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MORE FUN THAN LAST YEAR

by Robert Kelly

One day as I was finishing up my list of races that I wanted to do this year, my wife asked me what my goals were for this season. She was curious since I had a very good year and achieved most of my goals. After taking a few moments and running through my respective races in my head, I replied with an answer that was not what she or any of my teammates expected. "I want to have more fun this year than last year." For all of us multi-sport athletes, it really should be as simple as that.

With the new season approaching, many of us are in the process of scheduling our races, ramping up our training, and formulating our goals for 2002. This time period allows us an excellent opportunity to breakdown the reasons for being a multi-sport athlete. As we all know,

participation in this sport requires huge commitments of time in order to be successful. These demands often come at the sacrifice of time with our families, friends, and sometimes even our jobs. Coming to grips with this power struggle is one of the hardest things we face as competitive athletes. We have all experienced moments where our meticulously planned out training schedule gets thrown out the window and we end up getting stressed out about missed workouts. This is a dilemma that every multi-sport athlete is faced with no matter what class or performance level. I hope that this article helps all of us rethink our goals so that when life happens, we mentally can stay in the game.

Think about your past races and I am

(see Fun on page 3)

ANTI-FATIGUE CAPS Their New Look

by Steve Born

That's right, a venerable old favorite has undergone a facelift. The new ANTI-FATIGUE CAPS has not one, but three powerful ammonia scavengers in the formula. This new formula uses the same nutrients I have used in RAAM and several other ultra cycling races with noticeable results... needless to say, I am v-e-r-y excited about this one-of-a-kind product. I think you will be as well. Here is the breakdown of the new ANTI-FATIGUE CAPS per capsule:

- **250 mg Magnesium/Potassium Aspartate.** I think Dr. James Balch says it best regarding aspartic acid, "Because aspartic acid increases stamina, it is good for fatigue and plays a vital role in metabolism. It is good for athletes and helps to protect the liver by aiding in the removal of excess ammonia."

- **100 mg l-Citrulline.** Citrulline is an amino acid that is found in plant foods such as onions and garlic. Citrulline detoxifies ammonia and, like aspartic acid, is used in the treatment of fatigue. It promotes energy and stimulates the immune system. Citrulline combines with aspartic acid to form arginosuccinic acid, which later is metabolized into the amino acid arginine. In a recent Journal Of Endurance (J.O.E.) Dr. Misner discussed the role of arginine and the part it plays in the reduction of free radical damage and enhanced aerobic endurance.

- **140 mg 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

A Personal Note



from Brian Frank

Ride The Highline With Us

When I moved to Montana and joined the local competitive cycling community I was told about an epic ride that happens the first weekend in August every year. By sheer coincidence it's called The Highline Hammer and it's 136 miles with 8,800 feet of climbing. The ride takes us on the legendary Going to the Sun Highway in Glacier National Park, crosses the continental divide twice and provides vistas that are beyond description. It's not an organized ride and a couple of times we've done it with no sag support. I've done the ride every year since 1995 and it's now a permanent fixture on my riding calendar.

In 2000, we decided to adopt the ride as our annual company ride and day of bonding among the staff here at E-CAPS. Dr. Bill makes the pilgrimage from Spokane and we have a great time riding together. For the past 2 years, we have talked about how fun it would be to invite some of our customers to join us on this ride and since the road through Glacier National Park is going to close soon for several years of rebuilding, this is the year. Since most of you will be traveling from afar to join us, we decided to make a weekend out of it.

So, please consider this an invitation to join Steve, Dr. Bill, Joe and myself on August 2,3 & 4 2002 for a weekend of long miles, beautiful scenery, good

conversation and great food. There is no charge to join us, but we do have to limit the group size to 20 and 3 early birds have already committed. So, we have room for 17 more cyclists.

If you e-mail me, I'll send you the details on flights, hotel accommodations, etc. Before signing up, here are a few things to consider; You should be prepared to cover the cost of your travel, hotel accommodations, some food and incidentals. This is an all pavement, road bike weekend. Also, you should be fit enough to handle this many miles and climbing in variable conditions that can include, extreme heat, freezing cold, high winds and even rain or snow. This is not a race, but we do like to ride fairly hard. We will have at least one sag vehicle.

Here's an overview of the weekend's activities:

Plan to arrive Thursday or earlier if possible.

Friday 8/2/02 - 40 mile spin around the Flathead Valley followed by a barbecue/carbo party at the E-CAPS headquarters.

Saturday 8/3/02 - The Highline Hammer ride rolls from West Glacier at 7:00 AM, returning to our starting point between 2-4 PM. Dinner at the Back Room - ribs, broasted chicken and Texas Fry Bread (Not exactly health food).

Sunday 8/4/02 - "Recovery" ride either around Flathead lake (87 miles, 4,500 feet of climbing) or Star Meadow ride (60 miles out and back from Whitefish, 3,000 feet of elevation). I'll determine which of these to do after getting feedback from participants.

E-mail me at bfrank@e-caps.com if you're serious about joining us, 'cause we'd love to meet you and ride together.

Brian Frank

Mission Statement

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

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

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

Brian Frank
E-Caps Co-Founder

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

Back issues of Endurance News are available online. Point your browser to www.e-caps.com/oncall/enews.cfm

(Fun from page 1)

sure everyone can remember a time when things did not go as planned. When your performance was less than desired and/or even if you had a great race, your efforts were overshadowed by the efforts of others. Now is the time to rethink your goals for the season and retrain your multi-sport mind so that every practice and race is fun. All we have to do is go out there and enjoy every day of training, all those early morning rides with our friends, the smell of chlorine, and especially that magical feeling where the finish line is in sight and you are giving it everything you've got. I love this sport, and I have learned in a very short period of time that there will always be someone younger and faster coming up right behind me that may take my place on the medal stands but they will never take away my ability to have fun.

