

Swiss Jura Marathon Report

59 year old Swiss Superman Shocks Field

By Howie Bergesen

Werner Schweizer placed an astonishing 5th in the 7-day, 202 mile Jura Marathon. Competing against Europe's finest alpine ultra-runners, this E-CAPS Super Hero endured through golf ball sized hail, hand over hand climbs, steep rock descents, heat and rain.

Werner was seen consuming Enduro and Race Caps while climbing the treacherous and majestic slopes of the Jura. He is especially fond of Hammer Gel, Premium Insurance Caps, Liquid Endurance and Surge (aka Sustained Energy). Mr. Schweizer has been an E-CAPS customer for the past 8 years.

This 59 year old Superman who learned fluent English while watching Oprah Winfrey reruns, got stronger as the race went on. Mr. Schweizer's hour total time was high lighted with a 4th place finish in the final 50k stage.

The Jura Marathon crosses the Jura Ridge Trail that borders Switzerland and France. This scenic run crosses meadows and peaceful pastures, climbs up and down steep mountains and traverses bubbly streams. Americans and other foreigners are treated very well. Each day's stage finishes in a different town enabling the runners to experience the local culture of the different Swiss towns.

If you are interested in participating in this thrilling event in 1999, contact the Swiss Marathon team at P.O. Box 431, CH-4106 Therwil Switzerland, or email peter.graf@datacomm.ch.

Preparations are already being made for next year and you don't want to be left out!

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THE AO (SUPER ANTIOXIDANT) FORMULA

Oxygen has the capacity to be both friend and foe. When fuels are metabolized in the presence of oxygen, 5% of them create molecules containing an odd number of electrons. If they are not neutralized by antioxidant body stores immediately, they relentlessly damage every cell membrane they touch. It is suggested that soreness and stiffness result as free-radicals and

waste metabolites accrue during prolonged or intense exercise. As increased oxygen volume passes into physiology for energy fuel metabolism, more free-radical fatigue symptoms are experienced. When does an athlete increase the volume of oxygen intake enough to bring about accumulative free-radical stress?

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1. All athletes doing workouts above their present fitness state. (Training induces higher tissue antioxidant stores, fit athletes are able to intake higher amounts of oxygen and metabolize more energy with less free-radical buildup.)

2. All Athletes who exercise more than 90 minutes. (As muscle glycogen stores begin to deplete, the opposite effect occurs so that free-radical elements begin to increase.)

3. All Athletes who inspire high amounts of oxygen in a relatively short space of time. Interval sessions, fartleks, and hill repeats significantly raise the rate of energy metabolite flux, free-radicals, and waste products. The body's cellular biochemistry is not able to meet and dispose of the former harmful oxygen induced by-products, hence more oxygen volume and more resulting harmful free-radical buildup.

Elite athletes employ "sharpening" techniques in their interval sessions to increase both rate of pace and duration prior to major events. Young, elite-level athletes utilize interval faster-than-race pace, shorter-than-race distances in order to increase muscle buffering substrates, fatty acid metabolism efficiency, and fast twitch and slow twitch muscle fiber contractile strength. And they do this progressively up to 3 times every 7-10 days! The age 40+ athletes are advised to attempt interval sessions no more than 1-2 times every 7-10 days, or 1 mile distance to 20 miles aerobic running, or a ratio of 5:90 minutes time-cycling. The more stress applied in addition to aerobic base training at a faster rate of pace, the faster the athlete will be able to perform during endurance demands.

As intervals are placed closer together with less rest between each, greater demand is placed upon the athlete's biochemistry, causing extraordinary mitochondria cell enzyme and coenzyme protective rebound in anticipation of additional membrane stress.

These stress-adaptive training protocols made famous by the great Arthur Lydiard, Franz Stampfl, and Forbes Carlile over the past 20 years, have produced numerous unpredicted world records. Whoever thought that a human

being would break 27 minutes in the 10,000 meter run, or run under 13 minutes in the 5000?

