

EN ENDURANCE NEWS #16

ENERGY: HOW IT GETS THERE AND HOW IT IS SPENT!

A COMMENTARY

By Bill Misner, Ph.D.

What does an ancient man 4,000 years old, (and only 4' tall found frozen in a European Glacier), a Civil War Soldier and a Vietnam Soldier have in common? Answer: all three have stomachs that will hold 500 grams of food or 500 ml. of water. While military records show each of the average veterans were



5'8" tall, the Vietnam Veteran outweighed his typical Civil War Veteran counterpart by 18 lbs.

Human stomach volume has not changed in over 4,000 years, but lifestyle and eating habits have changed considerably. We are less active today, and eat foods that are processed into high caloric densities. The fat and sugar content is too high while the essential fatty acids and fiber are too low. Modern man's 18 lb. average weight gain that he or she carries is a health risk to the cardiovascular system, the endocrine system, and translates directly into unnecessary energy depletion for all of us, including the fit athlete! Compact consumption of high fatty foods, with high sugared foods, removes more quality energy from the human body than it deposits in the belted adipose tissues it creates.

(continued on page 10)

24 HOUR RUN INSPIRES ATHLETES

Portland's Lincoln Highway track infield took on the appearance of a family reunion one sunny September morning last year. Men and women enthusiastically greeting one another, at 7:30am no less! The friendly atmosphere belied the serious task ahead. This group of 25 runners and dozens of volunteers were gathered for the 11th Annual Megan's Run, a 24 Hour track event to benefit Sudden Infant Death Syndrome research.

Many of the group have participated in several Megan's Runs. Two, Bill McCracken of Milwaukie, Oregon and Terry Parker from Los Gatos, California, have participated in every event. Participants run or walk around the track for 24 hours, or as long as they choose. Prior to the event, they solicit per mile and flat pledges of support for their efforts. Well over \$300,000 has been raised in the eleven year history of Megan's Run. At this year's post-race awards breakfast, an Oregon scientist talked about real progress being made to determine the cause of SIDS and thanked the group for making his research possible.

Megan's Run was begun by Phil and Kathy Edmunds as a way to do something after the death from SIDS of their infant daughter, Megan, in 1984. The tragedy energized the Edmunds' efforts to organize an outstanding event, finely tuned to the ultrarunner's needs. After heading up Megan's Run for eight years, the Edmunds turned over run management to Hamilton Evans. Phil

and Kathy remain actively involved and are present during the actual event every year. Since 1988, Megan's Run has been part of the Portland Marathon family of events, increasing its visibility and fundraising.

When the participants tow the start line, many things run through their minds. Some want to achieve specific mileage goals, others plan to run for a certain length of time; a steady pace, no blisters, no nausea and all hope for cool, cloudy weather. Each participant secures his or her own lap counters for approximately 12-14 hours. Megan's Run provides healthcare volunteers who keep tabs on the condition of each participant, massage therapists, ample food and beverages, and night lap counters. All volunteers are rewarded with a tee-shirt. With so many people returning each

(continued on page 6)



NEW

HAMMER GEL PACKAGING AND FLAVORS

When Hammer Gel first came out and athletes began using it, the feedback was very consistent; love the product, hate the pouch. We knew that our pouch wasn't the greatest, but we also knew that it was only interim packaging until we could finish testing our bulk package. We believed that the single serving pouch was simply overkill. We also felt that a bulk packaging of the gel and a refillable, reusable 4-6 serving container was the answer to the litter dilemma that every athlete faces. With superior ingredients, a new packaging system and lower price, we feel that we have stepped up to the next level in the gel wars.

I am pleased to report that the new Hammer Jugs and Gel Flasks are in stock and moving as fast as we can produce them. The effectiveness of Hammer Gel and its lower cost are very important features, but the most important feature in the new packaging is the convenience it offers the user. No more carrying several pouches on a long ride. No more distractions while opening a pouch. No more sketchy moments looking to find a place to put the tab, squeeze the gel into your mouth or dispose of a sticky, messy pouch wrapper.

The thing that makes our system so easy and convenient is the custom designed Gel Flask made by Ultimate Direction in Idaho. This small bulbous container looks sort of like a plastic hand grenade. It is soft and squeezable, and has a wide mouth to make filling and cleaning a snap. The cap has a push-pull closure just like a regular water bottle you use every day. The awkward, risky pro-

cess of ingesting energy gel has now been reduced to the almost automatic action of taking a swig off a water bottle. The only difference is that the flask is smaller and is kept in a jersey pocket or custom gel flask holster (also made by Ultimate Direction, we offer them for \$7.50) instead of a water bottle cage. What could be easier or more natural?

Several of the other companies which sell gels, like GU! and Powergel, are offering the gel flask, too. The difference is that they still want you to buy pouches @\$1.00 to \$1.25 each, then empty the pouches into the gel flask. They also want you to buy the gel flask at a cost of \$4.00 each. So, you are still paying for all of the excessive packaging (pouches) and then paying more for the flask. Compare that cost to the Hammer Gel at \$.50 per serving, including the flask. Besides, filling from pouch to flask only solves the problem of using a pouch while riding or running, but it creates a new one. If you have ever tried this, you know that it's not exactly the definition of convenience.

