was there a particular race that you did where you said to yourself, "I've found my sport"?

MIKE: I was a lifeguard at a pool in Schaumburg, Illinois, where they started hosting an annual triathlon in 1982, and I didn't even clue into it that first year. As the 1983 race started coming around, I would overhear kids on my swim team discussing it, so I decided that I would run hard all summer and give it a go in August. I ended up second out of about 200 people (cycling on my dad's beat up Nishiki while wearing a pair of Vans), and since I had already decided to retire from competitive swimming, that result provided some great motivation to go in this new direction.

STEVE: You've been in the sport, and excelling at it, for 2.5 decades. What keeps you going? Have you ever felt as though, "OK, this is getting old and perhaps it's time to retire?" If you have ever felt that way, what changed your mind? What keeps you from burning out?

MIKE: The people I've met and continue to meet through triathlon keep it fresh and fun, including the athletes, race directors, and industry business owners. Also, my attitude is that there's always opportunity to improve through better

training, nutrition, recovery, equipment, etc. If I can keep improving in some capacity from year to year, that's a huge bonus that will certainly keep my interest. It's also great to interact with new triathletes from around the world via the Internet, helping them find their way to a healthier lifestyle around our sport.

STEVE: How long do you plan on competing?

MIKE: I'm pretty sure that I'm going to keep going hard until I can't go anymore. If I don't end up with some injury that I can't figure out, or some debilitating disease, then I'll just keep moving through the years, having a blast. There's definitely no end in sight right now.

STEVE: That was a great effort at the 70.3 race in Clearwater. How would you rank that effort compared to some of your other races?

MIKE: My preparation for that race included a huge focus on the run, and I knew that if I were in shouting distance of the leader coming out of T2 that I'd have a pretty good shot at winning. I had complete control of my effort the entire race, followed my plan perfectly, and made my way past the leader in my AG at about mile 9 on the run. I was really psyched with a 1:20 run split, and am looking to improve further this year.

STEVE: Speaking of other races, as I mentioned earlier, it'd probably take several pages to list all of your accomplishments. Because we don't have enough space for that, could you give us a list of your primary accomplishments/race results throughout your many years

see MIKE on page 27

MIKE from page 26

of involvement in the sport?

MIKE: My triathlon career hasn't really followed a master plan, but looking back I can see where my overall focus has shifted from shorter, faster races to longer distances over time. I had a lot of early success at the Olympic distance, where I was arguably in the top 10 in my age group throughout my late 20s and early 30s. The big shift to longer events was triggered by the ITU's decision to legalize drafting on the bike, so eight of my Kona finishes have come since 1995, with all the finishes being between 95th (in 2004) and 151st (in 1995).

STEVE: Of your many accomplishments do you have "top three" of your most satisfying races? What made these races so satisfying?

MIKE: I've had a couple of "difference makers" over the years – the ones that stood out as those that pushed me forward into a new phase in my career. The big ones like that include Penticton in 1988, where I finished my first Ironman distance race in 15th overall, and left me thinking that I could actually race the distance pretty well. Another was in Kona at the IronWar in 1989, where I'll never forget exactly where I crossed paths with Dave Scott and Mark Allen at two different times on the course. Racing in faraway places like Wellington, New Zealand and St. Croix was fun and pretty exotic, and living and racing in California back in the late 80's was like a dream.

STEVE: Is there one particular race you can recall where you were "hitting on all cylinders" the most? In other words, if you had to pick one race where everything "fell into place" perfectly, which race would it be?

MIKE: My first race in Kona in 1989 was epic, with perfect conditions, and I was feeling on top of the world. I came out of the water in the top 40 with a 52-minute swim, rode sub 5:10 on the bike (back when they included both transitions in your bike split), and ran a steady 3:20 marathon to bring it in at 9:22, good enough for 74th place. And that was the first full year of racing with Hammer

products, which was no coincidence, as I felt pretty much bullet-proof throughout that whole season. I must have raced 12-13 times all over California, from Wildflower to Sacramento, Bakersfield to San Jose, and Redding to San Francisco, with solid results all year.

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

MIKE: The first time I went down to do



Photo - www.asipho.com

the Bakersfield Bud Light tri, in the spring of my junior year at Stanford, I thought I had done a decent job of training. I could swim pretty fast, had an upgraded bike (a Myata 610 this time), and was running probably about 15-20 miles per week. I blasted out of the water in the top 5, pushed hard on the bike, and even had my celebrity moment when Scott Tinley blasted past me at about mile 4. But then I just melted out there on the run, totally dehydrated and unprepared. I had to DNF and catch a ride back in on the sag wagon. I decided right there that I would never be so unprepared for a race again. The next year I came back and got 26th overall, which was a little personal vindication.

STEVE: I know there's not enough space to go over this fully, but could you give us a brief synopsis of what your training program looks like now and how it's

evolved over the years?

MIKE: Every year I develop a high-level plan covering the full season, highlight the races that I'm shooting for, and pick one primary training focus for each sport for the coming year. This year I'm developing upper body strength with paddles on the swim, working through some progressive cycling intervals that Nate sends me, and upping my running volume substantially. My typical week this time of year includes about 3 hours of swimming, 10-12 hours of cycling, 6-7 hours of running, and at least one yoga session to help with both flexibility and recovery.

STEVE: Can you give us a description of your daily supplement regimen? What Hammer Nutrition supplements do you use regularly?

MIKE: I've been taking optimal amounts of supplements on a daily basis since 1987, including about 4-12 grams of vitamin C, and switched most of those over to Hammer products starting in 1988. The staples have been Race Caps Supreme, Anti-Fatigue Caps, and Premium Insurance Caps. Through the years I've educated myself on other Hammer products as they've been introduced, and now include Xobaline, Phytomax, Tissue Rejuvenator, Mito Caps, and Super Antioxidant into my daily intake. I'm a strong believer that optimal health

can be achieved only through supplementation, and Hammer is a source I can trust with a great lineup of products.

STEVE: How about your supplement/fueling strategy for an iron-distance race? What supplements and Hammer Nutrition fuels do you use during a race like this, and how do you use them?

MIKE: My primary calorie source for any effort above an Olympic distance triathlon is a mix of Sustained Energy and HEED, loaded up in my Camelbak. Nate likes to point out that it's hard to look cool wearing a Camelbak in a race, but it's really the only way that I can be sure I have what I need, when I need it, in the exact mixture that I like to have it. Comfort is huge in an Ironman, and a

see MIKE on page 28

MIKE from page 27

big part of being comfortable is being properly fueled. Endurolytes are, of course, a must-have product for me as they fulfill my electrolyte needs; I can't imagine doing a workout or race without it.

STEVE: OK, have to ask... are you competitive with your brother, consciously or not, and if so, how does that affect you in your preparation for a particular event, especially one that you both may be competing in?

MIKE: Nate and I don't directly compete anymore, but when we did, we went at it. He's a bit younger, but you can't imagine how annoying it is for a 10-year-old to walk up to your 15 and 16 year old friends and tell them that you're "faster than they were when they were 10!" Even as he worked his way into the ITU

World Cup top 10 in the mid 90's, I was still sure that I was a faster runner than he was. I'd throw it down every chance I'd get: "Anytime, any place, from a 400 to a marathon – just say the word!" I was probably out of my mind, but since I was out here in Jersey and he was in Boulder, we never really got the chance to have at it much.

STEVE: Since you've got the spotlight here, is there anything in particular you want to share with us about Nate? Perhaps something that (in good nature of course), as the tabloid ad would say, "Inquiring minds want to know."

MIKE: I always threatened to point out his diaper rash scars, but this is a family newsletter...hah! Seriously, I've been working at the same company with Nate (Ping Identity, an enterprise software company) for a couple years now, and I'm amazed at how little he's ever shared with others about his triathlon career. Sure he's fit, and yes, everyone around the office knows that Nate races bikes

(he's a serious Cat 3 rider in the Boulder area), but I've had to explain several times to folks that he's actually represented the U.S. at the Goodwill Games twice, the Pan Am Games, and if triathlon were in the Olympics in 1996, there's no doubt he would have been there as well. So Nate's humility is what is the most impressive to me, I'd say.

STEVE: You'll be "aging up" this year; are you looking forward to that? What races do you have planned for 2008 and what goals have you set for yourself this year?

MIKE: My ultimate goal in any race these days is to beat everyone who is older than I am, which isn't as easy as it sounds with all the talent in the older age groups. I also definitely want to get back on the podium in Kona, but I keep reminding myself that there are at least 10-12 guys in my new age group

who also think they're in the top five, and probably 4-5 guys who seriously think they can win. I have a few races planned out after I age up in June, and managed to win a Kona slot in St. Croix in early May, so that allowed me to increase my focus on the late season races. I plan on racing at Timberman in the fall before heading off to Kona in October.

STEVE: What are your long-term goals?

MIKE: The old saying is that you can't be too rich or too skinny, but I'll add that you can't get up on the podium in Kona too many times, either! I've been up there twice (4th in 2004, 5th in 2005) and finished 6th in my AG three other times, and so the long term goal is to stay healthy and competitive enough to keep pushing into the top five as long as I can.

STEVE: You're married with three children and have a career. How do you manage your training and be so successful in your races while taking care of family

and career obligations, which are obviously more important to you than the sport of triathlon?

MIKE: Having a healthy, active family full of athletes is the greatest gift, and it also means that I don't have to explain why I have a lifestyle that includes 20-25 hours of triathlon-related activity every week. It's also clear to me that I'm a much more productive sales guy because I have other important elements in my life competing for my time, and I'm a better triathlete because I have a fun career that helps me turn off the "triathlon channel" for most of the day. Maintaining that balance requires some attention, and that's the only way I know how to manage my life.

STEVE: Aside from family, work, racing, and training, what else have you got going on?

MIKE: It certainly doesn't leave a ton of free time, but just this past winter I started up a social networking site called OpenTri.com, designed to help triathletes become better informed and better prepared for their training and racing. The big draw to the site is the two free training programs (one for International distance, one for Ironman distance), and there are over 1100 members at this point, with 350 people from around the world hitting it a few times every week. It's awesome to get such positive feedback from every corner of the world, and even makes it easier to stay in tune with what's going on in North Jersey where I live. I'm having lots of fun with that, and the time commitment is surprisingly minimal.

(STEVE'S NOTE: This is a very cool web site worth checking out!)

STEVE: Mike, it's been great hooking up with you, and I appreciate you taking time out of your busy schedule. Congratulations from all of us at Hammer on your superb accomplishments over the years, and we wish you the best of luck in all your future endeavors.



Get paid for racing in our clothes!



Local junior rider, Marshall Opel, powers through the time trial at the USA Cycling Junior Nationals in Seven Springs, Pennsylvania. Marshall would finish 28th in the time trial and 3rd in the road race. Way to go Marshall!

📷 : Tina Wrona

HAMMER BUCK\$

Cash contingency program

What it is:

A cash and credit contingency program open to all age group athletes competing in eligible triathlons, mtb races, road, and running races, who use Hammer Nutrition products and wear our kit.

Eligibility:

ANY Hammer Nutrition sponsored athlete, any member of our TEAM Auto-Resupply program, or any other Hammer Nutrition client wearing our kit.

Requirements:

You must complete the entire race and awards ceremony wearing a 2007 or newer Hammer Nutrition cycling, triathlon, or running kit and should be using Hammer Nutrition fuels and supplements in training and on race day. Win or podium in your age group or overall, send us a high resolution digital photo of you on the podium and you'll get PAID in cash or Hammer products.

Eligible Events*:

- ALL U.S. Ironman™ iron-distance triathlons
- USA Triathlon National Championships
- USA Cycling National Championships
- Select 100-Mile trail running events
- Race Across Oregon
- Badwater Ultramarathon
- Furnace Creek 508
- Race Across America
- Select 100 Mile MTB events
- Select 24-Hour MTB events

This is just a partial listing of eligible events and requirements. Complete list, prize payout listing, and more details can be found on our website. If an event, or division, is not listed on the website, it is not eligible.

Pay out as follows*:

- 1st place = \$1,000 in cash or \$1,500 in Hammer credit
- 2nd place = \$500 in cash or \$750 in Hammer credit
- 3rd place = \$250 in cash or \$375 in Hammer credit
- 4th place = \$150 in cash or \$225 in Hammer credit
- 5th place = \$100 in cash or \$150 in Hammer credit

Go to [www.hammernutrition.com/buck\\$](http://www.hammernutrition.com/buck$) for complete listing of events, prize payouts, and more details.

Email photo and information to hammerbucks@hammernutrition.com

*Void where prohibited. No double payments for age group and overall finishes – you get paid for the higher of the two placings.

What Story Will You Tell?



Tony Schiller

That's the question I asked Patrick Wallace on the morning of June 7th, just after a major announcement was made at the ITU World Triathlon Championships in Vancouver, Canada. I shared how many of the 1700 racers were likely to go home with one of two stories to tell and that most had already chosen which one – before racing.

Story 1 – external conditions ruled the day and hurt my race.
Story 2 – external conditions helped me have a great race.

We decided to channel our collective energy into writing story number 2 and I was lucky to even get that chance.

