

The 10 Biggest Mistakes Endurance Athletes Make

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This was one of the first articles I wrote and it was probably the easiest. Why? Because at some point in my cycling career I've made EVERY ONE of the mistakes listed in this article! Some of these seem so basic but you'd be surprised how many athletes keep making the same ones over and over, then wonder why their performance isn't as good as it could be. Take a good, thorough read through each of these common mistakes and see how many you might be guilty of. Identifying and correcting them can yield tremendous benefits in your overall performance!

1. Excess Hydrating

On the average, an athlete loses one liter of fluids per hour of exercise. This rate can differ widely based on many variables such as body weight, body mass index, temperature conditions, duration and intensity of exercise, and how well the athlete is acclimated to the conditions. Experts suggest that if an athlete consumes 16 ounces of fluids every hour during exercise, dehydration will normally be avoided in events lasting 3-4 hours.

But what about ultra-endurance events lasting longer than that? Now, in addition to potential dehydration, another problem arises ... over hydration. One well-known expert studied the performance of endurance athletes and noted that typically the front-runners tend to dehydrate, while those in the middle to back of the pack may be over hydrating. Both are suffering from a condition known as hyponatremia (low blood sodium). Over hydrating causes what is known as "dilutional hyponatremia," or an overly diluted level of sodium and electrolytes in the blood. In essence, this is as bad as under hydrating in regards to cramping, but with the added disadvantages of stomach discomfort, bloating, and extra urine output.

Far too often endurance athletes adopt the "if a little is good, a lot is better" approach. This can lead to significant problems when you're trying to meet your hydration requirements. All it takes is one race where you've had to DNF due to cramping and you start thinking, "Hmm, maybe I didn't drink enough." Next thing you know, you're drinking so much water and fluids that while your thirst is quenched, your belly is full beyond the point of comfort, and you're still cramping. Under most conditions, about 24 ounces of fluids per hour is the most your body can absorb and efficiently utilize. If you feel it is necessary to consume more, remember that you will need to consume even more electrolytes to offset the increase in fluid consumption.

2. Too Much Simple Sugar

For general health purposes avoid refined simple sugars, as these have a direct link with a myriad of diseases and ailments. For more on this, please read "113 Ways Sugar Can Ruin Your Health" on our website (www.e-caps.com). Simple sugar absorption into the

bloodstream will cause an excess burst of insulin. This excess insulin, once it reaches the liver, is converted to triglycerides. Triglycerides make up most of the fat that you eat and most of the fat that circulates in your bloodstream. They're essential for good health and your tissues rely on triglycerides for energy, but as with that other essential molecule, cholesterol, high triglycerides may also be linked to heart disease. Sugar in the diet has a proportionate relationship to elevating triglyceride levels in the bloodstream. Triglycerides comprise the largest proportion of fats (lipids) in the diet, in the adipose tissue, and in the blood. Eating excess sugar loads the body with excess calories that will eventually turn to fat.

The athlete's concerns have to do with this quick insulin spike. More than likely we've all experienced this quick burst of energy followed by the ensuing crash characterized by fatigue, lethargy, and mood swings, i.e., bonking!

Just as important, though, is the fact that simple sugars, unlike complex carbohydrates, take longer and require more fluid to empty from the stomach and GI tract. Osmolality is the solution concentration of particles carrying an electric charge. If the osmolality of the solution you are drinking deviates from body fluid levels of 280-303 mOsm [an osmolality unit measure], it will be delayed from absorption until gastric organs can either add more fluid or the electrolytes necessary to create osmolality within body fluid or blood serum level. Because a drink mixture containing simple sugar does not match the same osmolality of regular body fluid (unless it is limited to a 6-8% concentration) it will remain in the stomach until sufficiently diluted. This may cause stomach distress that is obviously detrimental to performance. Remember, there is a limited amount of calories a 6-8% solution will provide; usually no more than 100 calories, far too little on an hourly basis to sustain energy levels. A three-scoop, 15-20 % solution of SUSTAINED ENERGY will provide 343 calories, over three times more than a 6-8% solution of a sugar based drink, and still match body fluid osmolality (see chart). Both SUSTAINED ENERGY and HAMMER GEL are preferential fuel sources that contain no added simple sugars and will provide sufficient calories during exercise, without causing stomach distress. Using complex carbohydrates instead of simple or refined sugars in your diet will best fuel your exercise. In addition, solid foods such as bagels, sandwiches, and pretzels are all better fuel options than candy bars and other sugar-filled energy bars and sports drinks. The chart below shows the huge differences in the osmolality of various substances. Again, if the numbers for sports drinks or beverages deviate from normal body fluid osmolality, they will negatively effect gastric emptying and absorption rate.