The gel in pouches needs to be fairly



thick so that it doesn't all gush out after you tear the tab off and before you put it up to your mouth. In the flask, a gel that is too thick is hard to extricate. We have addressed that problem by reducing the viscosity of Hammer Gel so that it will come out of the flask much faster and easier. With our big Hammer Jug, filling your gel flask takes about 10 seconds while you are standing in front of your refrigerator.

In addition to the new 24 serving jug, 5 serving gel flask and unbeatable price, Hammer Gel now comes in 5 assorted flavors. Hopefully, everyone will be able to find at least a couple of flavors to suit their fancy. Raspberry, Un-Flavored and Espresso have been added to the original Chocolate and Vanilla flavors. Considering how bad some of the other gels on the market taste, a brief description of the new flavors might be helpful. The Raspberry flavor uses real, unsweetened, seedless raspberry puree. This gives it a natural taste like raspberry preserves, not artificial or synthetic at all. The Un-Flavored version has no flavor added but does have a little citric acid to reduce the sweetness. This flavor is bland and excellent for mixing with the other flavors. The Espresso, which contains 50mg of caffeine per serving, is a coffee lover's dream. It is bursting with rich coffee flavor with a hint of chocolate. Once you taste it, you'll be hooked. This is the only flavor which contains caffeine.

Call 1-800-336-1977 to order your Hammer Gel for \$12 per jug, including the gel flask. ■

MORE ON ENDUROX: THE PLOT THICKENS

Since our first article on Endurox appeared in issue #15 of Endurance News, we have two interesting bits of new information to report. First of all, after reading the article, several athletes called in to confirm that they too had experienced unusual cramping within a short period of time after beginning to supplement with Endurox. Secondly, this mysterious Chinese herb which no herbalists have ever heard of before is none other than Siberian Ginseng. This was already discussed on one of the on-line news groups, so it may be old news to some of you.

The anecdotal evidence linking Endurox use to abnormal muscle cramping would not be considered "proof" in scientific methodology that there is a causal link. However, I have heard such consistent stories from the athletes who have used it in hard workouts and/or races that I am convinced this is the case. The only thing I wonder is how many other athletes have experienced the cramping and not associated it with the product. Every athlete I spoke with after the last article came out had not been able to explain their sudden cramping problems.

So, my conclusion from the first article still stands: Endurox may be fine for your health club, "fitness" type of athlete who would like to shed a few pounds more quickly, but it is counterproductive for real, competitive endurance athletes.

Now that we know Ciwujua is just the Chinese name for Siberian Ginseng, this opens up a whole new issue regarding truth in advertising. There seems to be a concerted and very well planned effort to make the consumer think that this product contains some "exclusive" top secret ingredient that no other company can offer.

Ed Burke's several articles come to mind, as do the research papers as being purposely deceptive on this point. None of which give the reader any hint to the fact that Ciwujua is actually Siberian Ginseng. Ed has also contended that Endurox does not have stimulant properties. This is simply not true. All of the Ginseng roots including Korean, American and Siberian have stimulant properties. This is evident by the fact that they excite the central nervous system and accelerate metabolism.

If you are wondering why a company and its "experts" would employ such dishonest tactics, you needn't go any further than the money. This company is spending literally hundreds of thousands of dollars each month on advertising, which doesn't include the endorsement contract with Joe Montana. I'm sure he isn't doing it for free. This money is being spent based on the single source concept. If there is no other source for a given product, comparisons of cost and/or effectiveness are impossible. Add to this some studies with dubious protocol and you have a product which someone is willing to put millions of dollars into, expecting to make ten fold that much due to a monopoly.

I just hope that Endurox and it's spokesman Ed Burke are held accountable for deceiving athletes into thinking that Endurox is some sort of unique, miracle product. If not in the mainstream, at least in our world of competitive endurance athletes.

If you are still interested in using Siberian Ginseng as a weight loss aide, it is widely available in health food stores and herb shops. I would highly recommend making your purchase from one of these retailers instead of dealing with the dishonest people at Endurox. ■

TRAINING CAPS GET A NEW NAME: CARDIO CAPS™



Ever since we developed the Training Caps formula as an economic alternative to our flagship Race Caps formula, there has been confusion because of the names. Looking back with perfect 20/20 hindsight, I agree that any logical person would look at the two names and figure that Training Caps are to be used on training days and Race Caps on race days. Unfortunately, back in 1989 we weren't thinking so logically. So, instead of fighting a losing battle, we have decided to change the name of the Training Caps to Cardio Caps. I think this name is more fitting because the Cardio Caps formula is specifically designed to enhance and assist the cardiovascular system. The Enduro Caps compliment this by enhancing the muscular system.

We want everyone to be clear that this is only a name change and will not affect the formula in any way. When the new E-CAPS catalog comes in the mail, hopefully any questions you have about Cardio Caps or any of our 5 new products will be answered definitively. If not, please feel free to ask me or Dr. Misner. ■

A COMMENTARY ON CO-Q-10 USE BY ENDURANCE ATHLETES...