During my 1.5 mile run to transition a cold drizzle fell as winds whipped up. After getting all set, we were instructed to clear transition 45 minutes before my wave start. With 52 degree water and even cooler air temps, I chose to wear the wetsuit for the 1000 meter walk to the start. Only problem, it wasn't there. After a second and third search, the realization hit – it was still hanging in the closet back at the hotel.

Checking my watch, it looked like just enough time to run the 1.5 miles back to the hotel and the 2 miles back to the swim start. I made it to the 17th floor, grabbed the wetsuit and was back in the lobby quickly, but time was running out so I got a taxi to 2 blocks from the start. As I pulled on the wetsuit, something was amiss... my left ankle, it's naked... the timing chip... where's my timing chip? I showered with it, right? Or, left it next to my tooth brush... damn, what am I going to do? No chip – no result – no time left to go back to hotel.

After a frantic search for the timing

people and twice being redirected the wrong way, I found the head scorer who calmly set me up with a new chip while scrawling my name, race # and chip # on his palm. The second crisis was averted but time was short. I yanked on the wet suit, zipped it up and ran to turn in my race bag but saw in the mesh pocket, of all things... my race #. Can you say, rookie?

The panic is short-lived when realizing I can wear it now, in the swim and throughout the race instead of just on the run. So off came the wetsuit top to allow the race # around my waist. Yanking the wetsuit back on, I ran and leapt into the water... oh my God that's cold... and just as quickly back onto shore and into the holding bin for the start. It was all I could do to keep from bursting out in laughter.

Then, almost poetically, the announcement came... "Attention racers, the swim start is being delayed, just stay where you are and we'll keep you updated." We soon learned the life guards were unable to rescue the swimmers as fast as they were going hypothermic. As race organizers panicked, it was hard to wonder if this predictable problem might have been averted with perhaps a houseboat, a pontoon, or even a wave runner of two? But instead, rescue was up to life guards on paddle boards and in kayaks and the poor guys just couldn't keep up. Makes one ask, what does the ITU spend our \$420 entry fee on anyways? (But I digress).

We soon get an update... the next wave will be delayed one-hour until all swimmers can be safely accounted for on land. A groan of disgust rang out from the 1000 male racers being told to chill...

easy command to follow being wet and freezing.

That's when I asked Patrick, "So, what story are you going to tell?" We agreed that the story of the day was indeed the conditions, but that only a few would have it propel them to a great story. We chose to be among the few just as the next big announcement which was even funnier... after a second hour of delay, the race would resume with no swim. Unbelievably, the ITU World Triathlon Championships had just become... a duathlon.

Lining up, I heard suggestions I must be happy with the change being a good runner and explained that as a triathlete I wouldn't have been there for an advertised duathlon event. But that line of thinking is just the point of this article... I was letting the negative become text in my own story. I had to self correct again and from that point forward it was, "Yep, I love duathlon, couldn't be happier.

The moral of the story: after every race we tell a story that often is written by us before we ever toe the line. It's how the brain is trained to default. My challenge to you is to not allow the default – instead, get better and better at overriding it. Take note of how this is true at your next race by becoming acutely aware of how many pre-event circumstances bring on the default to negative. Then deny that default and make sure the story you tell is the one of your own choosing.

On June 7, Tony Schiller, a 21-year Hammer Nutrition athlete, won the men's 50-54 world "triathlon" title in Vancouver by 3 minutes and 20 seconds over his nearest challenger. Tony speaks to companies on the power of the mind and also directs one of America's biggest kids' triathlons. www.miraclekidstriathlon.org

Perpetuem Paste

How to get your calories in the most compact form possible!



Steve Born

When I was training for the Double Furnace Creek 508 a few years ago—and when I did the actual record attempt in October of 2000—I basically “invented” (at least for me) the Perpetuem “paste” (a.k.a. pancake batter consistency) method of making and consuming the product. I continue to find that consuming Perpetuem this way, and especially when I was training/racing for several hours, is really beneficial for the following reasons:

- Because I have at least a couple hours of fuel super concentrated in a single Hammer flask, I only need to consume a small portion of that mixture hourly, which means I don't have to drink a full bottle of flavored liquid hour after hour.
- I don't need to stop every hour to make more fuel because I've got several hours worth in a couple flasks, which fit very easily in my jersey pockets.
- I get to drink and enjoy plain water from another source, which not only satisfies hydration needs more precisely (because my calorie and fluid requirements are being fulfilled from sources independent of each other), it also cleanses the palate nicely.

Although there are a number of ways of making Perpetuem in a paste-like/pancake batter-like consistency, this is how I did it back then and how I continue to do it today:

1) I start with a minimal amount of water in a blender, perhaps 2-4 ounces.

2) I turn the blender on (start on a low setting or water will end up splashing all over the place).

3) Start adding scoops in the blender, increasing the blender's speed as you go. What you need to keep in mind is:

- How many scoops per hour you find works best for you
- How many hour's worth of fuel that you need
- How many scoops you've been adding to the blender.

4) When the motor starts bogging down it's time to add a little more water.

5) When you've finished adding scoops into the blender, start pouring the mixture into Hammer Gel flasks. You may need a spatula to get all the Perpetuem out of the blender.

6) Keep track of how many flasks you fill and how many hours worth of Perpetuem you have in each flask. That will determine about how much to consume from the flask every hour. For example, if I've been able to fit 4 hours worth of Perpetuem in 1 flask I need only consume 1/4 of that flask hourly. You don't need to be 100% exact when consuming the product (because your body is pretty adaptable), but you don't want to chug half the flask in the first hour because you'll end up with stomach distress issues from calorie overload.

For the majority of the 75+ hours I was on the bike, “Perpetuem Paste” was how I took care of my body's calorie requirements. I can honestly say that after consuming countless flasks of super concentrated Perpetuem en route to setting the record it really works like a charm.

If you've not tried this method of making/carrying/consuming Perpetuem before, it's worth a try!

“Wow!! I used the Perpetuem paste today for a long ride for the first time – it was fantastic! I love the taste (tastes like cookie dough to me). Easy to time intake with the marks on the flask, and I ended up with energy to spare, which I can't say the last time I finished a 60 mile ride saying that! And because I was drinking just water, I ended up drinking more water than I ever have on a ride, so maintained my hydration level well. I heartily recommend the Perpetuem paste in the Hammer flask!!”

Cindy M.

HOT TIPS

Concentrated fuel mixing suggestions

Thanks to Hammer client Tony McCray for this tip:

I've found that mixing four scoops of Perpetuem into a flask gives a good consistency, and lasts me right around 2 hours. Any more Perpetuem and I find the paste too thick to squeeze out easily. I fill my Hammer flasks to just below line 2 with water, dump that into a large measuring cup, stir in the Perpetuem, and pour it into the flask.

Last weekend I ran out of Perpetuem, so I tried something new: 3 scoops of SE (Sustained Energy) and 1 scoop of Lemon-Lime HEED. It tasted great, and was a nice change of pace from the Perpetuem only.

Diet Issues

Food choices, helping prevent weight gain commentary and suggestions



Brian Frank

This certainly is a worthwhile topic for those of us who struggle to avoid gaining weight and losing it once we put it on. For all of you hyper metabolic types (hard gainers), a future article discussing how you can avoid losing weight during the season and how you can gain a few pounds of lean muscle is definitely a possibility. For now, however, we are dealing with endomorphic body types. The situation my staff and I oftentimes hear via email is quite common amongst endurance athletes: 5-10 extra pounds that won't come off even with adequate exercise. Hopefully, I'll be able to help with that subject as well. I would not elaborate to the extent that I am going to if I didn't think this was applicable to a lot of list members.

First, let's establish a basic fact: We gain weight because we are consistently consuming more calories than we are burning, mostly because we like to eat and are slaves to our appetite. Yes, volume and intensity of exercise—as well as calorie timing and calorie type—are also factors and I'll get to those later in the article; however, they are secondary factors.

However, before I elaborate, I need to make some important comments to all parents. They may seem critical in nature, but believe me, I mean this in the best way possible with only the best of intentions behind every word...

Food choices for children

It is NOT okay to be feeding your child, or any child for that matter, donuts, ice cream, cookies and the like. Please, stop bringing these toxins into the house and poisoning your kids with them. It is so damaging to developing children's health

that it really makes me sad. The single greatest reason for girls entering puberty at ever-earlier ages (as young as 7 now!) comes from diets laden with fat and sugar while excluding protein, fiber, and healthy fats. Think about it, most kids today eat almost nothing but sugar, fat, and wheat based starches. Besides the immediate and life long health dangers, it permanently corrupts their taste buds making it a life long struggle to eat well and maintain healthy weight.

Children should be discovering the joys of fresh, lightly steamed broccoli, zucchini, etc., and the sweetest thing touching their lips should be grapes, apples, and the like. Ban junk food from your house for your children's sake and you'll get the added benefit of not being "forced" to consume it yourself. Please try to impress upon your spouse the fact that the quality of every calorie we put into our body matters and eating poorly negatively affects everyone's health. Some don't show it with weight gain, but at some point there will be a price to pay for eating junk.

Now, going back to the original discussion regarding weight gain – 4 to 6 hours per week of exercise should be plenty to avoid weight gain or even to allow weight loss if you also allow some caloric restraint. So, why do so many athletes who train this much have excess weight in certain areas of the body? I'd suggest that it comes from a certain mindset that needs to be reversed 180 degrees. It also happens to be completely consistent with our approach to fueling while exercising: Instead of always thinking, "What is the most calories I can consume to nourish my body (recovery, repair, lean muscle mass production) without gaining weight?," we should be asking ourselves, "What

is the fewest number of calories we can consume to nourish our bodies without losing weight, compromising our health or limiting our recovery from exercise?"

We need to think about our need for satiety (a.k.a. being a slave to our appetite). I've said this before, but it's worth repeating: our appetites are determined by how much and when we habitually eat. Most people think it's the other way around – "My appetite tells my body it needs fuel, so that's when I eat." Show me an obese person and I'll show you someone with a voracious appetite (just as I am apt to say show me a salty sweater and I'll show you a salty eater). This is why 99% of diets (read: calorie restriction plans) fail in the first 1-2 weeks; you feel hungry all the time and it's no fun. Ironically, it takes 3-4 weeks to "reset" or "re-calibrate" your appetite mechanism. If you can make it through that period, you will see that your appetite changes to accommodate your eating habits. I promise it's true. People who say they have no appetite in the morning will develop one very quickly as soon as they start eating a hearty breakfast within 30 minutes of waking. After a couple of weeks, you'll notice that your rumbling stomach won't let you sleep in and you have to get up and eat breakfast. What? Your eating habits changed your appetite! Now you can't fathom starting your day without eating first thing. The exact same thing is true with snacking after dinner at night.

We happen to have a product called Appestat which has no calories, encourages healthy metabolism, suppresses appetite, and provides hours of satiety, all while consuming fewer calories. Dr. Bill designed this product

see DIET ISSUES on page 33

DIET ISSUES from page 32

specifically to get people through the 3-4 week appetite re-calibration period. This is why we recommend taking it only for a 3-4 week cycle and not on a continuous basis. Taking 1-2 capsules one hour prior (this is critical – the product does not work if taken as you begin to eat) to lunch and dinner will do the job quite nicely. Or, you can just “endure” the false hunger pangs for a few weeks.

Calorie timing and types

Timing – Breakfast like a king, lunch like a prince, dinner like a pauper. The idea is to get most of your daily caloric intake from breakfast, lunch, and snacks or small meals taken between breakfast and lunch. Try this for several days and see how you feel. Partly due to our culture of eating our main or biggest meal at the end of the day, most of us tend to do just the opposite: Skip or eat a light breakfast, work through the day having a light lunch (because, after all, we are trying to watch our weight). Then, by the time dinner rolls around we are famished, eat more than we should, and then start snacking shortly after dinner and continue until we go to bed. Consuming calories early in the day is complimentary to our metabolism; eating them later is counter and forces the body to store unneeded evening calories as fat.

Calorie type – Some of the comments I read via email lead me to believe that many of you may be eating a starchy carbohydrate-based diet and avoiding fats. This is common; in fact it was almost required before the low carb fad hit. It also leads to two-hour hunger cycles, intense sugar cravings, and hypoglycemia for some. I'd like to suggest that for all of you who fit in this category, even partially, starchy carbohydrates are the enemy! Once you have corrected the caloric volume and timing issues, it's time to zero in on the favorite food our bodies love to turn into fat: starch. I'm talking about all wheat products, potatoes, and so on. 8 ounces of pasta and 8 ounces of vegetables yield exactly the same number of calories (4 per gram), yet eating one may cause you to gain weight while eating the other won't. If you shift to non-starch carbs, you'll replenish glycogen stores just as quickly. In fact, there's no performance loss in replacing starchy carbs with non-

starch carbs. Reducing or eliminating starch alone usually causes weight loss, flattening of the stomach, and improved colon health, not to mention elimination of a lot of common food allergies, IBS symptoms, and so on.

Don't go cold turkey, though. Start by eliminating starch from your evening snacks (if you aren't going to eliminate them altogether)... have a piece of fruit instead of a cookie. Next, reduce or eliminate starch from your evening meal (protein, vegetables, salad). You can eat big portions of starch in the morning, mid morning snack and lunch; you just have to start restricting it in the afternoons and evenings.