SUBSTANCE OSMOLALITY[mOsm]

Water 10-20

Sweat 170-220

Gastric Fluids 280-303

*SUSTAINED ENERGY 280-290

*HAMMER GEL 290-300

Blood Serum 300

PEPSI-COLA 568

COCA COLA 650

FRUIT JUICE 690

*Approximates @ 15-20% solution by product weight to fluid weight.

3. Eating Too Much Solid Food During Exercise

In the 1985 Race Across America, Jonathon Boyer rode to victory using a liquid diet. Since then it has become the norm for endurance and ultra-endurance athletes. Liquid nutrition is the easiest and most convenient way to get a calorie and nutrient dense fuel. Solid food for the most part cannot match the nutrition of the best liquid food supplements. In addition, too much solid food consumption will divert blood from working muscles for the digestive process. This, and the amount of digestive enzymes and fluids required in breaking down the constituents of solid food, tax the body and can result in a feeling of bloating and/or nausea. In addition, a good portion of the calories from solid foods are used up simply to digest them; in essence, these calories are wasted. Some solid food intake is certainly OK and welcome during endurance exercise or races, particularly during ultras, but for a more rapid utilization of nutrients with less chance of stomach distress, a liquid energy source is preferred.

4. Staying With Your Game Plan When It's Clearly Not Working

Endurance athletes tend to be strong-willed and uncompromising. Most strive to have a game plan in place for training and racing. This is a good idea and something we strongly recommend. Problems arise when the athlete's game plan is no longer working, due to any number of unforeseen circumstances, but the thought of re-evaluating and making changes seems to be a worse idea than continuing along the same ineffective game plan.

Often, not only do athletes stick with the original game plan, they exacerbate it by doing more of what's not working. One of the more common times this happens is after a poor race. Many athletes think the cure for a poor race is to train harder and harder. Instead of recuperating and focusing on optimizing their training, many athletes will train themselves into the ground. This way of thinking, and its application, only digs a deeper hole for the athlete. Instead, the athlete needs to recognize the symptoms of over training and spend enough time recovering completely.

The most common symptoms of over training are irritability, restless sleep, elevated resting heart rate, and inability to reach peak heart rates during training. As an endurance

athlete, make sure that time spent recovering is taken as seriously as the time spent training.

Another time it's not a wise idea to stick to an original game plan that is no longer working is during an event. While it is important to maintain a fairly consistent supply of calories to the body, when it's hot outside the body's ability to process fuel becomes compromised. It's important to recognize this and to listen to your body. Continuing to force down "X" amount of calories an hour (the original "game plan"), even when your body cannot properly assimilate them, puts a burden on your stomach and can cause feelings of bloating and nausea or worse, which will most certainly hinder performance. During the heat it becomes more important to stay hydrated and maintain electrolyte levels, so be willing to cut back on calorie consumption. Body fat stores, which fulfill up to 65% of energy requirements anyway during endurance exercise, will also be able to accommodate fueling needs during occasional breaks from regular intervals of fuel consumption. During the heat, fueling is still important, but the focus shifts towards maintaining hydration and proper electrolyte levels. Resume regular caloric intake when you start feeling better and your stomach has had some time to assimilate the fuel it already contains.