CO-Q-10 IS A FACTOR IN ENDURANCE PERFORMANCE, PLUS...

A POSITIVE ANSWER TO A NEGATIVE SUPPOSITION

By Bill Misner, Ph.D.

A question was recently imposed as to whether CO-Q-10 supplementation would improve running performance. CO-Q-10 as a supplement for endurance athletes, runners specifically, was denigrated in a one page brief written by Pete Pfitzinger, a graduate student and former Olympic marathon runner, in a recent issue of *Running Times Magazine*. The shallow "evidence" he used to support his position listed three studies which were short not only in number, but also in quantity and quality required for scientific method or conclusion. The ultimate test of validity of a scientific hypothesis is its consistency with the totality of other aspects of scientific framework. Examination of this "article" reveals several loopholes in the argument presented against supplementing with Coenzyme Q-10. In fact, when the literature for supplementation is examined, we find just the opposite to be true and the benefits of supplementation become obvious.

Now, let us examine each of Pfitzinger's three studies in detail to see if we can arrive at his "deduction."

STUDY #1: CO-Q-10

WILL HELP YOUR RUNNING!

Please note, it is assumed the author means "running," though the study he quotes uses the word "exercise." In this first study Pfitzinger initially reports that "VO-2 Max was no different than after taking the placebo." Then in his next statement, he contradicts himself, "Worse yet, in an endurance test at the end of the study,

the subjects actually became exhausted more quickly after Q-10 supplementation than after the placebo." This statement begs the question: "If VO-2 Max is a basis for endurance performance and it did not change, then how did the subjects become more exhausted more quickly?"

Research has proven that CO-Q-10 is essential for all muscular energy production. It helps transfer electrons in the energy cycle in the mitochondrial cells within the muscles. It is also vital in maintaining immunity, normal heart action, and cellular antioxidant functions. The body converts CO-Q to CO-Q-10 and also makes this valuable coenzyme from the amino acid, Methionine. The exceedingly high turnover of 2,000-3,000 calories which endurance athletes spend within one workout make it a good bet that CO-Q-10 is in maximal demand, and often, more than not, CO-Q-10 sufficiency may be depleted. Deficiency in CO-Q-10 has been well documented by modern science to cause a variety of diseases, illnesses, and disabilities. Heart patients are typically deficient in CO-Q-10. When supplementation occurs, exercise tolerance is increased proportionately. We will deal with deficiencies later, but for now let us return to "running" specifically. The University of Bologna performed a study using well-trained runners on a treadmill until they were exhausted. The 7-week study supplemented each subject with either a placebo or CO-Q-10. After retesting treadmill exhaustion rates, the runners who received the

CO-Q-10 ran 12% further and 8% longer than the placebo group. In this study, it was concluded decisively that CO-Q-10 supplementation enhanced endurance running performance significantly. Unfortunately, Mr. Pfitzinger decided to ignore this study and its conclusions.

STUDY #2: A COMPARISON OF LIKE VARIABLES FAVORS CO-Q-10 SUPPLEMENTATION

The second study which was quoted stated simply, "no significant differences between groups" of trained cyclists who took either a placebo or CO-Q-10 supplements. Improvements were recorded in VO-2 Max performance and several other physiological variables in both groups. This also begs the question, "If deficiencies did not exist in either cycling group during their 8 weeks of training, then would not one expect such improvements, or lack thereof?" A similar question an endurance athlete might ask is, "Does a study performed on cyclists who do shorter events with different muscle selection have application to prolonged exercise demands wherein more calories are spent, more coenzymes are needed and dissimilar muscle fiber selection is required?" Endurance running athletes use more slow twitch fibers in **eccentric** contractions, while cyclists use more fast-oxidative-glycolytic fibers in **concentric** muscle contractions. The caloric demands for a runner compared to a cyclist's energy expenditures are 5:2 (running to cycling).

(continued on page 5)

So far Pete's article has named "Running" (Running Times Publication) as its subject, but has listed "Exercise" in the first study, "Cycling" in the second study, and will name "Cycling" and "Running Economy" in the third study. **Comparative conclusions based on dissimilar activities are inconclusive by all valid, credible scientific methods.**

STUDY #3: CO-Q-10, A MAGNIFICENT FREE RADICAL SCAVENGER!

Fourteen men were studied for 22 days. This is an extremely short study for determining nutritional impact within human tissues. Seven were given a placebo, seven were supplemented with CO-Q-10. All-out cycling intervals were followed daily by both groups. "VO-2 Max and blood lactate levels were unchanged for both groups." Pfitzinger then stated that one group (placebo) exceeded the other group (CO-Q-10) by 12%, and in "running economy" at 4 different speeds. How could this occur if VO-2 Max and blood lactate levels did not change in either group? What and where is the application of all-out cycling intervals to endurance performance? What would one expect to result if a daily regimen of anaerobic training was performed, except for a huge tissue buildup of free radicals? Then, what would one group expect to be measured within blood serum samples of those who were taking a potent free-radical scavenger, but a large amount of creatine kinase spilling? Free-radical scavengers are known to restore optimum tissue homeostasis for repeated endurance performance, eliminating metabolic waste, balancing enzyme levels, auditing electrolytes, and matching or storing energy substrates.