Fats – While continuing to avoid saturated and animal fats, we do need a good bit of fat in our body. It just needs to be “good” fats. Food sources such as salmon, olive oil, grape seed oil for cooking, raw nuts, and avocados can and should be a regular part of your diet. Combining these fats with your other calories will help give you that sated feeling as well.

Endomorphic athletes who apply these suggestions lose those extra pounds, improve their body mass, and generally feel better. They usually go faster on race day too!

Suggested reading:

- 1) “The Endurance Diet”
- 2) “Menu Mistakes”

Both of these articles are written by Dr. Bill and can be found at the “Dietary Interventions For Performance And Health” link in the KNOWLEDGE section at www.hammernutrition.com.

Note: This article, as well as a couple others in this issue of Endurance News, first appeared as an email reply on the Endurance List forum. If you're not yet a member of the Endurance List, you're not only getting this information 1-3 months later than list members do, you're also missing out on a wealth of other useful information. It's easy to join the Endurance List, and there's no cost whatsoever. Click on the “HAMMER FORUM” link—found in the left column on the home page of the Hammer Nutrition web site—for information on how to become a member.

HOT TIPS**Go with what got you there!
You don't have to use
what's at the aid stations.**

Thanks to sponsored athlete Nate Loman for the following Hot Tip (we couldn't agree more!) –

A big fallacy is the notion that you have to rely on what is at an event to get you through your event. You have to remember the 6 P's – **Proper Prior Planning Prevents Poor Performance.**

I never go to an event without all the stuff I use in training, and many of my events are going on for hours at a time. Be Prepared. Train it. Race it.

Why spend weeks, if not months, preparing for an event if all that planning and preparation is left up to what some promoter decides to have at their event, for what is just about the most important aspect of your day: how you fuel yourself?

Strawberry
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Nate Llerandi



Here are a couple “oldies but goodies” (and still very applicable) tips from the archives of Nate’s “Tip of the Week” series.

Bigger Picture Thinking

Hopefully, as a smart athlete, you are incorporating weekly recovery weeks into your training cycles. If so, great job! But, do you think of your training beyond the immediate cycle in which you’re training?

For example, how many cycles of aerobic training do you complete before you move into more intense training, or visa versa? See what I’m getting at here?

Studies prove that beyond about 12 weeks of hard training (which includes anaerobic intervals in the mix), you can do little to further improve your LT (Lactate Threshold) and/or your VO2Max. So, where is the value in continuing to “put the hammer down” EVEN IF you already incorporate recovery weeks into your plan?

My contention is that there is little value. After 2-4 cycles of incorporating anaerobic intervals, I think it is important to take a step back and avoid training above 75% for at least two (2) weeks, if not a complete cycle. This break from anaerobic training will give your body a much-needed break from the higher intensity training and allow it to repair/rejuvenate itself. It will also afford you a much-needed mental

break from always having to “get up” for challenging workouts.

Then, when you return to your hard training, you’ll find that you probably haven’t lost any speed. You might feel a little sluggish at first, but also strong and fresh. And, this break from higher intensity training will also allow you to come back and SURPASS the level of fitness you obtained during your first push of hard training.

So, to incorporate this “push forward and pull back” strategy into your training, make sure that you are hitting your peak races at the appropriate times in your cycles. If you are a little bit burnt going into your most important race of the year, then you didn’t properly plan the Big Picture. Your first strong push should take you to your first important race of the year, then you pull back for X-number of weeks, before beginning a second strong push going into your final big race of the season.

By looking at your training from a yearly point of view as well as a cyclical point of view, you will get even more out of your training.

Staying Motivated

Sometimes life throws barriers up in our way that we run smack into. We fall down and maybe at first we can pick ourselves right back up. But sometimes we can’t or sometimes it seems like too much effort to even try. So, how do we stay motivated when things start going south?

Maybe the barrier is repeated or prolonged sicknesses that derail our training. Or maybe our jobs are taking

up too much time and energy, so the last thing we feel like doing is training. Or maybe you’re hit with an injury. Or maybe you’re hitting some speed bumps in your personal life. Etc., etc., etc... How do we handle all of this?

First, don’t let the wheels come off. While it might seem that all is lost, don’t believe it for a second. It is not difficult to fall off the edge and into the abyss of depression about your waning fitness, your inability to train/race, and so on. We are used to pushing ourselves hard and training day in/day out. So, when this freedom is taken away from us, it’s hard not to let it get us down. The best thing you can do here is focus on what you CAN do rather than what you can’t do. Let’s say you’re a cyclist, but an injury is keeping you from biking. You have a choice to make – and believe me you always have a choice. You can either:

- Do nothing since you cannot do your primary sport. This is what starts you down the slippery slope of losing motivation, getting depressed, gaining weight – you name it.
- You can find a way to exercise to maintain your fitness or at least minimize the loss of fitness so that when you are back on the bike, you are ready to get back at it.

The latter approach can leave you excited to finally get back on the bike. And, your day-to-day routine is minimally disrupted, so you won’t feel like you’re floating out in space. Instead of cycling, you can try swimming or

see NATE on page 35

Pearls of wisdom from Dr. Bill

When heat-related problems occur in a long hot tri-event, it is usually the bike that deceptively dehydrates due to its convective cooling mechanism. Then, when the run begins at lesser convection rate - but with greater increments of internal thermal BTU's (British Thermal Unit) - it is only a few miles later that the stomach belches then bulges. Hence, the gut "goes south" and the "bonk" monster mounts a disabled victim.



As the saying goes, "it was good while it lasted." Unfortunately, as great of a product as the Soni-Pure all-natural, alcohol-free hand sanitizer is, we find ourselves in the position of having to discontinue it. The reason is simply a matter of production costs as compared to other similar hand sanitizer products. Of course, we want to provide you, our valued clients, with the best products available; however, if we can't make them available to you at a competitive price—and especially if there are equally good alternatives available—we won't do it.



So once our limited supply of this great product is gone, it's gone for good. We have a bit over 50 units left of the 2-ounce size (\$7.95 each) so if you're looking for a great Hammer Nutrition body product—one that's sure to be a collector's item some day!—be sure to get yours now!

In place of Soni-Pure, we recommend a product called Clean Well (www.cleanwelltoday.com), which is available in a number of retail outlets as well as online.

NATE from page 34

water running or the StairMaster or the elliptical trainer or the rowing machine – whatever does not aggravate the injury further. Doing something, even at a very baseline, recovery level of effort, is better than doing nothing. Any of these examples are great ways to keep the heart pumping and your fitness growing. And, since you would be exercising in a way you are unaccustomed to, when you do get back to cycling you might find your fitness is actually better than before. The short rest from cycling and the use of your body in a completely different way can help to rejuvenate you and build you up in new ways, effectively making you stronger all-around.

This is just one simple example. As athletes, we are creatures of habit. We are used to juggling many responsibilities and being in certain places at certain times. Our training,

work and family require this so that we can properly attend to each facet of our lives appropriately. So, when one of these facets falls out of whack, it can send our entire lives into tailspins, it we allow that to happen. But we don't have to! We CAN stay in control.

And that's the crux of it all. As I stated earlier, we always have a choice to make. We are in charge of what we decide to do or not to do. So, if you end up gaining 10-20 lbs while you are nursing an injury, you have to ask yourself whether it is because the injury completely took you out (like getting hit by a car while biking) or if you simply decided to wallow in the misery that can accompany a niggling injury (such as an achilles tendon strain or patellar tendonitis). In the former case, there is nothing you can do about your inactivity. Yes, you can fight to rehab ASAP, but

the road to recovery is long. So, your motivation should be to get back in the saddle more quickly than any doctor tells you is possible. In the latter example, your blinders and lack of flexibility are what is keeping you from looking at alternatives to stay fit.

Hopefully this article had been insightful to you. Each one of us hits both expected and unexpected roadblocks along the road of Fitness Improvement. It is how we handle these roadblocks—emotionally, mentally, and/or physically—that will help shape the athletes we are and the athletes we are becoming.

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



Sonia Frank / Steve Born

Focus on Quinoa - A Nutritional Superstar

In the world of healthy foods, Quinoa (pronounced either KEEN-wah or KEE-no-uh) has relatively few peers. For thousands of years in South America (originally from the Andean region – countries such as Peru, Bolivia, and Ecuador), this hardy plant was and continues to be a dietary staple. It's referred to as a pseudocereal because its seeds are oftentimes ground into flour for use as a cereal (true cereals are grasses). Also, though it is oftentimes considered to be a grain, quinoa is actually more closely related to leafy green vegetables like spinach.



contains an attractive amino acid file, one that is well balanced in essential amino acids (EEA – the eight amino acids that can't be synthesized by the body but must be obtained via the diet: histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophane, and valine).

Quinoa is a good dietary fiber food source and, unlike far too many foods, is high in magnesium. The latter is

important to note because magnesium deficiency is common in many foods. It's estimated that at least one-half of the US population consumes inadequate amounts of this important mineral, with deficiencies being linked with cardiovascular disease, hypertension, diabetes, and other age-related diseases.

Quinoa is also attributed with these positive features:

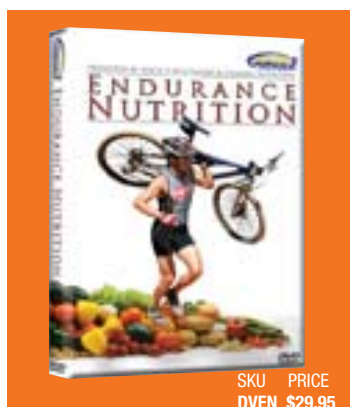
- It's a low-glycemic food source

(rating: 35)

- It's an alkaline-producing food source
- It's gluten-free
- Its amino acid profile makes it an attractive food source for vegetarians and vegans
- It's a good source of iron
- It's a good source of both manganese copper, the two minerals that serve as cofactors of the antioxidant SOD (superoxide dismutase)
- It has a delicious, nutty-like flavor
- It can be used in a number of food preparations such as a hot breakfast cereal, an alternative to "traditional" pastas, as a ground flour added to baked goods, and as a sprout sprinkled on salads.

Quinoa is readily available so if you've yet to try this delicious and super-healthy food, you owe it to yourself to introduce it to your diet.

Photo - Chenopodium Quinoa by Antonie Van Den Bos



A proper diet is critical to athletic performance!

Produced by Mach 3 Multipsort, this DVD features Steve Born's discussion on how a proper diet and fueling plan can help you achieve success in your athletic endeavors. Steve presents valuable information about all of the Hammer Nutrition fuels, in an easy to understand and apply. Plus, with the convenience of the DVD format, you can refer to it whenever you need!

"Your new DVD by Steve Born is a real winner. Very helpful and I thank you very much." - Bob S.

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Quinoa

How to Sprout Quinoa

Ingredients:

1 cup quinoa
 ¼ teaspoon salt
 2 qt. mason jar

Preparation:

Put quinoa and salt in large mason jar and fill with water. Cover with a clean cloth or cheese cloth, and secure with a rubber band. Let sit about 10 hours or overnight. Remove cloth and drain thoroughly. Replace cloth, or use a Sprout-Ease® Topper, size small. Place jar on its side, out of direct sunlight. Rotate jar occasionally so seeds are exposed to air. After about 36 hours, seeds will have tails about ¼ inch long. Makes about 2 ½ cups of sprouted grain.

Cook your sprouted quinoa. Sprouted quinoa can be placed in refrigerator for up to 2-3 days before cooking. Sprouted quinoa can be cooked like white rice, but requires less water and cooking time. Cooking time may be effected by altitude and humidity levels.

Sweet Sprouted Quinoa

Ingredients:

¾ cup coconut milk
 ¾ cup water
 2 ½ cups sprouted quinoa
 ¼ cup chopped celery
 ¼ cup raisins or currants
 ¼ teaspoon salt
 ½ cup shredded carrots

Preparation:

Combine liquids in a medium pan and add quinoa. Stir well, and add celery, raisins and salt. Bring to a boil. Lower heat and simmer about 15 minutes uncovered. Cover and remove from heat. Let stand about 10 minutes. Transfer quinoa to a large bowl, and let cool for 10 minutes. Add shredded carrots and toss lightly. If desired, garnish with fresh chopped parsley, sunflower sprouts, shredded zucchini, etc. Serve as is or on a bed of lettuce.

For a tasty breakfast or healthy dessert, prepare same way but without celery or raw veggies. If desired, add a healthy sweetener like honey, maple syrup, agave nectar, and serve like oatmeal. Enjoy!

Sprouted Quinoa Pilaf

Ingredients:

½ cup chopped onion
 2 Tablespoons grapeseed oil or vegetable oil
 2 ½ cups sprouted quinoa
 1 ¼ cups water
 2 Tablespoons powdered vegetable broth or powdered imitation chicken bouillon (available at health food stores)

Preparation:

Sautee onions in oil in a medium size pan until tender. Add sprouted quinoa, water and powdered bouillon. Stir and bring to a boil. Lower heat and simmer uncovered, about 15 minutes, stirring occasionally. Cover and remove from heat. Let stand about 10 minutes. Makes 4-6 servings.

