



The Relationship of Electrolyte Supplements to Athletic Performance

by David J. Berkoff, MD

Enlyten™ Electrolyte SportStrips™ is an innovative new product that replaces the electrolytes our bodies lose while exercising through buccal (cheek to gum) absorption. This mode of absorption is very different than all electrolyte delivery predecessors. Gastric absorption is bypassed and the **electrolytes needed are directly absorbed into our bodies.** Additionally this will help to avoid the over-hydration that often accompanies the excessive consumption of sports drinks.

Our bodies lose approximately 2-3 liters a day of fluid when sedentary and this can increase to 10-15 liters in intensively training athletes, especially in warmer climates. With increasing fluid loss comes increasing electrolyte loss, and these too need to be replenished. In addition to water, the primary components of sweat are sodium, potassium and chloride, with smaller concentrations of magnesium and calcium. **If an athlete does not adequately replace these losses during and after exercise, performance can be negatively affected.** There exists an abundance of research regarding which electrolytes are responsible for cramping and impaired performance. However to date, there are few if any large randomized trials conclusively linking one particular electrolyte abnormality with cramps, weakness or impaired performance. In a study of NCAA football players by Stofan and others, crampers were compared to non-crampers, and electrolyte concentrations were one of their study outcomes. **This study showed that NCAA football players who are prone to total body cramping lost more sodium in their sweat than non-cramping controls.**

Fluids consumed during exercise typically contain both carbohydrates and electrolytes. The amount of each varies by product. Typically these drinks have between 2 and 8 percent carbohydrate with a large range of electrolyte concentrations within them. **A major limitation associated with re-hydration and electrolyte repletion is absorption.** During exercise our bodies divert blood from our stomach and intestines to our exercising muscles. This leads to an increased gastric emptying time and altered intestinal absorption. Additionally, the addition of carbohydrate to these drinks can alter an athlete's digestive ability. Slowed gastric emptying combined with altered absorption will limit the availability of the fluid and electrolytes we orally consume to be used by our bodies. Many athletes performing at high intensities will have a difficult time ingesting an adequate amount of fluid to maintain this homeostasis due to these changes. How exactly performance is adversely affected needs further research, but it is clear that **current electrolyte delivery methods have major limitations.**

Enlyten SportStrips are absorbed very differently. They are designed to bypass the inherent inadequacies of gastric and intestinal absorption during exercise. **SportStrips are absorbed directly into the blood stream** through the buccal mucosa and thus is affected by neither gastric emptying nor colonic irritability.

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There is a growing body of literature that supports the premise that hydration in any form (water or sports drink) can lead to a reduction in serum sodium and possibly adversely affect performance. The 2005 New England Journal of Medicine article regarding hyponatremia and marathon runners found that this condition (hyponatremia) was indeed not as rare as prior research had led us to believe.

Enlyten SportStrips are the quickest and most efficient electrolyte delivery system available. Maintaining proper electrolyte balance will assist in reducing exercise related cramping, hyponatremia and help to **maximize performance** in all types of athletes.

Research beginning at the Michael W. Krzyzewski Human Performance Laboratory at Duke University will begin to look further into this new product and its benefits to athletes of all types and abilities.

To your performance,



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ADDITIONAL REFERENCES

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