

"First Endurance EFS: Not Just Another Sports Drink"

You know the sports drink market is becoming a marketing fad when even Kool-Aid is plugging a sports drink in the supermarket aisles. One company that continues to base their products on science rather than marketing is First Endurance, and their long-awaited Electrolyte Fuel System (EFS) adds to their arsenal of innovative racing nutrients...

Not ANOTHER Sports Drink!

As a physiologist who did his Ph.D. studying hydration during heat stress, it can really get ridiculous wandering down the aisles at the supermarket. When it's not fancy water that costs more than the petrol I pump into my car, it's an aisle loaded down with sugary drinks masquerading as sports drinks. It seems that our original scientific message of ensuring adequate hydration during exercise has become so popular and "diluted" (sorry, couldn't resist) that everybody has a bottle of sports drink surgically attached to their hip now. As a result, my personal suspicion is that many everyday people are actually adding unnecessarily to their caloric intake and doing themselves more harm than good.

So with this glut on the market, why would First Endurance bother locking horns with big multinationals like Pepsi (owners of Gatorade) and introduce their own sports drink?

Focused on the Market

As Mike Fogarty, VP of Sales and Marketing for First Endurance, explains, they already had highly regarded products like the supplement Optygen and the recovery drink Ultragen in their stable, and the last thing they were thinking was to introduce a sports drink. "For a few years, I really resisted the push to introduce a sports drink because there did seem to be a glut on the market. However, what made us reconsider was the overwhelming requests from our customers and sponsored athletes for a product that would address their needs and not the mass market." First Endurance's feedback from serious athletes was that they found existing products too sticky sweet. In addition, they were really interested in the use of amino acids, especially branched chain amino acids. "That's the terrific thing about working with a focused group of athletes like our sponsored pros and also our other customers. They're very educated about sports nutrition, and they provide us with excellent ideas," notes Fogarty.

Check the Label

Energy: the primary role of a sports drink is to provide energy during exercise, plain and simple. You're not trying to have delayed release of energy here, so the aim is to have a high-glycemic index source of carbohydrate in such a concentration that it empties from the stomach and is absorbed into the bloodstream as rapidly as possible. EFS follows this principle by using a 7% solution that is

within the established 6-8% ideal for absorption. They also use three carbohydrate sources of complex and simple sugars, speeding up absorption into the bloodstream compared to a single source of simple sugar.



Endurance: Beyond carbohydrates and electrolytes, the next frontier to sports drinks appears to be amino acids (the building blocks of proteins). Its inclusion, as demonstrated in a recent study comparing two popular sports drinks (one with, one without proteins), appears to benefit endurance. The mechanisms by which this occurs remains unclear, but one possibility is that particular amino acids, especially the family of branched-chain amino acids (BCAA), may alter or dampen the effects of tryptophan, a neurotransmitter that has been linked to mental fatigue during exercise. EFS opts for focusing on the amino acids glutamine, leucine, iso-leucine, and valine in fairly substantial doses for ease of absorption rather than bigger protein molecules.

Electrolytes: EFS has focused on two issues with electrolytes: 1) incorporating five (calcium, magnesium, chloride, sodium, potassium) rather than primarily sodium, and 2) increasing the amount of electrolytes compared to most drinks on the market. The thinking at First Endurance is that they're aiming at the endurance athletes who are performing prolonged and/or exhaustive exercise, and need the higher levels of all electrolytes to replace that lost through sweat.

A Conversation with Rob Kunz

After trying out EFS, I had the opportunity to talk with Rob Kunz, VP Research and co-founder of First Endurance about their ideas behind EFS.

Pez What are the specific applications that EFS is intended for? As an example, some drinks are geared more towards prolonged (e.g. 2+h) efforts, while others are geared more towards shorter exercise bouts.

Rob Kunz EFS is designed to be the foundation of your nutritional strategy regardless of the distance. In races of 3-4 hours or less, athletes can certainly use EFS exclusively with great success. As this time increases so does the caloric requirement. We still recommend EFS be used for long races though it's also necessary to supplement with additional foods, gels or other higher calorically dense foods. Through our work with Ultra Distance Runners who frequently race for 24 hours or more, we've been able to 'test' EFS under the most demanding circumstances and found it to work perfectly.

PezCycling News



Pez How should EFS be combined with other nutritional strategies during exercise (e.g., energy bars, water, gels) if at all?

RK Ideally EFS should be the foundation of your energy supply. Races of 3-4 hours or less you can use EFS exclusively. As the time increases adding a high caloric gel, bar or food serving once every 90-120 minutes seems to work well. In fact many athletes like to use Ultragen (320kcal) as their high calorie supplement during long races. Cyclists like Levi Leipheimer, Freddie Rodriguez and Ben Jaques Maynes will use a serving of Ultragen with 60 minutes to the finish of a stage. This helps set up their finish and begins their recovery process.