The Endurance Path Revisited

Dumb things ultra athletes think & do

Chris Kostman



Chris Kostman / Photo: Al Seib

Don't Be Scared

For starters, whether you're talking about cycling races 100 or 500 or more miles long, all of these ultra cycling events are easier than you think. That doesn't mean there aren't occasionally challenging moments or that DNFs won't or don't occur, but for most people, most of the time, riding or racing an ultra isn't, ultimately, all that hard. You don't have to be a god or goddess to complete one, or several. But of course, other people will think so, thereby elevating your status within your social circle. But again, the difficulty of essentially all the ultra races is grossly exaggerated. Don't buy into the hype. Ultras are far easier than you think! *

Don't Be Fooled

Next, it's heresy to state this amidst our "consumer economy," but you don't need a five thousand dollar bike, or even a two thousand dollar bike, let alone a ten thousand dollar bike, to be any particular kind of cyclist. If you're comfortable and efficient, relatively aerodynamic, and your bike is reliable, that's all that matters. Period. I can absolutely guarantee that you will not ride uphill any faster on a super-light bike, and that's even more true if your body fat is not currently in the single digit range.

Don't Look Like A Poser

Cyclists, get your nose out of the pavement! Riding bent way over is not going to make you faster, because, in fact, you won't actually ride bent way over if you set your handlebars way below your saddle. I see this all the time at my events and out on the road: The tops of the bars are 4 to 8 inches below the saddle. Such a bike with NO RIDER on it looks really

racy. But put the rider on it, with their back rounded and their fingertips barely touching the TOPS of the bars (never the drops), and you've got somebody who might as well be riding a beach cruiser. Trust me, the "coolness" of all the fancy Tour de France-ready bikes we see is completely wasted on 90% of their owners. (And 90% of all cyclists I see do, indeed, ride in the manner described.)

Don't Be A Parachute

During the my eighteen years as the race director of Furnace Creek 508, I have made one consistent observation over and over again about the front-runners versus the rest of the field (in either the solo or relay divisions): the top 3-5 in each division practically live on their aero bars and/or in the drops. Everybody else? Wind-scooping time-wasters!

Instead of looking like a poser, set the bars up to the same level as the saddle, and then actually ride in the drops, A LOT. Your sum total of aerodynamic drag will be massively lower than the guy with the Lance Armstrong-wannabe set-up who never actually rides in the drops.

Don't Bog Down

The current penchant for high-cadence pedaling notwithstanding, too many riders let their legs bog down while cycling. Avoid this energy-zapper with one simple mantra: "lively legs!" Don't let your legs bog down when you hit a hill. Shift into a lower gear as you stop at red lights and stop signs. Keep your legs feeling fresh by regularly asking yourself: "Do my legs feel lively?"

Don't Take All Day (And All Night)

Many people glorify the front-runners in

ultra races and imagine that they must endure untold amounts and types of pain in order to arrive at the finish line ahead of everyone else.

Wrong! Actually, front-runners are at the front because they can be - due to genetics, training efforts, mental toughness, and natural ability. Ultras are the easiest for the fastest racers.

The people who really suffer at ultras are the back of the packers. If you hang out at the finish line of an ultra from first through last place, you will see a nearly linear progression from looking fresh as a daisy to looking like death warmed over as the field crosses the line. Every racer is completing the same route, the same mileage, and the same number of mountain climbs. However it's the slower racers who are hit the hardest by the experience because it's simply hours in the saddle - including hours of lost sleep and hours of exposure to wind, heat, cold, and sun - which really trashes ultra athletes. So, if you want to feel fresh for another race soon after one ultra, finish it quickly!

Don't Eat Junk

I constantly observe that endurance athletes don't take their nutrition and hydration plan seriously at all times. Many use the "see food" diet - if they see it, they eat it. They also "reward" themselves with things they shouldn't be eating or drinking. Also, when many endurance racers "smell the barn," they stop eating and drinking properly. I've had people drop out of Furnace Creek 508 with only 10 or 20 miles to go because they were so brain-starved and couldn't think straight, from not eating properly or from simply abandoning their scientific

see *ENDURANCE* on page 39

ENDURANCE from page 38

eating system with a mere century to go! When it comes to ultra sports, food is fuel, not entertainment.

Don't Buy The Mileage Lie

It is a lie that ultra racers need to train 400 to 1000 miles a week to prepare for ultra races. This is another myth perpetrated by RAAM racers who think it makes their cycling accomplishments seem more impressive. Farther is not better. In fact, it is counter-productive and does more harm than good to ride more than 300-400 miles a week in training. There is absolutely no physiological rationale for training mega miles in cycling. On any given ride, there's zero fitness benefit to riding more than about 80 miles.

The actual benefit to riding over 80 miles, like 200 miles or more, is that you learn how your body reacts, or breaks down, from the long hours out there: Do you get saddle sores? Does your neck hurt? Do you start feeling queasy and throw up because you're eating and drinking the wrong stuff, or wrong combination of stuff? Do your hands, fingers, feet, or other extremities go numb? These are the important things you learn from riding really far on occasion.

Don't Waste Your Miles

Lots of ultra racers talk about quality over quantity, but it's mostly just that: talk. How many of them know their anaerobic or lactate thresholds, regularly do structured intervals, compete in traditional bike races, or even train with speedy club rides?

Almost none, and in my opinion it's because they're scared of the competition

and finding out they're not as fast as they think they are.

It's very simple: you can either have quality or quantity miles. Make them count.

When I completed RAAM at age 20 in 1987, I only rode or raced 100 miles at once on five occasions in the eight months prior to RAAM. Instead of just riding lots and lots of miles like my competitors, I



Chris Kostman / Photo : Al Seib

competed in USCF races, in triathlons, and in mountain bike races, plus I trained weekly with a racing club and took a racing class at the velodrome. I rarely rode even 300 miles a week, let alone more than that. That approach helped me to ride faster and to sleep 2 to 3 times more per night than my competitors when I completed RAAM. I also had more fun! (Jonathan Boyer used the same approach when he won RAAM in 1985 and then again in 2006 at age 50.)

Don't Live For Ultras

Finally, please understand that living and training like a hermit is not necessary to

prepare for an ultra, nor is it necessary, nor healthy, to do zillions of ultras year after year.

There's something to be said for keeping things in perspective, as well as remembering that one person should not always be the center of their family's universe. Does the family really enjoy "support crew vacations" year after year, or should that Huge Weeks-Long Race be skipped, perhaps to do what the Significant Other dreams about instead? Maybe even leave the bike at home, too! (Hey, spinning classes are everywhere now and running shoes don't take up much room in the suitcase, right?)

* Why, you might ask, do I state that ultras are far easier than people think? Because the people who do ultras, almost without exception, do them because they can, literally, while other people can't, or at least

think they can't. Ultras are actually pretty easy for these people to do and they're motivated, in part, by demonstrating that they can do something that most other people can not or will not do. Thus ultra sports generally attract natural-born ultra athletes; conversely, ultra athletes scare away people who either can't do them, or are too scared to try.

Chris Kostman has lived on the endurance path since 1982. Besides competing in races as diverse as the Race Across America, the Triple Ironman, and the 100-mile Iditasport Snowshoe Race, he also organizes endurance events such as the Badwater Ultramarathon and Furnace Creek 508 and a series of five-day cycling camps. This is his fourth article for Endurance News. More info at www.adventurecorps.com.

HOT TIP

No oatmeal or high-fiber cereals/foods as pre-workout/race meal!

Consuming an adequate amount of fiber is, as you know, a good thing for general health purposes. However, high-fiber foods, such as oatmeal, are not ideal pre-workout/race meal choices. Quoting Dr. Bill Misner, Ph.D. - "a high fiber pre-race meal may 'create the call for an unscheduled and undesirable bathroom break in the middle or near the end of the event.'" Dr. Bill goes on to advise that a pre-workout/race meal should be "an easily digested, high complex carbohydrate meal of between 200-400 calories with a minimum of fiber, simple sugar, and fat."

Ironwoman

Tammy Covarrubias



Suzy and Tammy share a post-race picture.

Suzy Degazon

Motivation...now there is a word a lot of us can relate to especially if you do triathlons or ultra distance events! For some of us it is the medal, or the podium spot, winning an age group award, or simply just finishing! Some athletes overtrain and get injured, other athletes train or fuel incorrectly. How often do you hear excuses from athletes such as “I have a bad back”, or “I haven’t been training”? I would like to share with you the story of my friend Tammy. A remarkable individual who suffers from Multiple Sclerosis, Tammy’s vocabulary doesn’t include words such as “I can’t”. It can be quite humbling to train with her!

I first met Tammy through a triathlon club website back in May of 2007. She was looking for advice on doing a double century bike ride and, as no one was answering her, I stepped up to the plate and in doing so found a great friend and training partner. Tammy drove an hour to cycle with me in the San Gabriel Mountains that first time in 2007. It was then I found out that due to MS, which she was diagnosed with 10 years prior, Tammy was legally blind in her left eye and does most, if not all, of her training on a stationary bike, in an endless pool, and on a treadmill! Cycling on open roads presented a whole new challenge, especially narrow winding roads which climbed and had rapid descents.

She had put her name down for Ironman Arizona in April 2008 and had yet to do a triathlon! So we focused on bike miles for the Grand Tour in Malibu, a wee 200-mile bike ride. Tammy finished this ride in the dark, the nighttime making it even more difficult for her to see. Another side effect of the MS was the tunnel vision that she would

experience whenever her heart rate became elevated. Did that stop her? Oh no! Tammy was even more driven toward the Ironman distance race.

Tammy switched to Hammer Nutrition products choosing the Endurolytes, Perpetuem, HEED, and the Hammer Bars, and started using them in training; her MS was in remission but she still had to be careful when training. In August Tammy started to get dizzy spells and blackouts. Her primary care physician forbade her to compete in the Arrowhead Tri because of the swim. Tammy went through vigorous testing to discover that her MS had reared its ugly head, remission was over, then my phone rang... “When are you riding the bike?” I could not believe it. We began focusing on getting to the start line of Ironman Arizona 2008.

I had Tammy sign up for 3 races in 2008, with the first being a 13.1mile run in Huntington Beach. It rained hard that day but Tammy finished smiling. The rain was not a problem but her left leg started giving her monster shooting pains, like severe lightening bolts, every time her foot made contact with the ground. Another trip to her specialist resulted in new medication to control the shooting pains. The next race was the Butterfield 200-Mile bike event. Unfortunately the new medication left her paralyzed in the early morning and so she started later than anticipated. She had what we like to call a bad day at the office although the DNF did not faze her. We began training in the Foothills again and were nearly finished with the last climb of a ride when Tammy started having problems with coordination in her legs. I tried to joke with her and

make her laugh - I really needed her to be able to climb 2 more miles as the rest of the ride would be downhill! Finally, after a LONG time, we both made the base of the road and Tammy started crying - not from self pity but from sheer frustration at the inability to control her legs. We signed up for the Orange County Duathlon in March to make her feel better and Tammy experimented with giving herself injections earlier in the morning. When most athletes are sleeping Tammy is awake taking her medication so that when the race starts her legs will propel her forward. The duathlon was a great confidence builder for Tammy and she was set for her next race, Ironman.

Before I knew it Tammy was off to Arizona albeit very nervous about the open water swim! Sure enough the phone call came through, “I can’t do the swim! I started hyperventilating because I couldn’t see anything in the water when I went for practice.” We talked for a while and my friend Susan and I assured Tammy she could do this swim, “Just 2 hours out of your whole day,” “Start at the back and just stay focused!” we told her.

Tammy’s swim time was 1 hour and 50 minutes and her transition was smooth. Not too far into the bike portion another cyclist clipped her front wheel and Tammy took a dramatic spill cracking her helmet and getting some impressive road rash in the process. Even with that her happiness from completing the swim helped her block out the pain and finish the bike drinking from her multi-hour bottle of Perpetuem and taking her

see TAMMY on page 41

Hammering in the Bay Area

Belmont man dives into triathlon

MS won't keep him from race

BY ALAN FRICKLER
BAY AREA NEWS GROUP

Belmont resident William Nystrom, 43, pays strict attention to his health.

An avid triathlete for more than 20 years, Nystrom sticks to a vegetarian diet that keeps him fit and energized for his races — including today's Escape from Alcatraz Triathlon in San Francisco.

There's another important reason why Nystrom must pay such close attention to his eating habits. In 1992, after completing the legendary Dipsea trail race in Marin County, Nystrom was diagnosed with multiple sclerosis — an inflammatory disease of the central nervous system.

"One day my toes started tingling and I lost feeling from my waist down," Nystrom said. "I went to a neurologist and he told me that the signals from my nerve endings were being short-circuited on the way to the brain."

Nystrom, along with his ex-wife, began attending support group meetings. It was there that Nystrom vowed to never let people know about his condition.

"All of the people there just bitched and moaned," Nystrom said. "It was utterly depressing. That first meeting was a pivotal moment. That's when I decided nobody could ever know."