I have seen it written before that the most common responses from triathletes when asked what their goals are for the upcoming season include "To go faster", "To get my personal record", and "To place higher". While I agree that these are excellent goals, I often wonder if we might be missing the big picture. I would be lying if I said I was not also looking for improvements and "To go Faster", but I now know that if I don't have fun, none of it will be worth it. Keep in mind that forces beyond our control often impact our goals of going faster and placing higher. Factors such as weather, number of participants in your age-group/heat, mechanical issues, getting kicked in the face on the swim, along with a multitude of "life" issues that may spring up and have an impact on your race day performance. Having fun is the one thing that we will always be able to control. It will be the reason that we get up on those cold mornings to go to train as well as the justification for all of our sacrifices.

Robert Kelly is an All-American Age-Group triathlete from Washington, D.C.

HAPPY SURFING!!

Introducing Our New Website *by Joe Arnone*

The new combined E-Caps/Hammer Nutrition website is up. So, either www.hammernutrition.com or www.e-caps.com will take you to the same master site. Now you can browse, order, get educated and contact us with greater ease and efficiency. We have added several new areas and have updated our online educational articles to better answer your endurance fueling questions. Some of the key features are:

SHOPPING CART

We have changed the shopping cart to make it easier, faster and more user friendly. Each product is a link that will take you to product details and usage instructions. The E-Caps and Hammer products are all on a single page where you can add all the items you want and then click on "ADD PRODUCTS TO CART". All the items you have selected will be added to your cart and the number of items flashes at the top of the page. The clothing and accessories page has items added to your cart one at a time. We are working to make both areas work the same in the near future.

SPONSORSHIP

A sponsorship area has been added for our sponsored athletes and teams to do some bragging. It is administered by the team leader or individual athletes and has the option of adding a photo. It is designed to showcase our sponsored athletes, teams and events. We hope that it will provide valuable information on what products our athletes are using and their personal techniques for product usage.

FEEDBACK

In our feedback area, you will have the option of sending feedback to 4 separate areas. Dr. Bill, Steve Born, Customer Service and Products all have a form to fill out with your com-

ments. We welcome all feedback, positive or otherwise, and comments will be posted on the website for others to read. We will respond to the author via e-mail as well.

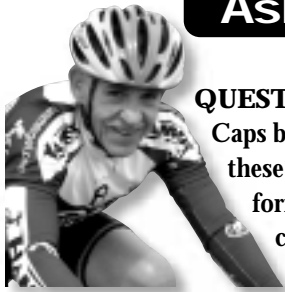
KNOWLEDGE

Technical information, usage instructions, the Endurance Library, J.O.E, Endurance News and more are all in their own area for easy access. The information has been reorganized, and in some cases rewritten, to provide you with the most up to date studies available. If you haven't looked at the articles that are online lately, check out these areas for a plethora of very informative articles and helpful tips. You will be able to read about all of our products and their ingredients from the basics to the medical science of enhancing your athletic performance naturally.

The best way to use and view our site problem free is to use Internet Explorer. We continue to run into trouble with Netscape although it is currently working trouble free in either browser. If you are using Netscape and experience a problem, try it with Internet Explorer and see if it solves your problem. If you get an error message of any sort and have the time, please e-mail it to us. Include the operating system you use and what browser and the browser version you are using. We welcome your ideas on how to make the site more user friendly. If you have website expertise and see something wrong or have a helpful comment please let us know.

It is our hope that the new website will make it even easier for you to learn about our products, order, read valuable information and keep track of world class events and athletes. Happy surfing!!

Ask Dr. Bill



QUESTION: Are any ingredients in your Race Caps and Enduro Caps banned by any doping agency or sports federation? Since these products are designed specifically to enhance athletic performance, how can these products avoid the taint of being considered an “unnatural” means by which one attempts to improve upon his physical performance?

ANSWER: Neither of these natural electron transfer carriers is on the banned substance “Positive” list. The natural concentrate form of Cytochrome c and Coenzyme Q-10 is metabolized at a higher volume through the same metabolic pathway as its food chain substrate counterpart. While both forms replace exercise-induced losses, it is the concentrate-form that potentiates [increases] endurance efficiency more than the less concentrated food form. As you may know, it takes huge amounts of food to generate only a few milligrams of Cytochrome c or Coenzyme Q-10, and with food forms, absorption uptake takes time and numerous metabolic reactions to complete. Whether you want to call this performance-enhancing outcome or performance-efficiency repletion advantage is a matter of word choice since the outcome is the same.

During endurance performance above 60% Max Heart Rate, after 50-55 minutes duration, alternating versions of the mitochondrial electron carrier substrates, Cytochrome c and Coenzyme Q-10, are delayed in their efficiency due to plausible depletion mechanisms. Once those substrates are exogenously [from outside sources] applied or are in route, enzymatic and co-enzymatic repletion of electron transfer substrates is enhanced, which contributes to re-establishing mitochondria efficiency. Both of these electron transfer carriers are natural endogenous substrates that have a close relationship to a number of macronutrient dietary sources.