CO-Q-10 IS A SHORT CUT TO ENDURANCE PERFORMANCE SUCCESS! (This is what the "Big Guys" of modern science have said.)

Frei et al., (1990), suggests that CO-Q-10 is a physiologically important lipid soluble antioxidant. Hawaki et al., (1991), observed that CO-Q-10 blood plasma levels may protect against atherogenesis. Kamakawa et al., (1985), stated that CO-Q-10 supplementation may reduce anginal episodes and improve cardiac function. C.W. Lapp in 1992 stated

***"The obvious
conclusion is CO-Q-
10 is a positive-plus
for all endurance
activities... so pass
the "RACE CAPS,"
and let's go
for a long one!"***

that chronic fatigue syndrome may be relieved by CO-Q-10 supplementation. Similar observations were noted by A. Goldberg in a published work in 1989. If fatigue is relieved by supplementation, then CO-Q-10 should be placed on the menu plan of all endurance athletes! Folkers et al., (1985), published a double-blind-crossover study which showed that supplementation with CO-Q-10 may be beneficial for increasing endurance and energy levels in patients who suffer from muscular and neuro myopathy. D.A. Hoffer (1989) suggested that supplementation with CO-Q-10 may benefit motor neuron disease. Those suffering from Diabetes Mellitus were shown to have improved insulin synthesis and blood sugar balance when CO-Q-10 supplementation was implemented; references are shown in the following (Kishi

(1976), Shimura (1981), Kihara (1978), Shigeta (1968).

A myriad of published clinical observations, experimental studies, and double-blind-crossover studies demonstrate the value of CO-Q-10 supplementation in the cardiovascular, cellular, neural, and muscular metabolism. The reader should note that no negative findings were found in the vast sea of published studies touting the value of this coenzyme for human consumption. Obviously, this is not to say that negative statements, (found within studies), against supplementation do not exist, but when such publications used to draw conclusions, they should be based on full accurate measurement of all the literature, quoted consistent with existing science, and validated in terms of their scientific hypothesis.

After an accurate, logical, correct survey of what formulated knowledge has to say about the use of Coenzyme Q-10 for application as a performance-enhancing supplement, the obvious conclusion is CO-Q-10 is a positive-plus for all endurance activities...so pass the "RACE CAPS,"* and let's go for a long one!

*Race Caps provides 75 mg. per capsule of Pharmaceutical Grade CO-Q-10, Ubiquinone, and is here listed because it is the Ergogenic personal choice used by the author. ■

REFERENCES

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Folkers K et al., Biomedical and Clinical Aspects of CO-Q-10, London: Elsevier Science Publishers, 1991: 513-520.

Werbach MR, Nutritional Influences on Illness, Third Line Press, Tarzana, California, 1996: (Multiple Study Quotes): 88-89, 214, 250-251, 443, 453.



On a rather normal Friday, E-CAPS experienced the most dreaded event for a direct marketing company, we lost our 800 phone service. "The number you have dialed is no longer in service or is not available from your area, please check the number again or ask your operator for assistance." That was the message that customers were getting when they called E-CAPS between 10:30am on Friday, February 20th and 2:00pm on Wednesday, February 25th. We apologize to you if you tried to call during this time.

I received faxes and calls from people who were concerned that we had gone out of business or something else terrible had happened. Rest assured, this was not the case. It was just one of those annoying phone company/computer glitches that took down the entire network of the company that was providing inbound telephone service to us. We have since switched carriers and can only hope that this doesn't happen again. ■

(MEGAN'S RUN continued from page 1)

year, it does seem like a family reunion!

In addition to support during the run, participants are treated to a delicious awards breakfast after Megan's Run is over. Hot showers are the first order of business and then food! While runners and volunteers replenish their energy stores, awards are handed out to mileage winners. All participants who raise at least \$1,000 in pledges receive a special gift, usually an item of quality sportswear. The top fund-raiser gets a special prize. Other acknowledgments are made and everyone is profusely thanked, with the wish that all will return next year.

Some impressive statistics have been chalked up over Megan's Run eleven year duration. Portland ultrarunner, Randy Stillman, holds the all-time mileage record of over 1,000 miles and has been the top finisher four times. Terry Parker holds the women's mileage record with over 800 miles run. Two runners have done Megan's Run and the Portland Marathon back-to-back - Bill McCracken (twice) and Steven

Pierce. Rae Clark ran the most miles in a single Megan's Run and set the US 24 Hour track record, 165 miles in 1990 (one of two years when Megan's Run hosted the TAC National 24 Hour Championship). Sue Ellen Trapp turned in the single top performance by a female in 1991 by running 136 miles. Bill McCracken is the top fund-raiser.

The 1997 Megan's Run is scheduled for the last weekend in September. New faces are always warmly welcomed along with those returning. It is a rare chance for a runner to do something he or she loves while truly helping society. For more information about Megan's Run, please write to Megan's Run Inc., P.O. Box 591, Wilsonville, OR 97070.