Nystrom took a break from racing, but continued to run, swim, and lift weights at the



Alan Frickler / Bay Area News Group

William Nystrom is gearing up for San Francisco's Escape From Alcatraz Triathlon to be held today.

gym, determined to stick to his goal. By 2002, Nystrom began competing in triathlons again — but in the physically challenged division.

Beginning to race again did not come without sacrifices. Nystrom has experienced symptoms during competition, including double vision, vertigo, and temporary loss of feeling in his hands and feet.

"It affects everyone differently," Nystrom said. "Some people go downhill very rapidly. My neurologist believes it's my lifestyle that keeps me so healthy."

Since then, Nystrom has accumulated six corporate sponsors, and has become one of the top triathletes in his class.

Since 2000, Nystrom has completed six to eight races annually. Just last month in Bakersfield, he completed one of the toughest triathlons of his life, powering his way through the grueling circuit in triple-digit temperatures.

"You're really happy when you finish those races," Nystrom said with a smile. "Pros do it for the prize money. Even though my category isn't as big as the other ones, I still want to come out on top."

TAMMY from page 40

Endurolytes. After a visit to the first aid tent to clean up her right shoulder, which looked like raw meat, Tammy started the 26.2 mile run. The sun was vicious and with less than 9 miles to go Tammy started having the now familiar lightening bolts of pain in her legs. She decided she had come too far to quit and began focusing on putting one foot in front of the other, as in her mind she was lucky to be able to walk with MS! Staggering like a drunk...those are her own words...Tammy crossed the finish line of Ironman Arizona. The time is not as important as her journey to, and through, the event. She is an IronWoman!

Having Tammy call and share the news with me was emotional. Although Tammy has not done an event since then, as her MS has been a bit of a problem, we did go cycling last week for the first time in 7 weeks and she said during our ride that she had forgotten how therapeutic cycling is for her. So, next time you are at the races think of my friend Tammy, enjoy the moment, have fun out there, and remember how lucky we are to be able to swim, bike, and run!

Suzy Degazon (Ultrawoman)

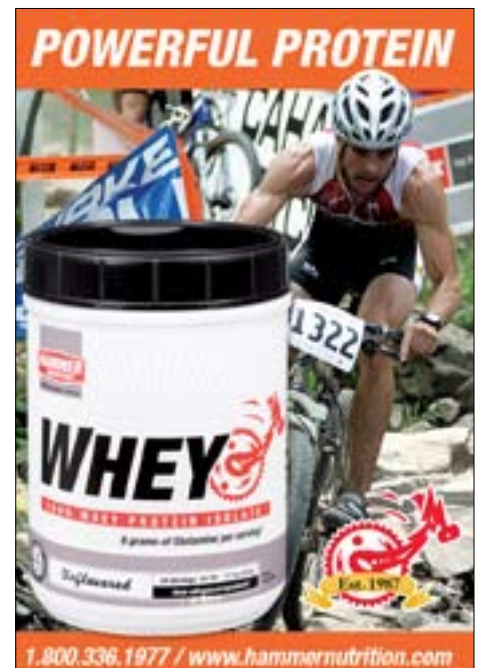
The HOTTEST TIP

Elevating hGH while you sleep revisited

In previous issues of Endurance News we discussed the benefits of taking whey protein prior to bed to help elevate hGH levels by as much as 400% (*read the original Hot Tip below*). The key for this to be successful is to take Hammer Whey in water only, as carbohydrates will hinder the process. Note that Hammer Whey contains no added carbohydrates so it's going to be somewhat bland tasting. However, the benefits derived are anything but bland!

From Endurance News 54

Elevating Human Growth Hormone (hGH) levels is the surest way to enhance athletic performance and shorten recovery time. This is why some athletes resort to risky injections. To safely raise hGH levels without risk to your endocrine system, try this - just before bed, take 1 scoop of Hammer Whey protein in 4-6 ounces of water, not juice or milk as those carbs will hinder the process. This practice may safely raise hGH levels while you sleep by as much as 400% compared to the usual nightly spike. That's enough to have a noticeable effect on anabolic, muscle building/maintaining activity in the body, and that's a good thing.



Globus *Get the E-stim edge*

Jim Bruskewitz



The Globus Sport and Fitness model Electro Muscular Stimulators are powerful training tools currently underutilized in the United States. As athletes become more familiar with what electro muscular stimulation (EMS) is and the benefits it confers, EMS will become as commonplace as heart rate monitors, inertial pace/mile running meters, and power meters for cyclists. EMS doesn't measure relative or actual amount of work being done like the aforementioned devices, but rather improves the amount of work that one is capable of performing while training or racing.

How does the thing work?

The brain sends electrical signals via the nervous system to stimulate the skeletal muscles to contract and move our bodies. A motor neuron (nerve cell) and the ten to a thousand or so muscle fibers it stimulates are called a motor unit. A muscle is made up of very many motor units. When a motor unit fires, a very small part of a muscle contracts. A larger portion of a muscle contracts therefore when more motor units are recruited to fire synchronously. A Globus EMS unit substitutes for the brain and sends a very small current through electropads placed on the skin over the target muscle group. This small current is enough to cause the muscle to contract.

Why use the Globus?

What? Are we so lazy that we should turn off our brains and let some device

do the work for us? No. Using the Globus EMS is not a substitute for doing the activities that give us the pleasure of exercise. However, the Globus is capable of doing some things more effectively than we do without its help. When used in conjunction with training, the Globus can help elevate normal human growth hormone levels and lower the level of metabolites like lactate and the enzyme produced when the muscle is damaged from exercise. The results enable muscles to more quickly accept more training.

Not only can the Globus improve the rate at which one recovers, but it also can improve strength more quickly and to a greater extent than sport specific and general strength training programs. We can increase strength in a number of ways. We can increase the number of contractile units within a muscle fiber. This adaptation occurs on the order of months of strength training. We can significantly increase the muscle fiber enzymes needed to deliver the energy required for a muscular contraction. This takes a couple of months. We can remove some

of the neural inhibition that keeps us from contracting most of our motor units when we will a maximal muscle contraction. Most of the strength

gains that come from training are due to training with maximal contractions that when repeated over three to six weeks will help remove a significant amount of neural inhibition. What's exciting about the Globus EMS is that it enables you to recruit more motor units at any point in time than you can by voluntarily contracting your muscles. The result is the removal of more inhibition and the gaining of more

strength. Once the motor units are available to contribute to a muscular contraction, the unique pattern in which they fire for a particular activity can be trained. The result is more muscle ready and trained to move your body.

What can the Globus EMS do?

Muscles adapt very specifically to the way they are trained. Pushing

see GLOBUS on page 43



*James Harrington sets his sights on the finish at the 2008 Ironman Arizona.
Photo : John Barr*

GLOBUS from page 42

maximally one time is quite different from rhythmically pushing sub-maximally over long periods of time. Gently squeezing the blood out of the muscle, sending it on its way back to the heart and making room for fresh blood requires yet another type of muscular contraction to promote this kind of recovery. Warming up in preparation for a sprint employs a different set of muscular contractions than does the warming up for an endurance event. It is not too surprising that the Globus EMS has a variety of programs built into the unit that are specific for various kinds of warming up, strength programs that range from maximal strength and reactivity to strength of endurance, and for recovery. Remember, recovery is the time when we get stronger and faster from the training that we've done. It is the mainstay of any successful training program and the Globus EMS units have a program for that too.

How does one get started?

Pulling a Globus EMS unit out of the box, placing the electrode pads on various muscle groups, choosing the program to meet your needs, and organizing your training to take full advantage of the Globus EMS may seem intimidating. There's quite a bit of support available to get you started and keep you going. Of course the Globus EMS units come with an operating manual and quick start guide. The Hammer website offers easy to use pictures of proper pad placement for all the major muscle groups. The E-stim endurancelist is an online group discussing the best practices of EMS. Hammer staff follows up purchases to help new practitioners and are available to answer questions about how you can get the most out of your Globus EMS unit.

Jim Bruskevitz (ep1@charter.net) coaches triathletes online www.enduranceperformance.com, and is a Lecturer at the University of Wisconsin-Madison's Department of Kinesiology.

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PROGRAMS

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- Aerobic Resistance
- Active Recovery
- Preparation
- Jogging
- Fitness (Basic Training)

Both models include : Carrying Case / 4 lead cables / Battery Charger / 4 reusable adhesive electrode pads 2"x2" / 4 reusable adhesive electrode pads 2"x3.5" / User Manual

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Recovery Session

The Golden Opportunity

Shane Eversfield

Here's a dilemma we face as performance-oriented athletes: We cannot conduct every swim, bike and run workout as a high-intensity fast-paced interval session and expect to sustain and enjoy a healthy athletic lifestyle. Recovery and adaptation are just as essential in our quest for athletic performance as is the stress we induce during our breakthrough sessions. We have two alternatives: First, lie on the couch and refrain from any form of exercise until we have recovered and adapted sufficiently to "hammer" again. The second alternative is to conduct low-intensity training sessions that actually accelerate the recovery process.

We usually associate the term "low-intensity recovery session" with "junk miles". However, as performance-oriented triathletes, we strive to maximize our investment of training time and energy – "junk" is simply not in our vocabulary. Our recovery session presents us with three extremely valuable opportunities to maximize the recovery-adaptation phase of the training cycle. These are: metabolic and muscular recovery, neuro-specific training and approach development.

Metabolic and Muscular Recovery

Engaging the muscular and metabolic systems through gentle, low intensity training accelerates recovery and adaptation by promoting circulation of blood and oxygen to remove lactic acid and toxic residues built up from that last breakthrough session. (Using a heart rate monitor can help the "Type A's" among us to ensure that we don't turn this gentle session into yet another hammerfest... Oh no, not me.) Swimming and biking may be more effective for this active recovery process

than running – especially for older athletes – by minimizing the stresses of weight-bearing and impact. This "escape from gravity" means we can be kinetically active with minimal stress on the cardiovascular, muscular and skeletal systems. Active recovery also keeps those "feel-good" chemicals flowing so we don't crash and get grouchy.

When our training program calls for active recovery, does this mean we shift into "auto pilot" for 30-40 minutes, let the mind wander and simply go through the motions – ala "junk miles"? We can turn our recovery session into a...

Golden Opportunity

If you've read previous entries of this column, this may seem redundant, but it is oh-so-important: We train three primary anatomical systems – the muscular, metabolic and neurologic. As we train, the muscular responds and improves the least of the three, although we are convinced this is the one we should focus on for improving athletic performance. It is actually the neurologic that responds and improves the most – yet how much of our training strategy specifically addresses this system? Herein lies the golden opportunity: We can transform our active recovery session into a neuro-specific training session. This is the perfect time to concentrate on sport-specific drills – swim technique drills, and cycling skills like single-leg circles, ankling, smooth circular pedaling, along with balancing and blending skills like "bicycle Tai chi".

During the recovery session, we are not preoccupied with quantifiable output – other than keeping the intensity level low. Instead, we can devote our time, energy and focus to improving our

technique. The purpose for sport-specific drills is to improve and perfect our swim-bike-run form for greater efficiency, grace and economy. Ultimately this improvement translates to increased speed and endurance with less effort. (C'mon tri-geeks, isn't that really what we want for Christmas?)

Here are a few pointers for getting the most out of these sessions: First and foremost, relax! Physical and mental relaxation are paramount to nurturing proprioception and coordination – the two essential elements we want to develop through skills drills. As you practice specific drills, take frequent breaks. Pause, recompose your mental focus, allow your neuro-system to recover, as it processes and integrates each repetition. Be clear about precisely what you are working on and envision how this will perfect your technique. Keep the drills basic, so that you work on just one or two elements at a time. Complicated tasks will overwhelm your neuro-system, retard your improvement and reinforce the very same inefficiencies you wish to transform. Hey, this is a recovery session – take it easy! Conduct your recovery-neuro-training sessions alone, in calm and familiar surroundings that support your inward focus.

Inward focus? We are specifically training neuro-muscular coordination and proprioception. This neuro-component is the interface between body and mind hence it requires a clear and undistracted mind. If the mind is unsettled and that "little voice" is spewing forth endless commentary about this, that and the other thing, we have slipped into "auto-pilot". No longer are we yielding the most for our investment.

see *RECOVERY* on page 45

RECOVERY from page 44

This brings us to the third opportunity for maximizing the recovery-adaptation phase of our training cycle.

Approach

Very little has been said about this crucial element – crucial to both training and racing – yet our approach largely determines the quality of our experience and has significant bearing on our performance. Perhaps you have arrived at the starting line of a goal race overwhelmed with anxiety and panic. You slept horribly, your stomach was in knots, your body was stiff and cramped and you forgot some vital piece of gear. (Isn't racing supposed to be fun?) A state of panic and anxiety is no way to approach a race you have spent months, perhaps years, training for. Well, here's the good news: As you train for your next race, each recovery session provides you with the perfect golden opportunity to develop a calm, empowering approach. With practice, you can carry this calm and centered state to the starting line of every race.

What do we mean by “approach”? Why does our approach have such a significant bearing on our performance? “Approach” is our composite physical, mental and emotional attitude towards the workout/race we are about to undertake, and the way we prepare for it. Ask yourself right now, “How do I typically prepare for and go into my training sessions?” Is your brain usually buzzing with stress and commentary about work, your relationships, an upcoming race or the remaining items on your “To Do” list? Are you actually conscious of lacing your shoes or pumping up your tires and checking the condition of your bike?