For example, let us examine 5 athlete septuplets (or the same athlete in 5 differing protocols), each with the same athletic performance capacities:

Athlete #1 replaces carbohydrates at the rate of 240-280 calories in a hypotonic solution will replace their fuel loss metabolites faster than **athlete #2** who eats solid foods, faster than **athlete #3** who drinks only water, or faster than **athlete #4** who chooses to wait until his/her next sedentary meal.

All other performance factors being equal, **athlete #1** will fatigue less and perform better than the other 3 athletes. Enter **athlete #5**, who employs **athlete #1's** fuel and hypotonic liquid protocol, but then adds concentrated Cytochrome c and/or Coenzyme Q-10 to the mix, it is calculated that 1-4% performance gain would favor **athlete #5**.

Diet, fluids, training periodization, genetics, supplementation, emotional state, stress, and gender are each subject to favorable natural influence resulting in either performance-inhibiting or performance-enhancing. Those factors that are unnatural are called into question by today's performance-regulating standards. Cytochrome c and/or Coenzyme Q-10, whether from food selection or from supplemental concentrates, actively contribute to endurance performance outcome in terms of dose-depletion and duration-dependent fashion.

(Anti-Fatigue from page 1)

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. Colgan writes, “Both ornithine and alpha-ketoglutarate act in the body as an ammonia scavenger.”

We all know that during endurance events, especially ultramarathon events, the body produces ammonia. Ammonia is an unavoidable breakdown product of protein metabolism. Perhaps the biggest problem with elevated blood levels of ammonia is that it interferes with glycogen production; glycogen, of course, is your body's main form of stored carbohydrate. The higher the blood ammonia level, the less available glycogen, and the poorer your performance will be. Bottom line: You can't avoid some ammonia production but you can help decrease the amount of ammonia build up, which will increase endurance. The three nutrients in ANTI-FATIGUE CAPS do just that, and aid in the removal of performance robbing ammonia accumulation.

There are two more benefits to the new ANTI-FATIGUE CAPS. One, as noted earlier, is the support in the prevention of muscle tissue catabolism from effective, non ammonia-producing glutamine replenishment. The second is the increased conversion and production of a key substrate called oxaloacetate, which is involved in energy production from the Krebs Cycle. Having more available oxaloacetate may very well aid in more consistent energy.

New Dosing Suggestions:

4 capsules one hour prior to training with an additional capsule per hour at the two-hour mark and beyond during extended endurance sessions. This would provide an initial dose of 1000 mg magnesium/potassium aspartate, 400 mg citrulline, and 560 mg OKG which I believe would be an excellent dose at the onset of an endurance workout or race.

Each bottle will contain 120 capsules and retail for \$17.95

HOW MUCH IS ENOUGH?

by Nate Llerandi

More and more, athletes are coming to me saying, "I don't have enough time to train. My life is (in essence) spinning out of control because I can't balance my training with the other aspects of my life. Help!!" These athletes feel that because they aren't completing 100% of their training schedules they are losing fitness and/or they are getting frustrated because maybe they're finally "over the hill" and should just hang it up. "Why compete if I can't compete at the level I want to?"

My answer to this is always the same. You can maximize your performance while minimizing your time commitment to training. This is not to say that I suggest my athletes cut their training down to the bare bones. Rather, my goal is to help athletes get the most out of their training plans without the training taking over their lives. In my mind, this is crucial to keeping balance in day-to-day life.

So, how much is enough? The true answer is that it depends. If your day-to-day life is a flurry of activity and you don't get to sit down and take a breather until 10pm every night, then you are over-scheduled. Some of that over-scheduling is undoubtedly the result of trying to fit in too much training to the mix.

Take a pro cyclist who trains 25-30 hours per week. Now, take that same athlete and whittle his training hours to 5-8 hours per week. That athlete can realize greater than 90% of the fitness he would gain through the larger training volume. By maximizing the use of a smaller training volume, any athlete can make significant progress in fitness. In fact, when you eliminate the stresses involved with trying to cram everything in to an already busy day, progress in fitness can actually be greater.

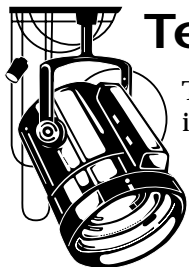
I'm finding this out for myself at this time. For triathlons, I used to train 25+

hours per week when I raced professionally. Now, as a father of two and with a newly resurrected approach to racing, I've decidedly kept training and competing as a hobby. I train about 6-8 hours per week now. Last year I raced twice and was very surprised at the results. And it was very fun.

So, if you're tearing your hair out and wondering how you're going to "fit it all in", then I encourage you to cut back on your volume, give yourself some breathing room and bring a smile back to your face. I think you'll be pleasantly surprised at the results.

Nate Llerandi is a former national class swimmer/world class triathlete who, after a 5-year retirement from the sport, is getting back into it. He has been coaching since 1990 and creates programs for athletes of all sports and ability levels.

ATHLETE SPOTLIGHT



Team Tampa Bay Thunder

by Steve Born

This issue's interview/profile is with Team Tampa Bay Thunder, one of the adventure racing teams

E-CAPS is sponsoring.

Adventure racing, as you know, is becoming hugely popular and is certainly a sport where so many factors, including proper nutrition, determine not only success or failure, but health and survival as well!

Team Tampa Bay Thunder consists of 37 year old business owner Jim Hartnett, 40 year old U.S. Navy SEAL Mark Barry, 32 year old marine biologist Jessica Koelsch, and 38 year old computer networker Paul Meliodosian. I was able to reach Jim, Mark, and Jessica and asked them a few questions about their team and chosen sport; here were some of their responses...