FREE-RADICALS HINDER HIGH QUALITY TRAINING

When a sedentary athlete begins to exercise, free-radical production increases from 12 to 20 times that of the resting rate. (Brooks 1984) The faster or longer the athlete exercises, the more oxygen-induced free-radicals are produced, causing tissue damage, fatigue, and pain. The "Univalent Reduction Pathway" produces superoxides, hydroperoxides, and hydroxyl free-radicals. The conversion of sugar, glycogen, and fat occur by oxida-



tion. During this process pairs of hydrogen atoms are released like guided missiles causing a small "micro-membrane-level war and destruction" to underlying tissues and cells.

Damages perceived from non-neutralized free-radicals are stiffness, soreness, lethargy, and lack of motivation the day or days following an intense effort. For 95% of all oxygen inhaled, no free-radicals are released during fuel-conversion, but 5% of them are "dirty". (Ernster 1986) Every 5 minutes during cycling or running, 15-20 breaths out of every 350-400 inhaled release 100% free-radical components in cellular tissues, where body stores of antioxidants must meet and neutralize them as they are produced. As body stores of antioxidants are depleted, regardless of pace, speed or duration, free-

radicals are permitted free reign creating more free-radicals as they circulate within the athlete's exercising muscle tissues. Human tissues naturally store three antioxidants for this purpose, Catalase, Super Oxide Dismutase, and Glutathione Peroxidase. Unfortunately, we endurance athletes tend to abuse our physiology to the extent that antioxidant stores are overcome with too much free-radical build up, and we are forced to either rest or face the likelihood of injury.

Lovlin, et al, (1987) measured plasma levels of Malonaldehyde (MDA) or markers of free-radical build up as noted above. During all-out 100% maximum oxygen consumption (VOXYGEN Max), they found an increase of 26% more free-radicals than could be neutralized immediately by body-stored antioxidants. When these same subjects exercised at 40% effort (VOXYGEN Max), they were actually found to be +10% less in free-radical build up than from their sedentary state. This is the scientific basis for "hard-easy" training protocols, and why an athlete should back off when morning resting heart rate is 10% higher than normal.

OTHER SOURCES

Free-radicals get into to all of us from air pollution, water pollution, herbicides, pesticides, food biodegradation, fat rancidity, ultraviolet radiation, and electromagnetic pollution.

Free-radical exposure is higher in athletes who:

- (1) Train beyond 90 minutes duration
- (2) Employ interval training methods (above 80% VO2 Max)
- (3) Have a high body fat percentage (above 15% - males, above 20% females)
- (4) Eat animal meats and dairy products
- (5) AGE: Older=More Free-radicals (above 40)
- (6) SIZE: Bigger=More Free-radicals (above 200 lbs)

FREE-RADICALS CAN BE NEUTRALIZED BY ORAL SUPPLEMENTATION

Bagchi (1997) assessed the free-radical scavenging capacity of several external substrates and concluded:

SUBSTRATE	FR INHIBITION RATE
Vitamin C	12-19%
Vitamin E (Succinate)	36-44%
Grape Seed Extract	78-81%
Super Oxide Dismutase & Catalase	83%

Animal studies show that a single bout of intense exercise to exhaustion reduces muscle glutathione, one of the three major antioxidants the body stores against free-radical accumulation, by a huge 40%! (Pyke 1986) Autopsies on some of these animal subjects revealed that, in fact, their glutathione stores were eventually overcome, resulting in extensive muscle cell damage. Normal workouts do not usually accrue that degree of free-radical buildup, but over time and with extensive overuse, quality of performance during intense endurance sessions is destined to fail proportionate to the free-radical content in tissues.

SOLUTION TO FREE-RADICAL POLLUTION

At age 58, I was "tired of being tired" from 100-200 miles of running per week, but I wanted to keep up with the younger set, at least in terms of "extreme" long running distances. If you are too tired to work, you begin to dread your next workout session, or your wife tells you to back off and rest, saying "you look so tired," then it's time to take overtraining and free-radical accumulation seriously.