We all know that effective performance-oriented training is a cycle of stress, recovery and adaptation. Like it or not, all forms of stress play into this cycle – all forms. If we have absolutely no control over our minds, and they are entangled in an endless cycle of stress, then our physiological recovery and adaptation is impaired. We are not improving our athletic performance or assuring our overall health as effectively as we can. The recovery session provides a golden opportunity to transform this debilitating condition.

Make a clear choice to include approach development as part of each recovery training session. If you allot 60 minutes for the session, spend the first 15 minutes very consciously preparing. (Record this 15-minute approach time as part of your actual training in your log, to affirm its value in performance-oriented training.) Be slow, methodical and patient in your preparation. Be thorough and meticulous as you shower and change before swimming, as you check your bike over, as you lace your shoes before running. Spend at least 5 minutes of this time sitting still, with your eyes closed, breathing slow and deep through your nose, with your tongue touching the roof of your mouth, just above the gum line of your front teeth. (This tongue placement is an ancient technique that helps to ground and calm the mind.)

Conclude this (minimum) 5-minute process of calming and clearing your mind by acknowledging how very fortunate you are to train and race. Be grateful for your health, wealth, family and freedom – all the elements in your life that support your incredible athletic dream. Now you may begin your training session with joy and happiness! Practicing this relaxed and positive approach in your training will yield great benefits on race day. Gratitude and appreciation are very powerful allies in the face of fear and anxiety. If we imprint these attitudes as we approach our training sessions, they will be much more familiar and accessible at the starting line of the big race. Native Americans would often affirm their gratitude before a battle with, “It is a good day to die.”

It's best to conduct this calming and centering process in the privacy of your car or home, before you set out on the road or enter the gym. When you conclude this short meditation, you have two important objectives during the

recovery session:
1) Continuously sustain slow, deep conscious breathing throughout the session. 2) Feel gratitude and joy for this wonderful activity you are engaged in. Give yourself permission to really enjoy moving your body, rather than approaching this session as just another obligation to be performed and crossed off the list.

Spend the first 5-10 minutes of your actual workout at a pace that is absolutely effortless – one that seems ridiculously slow. Swim, bike or run

as gracefully, efficiently and smoothly as you can – as though you do not want to increase your breathing or your heart rate above a resting pulse. Completely engage your sense of feeling – really feel what its like to swim, bike or run, as though this is the very last time you will ever have the opportunity to do this activity. Feel every cell in your body engaged in this demonstration of perfect technique. Make each recovery session a sensuous one.

A few pointers for developing the mental clarity and inner focus that will help you to be 100% present and feeling in your body: To encourage a sense of deep relaxation, refrain from using caffeine during recovery workouts. It's OK to feel slow and relaxed (even sluggish)! Learn to create sharp mental clarity without the caffeine, and how to couple that to a relaxed body instead of one “on edge”. As mentioned above, this is not a social affair – train in solitude so you can go within. Choose a calm and familiar training course. Be very aware

see *RECOVERY* on page 46



Melanie Mociun celebrates an age group win at the City of Gold Triathlon.

RECOVERY from page 45

of each and every breath. At such an effortless easy pace, your breath can be slow and deep as you bike and run. Let the rhythm of your breath harmonize with the cadence of your pedal strokes and running strides. Breath every three swim strokes instead of two – bipolar breathing. Minimize your stroke count and maximize glide time.

Coupled with the 15-minute “clear-your-mind” approach/preparation described above, this leisurely 10-15 minutes of effortless, graceful and perfect technique with slow deep breathing calms and prepares our neurological system for optimal integration of sport-specific technique drills. Remember, the nervous system is part body and part brain. This neuro-system must be clear, calm and relaxed at both ends (body and mind) to effectively improve our swim-bike-run form and technique.

Carry-over

Fulfilling our golden opportunity does more than improve our grace, economy, efficiency and speed. As we conduct these training sessions in a thoroughly calm and relaxed state, we imprint both our bodies and our brains with this serenity. It begins to carryover into all of our training and racing experiences. With practice, we experience more clarity and serenity even at high levels of intensity. Our swim-bike-run form doesn't fall apart as easily when we push hard and our perceived level of exertion is lower.

During your interval training sessions,

to aide in this carry over, begin to focus as much on the short recovery intervals as you do on the work intervals. Recall and recapture that effortless, relaxed feeling from your full-on recovery sessions as you recover between work intervals. Strive to keep that serenity as you commence each new work interval. Relax your hands, arms and facial muscles.

In the zendurance approach to training and racing, we have a powerful slogan: “Mind in matter.” Mind in matter creates the strongest possible neuro-system. This union is the essence of kinetic intelligence – of grace, efficiency and economy. As we engage our minds completely in our bodies, we can transform any endurance sport into an effortless, sensuous activity, a “dance” of harmony. We can enter the “zone” – that state of being where we feel at peace with the world, where our physical, mental and emotional aspects find balance and inseparable union. In this calm and heightened state, we are each capable of incredible feats of endurance.

Every recovery session offers a golden opportunity to develop and perfect your ability to enter the zone. Extraordinary athletic performances require more than high levels of exertion. We must tap into the infinite potential that lies within this mysterious zone. As you explore and develop your unique approach to training and racing, the zone will become a much more familiar and accessible “landscape” – yet, like a wilderness, it will always retain an element of mystery and magic. Enjoy the exploration!

HOT TIPS

Hot-weather training/racing and “fever after training” recovery tips

Thanks to Hammer Nutrition client Randy Profeta for these tips:

As an ultra endurance rider, I usually have a low-grade fever after many events and some of my longer training rides which I have been told is due to several factors:

- Some dehydration
- An immune system that is not up to 100%
- Hours of pushing my body above its normal core temperature

I rarely race in the evening but I know that it takes me an hour or two for my body to cool down fully in the mornings after a ride. I have found that a cool shower and re-hydration with cold fluids helps considerably. After really hot training rides or races, a cold bath or dunk in the ocean or pool also helps. But the best thing is to keep yourself cool if at all possible during your workout. Douse your head with a water bottle. Make a neckerchief up with ice when it's really hot. If you have ever used Buff headgear, you can roll ice cubes in the Buff and place it around your neck. I did a 24-hour MTB race two years ago where daytime temperatures were about 105 and evening temperatures in the low 90s. The Buff/ice trick kept me cool enough to help me win my class when the others were cramping up and dropping out due to heat exhaustion.

My usual post-workout routine is to immediately consume Recoverite that is well iced. I will sip cold water and apply cold compresses to help bring down my body temperature. If the fever goes above 100F, I will watch it closely and see my doctor to make sure I have not picked up any infection or viruses.





From the Archives

Bill Misner, Ph.D.

QUESTION : What are the ORAC values of the nutrients contained in the Super Antioxidant formula?

ANSWER : Oxygen Radical Absorbency Capacity (ORAC) is a test tube analysis that measures the total “antioxidant power” of foods, nutrients, and other chemical substances. I disclose that a synergistic antioxidant ORAC analysis has not been performed on the combined ingredients list in Super Antioxidant. Individually there are estimates or actual analysis listed for some of these ingredients. When the product was first formulated, the manufacturer informed

us that the free radical reducing effect of placing these ingredients [all together] in a compound was extreme.

when compounded, the [synergistic] ORAC would be dramatically increased.

INGREDIENT	POTENTIAL ORAC
Grape Seed Extract	50,000
Super Oxide Dismutase	12,000+ estimate
L-Glutathione	12,000+ estimate
Gingko Biloba	1,800-2,500
Gotu Kola	1,500-2,000 estimate
Vinpocetine	800-1,000 estimate



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

This numbers are rough estimates of individual Oxygen Radical Absorbance Capacity; however, it is not known if,

HOT TIPS

Delayed Onset Muscle Soreness

Thanks to Mark S.... for this Hot Tip.

One of the techniques I've used to help with DOMS (Delayed Onset Muscle Soreness) is to follow the “Hammer Whey protein before bed” protocol. It's worked well for me on several occasions now. I also seem to sleep better too. These last few months I've gradually migrated from running to cycling, becoming a daily commuter. The ride is mildly hilly 14 miles each way to the office. When I first started, I was pretty much guaranteed to be sore the next day after the ride home. It's mostly uphill, so I started with the “Hammer Whey before bedtime” protocol and found out I wasn't as sore the next day. Within a week, I was able to ride back to back days. Personally, I've kept the protocol going, even though I ride 5 days a week and I'm not sore anymore. I just feel better the next day, especially towards the end of the week.

Soothe your muscles

Naturally!

“Just a word to the Faithful who haven't tried Hammer Balm: my god it's wonderful. I speak as a compulsive user of balms, ointments, salves, and heat rubs - I've tried them all, and this makes everything else go in the trash. It looks expensive, but the finest bit suffices. It's like buying 50 massages in a little can. I tried it because my wife has achy shoulders that responded to nothing else, and she instantly loved it. So I tried it and loved it too. It also makes you smell delicious, like you just came out of the oven. I've prodded several of my friends to try it, and invariably their response is an almost instantaneous “Oh my gosh” (in a good way). Thanks Brian and Hammer.”

Jay R.

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“A little does go along way and the product is the best I have ever tried. My wife has a shoulder/rotator cup issue and loves the balm. It seems to dull the ache and take the edge off. Nice Job Hammer.” David J.

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Al Lyman, CSCS

“The economy of running is determined on one hand, by how the degrees of movement are restricted, and on the other hand, by how energy is reused...”

- Bosch and Klomp from: Running-Biomechanics and Physiology Applied In Practice

Runners and triathletes are a stubborn and dedicated bunch, whose approach to training is often rooted in traditional thinking. When it comes to running, traditional thinking states that all a runner need do to improve is to just run, and run, and run some more, without paying much attention to other aspects of overall fitness such as functional and core strength, or maintaining muscle and joint mobility and elasticity. The problem with that thinking is that running, in and of itself, does NOT make you stronger, and it's not an activity that helps you stay more mobile and flexible. Why does strength or flexibility matter? Over time, as we age and as the miles pile up, if we do nothing but just run, we will become weaker and tighter and eventually that weakness and tightness will ruin our performance and increase our injury risk. In what is a cruel reality, if you just run and ignore the other aspects of a smart, balanced training program, you will end up losing the ability to do the ONE thing you most want to do, which is run!

A Balanced Training Program

There are many different elements of a balanced and successful training program that contribute to peak performance. Running itself is obviously the centerpiece, but each of the other elements, be it strength training, flexibility training, or mental training,

all also very important to be successful in an ultra or to run well off the bike. The major challenge we all face is that running itself doesn't make you strong, elastic, or flexible! If you want to run better, faster, and easier, especially as you age, then you must consider how to address the two most basic, fundamental, and often misunderstood elements that are absolutely essential to both staying injury free, and running easier and faster. These elements need to be addressed when you are NOT running and are:

1. **Stiffness and Strength:** to run well and stay injury free, you need stiff and strong legs and a strong core that WON'T collapse when your feet make contact with the ground during the stance phase of running. If your legs collapse even slightly and your landing is “soft,” the energy that you need to power forward will dissipate and be lost. Your heart will have to beat faster and work harder to make up the difference because of that lost energy. The result: your heart rate goes up and your speed stays the same or drops.
2. **Elasticity and Mobility:** to run well and stay injury free, you need elastic, mobile, and flexible hips and legs that are able to absorb the impact stress of running and move freely and effortlessly through a full range of motion. If you lose elasticity around your hips, your stride will shorten and your body as a whole will be much less capable of absorbing ground impact forces. The result: you will run

slower for the same effort and your risk of injury will rise dramatically!

Simply put, running by itself, won't reward you with the strength or elasticity you need. You have to supplement your running program with some functional strength training and flexibility training that is designed to build and maintain a strong, balanced, and elastic body.

What Happens When We Run?

In order to understand the elements of **stiffness and elasticity** and WHY they are so important, we need a basic understanding of what happens up and down our “kinetic chain” during running. Obviously, we don't think much about it when we are actually running but these nervous and musculoskeletal system actions dramatically impact how we should plan our training routine.

REACTIVITY AND YOUR NERVOUS SYSTEM:

Nearly 50% of the energy that's required to run comes directly from elastic energy return of the muscles! That's right, regardless of your heart rate, your age, or the weight of your racing flats, half of the energy needed to run comes from how well your muscles “snap back” and return energy to help you move forward! Your hips and legs are acting essentially like coil springs, stretching, tensing, compressing, and recoiling, as energy is released propelling you forward.

To take advantage of this reactivity and run faster and easier, you need to improve your muscles ability to absorb and return energy, and improve your neuromuscular coordination so that very

see COACH AL on page 49

COACH AL from page 48

little energy is lost during the transfer from ground contact to push-off!