Q: How long have you been involved with adventure racing and how did you get "bitten" by this extreme sport?

Jim: I heard about adventure racing in 1999. After one race I was hooked. I can remember running/biking through the woods with a smile on my face because it was such a good time.

Mark: I started a little more than three years ago. I competed in military-only events run by the U.S. Special Operation Command and began racing in sanctioned events in 2001. I like to compete and especially like to do things that challenge me mentally and physically. The "bug" bit me after I raced with a friend. After that race I wanted to do more races... and longer ones.

Jessica: I started in 1999 when I got talked into doing a Hi-Tech sprint race. With an athletic background in pad-

dling, rowing, backpacking, running, triathlon and many other things, it was suggested that adventure racing would be the perfect sport for me - they were right! I was immediately hooked after the first race. I was exhausted but delirious with excitement after we finished - it was the most fun I ever had in an athletic endeavor.

Q: How did Team Tampa Bay Thunder come into existence and what do you look for when putting together an adventure racing team?

Jessica: After racing with several different teammates, Jim, Mark, Paul and I became a team. We are a combination of comparable abilities, endurance, and personalities.

Mark: I think we look for someone who has the personality that will be compatible with other team members. The skills

RACE REPORT • Catching up with our athletes

Rishi Grewal Conquering Alaska

Braving subzero conditions and the mighty Alaska wilderness, I-o-n-g time E-CAPS/Hammer Nutrition customer (customer # 539!) Rishi Grewal overcame a late charge from a young Nordic skier to win the famous Iditasport 130. Grewal's time of 29 hours 20 minutes shattered the old record by hours and set a new standard for endurance only matched by the Iditarod sled dog teams that travel the same trail two weeks later!

Grewal, perhaps best known for his mountain biking exploits (he's the 1999 World 24-Hour Champion) is well accustomed to endurance tests. But Alaska presented numerous problems for the former National road and mountain bike champion. "The weather was paramount, I simply had to stay warm throughout, and with temperatures that can hit -30 degrees F you need to carry the gear just in case of emergency." There were to be no emergencies, except for minor frostbite. Grewal covered 132 agonizing miles to win unscathed but exhausted.

Trail conditions were soft due to three feet of new fall-en snow. Skiers had the edge on paper but after losing time with technical problems out of the start, Grewal

regained the lead at mile 30 and held off a fast approaching skier until mile 35. Grewal moved as low as third during the long night when lighter riders who could stay on top of the snow pack crust cruised past. At the first checkpoint Grewal warmed himself and beat the others out the door and into second place. One skier was still ahead as they headed up the Yenta River towards Skwenta Station. "This area is very remote and inaccessible in the summer. I was following the skier's tracks when they disappeared; he was lost, I knew for sure." So as the cold night wore on Grewal was the new leader with 70 miles remaining. He was able to hold off the skier until 6 miles from the finish. As the skier passed, they chatted briefly and Grewal verbally gave the skier the race. Deep inside however, Grewal knew he had a chance and would never give up.

Grewal, on foot, followed the skier and noticed the trail was firming up as the sun set. He was able to ride again and caught and passed the skier. "It was really a fantastic miracle, the trail set and allowed consistent riding. I put 20 minutes on the skier and knew that I had overcome all and would win."

James DeVoglaer Devo Delivers!

I get regular email results from one of our customers (and a good friend of mine) James "devo" DeVoglaer. Jim's an ultra marathon kayaker/paddler from Florida. Here are just a few.

Steve,

Check out my latest CRUSH at www.watertribe.com. [Jim won the WaterTribe Okefenokee Challenge]. Terrifically gruesome race with awesome pictures and most of all... **I used E-Caps products during my pre-race preparation and religiously during the race.** People are using words like "android", and phrases like "we're not sure he's human" to describe the way I can consistently HAMMER day-after-day.

Next race is February 25th. It is another 250-mile non-stop event from Tampa Bay to Key Largo, Florida.

Off to train the body and mind,

James H. "devo" DeVoglaer

Steve,

Yet another crushing victory! Mike Shea (E-Caps user) and I recently teamed up and obliterated the com-

petition in this year's Everglades Challenge. We logged 307 miles of intense paddling in extremely adverse conditions (cold front blew in with 35mph winds and temps in the 30's. This created nasty wave/wind/tidal conditions—full moon to boot—) and prevailed when others could not push on. The E-Caps products combined with a solid training regime and a rock solid race plan make the difference.

At any rate, we set a new record and pushed our mental/physical endurance envelopes further than ever before! Saint Petersburg Times ran a solid story on the race. Paddler Magazine is doing a bit on the race as well.

Mike and I are currently training for the 2002 Texas Water Safari. We are going where no man has gone before... we are trying to win the whole enchilada in a tandem boat! This means taking the big boats (5-6 paddlers) head on for 260 miles!

I'll keep you posted. You will see/hear great things my friend.

James H. "devo" DeVoglaer

Athletes....would you like the E-Caps/Hammer Nutrition community to know what you're up to? Send us a short email to graphic@e-caps.com (please put Race Report in the subject line) about your recent accomplishments and we'll try to include it in our Race Report

(Spotlight from page 5)

can be learned; the mental courage and commitment necessary can not.

Q: What is the hardest adventure race you've been in?

Mark: It was a sprint race we did last summer. It was my second race, the bike course was extremely technical, I bonked hard and could barely squeeze the brakes. That was my wake-up call to proper hydration and fueling.

Jessica: None really stand out. They all have been hard for varying reasons... I guess I'm still waiting for the "hardest race."