Submitted by "Wild Bill" McCracken, E-CAPS customer #3751 who used Hammer Gel during the 1996 Megan's Run to provide energy and nutrition while "running around and around in circles!" Besides being an ultrarunner, Bill is an accountant living in Milwaukie, Oregon. ■



**VISIT US
ON THE
WORLDWIDE
WEB**

For further E-CAPS
information or to order products,
please visit our web site:
www.ecaps.com/supplements/

Although our new 10th anniversary catalog is due out in the next week or two, we thought you might like to browse through the 5 new products that have been added to the product line.

LIQUID ENDURANCE

Increase Fat Utilization While Reducing Dehydration

This formula has been engineered to maximize fat burning while reducing dehydration during endurance training and competition using a liquid combination of L-Carnitine and glycerol. This dual action formula increases fat utilization as a fuel source and allows hyper hydration, a must for hot long races. It can be taken prior to exercise and mixed with your water or energy drink.

L-Carnitine is a vitamin like nutrient related to the Vitamin-B family and is a physiological substance essential for energy production. This takes place in the mitochondria inside the cell. L-Carnitine is actually responsible for the transportation of fatty acids in the cell.

Glycerol facilitates "hyperhydration" by increasing the body's ability to absorb and retain greater amounts of water than normal. This is accomplished by allowing increased storage capacity in extravascular fluid compartments, namely the interstitial fluid between cells and the extracellular fluid within cells. The benefits of "hyperhydration" are significant improvements in endurance and aerobic capacity.

12 fl.oz., 24 servings per bottle, \$17.95

Each tablespoon (1/2 oz.) serving of Liquid Endurance contains:

Glycerol 3,700 mg L-Carnitine 500 mg Pyridoxine HCl 5 mg



ANTI-FATIGUE FORMULA

Potassium Magnesium Aspartate

Deficiencies in potassium and magnesium contribute to muscle weakness, spasms, cramps, elevated blood pressure, rapid heartbeat and reduced glycogen production. As the name indicates, this compound consists of Aspartic Acid, an amino acid, synergistically bound to potassium and magnesium. Study after study has demonstrated the health and performance benefits of this compound. Maintaining intracellular levels of potassium and magnesium in the body is the key to beating mineral depletion related fatigue. Its primary benefits are reducing the energy your body must expend to maintain these levels within the cells and improves cardiac efficiency. More specifically, Aspartic acid is converted intracellularly into oxaloacetate, an important substrate in the production of energy from the Krebs Cycle. It is also a carrier of both potassium and magnesium into the cell. Our cells contain more potassium than any other mineral, totaling 250 grams in an adult body. Proper potassium levels are essential for maintaining fluid balance in our cells, enzyme reactions, conversion of glucose into muscle glycogen, nerve transmission, muscle contraction and hormone secretion. Adequate magnesium levels are critical for the flow of micro nutrients across cell membranes and for proper muscular recovery.

120 capsules per bottle, \$12.95

Each Capsule Contains:

Potassium Magnesium Aspartate 500 mg Potassium 55 mg Magnesium 20 mg

PREMIUM INSURANCE CAPS

The Undisputed Champion of Vitamin/Mineral Formulas

Premium Insurance Caps sets the standard for comprehensive dietary support. This elite formula features all chelated minerals, beta carotene for the vitamin A, a full digestive enzyme profile, plus Boron and Chromemate blended in a base of herbs and botanicals. This all capsule formula contains no binders, fillers or additives which might hinder absorption and bioavailability. In an exhaustive price comparison, we could not duplicate this formula in health food stores for less than \$177.00! Each daily dosage is split into two packets so that you can take them in the A.M. and P.M. This will also give you the versatility of using 1/2 dosages during the off season and for less active members of your family.

Athletes using Premium Insurance Caps do not need to supplement separately with Boron or Chromemate.

60 packets per container, \$49.95 - Two Packets Provide:

Vitamin A	(beta carotene)	25,000 iu	500%
Vitamin B-1	(thiamine hcl)	200 mg	13333%
Vitamin B-2		200 mg	11765%
Vitamin B-3	(niacin)	200 mg	1111%
Vitamin B-6	(pyrodoxine phosphate)	200 mg	9091%
Vitamin B-12	(cyanocobalamin)	200 mcg	6666%
Vitamin C	(calcium ascorbate)	1,000 mg	
	(bioflavonoids)	1,000 mg	3333%
		(2,000 mg) total	
Vitamin D	(D-3 natural D)	400 iu	100%
Vitamin E	(d-alphatocopherol acetate)	800 iu	8000%
Folic acid	(folacin)	800 mcg	400%
Iodine	(kelp)	225 mcg	150%
Magnesium	(Chelate)	250 mg	71%
Copper	(Chelate)	2 mg	*
Biotin	(d-biotin)	300 mcg	*
Pantothenic acid	(calcium pantothenate)	200 mg	*
Para Amino Benzoic Acid		200 mg	*
Potassium	(Chelate)	100 mg	*
Manganese	(Chelate)	15 mg	*
Chromium*	(chromium polynicotinate)	400 mcg	*
Selenium	(Chelate)	200 mcg	286%
Boron		5 mg	*
Choline	(phosphatidyl choline)	200 mg	*
Calcium	(Chelate)	500 mg	42%
Iron	(Chelate)	20 mg	133%
Inositol	(powder)	200 mg	*
Zinc	(picolinate)	30 mg	200%

*U.S. Recommended Daily Allowance for adults and children 4 year of age and older.