ECCENTRIC AND CONCENTRIC

MUSCLE ACTIONS: In addition to this elastic return of energy, your muscles are also contracting in very specific ways during various phases of the stride. For example, your hamstrings contract eccentrically during recovery to slow down, or decelerate, the forward swing momentum of your upper thigh. During the stance phase, your calf and Achilles tendon also contract eccentrically to keep your feet from collapsing into your shin. Similarly, your quadriceps contract eccentrically during the stance phase, to decelerate your body and prevent it from collapsing to the ground against the forces of gravity. In case you are unaware, eccentric muscle contractions are those where the muscle lengthens as it is contracting, effectively tearing the muscle! (Think of the negative portion of a strength exercise, such as lowering a weight to the floor). Concentric muscle contractions, on the other hand, are the opposite. During those contractions, the muscle is shortening as it is contracting (think of the “up” phase of a biceps curl). Concentric contractions occur in the glute and hamstring as you push off during the power phase of the stride. See **Figure 1** below, which does a great job of visually showing what I have just described.

Understanding how certain types of running can place very specific eccentric or concentric stress on the body is important to knowing how to optimally train. For example, running downhill involves dramatic eccentric contractions to our legs that are very damaging! I’m sure you’ve experienced sore quads

after running a race or training run that has lots of downhill running. Similarly, running uphill requires very strong glutes and hamstrings to contract concentrically to power you up the hill. Beyond simply including downhill and uphill running in your training program, you need to include supplemental strength training in your routine that enhances your ability to run down, and up, or on the flat, more easily with a lower risk of injury. Also, when you understand how your muscles function during running, you realize that “traditional” strength training usually won’t provide the right kinds of strength that is needed. For example, a typical leg curl performed on a machine to strengthen the hamstrings produces a very different kind of stress to the hamstring than what actually occurs during the recovery phase of the stride. The machine movement is concentric, and the running stress is eccentric! Remember: the strength exercises we choose must mimic the actual movements and stressors that occur during running, in order to provide the benefits we seek!

ROTATION THROUGHOUT THE ENTIRE CHAIN:

In addition to these muscular contractions, there is also a great deal of rotation going on up and down our “chain” that, if restricted or reduced, reduces performance and increases risk of injury. See **Figure 2** below and follow the arrows to see the many forms of rotation throughout your spine, legs, and hips that happen when you run.

Without mobile and elastic hips that allow this rotation to happen freely without restriction, you can’t drive your knee forward from the hips easily and powerfully during the recovery phase

of the stride cycle, which is a critical element of good running form. Without mobile and elastic hips, your legs will have to absorb more of the pounding and impact forces, leading to a much greater risk of injury to your calf, Achilles, or hamstring. Without strength and balance in your hips through all planes of motion (side to side, not just front to back), your risk of injury from ITB syndrome or Piriformis syndrome, or some other malady, is much greater.

To summarize, if you want to be able to keep running and avoid injury and ultimately run faster and easier, you need to do more than just run! Your daily training objectives need to include supplemental training that will:

- Improve the mobility and elasticity of your hips and legs:
 - Better reactive return of energy, more speed, and much less risk of injury.
- Improve your running-specific functional strength:
 - Less collapsing during the stance phase (eccentric)
 - Improved resiliency and resistance to fatigue (eccentric)
 - Reduced risk of injury
 - Improved power and speed (concentric)

I know some will be resistant to a change in routine and to adding the strength and flexibility training that is needed. It IS out-of-the-box thinking to consider that what you do when you are NOT running is often as important as running itself. There’s an old saying that comes

see COACH AL on page 51

Figure 1

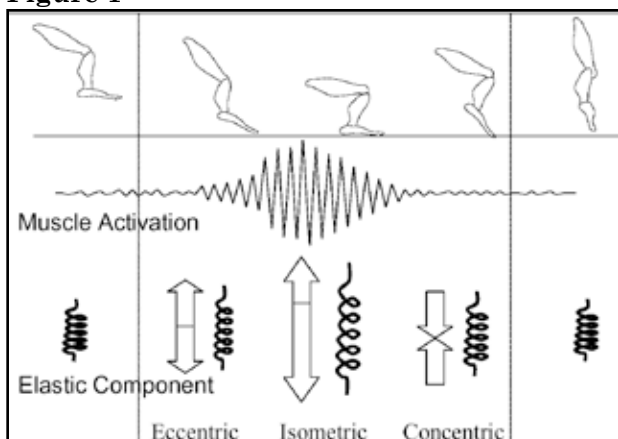
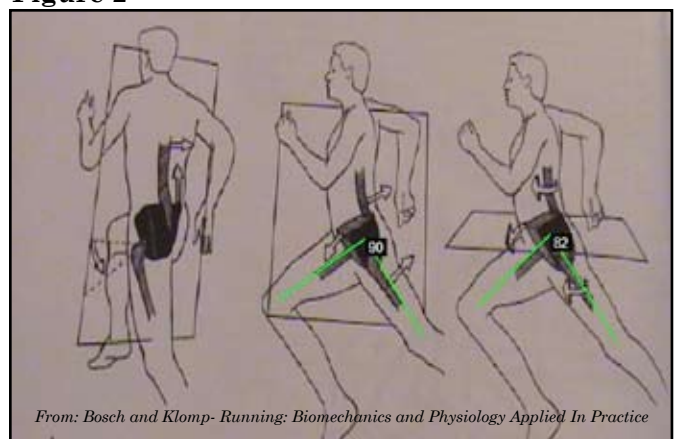


Figure 2



From: Bosch and Klomp- *Running: Biomechanics and Physiology Applied In Practice*



Brad Lamson / Kendra Borgmann-Ralstin

Editors Note : Living in northwest Montana affords us many opportunities to get out into the wild either as part of an organized event or just on our own. One fairly new organized event is the Swan Crest Run which was started by our good friend Brad Lamson along with his friends Pete and Reid. We asked Brad to put together a little information about this event and hope you enjoy the read. If you're looking for a great ultra to do this fall, this might be the one for you!

Written by ultrarunner Kendra Borgmann-Ralstin, from the September 2007 Swan Crest Run:

Some runs are just really beyond words and the Swan Crest Run is one of them. It is organized as a run, not a race, but it ended up being a really well-organized run with lots of goodies and the-best-of-race-like features, including a goodie bag, an eve of dinner made from scratch, prizes that outweighed many races I've been to, free massage afterwards, and lots of good people. Most of all, the views were utterly unbelievable. I was reminded of just one other run (which I ran about this time last year, in the Spider Gap area of the Cascades) which could compare in terms of vistas and color, and geological features and runnability. There was a sweet raffle held after the dinner and the "director" Brad Lamson (fresh off a successful finish of Wasatch 100 - his first 100 miler and first year of running 50 milers and above) gave us a briefing. Our goodie bags had super *color* topo maps inside. We were warned about bears but amazingly, only evidence of them were to be seen, as far as I know. I'm sure they were there, sitting back in the red bushes.

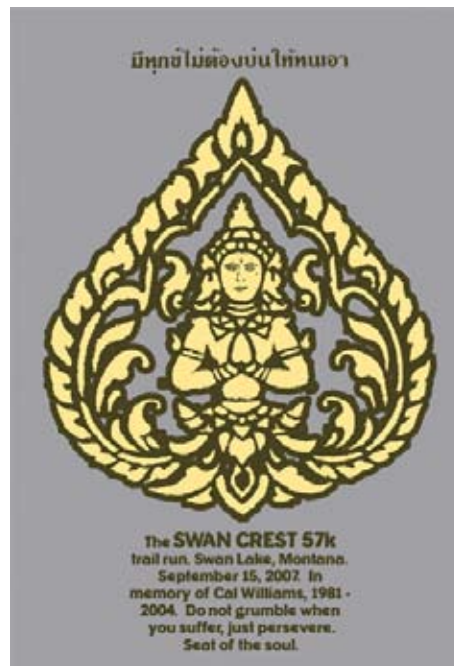
In the morning we were offered a shuttle (in the form of a Hammer Nutrition minivan, as well as other volunteers' vehicles) to the start - a good idea as it took an hour from the tiny 'town' of Swan Lake and included a steep and pretty bumpy access road, in the dark before the 7 a.m. start. I felt like a kid, dozing off in the back seat squished between people and nice and warm with voices telling all kinds of stories around me.

About 25 of us, then, surged forward at the word "go" into the twilight on a single track path through red and gold and green bushes and high country trees (we would hover around 6400 feet for most of this 57 Kilometer run).

Because this was a run, not a race, I only wanted to get out a little fast so I could settle into my own pace and not worry about passing anyone. As the sun began to rise, I realized that thanks to the ride up, we were already very high with sweeping views of the Bob Marshall range to the right and the Mission range to the left and innumerable scooped out valleys and slopes and canyons in between. It's always the sheer vastness of the places I run in that gets to me...

and being able to cover 30 plus miles of it is almost a gluttony of pleasure... when I am too old to run I will be able to slow down and just take a smaller section to enjoy at a time.

I remember one steep slope, not shale but rather bloomed out fireweed and the red leaves of bushes, which seemed about a half mile across, with the path perfectly level running across it. The path we were on, Trail #7, was absolutely cleared of logs and so very runnable. I settled into a pace that was hard, but not race pace. Harder than training, though: perfect. We were told where we



2008 Swan Crest Run
Saturday, September 6, 2008
57 kilometers, 7000' climbing,
10,000' descent
Race Directors :
Brad Lamson, Pete Costain, Reid Sabin
www.swancrestrun.com

should get water (basically, whenever you could) and there were lakes off in the distance and one which was a required stop -- mother nature's aid station since this is a self-supported run.

I didn't even take the gumpack camera, and I do regret it... there was one dreamy lake in particular, Hall Lake, down in a valley, which looked

see SWAN CREST on page 51

SWAN CREST from page 50

so inviting... another time, maybe. Eventually I found myself in 5th place, and in an out and back section up Sixmile Mountain (with tremendous 360 degree views and watermelon on top, thanks to a kind soul - a pregnant woman, no less, who insisted on carrying it up there for a sweet surprise), saw that I was at least 30 minutes behind the 3rd place guy. The 4th place guy let me go ahead after we savored our nirvana-like slice of watermelon and gathered our poker chips, and I just let my legs go for the next 8 miles of downhill. This was my favorite part of the run. We crossed a fresh cold stream for the first water source in quite a while and I could NOT wait for my iodine pills to do their thing so I took a long ice-cold drink from my bottle and every time I'd take a sip after that I honest-to-God whimpered out loud it was so good. I pretended that I had no legs... it sounds kind of weird but you should try it sometime when you're going downhill at breakneck speed -- you just pretend your torso levitating, or rather flying down, like in a dream. I descended through all the strata of foliage and trees and the different scents that go with each, and then it began to dawn on me that this was lasting a helluva long time.

Then you hit a logging type access road for several more miles, and I was strongly reminded of coming down off of Suntop on the White River 50 Mile course in Washington. Finally you're spit out onto Highway 83 for about a mile of "where is it? where is it?" down to the Swan Lake Community Center, where tents, cold Big Sky brews, Hammer Nutrition Recoverite, and other snacks and goodies awaited. Heath Korvola, a photographer, took pictures casually, while also running.

Really, these words, once again hurriedly spilled out during my lunch hour, feel miserably inadequate to describe this run. I can't, just can't, recommend it highly enough. The views are breathtaking throughout. There were no bugs. The temperature was perfect. The people were awesome. I can't guarantee the weather but the beauty is a constant. And Brad and his wife and friends put together a really rewarding and memorable event. You can see details at www.swancrestrun.com.

COACH AL from page 53

to mind that goes something like this: "Our greatest strength can also be our greatest weakness." When it comes to many runners, especially those who have been at it for a long time, I think this is true! Our dedication and desire to maintain our "running only" routine certainly is one reason for our success, but at the same time, as our bodies change and grow gradually weaker and tighter and more imbalanced, our dedication to our routine can become a weakness that leads to frustration, plateauing, and injury. Take my advice and begin to incorporate running-specific core and functional strength exercises into your program as soon as possible to develop a foundation of strength that is an ideal platform for technique improvement, injury resistance, and

improved performance! Best of luck!

Coach Al Lyman, CSCS, has developed an easy-to-follow, comprehensive program called Runner-CORE that is a fast, effective, and time saving strength and flexibility program for triathletes and runners of all ability levels. For more information go to <http://runner-core.com> <<http://runner-core.com>> . <<http://runner-core.com>> . Coach Al now also offers online video running form analysis and also offers a myriad of training plans for both running and triathlon using Runner-CORE. For more information, go to <http://coach-al.com>, or email Coach Al at: coachal@coach-al.com <<mailto:coachal@coach-al.com>> Also, at <http://coach-al.com>, you can sign up for Coach Al's e-newsletter, the "Endurance Scoop," which is produced bi-monthly and filled with tips, inspiration, and articles for endurance athletes of all abilities.

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"I just received my shipment of Hammer products. Much to my surprise there was a pamphlet for the Runner-CORE DVD in the box! Funny thing is, I bought this DVD a couple months ago. I had no idea that there was a connection between Coach Al and Hammer. I was a little skeptical of this at first, but Runner-CORE has brought results through simple and effective methods. The big bonus here for me is to see that Hammer obviously endorses this so you KNOW it has to be great!" - Rod

Race Report



Stephen Armes hits the transition.