5. Training On Too Few Calories

You may be training your muscles to do what you want them to do (riding 100 miles for example) but are you also training your stomach? If you want to be able to comfortably ingest "X" amount of calories per hour during a 5-6 hour (or longer) event, you need to be practicing that in training. Exercising at a maximum intensity level and assimilating a lot of calories hour after hour are not things that the body would normally prefer to do simultaneously. So, just like running or cycling far and fast, this too is a learned skill that requires the same amount of practice and attention to detail. Don't skimp on calories during training!

6. Consuming Improper Amounts Of Calories During Competition

In the heat of the battle it sometimes becomes hard to maintain the discipline of calorie intake. Endurance athletes can get so wound up with trying to keep up the pace that they sometimes forget to fuel the engine properly. Consistent intake of calories, allowing for adaptations due to weather conditions, provides consistent energy for the body, prolonging endurance and protecting the muscle tissue from being cannibalized. If you want to be strong in the latter stages of a race, you must consume sufficient calories in the earlier stages of the race. Caloric intake in the range of 200-350 per hour (from both carbohydrates and protein) is necessary to prevent energy levels from dropping. Again, as mentioned earlier, you will be able to determine what your caloric needs are only by practicing fuel consumption during training.

Conversely, taking in too many calories during competition can present a real problem. Even though your body is burning several hundred calories an hour, it cannot replenish them at equal rates from outside sources (your fuel). The body is only able to accept,

process, and assimilate a limited amount of calories per hour. Forcing additional food down, in the hopes of “topping off” or “getting ahead of” calorie needs, will usually, if not always, backfire. Instead of having more calories available for fuel, they will sit in your stomach causing at least bloating, or even worse, nausea and vomiting. Few things will slow you down faster than taking in more calories than your body can handle.

7. Not Taking Supplemental Electrolytes Consistently

An athlete who has suffered from painful and debilitating cramping usually need only cross that bridge once. While consuming enough calories during workouts is vital, it is equally important to provide the minerals necessary for proper cellular metabolism, cardiac function, and muscle contractions. All too often the endurance athlete finds out too late that these electrolytes have been depleted through bodily fluids and perspiration, the signs of which are muscle weakness, nausea, and cramping. However, that doesn't mean that athletes should indiscriminately ingest copious amounts of one or more electrolytes. The body has a very intricate and complex way of monitoring and maintaining proper electrolyte levels. Supplementing with only one electrolyte (sodium is usually the most misused) or consuming too much of one or more electrolytic minerals overrides body mechanisms that regulate proper electrolyte balance.

The solution is to provide the body with a balanced blend of these important electrolytes in a dose that cooperates with and enhances body mechanics. And again, sodium alone (meaning salt) cannot sufficiently satisfy electrolyte requirements. A blend of calcium, magnesium, potassium, sodium (in the form of sodium chloride), and manganese provides superior protection for the athlete's endurance training and competition, especially in hot weather.

Also remember that even when it's not 100 degrees outside, electrolyte replacement is still vital, as any cross country skier will tell you. You may not need as much as you would in hotter weather, but your body still requires electrolytes during workouts, especially when exercise exceeds two hours. Even if you've never cramped or don't see this as a real issue, there are other problems that arise from electrolyte depletion, problems that will negatively affect your performance.

A deficiency in calcium, for example, can lead to achy joints, heart palpitations, nervousness, and hypertension. A deficiency in potassium will manifest itself in muscular fatigue, diminished reflex function, fluctuations in heartbeat, headaches, and edema. The signs of magnesium deficiency include insomnia, chronic fatigue, poor digestion (to the point where the stomach will shut down), and irritability. A lack of manganese can result in excess perspiration, rapid pulse, and hypertension. During an endurance event, and in particular an ultramarathon event, these problems become more acute. Making sure your electrolyte needs are met will help you avoid not only cramping, but also a host of other potential disasters.