In order to reduce free-radical buildup, I began to experiment with antioxidants, taking 12,000 to 16,000 mg. per day Vitamin C, 1600 IU of Vitamin E, 5000-10,000 units of Super Oxide Dismutase, and a 100 mg. Glutathione, 400-1000 mg. Gingko Biloba, 200-400 mg. of Gotu Kola to potentiate synergistically this "mix" into a SUPER ANTI-OXIDANT (AO) that really enhanced my rate of recovery. Using the SUPER AO formula in this, its crudest form, I was able to raise my mileage from a little over 100 miles per week (450-500 per month) to 227 miles for a whopping 701 miles run in 30 days! Fatigue was still present during such high mileage, but the performance boost was significantly better with a very tolerable quality of fitness gains. Free-radical build up may be the endurance athlete's limiting element to en-

hanced performance, but can be resolved by the inclusion of Super Antioxidants from external sources.

THE ECAPS SUPER AO FORMULA: WHEN AND WHY

When: After intense or prolonged workouts.

What is in it and how does each element work

- (1) SUPER OXIDE DISMUTASE (SOD): 5000 McCord-Fritovich Units. Enteric-coated for optimal absorption and availability to deep muscle cell tissues where free-radicals tend to accumulate. (Catalase, which normally accompanies SOD, is found in almost all cells, but may be found in its highest content in hydroponically-grown, concentrated wheat sprouts.)
- (2) GRAPE SEED EXTRACT (100 mg): Proanthocyanidins or a group of polyphenolic bioflavonoids, observed to biologically protect and act against all chemo-reactive oxygen-free-radicals.
- (3) GLUTATHIONE (100 mg): Normally produced by the human body from n-acetyl cysteine. Body glutathione stores are seen to decline with age, and have been suggested as a marker for measuring the aging process. The more glutathione content present the more likely you are to have many more years to live! (Varyshkin 1981)
- (4) GINKGO BILOBA & GOTU KOLA (50 mg each). These herbs combine flavonglycosides with active terpene lactones to provide the circulatory support for each of the free-radical scavenging agents.

CAUTION

While most hard training athletes will notice substantial benefits soon after commencing supplementation, some athletes may need to allow time for optimal antioxidant substrate saturation in the deep muscle tissue. Tissue antioxidant (AO) stores may require 90-180 days to reach maximum levels. Vitamin C, for example, if withdrawn from the diet, will register NO blood serum levels in 30 days, but

symptoms of Vitamin C deficiency will not occur until 60 days and scurvy will not occur until at least 90 days from initiating vitamin C deficiency. (Colgan 1986) So, improved rate of recovery may be noticed immediately by athletes whose dietary AO stores are being overcome by exercise-induced free-radical buildup. The sooner this supplement is taken during elevated free-radical exposure, the better the absorption rate, free-radical neutralization, and increased tissue storage capacity. Because this is a very potent formula, it is best to supplement at mealtime at the rate of 1 capsule per day for the first 30 days, then 2 capsules per day at mealtime during the next 30 days, and up to 2 capsules per meal 2 times daily in the 3rd month.

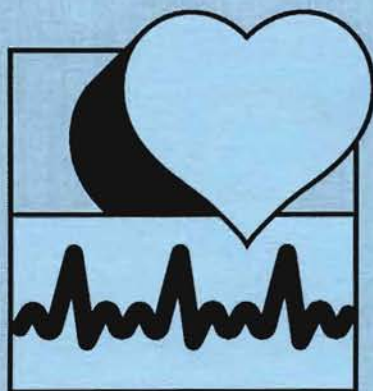
As with all oral health care products a related allowance for individual biochemistry, and contraindications for use should be subject to the advice of your licensed health care practitioner or medical doctor.

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The Doctor is IN...

To answer your questions



Creatine Loading Post-Workout?

By Dr. Bill Misner

Q. There are many creatine monohydrate supplements that contain glucose and electrolytes (sodium) to facilitate transport into cells. If these are taken as a post-race supplement, shouldn't the creatine be pulled into the cells along with the glucose and protein during the "increased uptake window?" Intuitively, it seems like there would be an advantage to this method. Has there been any research on this topic?