Hammer Athletes

Laura Sophiea

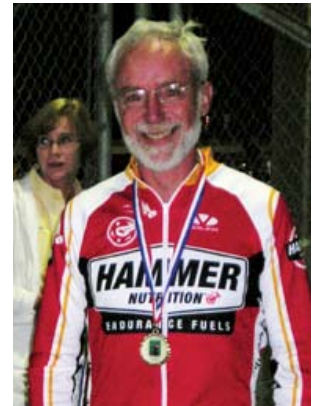
Quick update. I raced Lavaman 13 days post surgery. My surgeon said, "go ahead, just don't race it." So, I thought I could do that. I ended up winning my age group by 40 seconds so it turned out to be a race... I guess "competing" is not in my DNA! The Recoverite was great. I took it twice a day for 2 weeks, and I am sure it was why I was able to race and compete. I am now doing my Triathlon Camp in Alabama. I gave them the things you sent. Thank you so very much. They were so happy! I am sending along a picture of a few of us after out 45-mile ride with intervals and 3-mile brick run after. The camp has been going well and being able to share the nutrition program with them has been invaluable.

Again, thanks for everything you continue to do to support me and my racing. You are all incredibly wonderful people.

All my best, Laura

Jim Perkins

I wanted to let you know that you have one more convinced client. I started using hammer products about two years ago and soon began using them for all of my nutritional supplementation. Attached is a picture of me at the "2008 Bike Sebring 12/24 Hour Ultra" after just receiving my 1st place medal for the 60-64 age group. This was my first ultra so I competed in the 12 hour and logged 206 miles, setting a new age-group record. I did it using Perpetuum, Endurolytes and Hammer Gel as my only food and electrolyte source, and of course Recoverite when I finished. Thanks for your wonderful products. Ride on, Jim



Scott Wood

The enclosed photo is of a hammer head that has been embedded in the road surface on one of our favorite local rides for a number of years. It is strategically located at the bottom of Webber Canyon road which is a ~5 mile climb at about 5-6% grade. Our Sunday boys group includes the Race Director and setup crew for the 3 Rivers Road Runners. Upon seeing the hammer head, someone calls out "Hammer Time" and we hammer up the canyon.

Scott Wood



Tony Schiller

A big congratulations goes out to Tony Schiller on his recent win at the ITU Age Group Olympic Distance World Championships. Tony took first in the men's 50-54 division beating his next competitor by 3 minutes and 20 seconds.

John Noonan

Just wanted to let you know you can add another one of your athletes to the triathlon and duathlon All American list. I was ranked in both for the 45-49 male age group (11th duathlon, 66th triathlon). I could not have done it without you Hammer. Thank you so much.

Sincerely, John

Charlie Watkins

Thought you all might like to see this shot of my son at Wildflower on Saturday. Charlie entered the mountain Bike triathlon and took second in the 10 and under age group.

Kevin Watkins



Michael Adsit

Michael Adsit, 59, won two cycling silver medals in the 2008 Virginia Senior Games held on May 7th-8th in Virginia Beach. The second place finishes were in the 20K road race and 5K time trial in the men's 55-59 year old class. Michael also won a 10K time trial and 40K road race the week before in the Heart of Illinois Senior Games. Michael is a 7 year Non Hodgkin Lymphoma cancer survivor and has now qualified to compete in the 2009 US Senior Olympic Games to be held in California. Michael, from Milford, PA, trains 10-12 hours a week and uses PHYTOMAX, HEED and HAMMER GEL in training and competition.



Staff Note : Shortly before going to press we got this addendum to Mike's accomplishments. At the Rhode Island Senior Games last weekend I placed 2nd in the 5K TT at a personal best of 8:03 and 2nd in the 10K TT at a personal best of 15:47. I have now qualified for the 2009 US Senior Olympic Games next year in Palo Alto, CA. Way to go Mike!

Norma Bernstock

Norma Bernstock brought home two cycling silver medals in the 2008 Virginia Senior Games held on May 7th and 8th in Virginia Beach. The second place finishes were in the 20K road race and 5K time trial in the women's 60-64 year old class. Norma is a retired teacher and recognized poet. Norma has now qualified to compete in the 2009 US Senior Olympic Games to be held in California. Norma is using HEED and Hammer Gel in her training.



Stephen Armes

As a member of the Marine Corps National Triathlon Team, the 2008 season started off in March and has been in full swing ever since.

Hammer Nutrition products have been my only fuel source and powered me to 3 podium finishes in 3 races!

Additionally, it helped me set an Olympic Distance PR of 1:57:23 and an 8th place overall finish in Aiken, S.C.

My kids have also gotten bite by the triathlon bug and recently competed in their first race.

Erik came in 1st in the 11/12 year old division and Ryan placed 3rd in the 9/10 year old division.



Thanks Hammer for making a great product and helping us kick off the 2008 season on the podium!!!

Sincerely, Stephen Armes

Rocky Mountain Racing

We had two wins this weekend as well! Our Pro Woman won the 50 mile marathon mtb race (1st Overall Female), and we also took home the win in the Semi-Pro men's category, along with a third, 6th, and 8th in that category. AND we had a second place finish in the 19-29 Expert men and a second place finish in the 40-49 sport men category.

The primary fuel for the day was HEED and Hammer Gel, with the exception of Kelley Cullen, who won the 50 miler using Sustained Energy.

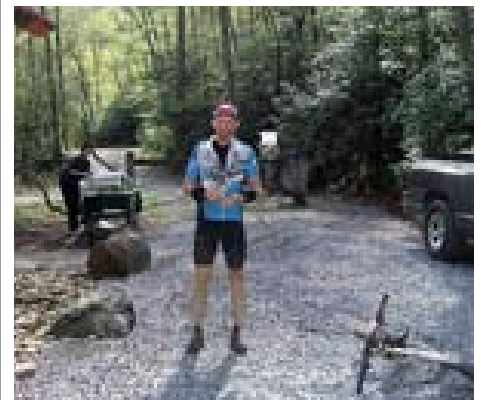
Thanks once again! We'll be in New Mexico racing at Angel Fire this weekend. Lots of climbing!

Jordan Kahlenberg

Juan Pacheco

April 19th was my first mtb race since 1990. I chose the Cohutta 35 miler, part of the Cohutta 100 race weekend. I've been using Hammer products consistently for over two years and I can honestly say I'll never use another product. For this race I used Race Boost, Anti fatigue caps, Race caps, HEED and a bottle mix of HEED and Sustained Energy plus a couple of gels. My energy level stayed the same and I felt very strong during the last 7 miles. Thanks to Hammer Nutrition and the training I did over the winter months, I managed a second place in the Masters 50+ and a top 15 overall. 4 of my team mates that participated in the 65 and 100 mile races also used Hammer products during the race and also are very happy with your products.

Thanks for helping me to a successful return to MTB racing.



Race Report



Keith Regier display his Hammer pride

Hammer Athletes

Amy Rappaport

I didn't know these two women, but I asked if we could all take some pictures together just because I knew that you would love them....the 3 of us each modeling a different "pink".

Of course now we are good buddies....

Left to right: Amy Rappaport, Tana Jackson, Jami Andrews

Amy: 1st Duathlon AG, Tana: 2nd Du AG, Jami: 6th Long Tri AG

Tana and Jami live in Sunnyvail, CA and you already know I'm a Jersey girl.

Tana will be racing at IM CDA later this month and has finished Kona 6 times. It's awesome to meet other Hammer fans at races. When I asked if they were sponsored athletes they said "no, we just love the stuff" how cool.

Cheers,
Amy



Paul Moir

I just completed the Anaconda 5-Day Mtb Enduro in central Australia... riding 300kms. The event is a 5-day MTB stage race, riding some of the most awesome mountain biking in Australia along some very sweet single track and dusty trails along the very scenic MacDonnell Ranges (in the red centre of Australia). I finished 5th in the old guys category.

Thanks Steve for the fueling tips – the suggested Race Day Boost "supplement loading" each day seemed to help! Endurolytes were absolutely essential to keep going each day and my regular Perpetuem endurance fuel was consistent as it always is.

Paul Moir



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

Kathy Craft

I raced in the Sea Otter Classic on April 19, 2008 in Seaside, CA. My event was the MTB XC, 153-XC Sport 30-39 female age group. I finished 4th with a time of 1:51:47. I attended the awards ceremony wearing my Hammer Nutrition Jersey.

I supplemented with Race Caps Supreme, Hammer Gel, Perpetuem, and Recoverite post race.

Attached is my photo on the podium (photo taken by Adrienne Saxton)

Kathy Craft



Michael Bates

Attached is a picture of Michael Bates finishing the Lake Merritt Half Day (12 hr) in Oakland, CA May 10, 2008 with a total distance of 51.5 miles. You would never know he ran that far from the picture. I believe it is because of his use of Hammer Products. Why I feel he should get recognized is because he doesn't only use and believe in your products but promotes them to everyone he talks to. He turned me onto your products by giving me some of his to try and my ultra running has change forever. He is a great person and you would never know he is 61 years old.

John Hagin



Troy DeLong

Troy finished his first Boston Marathon this spring (and only his second marathon ever) in a time of 3:20 this past April. Rounding out his spring was a 7th place age-group result at the Silver State 50/50 1/2 marathon in Reno (2:01:40) and a 23rd place age group finish at the Boise 70.3 triathlon in June (5:15:20). Nice work Troy!



Kirk Usher

This spring we received a great 'race report' from Kirk Usher about his trip to the Himalayas, sponsored by the Explorers Club (www.explorers.org), where he and others conducted a study on heart rate recovery at altitude. Below are his pictures with a small description of each.

Picture 1 : Me leading my buddy, Dr. Bob Miller, over the top of Khardung La, at 18,375', considered by most to be the "world's highest motorable pass". In addition to successfully biking over Khardung La in northern India's Ladakh region, which is bordered by Tibet and Pakistan, we biked over Taglung La at 17,500' and 4 other passes from 14,400'-16,600'. Ladakh is part of the larger Himalaya region referred to as "the roof of the world" and the Ladakh area itself has been called "Little Tibet" and even "the last Shangri La". Biking in Ladakh will change your life forever, it's that unique and dramatic both geographically and culturally.

Picture 2 : (L-R) our friend Dan Moore, Ph.D, Biostatistics at UCSF, then me, and on the right in the yellow jacket (it was in the 30's with the wind chill) is Dr. Bob Miller, head of Neurosciences at Cal Pacific Medical Center in San Francisco, and Professor of Neurosciences at Stanford and UCSF.

We're holding the Explorers Clug flag 147 awarded for the scientific study we conducted on heart rate recovery at high altitude by the 11 men and women bikers in our study group from age 21-63. Incidentally, the oldest member of our study group, Dr. Dan Moore at 63, was the first up and over all 6 passes.

As I mentioned what helped get me acclimitized was first Sustained Energy, HEED, and Hammer Gel for the shorter acclimatizing rides. Then, for the 6-12 hour rides up and over the passes, fueling with Perpetuem, HEED, and Hammer Gel. Since then I've started to regularly use Hammer Bars, Endurolytes, and Recoverite, each of which I think are excellent and great for both my mountain biking and road



biking. I've been mountain biking for 28 years now and have recorded over 3.5 million feet of climbing-mostly on my mt. bike since I ride about 80% mountain bike vs 20% road. In 2001 I had an angioplasty and stent, but since then I've done the Ladakh expedition and this fall Dr. Bob Miller and I are planning to lead a group mountain biking on a total west to east crossing of Bhutan, another Himalayan country, in which we cross 11 passes, totalling over 50,000' climbing, and the route includes what many believe to be the world's longest descent of 53 miles.



Inside this issue :

- **The Safety of Stevia**
- **Whey Protein Update**
New Flavors
- **Pre-Workout/Race Fueling**
- **Product Spotlight**
Anti-Fatigue Caps
- **Athlete Spotlight**
Mike Llerandi
- **Salt Stains**
What do they mean?
- **From Soni's Kitchen**
Quinoa - A Nutritional Superstar
- **Getting Faster as You Get Older**
- **and so much more!!**

HAMMER NUTRITION
Environmentally friendly

We are fortunate to live in one of the most beautiful places in the United States and every day we get to take advantage of the environment around us. As more and more companies are 'Going Green' in an effort to do their part for the planet, we'd like to keep you informed of some of the things we as a company have been doing and some of the action-items that we hope to take on in the future.

1) Our race bags, of which we'll be supplying over 1,000,000 this year (that's right, one million) are produced from post-consumer recycled materials. Not only are they recycled, they're also recyclable. We are presently doing research on alternatives to the wax-lined paper cups that are used at races.

2) Our 2008 catalogs, of which we printed 275,000, and our

Hammer Digest, of which we printed 750,000, are printed on recycled paper. If you don't want to throw them away when you're done, recycle them in another manner...give them to a friend! As new, and reprint, projects come up we continue to look into the feasibility of recycled paper for all of our jobs.

3) The containers/bottles of Hammer Nutrition supplements and fuels are #2 HDPE, an easily recyclable form of plastic. If you don't have a recycling center in your area, these containers make great storage containers in your garage or shop.

We continue to look for more ways that we can be sensitive to the environment. When we do, we'll be sure to share with you