Finally, please note that there is no sports drink in existence that can provide electrolytes in appropriate amounts. Electrolyte needs can vary several hundred percent, depending

on heat levels, while caloric intake may only fluctuate by 25-50% and fluid intake may only vary 20-30%. This makes sports drinks, with their finite and inadequate amount of electrolytes and calories per serving, unacceptable for meeting the unique and individual needs of athletes.

Effective electrolyte replacement can and should come from a source independent of the caloric source. ENDUROLYTES, an encapsulated form of electrolytes, is the most complete, proportionately balanced, and highly absorbable way to provide these minerals to the body.

8. Consuming Too Much Protein During Exercise

During endurance exercise, approximately 10-15% of the calories required should come from protein. The problem with many meal replacement drinks that are being used as endurance fuels during exercise is that they contain too much protein with very little carbohydrate. The human body, while perhaps being able to handle 20-30 or more grams of protein in one intake, cannot tolerate that on an hourly basis during exercise. Too much protein fills the blood with too many amino acids. These excess amino acids are converted into carbon dioxide, water, and ammonia. It is the ammonia that is toxic to the body and is a primary cause of premature fatigue. While the body is equipped to handle excess ammonia by converting it to urea and filtering it through the kidneys, too much puts a burden on the kidneys. SUSTAINED ENERGY, containing 14.2% of its caloric profile as protein, is the perfect balance of carbohydrate and protein.

9. Not Consuming Any Protein During Exercise

The primary source of muscle energy production is adenosine triphosphate (ATP). Each muscle stores its own supply of glycogen, which is a long-chain carbohydrate having a chemical structure similar to the carbohydrates found in a common potato. When we exercise, the body has a much easier time of breaking down muscle glycogen into ATP than either fat or the limited amounts of protein donated from lean muscle mass. However, after about 90 minutes, (and becoming more important the longer a workout session or race is), the body will require protein for fuel as carbohydrate reserves are reduced.

This metabolic process, called gluconeogenesis, allows for the synthesis of glucose from protein (along with the glycerol part of the fat molecule). The body will cannibalize protein from muscle tissue if adequate amounts of protein are not ingested. This process not only deteriorates lean muscle tissue, but also hinders fat burning capabilities and speeds up the production of ammonia.

To prevent this from happening, the endurance athlete should make sure carbohydrate intake is consistent and that some protein is consumed during endurance exercise. Soy protein's amino acid profile and naturally occurring isoflavones make it the preferred choice during exercise. Soy is also preferable as it has less chance of producing ammonia than whey protein. SUSTAINED ENERGY provides a proper balance of complex

carbohydrates and soy protein, making it the perfect fuel for any endurance activity two hours or more in length.

10. Not Consuming Enough Calories After Workouts

After a hard workout or race, it's far too easy to neglect the proper replenishment of your body. Sometimes all you want to do is lie down and not move for several hours. As tempting as this might be, please take the time for recovery nutrition first, as this is the best time to provide your body with the carbohydrates, protein, vitamins, and minerals necessary for proper recovery. This is when your body is most receptive to replenishing nutrients because it is going into high gear to recover from and adapt to the stress it has just experienced.

Carbohydrate replenishment is especially important because the enzyme that controls glycogen storage (glycogen synthase) is most active in the brief period following exercise. Habitually consuming 100 grams of carbohydrates and 20-25 grams of protein within 30-60 minutes of completing a workout or race will replenish what has been used up during exercise and reduce recovery time. If you can plan to have a complete meal within the 60-minute post-workout window of opportunity, that would be ideal. If this is not feasible, then it is necessary to have a post workout snack ready. Four servings of HAMMER GEL and one to one and a half scoops of HAMMER PRO WHEY in eight ounces of water is a perfect solution.

This is also the best time to provide the body with cellular protection support in the form of antioxidants. Because athletes use several times more oxygen than sedentary people do, they are more prone to oxidative damage, considered a main cause of degenerative diseases. Consistent supplementation with a full spectrum vitamin/mineral supplement, high in antioxidants, along with any additional non-vitamin antioxidants, boosts and maintains the immune system and reduces recovery time.