In base of:

Spirulina	510 mg
Echinacea	100 mg
Ginko biloba	100 mg
Alfalfa	100 mg
Lecithin	30 mg
Royal jelly	30 mg
Chlorophyll	30 mg
Ginger	30 mg



**Two Packets Also Provide:
Digestive Enzyme Profile:**

Betaine hcl	200 mg
Pancreatin	200 mg
Ox bile extract	100 mg
Pepsin (1:10,000)	50 mg
Papain	50 mg
Bromelain (200 gdu pineapple)	50 mg

All in a base of deep mined calcium phosphates, and vegetable stearates, plant cellulose and natural silica.

**Predigested, Peptide Bonded
Amino Acid Profile:**

Arginine	41 mg
+Leucine	121 mg
Histidine	25 mg
Isoleucine	65 mg
+Lysine	125 mg
+Valine	70 mg
Tyrosine	64 mg
Glutamic Acid	228 mg
+Tryptophan	36 mg
Aspartic Acid	63 mg
+Phenylalanine	52 mg
Glycine	5 mg
Cystine	14 mg
Alanine	56 mg
+Methionine	35 mg
Proline	82 mg
Serine	60 mg
Hydroxiproline	20 mg
+Threonine	39 mg
+Essential Amino Acids	

ENDUROLYTES, HEAT STRESS FORMULA

Increase Your Performance With Personalized Electrolyte Intake

Electrolyte depletion and imbalances are a chronic problem for athletes training and competing in hot weather. Energy drinks and fluid replacement products cannot provide enough electrolytic minerals to keep your body functioning properly in these conditions. This electrolyte formula can be taken as a supplement or mixed in any fluid replacement/energy drink to prevent fatigue, cramping and the rest of the negative effects of electrolyte depletion, even hyponatremia. It features our precise ratio of electrolytic minerals, in chelate form, for optimum absorption and utilization. Since electrolyte depletion is one of the most common ailments of athletes competing in hot weather, Endurolytes will be an important addition to your supplement regimen in the summer months.

120 capsules per bottle, \$12.95

Each 2 Capsules Contain:

Calcium (Chelate)	250 mg	L-Tyrosine	50 mg
Magnesium (Chelate)	125 mg	B-6 (Pyridoxine HCL)	20 mg
Potassium (Chelate)	100 mg	Manganese (Chelate)	5 mg
Sodium Chloride	100 mg		

TISSUE REJUVENATOR

Strengthen and Heal Connective Tissues

Tissue Rejuvenator was developed to help athletes avoid unnecessary injuries and reduce the need for them to rely on potentially harmful non steroidal anti-inflammatories (NSAID's). Besides the known dangers of stomach ulcers and intestinal trauma which can result from regular NSAID use, these "pain killers" only mask the symptoms. The body has a difficult time repairing joint and connective tissue because of lack of blood flow to these areas. This formula aims to treat the cause of inflammation and help the body to rejuvenate these low blood flow tissues. This formula contains a wide spectrum of healing compounds, including glucosamine sulfate, chondroitin sulfate, natural proteolytic enzymes and a synergistic, non stimulant, herbal complex. In combination, this formula has powerful natural anti-inflammatory properties and is beneficial for rejuvenating and maintaining healthy joints, ligaments, tendons, skin and connective tissue. With Tissue Rejuvenator, you may find using risky NSAID's to be entirely unnecessary.

60 capsules per bottle, \$19.95

Each 2 capsules contain:

Mucopolysaccharides & Precursors		Natural Proteolytic Enzymes	
Glucosamine Sulfate	500mg	Papain 200 (GDU)	50mg
N-Acetyl Glucosamine	50mg	Bromelain 1200 (GDU)	150mg
Chondroitin Sulfate	50mg		
Green Lip Mussel	100mg	Synergistic Herbal Complex	
		Boswellia Serrata	250mg
		Horsetail Herb	300mg
Isolated Amino Acid		Licorice Root	100mg
dl-Phenylalanine	200mg	Yucca Root	50mg
		Devils Claw	20mg

ANOTHER NEW NAME:

ENERGY SURGE IS NOW SUSTAINED ENERGY

In the ongoing effort to confuse E-CAPS' customers (just kidding) and find more accurately descriptive names for the products, we have elected to drop the name Energy Surge for our carbohydrate and protein energy drink. The new name of Sustained Energy does a much better job of explaining to athletes the benefits or type of results they can expect when using this energy source. Just like the Training Caps, now Cardio Caps, the formula that so many of you have come to rely on will not change at all.

Dr. Misner and I are currently testing some flavored versions, but we will always offer the original plain formula. ■

HOW AN ATHLETE IS THE EXCEPTION TO THE "RULE!"