A. Hello "JR." You pose both a brilliant comment and query! The studies I saw suggest +10% Creatine (CM) absorption rates in athletes who consumed glucose with creatine loading doses.

It is reasonable to presume that the post-workout "window of opportunity"

might offer even more CM uptake.

As for "mixing" macronutrients, peptide degradation during the digestive process is known to occur in an acidic medium. Stomach HCL at 1.5-2.0 ph is ideal for multi-peptide structural breakdown to become tri-di- or mono-peptides for individual amino acid assignment to where they are needed at specific tissue sites.

Optimal carbohydrate digestion takes place in the more alkaline (6.8-7.4 ph) environment of the small intestine. Because carbohydrates and amino acids require opposite ph values for maximal utilization, they do better when consumed protein first, then carbohydrates 30-60 minutes later.

From oral intake to assignment, an amino acid is slower than its carbohydrate cousins, but when taken 30-60



minutes apart, the Insulin Growth Factor (IGF) "stimulates" permeation of amino acids to cellular tissue sites at maximal rates. The Colgan Institutes have performed several studies on this with both strength and endurance athletes. Insulin acts directly on muscle to drive in the amino acids. Diabetics are

negative examples of muscle wasting or lack of anabolic response from poor insulin blood serum levels. Millward and Rivers (1989) have established that the maximal muscle growth occurs in the presence of Insulin (*1). They suggested taking dietary protein separately but allowing no more than 30-60 minutes gap to stimulate optimal ph for digestion, then take carbohydrates for the increased insulin drive mechanism.

Others suggest taking the carbohydrate and amino acid together because the IGF-anabolic growth hormone response lasts for only 90 minutes, being rapidly filtered by the liver out of the blood serum content. You may have noticed we have formulated Energy Smart as a carbohydrate component in both Soy Pro-100 and Whey Pro-100 not just for flavor, but for the IGF-mechanism and how it "sponsors" the amino acid drive for muscle growth.

The use of sodium or electrolytes enhances the rate of carbohydrate gastric absorption, and may balance the dehydration or cramping reported by some athletes in the field. I recommend the use of a balanced electrolyte when loading Creatine for a big event.

This presents a contradiction in terms of use, of which I am the author: by one method, the body provides maximal digestive protein substrates, while the other method promotes these substrates to optimal muscle growth. Which way is best? The optimal muscle growth mixes carbohydrates in small amounts with the dietary amino acid while optimal digestive breakdown of dietary proteins to their tiny amino acids requires allowing a 30-60 minute gap between consuming amino acids and carbohydrates.

*1-Millward, D.J., Rivers, D.J.W., The need for indispensable amino acids: The concept of the anabolic drive, DIABETES METAB REV, 1989;5:191-211.

Q.

How Does Taking Vitamins and Minerals Affect

Performance

at Altitude?

By Dr. Bill Misner



A. In a recent study, it was observed that vitamin and mineral absorption has NO effect on athletic performance over a 30-day period, but after 180 days improvement in athletic performance was shown to be dramatic. (Colgan 1986)

Decline in hematological (red blood) status will effect your capacity to utilize oxygen. Three variables, (A) hemoglobin, the oxygen carrier, (B) hematocrit, the red blood cell blood composite, and the (C) actual red blood cell count (RBC) are critical for altitude demands. The principle nutrients involved in making RBCs are iron, folic acid, vitamins B-12, B-6, and C. Athletes who were observed taking an Optimum Daily Allowance (ODA) of these micronutrients improved their performance over a 12-week testing period (Colgan 1991), whereas the control group taking the Recommended Daily Allowance (RDA) did not significantly improve performance.

The human body produces replacement RBCs every 60-120 days. In 3-4 months all of your blood supply is replaced, while during any 6-month cycle, all your lean muscle mass proteins and DNA are replaced as well! The optimum daily allowance for micronutrients taken today and the next 179 days will contribute to enhanced quality of physique, RBC, and appropriate substrate-enzyme components for improving your athletic performance at any altitude.