Jim: It was probably my first Coast-To-Coast race. Due to other responsibilities, I went into the race with little training and I was sleep deprived. There were times when I was falling asleep on the bike in the middle of the day, waking up in time to gain control.

Q: Is there a hierarchy to most teams such as a team leader who makes decisions? Is it left to the person with the best orienteering skills or is it a committee process?

Jim: Since we don't have a standout navigator, the navigating is more of a group process. Everyone's opinion is taken into account. During longer races, when everyone is going through various stages of alertness, the ones making the decisions are the ones who are more alert at the time.

Mark: Jim is the team captain and therefore I believe he has the final say, but we all provide input and try to qualify it as something more than a guess.

Jessica: For the most part one or two people take the lead (or take turns) serving as team navigator or the "captain" role. But with many of the decisions, everyone provides input – a dictatorship would not work with most teams.

Q: What is the hairiest/scariest moment you've had during an adventure race?

Mark: That would have to be the nine

hours we spent in the mangroves during the Bahamas race [Note: mangroves are certain trees or shrubs that grow in swampy ground along riverbanks. They are noted for having branches that spread and send down roots, which form more trunks and causes a thick growth over a large area]. We thought we could cut off about 15 miles of paddling if we could find a way through the mangroves instead of going around like we were told. Needless to say, we ran out of water suitable for paddling just as the sun went down. There was no way to go back, we would have never found our way back out. We took a bearing that would hopefully take us across the shortest path through the mangroves... chest high mangroves and ankle-to-knee deep water really sucks. All of our shins looked like we tried to shave them with old beat up shaving blades. We finally broke through at dawn and made it to the checkpoint. To our surprise we were in second place. The bad news? We were 2 hours behind the leaders.

“The skills can be learned; the mental courage and commitment necessary can not....”

Jim: Mark's answer is the same as mine – that was a long night. And we were 6 hours behind, not 2.

Jessica: Being stuck in the mangroves was not fun.

Q: What are the big aspirations for Team Tampa Bay Thunder?

Jessica: To place "in the money" at some of the "Big League" races against top racers in the world. This year, the Subaru Primal Quest in Telluride, CO will be our first international competition and expedition-length event. We have our sights set on more in the future such as Adrenalin Rush in Ireland in 2003 and the Discovery Channel World Championships.

Jim: I think the Adrenalin Rush is one of the most intriguing multi-day races right

now. It is not a close supervised race like some of the other big ones are so it is more of a self-reliant race. The cutoff points are tough and the weather can be chilling and wet. Just finishing the Adrenalin Rush is an accomplishment.

Q: Which of the E-CAPS/HAMMER NUTRITION products do you use?

Mark: Race Caps, Endurolytes, Super AO, Premium Insurance Caps, Liquid Endurance, Hammer Gel, Sustained Energy, and Hammer Pro Whey.

Jim: Enduro Caps are a necessity. I won't race without Hammer Gel and I am starting to use Sustained Energy more.

Jessica: Cardio Caps, Enduro Caps, Race Day Boost, Endurolytes, Sustained Energy, and Hammer Gel (especially chocolate, raspberry, apple/cinnamon, and espresso)

Q: What advice can you give someone wanting to get into adventure racing?

Jessica: Start small and go big.

Mark: Train and compete. You have to experience it first hand in order to understand it.

Q: Last question... which race do you see as being the toughest?

Jim: I think what I mentioned earlier about the Adrenalin Rush makes it one of the toughest challenges out there.

Jessica: Definitely the Raid Gauloises. Although the Eco today brings certain challenges and has done a lot for the sport in general, the Raid embodies the true nature of the sport. It is longer and more grueling. I think the Raid will always be the pinnacle event for adventure racers.

Mark: I recently saw the Discovery Channel World Championship in Switzerland. I can imagine that one would rank right up there. From my experience as a SEAL the cold is the most difficult environment to operate in.

ENHANCING LEAN MUSCLE MASS GAIN AND FAT MASS LOSS

by Bill Misner, Ph.D.

Ever wonder how, why, and where the flat stomach, thin thighs, and slim hips of your youth disappeared beneath a blanket of fat? There are a number of metabolic mechanisms known to influence body composition outcome. Lean and fat mass are remarkably dependent upon two hormones. Age-induced decreases of human Growth Hormone [hGH] and Testosterone increase adipose tissue storage rate in both the abdomen and hips. Interventions for stimulating increases in both hormones metabolically may result in significant, yet safe, control over body composition outcome. Taking an exogenous hormone supplement is unsafe, often not predictable, and not recommended, unless monitored by a physician through objective blood lab tests. The purpose of this article is to discuss some of the safe natural means to elevating Testosterone [T] and human Growth Hormone [hGH] during strength or speed interval training phases respectively. Hormone elevation intervention should only be practiced in limited interval time periods due to the potential risk of excess hormone levels having a mutagenic opportunity in some, but not all, predisposed individual athletes.

HOW DIET INFLUENCES TESTOSTERONE

Diet and caloric intake influence the amount of Testosterone produced. Diets higher in protein, cholesterol, saturated fat, and total fat content tend to maintain higher Testosterone levels. One study showed that decreasing fat calories from 40% to 25% while decreasing saturated fat and increasing polyunsaturated fats led to decreases in both total Testosterone [-18%] and free unbound Testosterone levels [-15%]. Upon resuming the original higher fat intake, Testosterone levels returned to original values. Subjects in this study ate -500 fewer calories on the lower fat diet, implicating both fat selection and caloric

restriction with decreased Testosterone. From this and other research, though, it's obvious that eating an adequate amount of fat and cholesterol is necessary to maintain Testosterone levels. Eating large amounts of saturated fats and cholesterol is not recommended for maximizing T-levels, but during muscle growth phase, eating a diet of about 30% fat with some saturates and unsaturates, as well as cholesterol will enhance testosterone from a dietary perspective. What about the harm from eating too much of the "Bad" fats? Intense training may be cardio-protective against the negatives from moderate amounts of saturated fat and cholesterol foods. Research suggests that those who consume more protein have higher Testosterone. Those who eat more protein typically consume more animal foods higher in fat and cholesterol.