The exception to this rule (with qualification) is in training-preparation for an event. Proper knowledge of how the body responds physically will assist the athlete in fuel selections that may mean the difference between exact fitness and "almost" fit. As an athlete becomes more fit, less carbs and more fatty acids will be selected efficiently for use in endurance activities. This is due to an increase in the concentration of the Enzymes which are associated with fatty acid metabolism in the mitochondria within muscle units.

During a competitive event, the body may spend energy at an extremely rapid rate. At 100% VO-2 Max, (all out effort), a fit athlete spends all stored muscle glycogen within 15 minutes. If the rate is slowed to 60% VO-2 Max, then the athlete will take up to 90 minutes to burn glycogen stores. At a 30% VO-2 Max rate, 240 minutes may be spent before all the carb is gone. That leaves the depleted athlete with little option but to burn lean muscle mass, the amino acids, or the vast stores of fatty acids (fat).

The human brain burns only glucose, as opposed to the lungs and kidneys whose only preferred fuel source is fatty acids. When muscles have lowered blood glucose levels via the exercise modem, the body switches into survival mode, converting muscle proteins L-Alanine, and the 3 Branched Chain Amino Acids (Leucine, Isoleucine and Valine) into blood glucose for brain survival. If brain blood sugar goes below a certain level, coma sets in to halt the entire mechanism which opposes brain fuel needs.

During all exercise performed above 95% VO-2 Max, muscle glycogen is

the total source of fuels, simply because the L-Carnitine-carrier of fatty acids across membranes cannot meet the muscle demands at that rate of expenditure...fatty acids conversion/transport is slow, while muscle glycogen conversion is very fast! During a 2 Hour effort at 65% VO-2 Max, fatty acids provide 39% of the energy in the first hour, but catapult to 67% by the 2nd hour. When 4 hours are spent at a 30% VO-2 Max rate, fatty acids provide 35% during the first hour, but increase to 62% by the 4th hour. Duration and intensity demands regulate how the athlete spends energy stores.

THE BEST WAY TO LOAD FUEL WITHOUT EXCESS WEIGHT GAIN

Careful examination of the downfall of American health will reveal that the culprit is excessive fat-weight gain caused by a diet composed of high glycemic processed foods, with little fiber and almost no essential fatty acids (fatty acids the body needs but cannot make for itself). Weight gain comes from sedentary living in between times of eating high glycemic foods. (High Glycemic Indexed foods above 70 are breads, potatoes, white rice, maltose from beer, honey, broad beans) Insulin is produced to sweep excess blood glucose from vascular system to tissue sites, where adipose tissues turn it into more adipose or fat. When not exercising, then eating such food raises body fat significantly, and may translate into adult-onset diabetes.

Exercising activates the expenditure of muscle glycogen stores enough that muscle cells deplete sufficiently that when blood sugar is insulin swept, they dominate absorption of blood glucose, converting it to muscle stores of glycogen. A window of 2 hours post-exercise exists for maximum uptake, but more re-

cently the "experts" advise the first 15 minutes after exercise are best for glycogen uptake in order to stimulate the Growth-Hormone-Insulin-Muscle Glycogen mechanism. (The GTHIMG-Mechanism is too complex for this paper and may be dealt with in a future writing.)

AN APPLICATION OF THE BROAD SPECTRUM 20:1 RATIO OF ENERGY SPENT IN ENDURANCE EVENTS TO THE IDEAL ENERGY INTAKE FOR OPTIMAL PERFORMANCE!

Post World War II German Sports Scientists espoused a theory that if a distance runner, such as a marathon runner, or 10k runner, would run one anaerobic mile for every 20 miles of aerobic endurance training, that training fitness would peak to optimum levels. That "theory" has stood the test of time and is today still being shown to be the optimum aerobic to anaerobic balance for producing the best results in all endurance sports from the 10k up in distances.

The fact that this 20:1 ratio refers to energy spent coincidentally has great merit when energy must be replenished. While a 2 hour window exists after energy depletion exercise, the first 15 minutes after the workout is when optimum blood flow to exercised muscles decreases as homeostasis is completed, and muscles are electro-chemically-hydrated to the minimal physiological equilibrium the body needs. When 20 parts Carbohydrate are ingested with 1 part Protein, (especially the Amino Acids lost during heavy Glycogen Depletion like the Branch Chain Amino Acids and L-Alanine), within the 15 minutes after exercise, Growth Hormone release from the anterior lobe of the Pituitary Gland has been shown to be at a maximal level.

(continued on page 11)

A mixture of natural Growth Hormone, a mild Insulin response, with the exact 20:1 mixture described above stimulates muscle cell absorption of inordinate amounts of Glycogen stores. This stimulates muscle cell rebuilding, refueling, and recovery 2 1/2 to 3 times faster than the normal rate in all three categories! Fat cells in adipose tissues are passed over for blood glucose absorption, because the blood chemistry mandates blood nutrients to where they are needed most, in the muscle.

HOW DOES THE ATHLETE MIX THE PERFECT RATIOS OF A 20:1 CARBOHYDRATE-AMINO ACID FORMULA?