Increasing athletic demands has

been shown to take a toll on the blood serum profile during hardcore training. Runners who were subjects in one study doubled their daily mileage from 8 to 17 miles per day. During the following 20 days all of these subjects showed dramatic reductions in hemoglobin content from excellent to marginal! (Dressendorfer 1981)

Endurance training specific to the type of course, altitude, or pace must be used if oral dose micronutrients are to be applied to athletic demands. The only ODA, balanced micronutrient formula that I know of on the market is the one made by E-CAPS Inc., *Premium Insurance Caps*.

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Do We Actually Need All of These Supplements?

By Dr. Bill Misner

Q. I'm a 50 year old forensic pathologist who has been doing triathlons for 5 years. I'm a middle-of-the-roader who is always attempting to better himself. I'm not sure what to make of all the pills and liquids, but I'm not too old to learn. I do take vitamins, plus extra C and E. Do we really need all of the extra supplements?

DR. JD

higher mileage efforts. The principal nutrient needs of iron, zinc, folic acid, Vitamins B-6, B-12, and C were not being met by their dietary intake. (*2)

Athletes in one of Colgan's studies were given either the optimal daily allowance (ODA) or the recommended daily allowance (RDA) of those nutrients necessary to maintain red blood status during excessive training protocols. The athletes ingesting ODA levels maintained their red blood status, improved their VO2 Max, and also experienced enhanced performances. The athletes ingesting RDA levels did not maintain red blood status, VO2 Max, or show improved performances. (*3)

Since DNA-cellular replication occurs in 6 month cycles, it is wise to supplement optimum doses of micro and macronutrients if, during that 6-month cycle, your expectations of optimal training are to be met. In other words, a "hard effort" deserves full replenishing of building blocks accompanied by appropriate fuel stores in order to attain greater energy in future exercise sessions.

The body has very precise nutrient

ducing free-radicals at high rates while depleting blood sugars at maximal rates. The lower the intensity and the longer the duration, the fewer free-radicals are produced and the more likely the "citric acid or Krebs cycle" will be operant, oxidizing large amounts of fatty acids with some amino acids and up to 80% of the stored muscle glycogen. Either way, cellular substrates are spent and must be replenished. If these nutrients are not replaced, performance will either NOT improve beyond its present metabolic plateau or it will deteriorate dramatically.

Performance gains from supplementation effect each of us individually, increasing performance benefits +1% for some, while boosting others to above +15%! Recently the United States Olympic Committee spent thousands of dollars on a high-altitude training camp to determine if they could manipulate training protocols to gain a mere +1% in performance. Their conclusions were that +1% was within reach from their training practice adaptations, and that these gains would put more Americans on the medal stands in the upcoming Olympic endurance

Death	Marginal	Sub-Optimal	OPTIMAL	Sub-Optimal	Marginal	Death
			100%			
	20%	75%		200%	300%	400%
0%						

A. My answer is an emphatic but qualified "Yes,...IF...those supplements required for endurance and strength exercise are being depleted during prolonged physical stress."

One of the studies done at the Colgan Institutes in San Diego supplemented runners to improve their hemoglobin, hematocrit, and red blood count (RBC). After 30 days, there was no improvement at all. After 180 days, all 3 indices were significantly increased. (*1)

Male marathon runners in another study doubled their daily running miles from 8 to 17 miles for 20 days. ALL the subjects showed large reductions in hemoglobin, hematocrit, and red blood cell counts, from formerly excellent on lower mileage protocols, to marginal levels on

requirements resembling a bell-shaped curve (see illustration below). Too much of a specific nutrient may do just as much harm as too little. Each dietary nutrient has a specific task to perform during metabolic processes. As that nutrient is depleted, efficiency is sacrificed until cellular function retards into failure, spasm, or necrosis (death).

Dr. A.E. Harper, former Chair of the RDA committee, stated, "RDAs are not recommendations for the ideal diet. The term, Recommended Allowance, was adopted to avoid any implication of finality, or Optimal Requirements."