Pez You chose to have a high dose of vitamin C in EFS for its antioxidant effects. What is the strategy behind antioxidants in the sports drink during exercise as opposed to in the recovery process with Ultragen?

RK Ultragen also has Vitamin C in addition to vitamin E. EFS and Ultragen are designed to work synergistically to maximize performance and recovery. Athletes who partake in long hard exhaustive workouts and races subject themselves to suppressed immune function and increase the risk of upper respiratory tract infections. Though the data may be mixed there certainly is support for the use of Vitamin C to combat this. This allows athletes to train harder and race harder day in and day out. One of the biggest benefits we hear from our athletes is that they don't get sick nearly as often as when they trained without First Endurance products. The benefit of going a whole season without the downtime of getting sick is tremendous. Some new research further supports the use of antioxidants during exercise for various reasons.

A study by Watson et al. (2005) compared the effects of normal antioxidant supplementation with reduced antioxidant supplementation in acute, high intensity exercise of up to 40 minutes. The reduced antioxidant group noticed a three-fold decrease in antioxidant intake and caused the athletes to have a higher rating of perceived exertion and a lower antioxidant capacity and circulating antioxidant concentrations.

Another study examining the effects of ultrarunning (six long duration races in the desert) on antioxidant status found a major depletion of antioxidants during extreme exercise (Machefer et al. 2004). Blood draws before the race and 72 hours after the race showed significant decreases in erythrocyte superoxide dismutase activity and in plasma concentrations of retinol, beta-carotene and other carotenoids. This caused an imbalance between oxidant and antioxidant protection in this extreme endurance competition.

Of interesting note on the same topic was a study done that evaluated the effects of antioxidant supplementation (vitamins C, E and beta-carotene) on the basal iron status of athletes prior to and following their training and competition season, which lasted for 3 months (Aguilo et al. 2004). Not surprisingly, they found that training decreased antioxidant defenses in the athletes who were not taking antioxidants; however, of particular interest is that they also found decreases in serum iron and iron saturation in these same athletes. This may indicate that antioxidant supplementation may prevent the decrease of iron stores and that a link between iron status and oxidative stress could exist.

Pez How has feedback from your sponsored athletes and EFS users changed the product if at all?

RK The Feedback on EFS has been tremendous. We believe this product is our diamond in the rough. As people begin to test the effectiveness of EFS over other energy drinks they quickly come to realize the tremendous benefits. We've gone much further than simply supplying carbohydrates and sodium. The inclusion of all 5 electrolytes, Vitamin C and high levels of Amino Acids really puts this drink in its own category. At First Endurance we strive to be innovative with our product development and we have certainly done this with EFS. Every few months new clinical studies further support the formula and theory behind its formulation. In fact a new (Ohtani et al. 2006) study support the use of amino acids (see attached) in the formula. The only change we've had to make since its inception is to increase the intensity of the Lemon Lime flavor. Though its only been out now for a few months, our athletes and customers absolutely love the improvement.

But Does it Work?

There are two completely different but equally important considerations when deciding whether a sports drink works:

1. Does the science make sense? In the case of EFS, the balance of evidence seems to support the product. The inclusion of branched chain amino acid has scientific potential to improve endurance. The great thing about the First Endurance philosophy is that they base their products first on scientific merit. As they write, they don't believe in putting "pixie dust" levels of an ingredient simply for marketing.

2. Will you drink it? Just like bike fit, the best drink is useless if you can't stand the taste. Taste is a personal thing, but I found it very easy to drink in that the flavouring (tangerine or lemon-lime) was not so strong that it gets overpowering or tiresome with repeated use. It certainly was not as sticky sweet as some other sports drinks I have tried, and actually felt like I was drinking something substantial. I found that the suggested amount was easy to drink on both cool and hot days, whereas I typically dilute other drinks to avoid the sweetness.

Summary

Overall, I have to really give high marks to First Endurance. The research into their products is really extensive and based first on science rather than marketing. They do not pretend to cater to the mass market, so you're not going to see them crowding the supermarket aisles or being used in aerobics classes anytime soon. The company aims squarely at the endurance athlete market, designing products according to their needs and selling directly on-line or via dealerships also committed to the endurance athlete. The introduction of EFS is a terrific addition to their stable of products. It is scientifically sound and tastes much better than the majority of sports drinks I have tried.

Check out the First Endurance Website and sign up for their free newsletters on sports nutrition topics.

First Endurance:
P.O. Box 71661
Salt Lake City, Utah 84171
PH/Fax 866-347-7811
firstendurance.com