EXERCISE AND CALORIC ENERGY BALANCE

Negative energy balance [through hypocaloric dieting or extreme exercise expense] is associated with very large decreases in Testosterone. Army Rangers going through summer training in climates like the forest, the desert, the mountains, and the swamp lands were given only 1000 to 2000 calories per day while their bodies had requirements of about 5000. As a result of extreme training and under nutrition, these soldiers had Testosterone levels that "approached castrate levels". SHBG increased +67% and testosterone decreased 350%. SHBG and Testosterone returned to normal within 7 days normal eating patterns. This is also observed in endurance activities such as running. Ever wonder why runners are so lean? In a study done comparing elite distance runners with sedentary men, it was interesting to note that at rest, the sedentary men had 54% more total and free Testosterone in their blood than the runners. It seems that most volume-training athletes have lower levels of T. The volume threshold

appears at about 8 hours of exercise per week.

In another study, the runners training at a higher intensity had a larger free Testosterone increase in response to the running, while those training at low intensity produced none. Refer to **Table A** for the results of this study.

Intense running (80% of max HR) leads to increases in free Testosterone similar to the increases seen with resistance training. Testosterone levels tend to decrease proportionate to intense continuous running or a very high volume of exercise greater than 8 hours per week.

Researchers who examined the relationship between cycling cadence rate and Growth Hormone level reported that an intense single 30 second sprint produced remarkable hGH increases. The first fast-cadence 30-second sprint produced nearly double the hGH levels of second or subsequent slower cadence efforts: "Ten male subjects completed two 30-s sprints, separated by 1 hour of passive recovery on two occasions, against an applied resistance equal to 7.5% (fast trial) and 10% (slow trial) of their body mass, respectively. Blood samples were obtained at rest, between the two sprints, and for 1 hour after the second sprint. Peak and mean pedal revolutions were greater in the fast than the slow trial, but there were no differences in peak or mean power output. Blood lactate and blood pH responses did not differ between trials or sprints. The first sprint in each trial elicited an average serum GH response of 40.8 mU/l versus only 20.8 mU/l in the slow cadence effort. Serum hGH was still elevated 60 min after the first sprint. The second sprint in each trial did not elicit a serum hGH response. There was a trend for serum hGH concentrations to be greater in the fast trial (mean GH area under the curve after sprint 1 vs. after sprint 2: 1,697 vs. 933 min · mU/l · l1. Repeated

(Enhancing from page 8)

sprint cycling results in an attenuation of the hGH response.” *This would suggest this training method for enhancing hGH levels following a warm-up, favors doing a single 30-second all-out sprint [or a fast lift set]. Hypothetically, such a protocol practiced early in a workout could potentiate exercise-induced hGH release, resulting in a higher rate of lean muscle mass growth and an increased rate of fat mass loss.*

HUMAN GROWTH HORMONE[hGH] RELEASE MECHANISMS

The metabolic pathway for human Growth Hormone is complex:

hGH>IGF-{Liver}>DHEA{Adrenal}>TESTOSTERONE + ESTROGEN

hGH is produced by the anterior pituitary gland. IGF-1 is a secondary resulting hGH-induced metabolic hormone produced responsively by the liver. IGF-1 and GH work in feedback order; IGF-1 levels increase in response to hGH. When IGF-1 levels increase to high levels, hGH levels correspondingly decrease. IGF-1 is used as a standard to measure GH levels since it is a reliable metabolic pathway related to hGH physiology. hGH is responsible for the regulation of numerous important biological functions. Research on injectable hGH at high concentrations consistently shows that approximately 60% of the subjects have increases in their IGF-1 levels, 20% would exhibit IGF-1 decreases, and 20% do not change. hGH regulates and balances not only IGF-1, but also every other hormone in the body directly or indirectly. That is why hGH is called the master hormone and the pituitary gland – the master gland.

ESTROGEN, PROGESTERONE, MELATONIN, DHEA, and THYROID Hormones each “influence” hGH’s hormonal outcome:

1. ESTROGEN slows the loss of minerals from bones, increases blood clotting, decreases oxygen metabolism,

(see Enhancing on page 10)

Table A

INTENSITY-DURATION—SEDTARY RUNNERS—ELITE RUNNERS			
80% HR max	120 minutes	47% increase	76% increase
80% HR max	20 minutes	31% increase	62% increase
50% HR max	120 minutes	0	0
50% HR max	20 minutes	0	0

Table B

AVERAGE PLASMA INSULIN-LIKE GROWTH FACTOR-1 [SOMATOMEDIN-C LEVELS]

GENDER	AGE	LOW	HIGH	UNITS
FEMALES	12-15 YRS	261	1096	NG/ML
FEMALES	16-24 YRS	182	780	NG/ML
FEMALES	25-39 YRS	114	492	NG/ML
FEMALES	40-54 YRS	90	360	NG/ML
FEMALES	>55 YRS	71	290	NG/ML
MALES	12-15 YRS	202	957	NG/ML
MALES	16-24 YRS	182	780	NG/ML
MALES	25-39 YRS	114	492	NG/ML
MALES	40-54 YRS	90	360	NG/ML
MALES	>55 YRS	71	290	NG/ML