Colgan stated, "If you use the RDA to plan your nutrition, you will never, never, reach your athletic potential."

The higher the intensity or rate of exercise, the greater the demands placed upon the anaerobic energy system, pro-

ducing free-radicals at high rates while depleting blood sugars at maximal rates.

ONE PERCENT is a big deal in an endurance event finish line! If a supplement is given proper time and trial, it should work for enhanced performance. If it does not work, you always have the option to send it back for a refund....on us.

REFERENCES

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The Endurance On-Line News Group

You have questions . . .
we have answers!

Q. I have a question about use of the supplements during long training rides and races. The suggested use is to take a dose every hour during multi-hour efforts. As a cyclist, I find it hard to carry the capsules in my jersey pocket. On a ride, I can always pull over but during a race I can't open a bottle and count out capsules, so I thought about opening them and putting them in my water bottles...kind of like sustained consumption. In reading the directions for use, the Cardio Caps say they are coated so as not to break down in the acids of the stomach leading me to believe dissolving them in my water is not a good idea. What are your thoughts?

Thank you., JK

A. Hello JK, That is an excellent question, and I am surprised that nobody has asked it until now.

An alkaline ph as found in the small intestine is what breaks down resin-like structures but allows them to pass through acidic-ph regions such as the stomach. As long as you are not exposing the contents of Cardio Caps to an alkaline environment such as Sea Water (ph 8.0), Baking Soda (9.0), Borax Solution (9.0), Lime Water (10.5) or Household Ammonia (12.0), the enteric coat will resist breakdown from acids such as lemon juice (2.0), Orange Juice (2.7), Coca Cola (3.0), Wine (3.5), Tomato Juice (4.0), Black Coffee (5.0), and Milk (6.8).

Mixing the Cardio Caps with water or Sustained Energy (SE) or Hammer Gel (HG) is fine...Do you know why? Water from distilled sources is ph neutral (7.0), neither acidic or alkaline.

Sustained Energy or Hammer Gel when mixed at 20% solution has a ph between 4.5 and 5.0. It simply is not alkaline enough to violate the enteric-coated product.

Several of our endurance riders re-



port remarkable success in mixing Race Caps, Enduro Caps or Cardio Caps during both long training and racing events.

*This question and answer exchange was originally posted to the Endurance On-Line News Group. Become a subscriber to our on-line service and see what your fellow athletes are asking.

Www.web Site Update

Hello fellow web surfers!

If you haven't noticed, we are working really hard on many improvements and changes to our current web sites. Feel free to visit us at:

**www.e-caps.com AND
www.hammernutrition.com**

On our E-CAPS site, we added a whole new look to the products department. You will now notice that it reflects our catalog almost exactly. We also added the past two Newsletters in the Endurance News section. Currently we are working on getting the Instructions page up to par. Also look for a whole new section on water quality concerns and purification devices.

continued on back

The Endurance On-Line Forum Are You Up To Speed?

This chat group is an invaluable resource that is completely free for you, E-CAPS/Hammer Nutrition customers, to use and benefit from. In case you are wondering, this is not just a sales gimmick. The questions and answers found in this issue of Endurance News are typical of the type of dialogue that readers see on the list.

To subscribe to the Endurance On-Line Forum all you have to do is send an e-mail to:

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In the body of the e-mail write "subscribe" without quotation marks. Do not put anything in the subject line. The list is also available in digest form. So, instead of receiving a message every time someone posts one to the group, you can receive just one e-mail which will include all of the posts for the past 24-hour period. To subscribe to the digest version follow the same procedure above except send your e-mail to:

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I know you will enjoy this informational resource and find it to be interesting, informative and educational.

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We are also working on a gallery web page. This will be a collage of pictures that you, the end users, have sent us over the years. If you have a good shot that you would like others to see, feel free to send it to us as a .jpg, or .gif image and we will happily add it. If you don't have the photos in a digital format, no problem, just send us a copy of the original picture(s) and we will scan them in for you.

Keep an eye on our web sites for these and new changes coming soon!

Surf on!!!!

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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 benefit 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.

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