If 3 packages or 3 servings of HAMMER GEL are mixed with 2 scoops of ENERGY SURGE, that amount provides exactly what a 150 lb. athlete needs to take after a depletion workout in order to recover and rebuild muscles at an extraordinarily fast rate. The total replenishment calories needed for your own personal situation in the 20:1 formula are found by dividing your total body weight by 2.2 = kilograms body weight. Next, multiply body weight (in kilograms) by 0.8 = Total Amount of Calories needed in 20:1 Growth Hormone recovery formula.

It is also recommended that athletes take E-CAPS Chromemate 200 mcg. chromium with this recovery/rebuilding formula, as Chromium GTF "Plugs" the carbs and amino acids in where they are needed. Without Chromium in ample amounts, some glucose and amino acids are lost to adipose tissues, which also converts them into like adipose tissue (fat). There are three permissible exceptions for intake of high concentrated calories: pre-event, during the event, and within 15 minutes after endurance training or competitive events.

Otherwise, healthy meals should include large quantities of raw vegetables, raw fruits, fruit and vegetable juices, high fiber breads, seeds, nuts, and foods containing the essential fatty acids such as flax seed oil, sunflower oil or other non-cooked seeds (cold pressed hemp seed oil is the best balanced oil having both w-3 and w-6 EFA's, while cold-pressed flax seed oil is a close 2nd) and low to NO animal fats. No more than 0.8 gm. per kilogram of body weight total protein should be



eaten per day, otherwise it is hard on the kidneys and may increase body fat stores if too much is eaten. However, you should note that this is quite a bit higher protein intake than most endurance athletes normally eat.

Avoidance of table sugar, fructose, and all dairy products will lower blood serum cholesterol levels within 1 week of practice. Table sugar breaks down into 50% dextrose, 50% fructose. Fructose is liver-processed for immediate cholesterol release. Milk sugar also gets rerouted to the liver where it is broken down into glucose and galactose, which tends to raise blood sugar levels. Should a meal include foods with concen-

trated, high glycemic indices, fiber may be taken with the meal, (any Bran from grains, Glucomannan, Guar Gum, Psyllium Seed, Fennel Seed, Pectin, Lignin), in order to lower glycemic response, preventing an elevated insulin event, which hinders recovery, depletes energy, raises cholesterol, and in the long term is not a good health practice.

LONG RANGE HEALTH PRACTICES CONTRIBUTE TOWARD OPTIMAL PERFORMANCES IN THE PRESENT AGE GROUP AND IN YEARS TO COME...

The E-CAPS ergogenic "Vision" priority is to benefit the health of the athlete first. Natural products without stimulants, carcinogens, pollutants, adaptogens, and the absolute minimum of synthetic materials are the "earmarks" of our product line. We went to great lengths (2 years) to bring you the most potent "green" product on the market. Why? Because we knew athletes typically do not eat enough of the vegetable-sourced (Phyto) nutrients. We condensed \$177.00 of the finest, most absorbable vitamins/minerals/herbs/enzymes/amino-acids into an affordable \$49.95/Month package. Why? We found that nearly all Endurance Athletes do not get enough of the support micro-nutrients which are critical for optimum health and performance. This ongoing deficiency causes plateaus in performance, injuries, and sickness from lowered immune response. We brought you healthy energy foods like the Torque Bar. Why? We saw athletes bonking prematurely while fighting body fat instead of muscle building by eating fructose filled "energy" bars and sugared drinks. We provide, at profit margins several times lower than the industry standard, a whole line of natural, safe, legal, ergogenics, which have been time-tested, per-

(continued on page 12)

(ENERGY continued from page 11)

formance-enhancing supplements. Why? Because we saw other products loaded with either "Snake Oil" (powdered sugar pills), or with USOC banned substances, which may enhance your performance, but HARM your health immediately or eventually.

Your success in your event may proportionately hinge upon your pursuit of energy from a standpoint of good health practices in the now time-zone in training for a sure resultant energy-withdrawal in the competition zone later! If you do it right, it's a sure thing.

Energy... when you spend it, there is a mediocre way to recapture it, there is a good way to recover it, or the BEST (Healthy) way to Maximum Load it to the fullest! E-CAPS believes that any compromise of your overall health will directly hinder your performance both now and in the future. ENERGY it is there for your event... use it, build it, and WIN with it! ■

Endurance News 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 to 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, EN 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
Editor

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

Page 12

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IN THIS ISSUE:

- ENERGY: HOW IT GETS THERE AND HOW IT IS SPENT
- 24 HOUR RUN INSPIRES ATHLETES
- NEW HAMMER GEL PACKAGING & FLAVORS
- MORE ON ENDUROX: THE PLOT THICKENS
- TRAINING CAPS GET A NEW NAME: CARDIO CAPS™
- CO-Q-10 USE BY ENDURANCE ATHLETES
- WORST NIGHTMARE
- MORE ON NEW E-CAPS PRODUCTS
- ANOTHER NEW NAME: ENERGY SURGE IS NOW SUSTAINED ENERGY