Table C

INHIBITORS OF hGH	ENHANCERS OF hGH
Somatistatin	Reduce BMI by 1.5 = 100% hGH boost
Sugar, Carbohydrates, Insulin	Protein, Glucagon
Fatty Acids	Fasting, Niacin B-3
Sleep Loss	Deep REM Sleep
Inactivity	Activity
NSAIDS	(Sprinting, Resistance, Endurance Training)
Caffeine	ph-Changes
Alcohol	Vibration Stimulus
Depression	AMINO ACIDS PRECURSORS*
Cold Weather	Elation
Virus/Bacteria	Hot Weather
	Peak Health
	Minimal Viral Or Bacterial Counts

Table D

APPROXIMATE hGH LEVELS RELEASED [m/UL]
From 8:00 AM to 9:00 PM.....15 m/UL=[awake] 16% in 11 hours
From 10:00 PM to 8:00 AM.....78 m/UL=[DEEP REM Sleep!] 84% in 10 hours

(Enhancing from page 9)

and when too high it is known to be a factor in breast and uterine cancer.

2. **PROGESTERONE** is essential to metabolize glucose, increase bone formation, stimulate regeneration of heart cells, and suppress cancer.

3. **MELATONIN** from the pineal gland stimulates growth hormone release, reduces free-radical damage, effects biological rhythms, and enhances the immune system.

4. **DHEA** (dehydroepiandrosterone) is a powerful hormone in brain function and the most abundant blood serum hormone. DHEA is the precursor to hormones that regulate metabolic functions. DHEA declines with age. Low DHEA is linked to diabetes, obesity, high cholesterol, heart disease, arthritis, and age-related degenerative symptoms.

5. **THYROID HORMONES** regulate metabolism. Low levels of Thyroid may result in chronic fatigue, weight gain, low body temperatures, or depression may occur. Thyroid hormones can also be extremely useful in overcoming decreased metabolism associated with long-term obesity. However, due to potential negative side effects, this hormone should only be prescribed and monitored by a physician.

The signs of hGH deficiency are reduced lean body mass and mineral bone density, increased body fat, decreased HDL, increased LDL, reduced renal plasma flow, reduced muscle bulk, decreased exercise performance, reduced extra cellular fluids, increased waist to hip ratio, reduced basal metabolic rate, decreased muscle strength, reduced Anaerobic threshold. As we age, human Growth Hormone levels tend to decrease as noted by the normal reference ranges of **SOMATOMEDIN-C** or **IGF-1**, which is used to measure hGH, a pivoting hormonal mechanism in youth. Please refer to **Table B** for this information.

Aside from the time-induced growth hormone decreases, of which we have no control, what other factors within our control inhibit or enhance human Growth Hormone levels? Table C has a

listing of elements that enhance or inhibit human Growth Hormone levels.

***PRECURSORS** are the foundation "raw materials" from which the body produces its own GH. Some precursors are the amino acids glycine, tryptophan, arginine, ornithine, lysine and glutamine.

HOW DIET INFLUENCES hGH LEVELS

Approximately 85% of the Human Growth Hormone released occurs at night during deep sleep state. Increasing pituitary-released hGH may be the ideal means to improve hGH levels for maximizing lean muscle mass synthesis while increasing the rate of fat metabolism. Refer to Table D for the approximate hGH levels released throughout the day.

GROWTH HORMONE PRECAUTION

A little is good, but too much is... One study in chickens over-injected with too much hGH resulted in catabolism with a distal implication of increased mutagenic activity. One study shows a pathway by which GH impacts on thyroid hormone metabolism beginning at a pre-translational level, with reduced hepatic 5DIII gene expression, translating to reduced protein (enzyme) expression, and reflect a reduced level of peripheral T3-degrading activity, which contributed a decreased conversion of T3 to its inactive form, thereby elevating circulating T3 levels. The hyper-T3 state leads to reduced net skeletal muscle deposition, and may impair release of hGH-enhanced, hepatic IGF-1. hGH may have significant biological effects in the chicken in which profound metabolic actions predominate that may confound positive, IGF-1-mediated skeletal muscle growth. Since this application has not been determined safe for humans, it is suggested that we keep hormone levels balanced until more evidence is conclusively collected.

PRACTICAL APPLICATIONS

When an athlete enters an intense strength or interval training phase for 1-

3 days per week, the following interventions may increase the levels of testosterone and growth hormones contributing to significant lean muscle mass gains and fat mass loss.

GUIDELINES FOR INCREASING NIGHTTIME RELEASE OF hGH:

- Avoid eating a high carbohydrate/high fat meal at dinner, after 7:00 PM or as a nighttime snack, resulting in GH-INHIBITION in the evening and morning.
- Insulin too high (caused by eating too many carbohydrates).
- Fatty Acids too high (caused by eating too much fat).
- Excess body fat may be increased by eating too many carbohydrates and fats in late day.
- Ingest amino acid precursors on an empty stomach 60-120 minutes PRIOR to an intensity workout. Either ARGININE PYROGLUTAMATE LYSINE [APGL] 2400 mg increases hGH release 700% [8] or GLUTAMINE 2000 mg increases hGH release by 430% above sedentary values.
- MELATONIN dose of 3-10 mg may be taken 60-120 minutes prior to sleep in athletes over age 40, resulting in improved deep-stage REM sleep and enhancing both hGH quality and quantity. If a sleep cycle is already adequate, there is no need to take melatonin.
- AVOID ALCOHOL during strength-speed phase training; alcohol neutralizes hormonal influence during muscle synthesis.
- Speed interval training increases hGH hormone release from 1000-1500% above sedentary levels.

GUIDELINES FOR INCREASING DAYTIME RELEASE OF TESTOSTERONE:

(see Enhancing on page 11)

(Enhancing from page 10)

Consume 1.7 to 2.0 grams per kilograms of bodyweight protein.

- Include Whey Protein Concentrates immediately post-workout with a 2-4 gram dose of essential fatty acids ratio 2-3 parts omega 6 to 1 part omega 3.
- Evening meals should include lean red meats up to 3 times per week.
- Minimize endurance training duration during strength phase efforts.
- Caloric intake should be adequate to above normal levels; strength gains occur only when caloric intake is sufficient but are inhibited during a caloric deficit.
- Avoid alcohol during strength-speed phase training; alcohol neutralizes hormonal influence during muscle synthesis.
- Strength resistance low reps exercise may result in higher Testosterone release than high reps sets.

By practicing interventions to increase natural testosterone and hGH hormone levels during intensity or speed-strength sessions, a profound increased rate of muscle synthesis and fat mass metabolism may be evidenced in improved athletic performance, like when the subject was hormonally in their youth...

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RECOVERY IS KEY TO SUCCESS

by Nate Llerandi

The stresses we absorb from training are cumulative. We run hard at the track today, go easy tomorrow and are ready to go hard again the next day (usually). But the body doesn't forget about the abuse you just put it through. Every workout is catalogued in the muscles and nervous system, etc.

This is why it is very important to insert a recovery week every 4-5 weeks in your training. I train myself and my athletes on a 5-week cycle. I know that by the beginning of the 4th hard week, while I might feel fine and perform well, I'm also waking up with less enthusiasm for getting out of bed and hitting it. It's not, "Boy, I can't wait for my recovery week." Rather, I'm thinking, "I feel fine, but the thought of going hard today is not appealing at all." Yet, I complete the workout and it goes well.

My point is that the accumulation of fatigue is prodding me and letting me know that it's about time to give it a rest. So, after this week, I'll sleep a little

more, train a little less (and easier), and by the end of my recovery week, I'll be ready to burst out of the gates again - mentally and physically refreshed. And I'll notice a sharp uptick in the quality of my workouts versus those completed toward the end of the previous cycle.

It is the recovery week that allowed for this uptick. Your fitness either increases or decreases. Very rarely does it plateau. But, if you try to increase your fitness day after day, week after week, without allowing yourself consistent, periodic breaks, your fitness and performance will follow the stock market of the past year or so - a general death spiral down.

If you incorporate recovery weeks already - great job! If you don't - try it, you'll like it!

Nate Llerandi is a former national class swimmer/world class triathlete who, after a 5-year retirement from the sport, is getting back into it. He has been coaching since 1990 and creates programs for athletes of all sports and ability levels.

E-CAPS SPONSORS RAAM 2002

by Steve Born

E-CAPS/Hammer Nutrition are again the proud nutrition sponsors of ultra marathon cycling's premier event, the Race Across America (RAAM). This is the 21st edition of RAAM and this year's route follows the same 2,980-mile route as the previous two years, beginning in Portland, Oregon and finishing in Pensacola, Florida. Riders competing in RAAM will follow a course that will take them through every conceivable terrain and weather condition through Oregon, Idaho, Utah, Wyoming, Colorado, Oklahoma, Arkansas, Mississippi, Alabama, and Florida. The solo riders (8 men, 1 woman currently set to compete) will begin on Sunday, June 16th. The 2-person teams (4 total so far) and the 4-person teams (7 so far) will begin on Tuesday, June 18th.

There will be a new men's and women's RAAM winner crowned this year as last year's champions Andreas Clavedetscher of Liechtenstein and Cassie Lowe of Australia are not competing this year. Still, this should be an exciting race and it is believed that many RAAM veterans are expected to compete in 2002 although at the time of this article, most of the riders currently entered are RAAM rookies.

Outdoor Life Network will again be covering RAAM and with lots of RAAM riders using E-CAPS/Hammer Nutrition products, you'll probably see lots of those familiar jerseys and shorts. More information about RAAM can be found on the web site

www.raceacrossamerica.org

The Last Lap

MAILBAG!!!

I've been using E-Caps for over a year; Ed Burgess, a close friend and fellow racer hooked me with advice and product samples. EVERY TIME I've used advice from you all, the depth and expertise has blown me away. You have answered and guided in matters that my personal doctors have been stumped in for sometime, and answered them correctly. So I just wanted to say thanks for being the source you are and providing the products you do. This year you chose to sponsor my team, another reason for me to say thanks. I'll continue to buy and use E-Caps and Hammer Gel because

they work, they're put out by people who really know and care about what they do, and because I feel I can trust them and you. Due to my chosen vocation (Police Sergeant and SWAT team commander) trust is something I value in today's world. I'll be using your stuff 'til I'm no longer using anything, sponsorship or not! Thanks again, I really mean that! By the way, last summer while using your Race Caps,

Enduro Caps and Xobaline I managed a bronze at the World Police and Fire Games where over 10,000 cops and firemen competed...all during my normal racing season of 48 races!

John Fox, President
Hudson Valley Velo Club
Men's Cat 1,2,3 Team
member

