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Nutritional Strategies

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for Conquering GI Distress

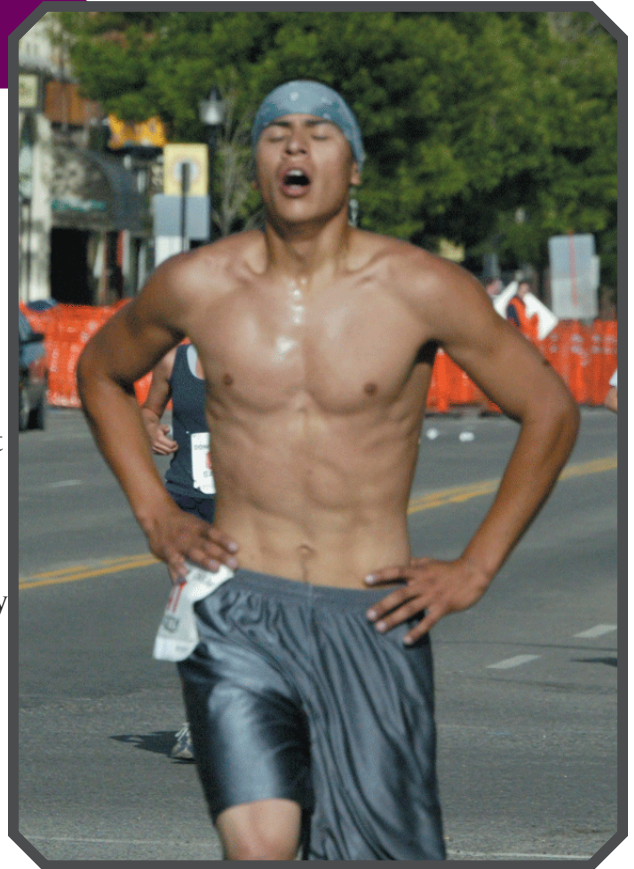
Applying nutrition and hydration principles is of great benefit to optimize an athlete's training and performance. The athletes that understand the digestion and absorption of nutrients and fluids are more likely to develop optimal methods of maintaining blood volume (a critical issue for performance), without inducing nausea and vomiting (GI Distress).

For any fluid to be of benefit during exercise, it must first empty from the stomach and then be absorbed into the bloodstream from the intestines. A number of factors influence the gastric emptying rate, including hydration status, concentration of the liquid, volume, caloric density (concentration of the fluid), temperature of the liquid as well as external temperature, and exercise intensity.

The most common causes of GI distress are thus a spin off from these influences:

Hydration status: A delayed gastric emptying response results from dehydration, thus drinking when in a dehydrated state can cause gastrointestinal distress. Moreover, drinking at this point is unlikely to adequately hydrate the muscles. A common mistake made by many athletes is waiting to feel thirsty before hydrating. Thirst is a sign that dehydration has already set in. Additionally, thirst also tends to cause consumption of higher volumes of liquid at one time, and with the delayed gastric emptying, GI distress is almost guaranteed. Remember that dehydration is cumulative. To overcome this risk, do not wait until you feel thirsty; maintain fluid hydration throughout training. Continuous sipping, if appropriate, is recommended, or else hydrating with small volumes every 20 – 30 minutes. Furthermore, if lost fluids and electrolytes are not replenished, fatigue and heat illness can result.

Concentration of the Fluid: The speed at which a beverage travels from the stomach in to the small intestine (the gastric emptying rate) depends on the energy content (calories) and volume of the beverage consumed. A small concentration of carbohydrate will encourage rapid absorption, but too much carbohydrate will slow gastric emptying and can result in GI distress. Research has consistently found that beverages with a carbohydrate concentration of 6 - 8%, empty from the stomach more slowly than either water or lower concentrations of carbohydrate. Carbohydrate/electrolyte drinks are thus often better than water for endurance training. Sports drinks may also aid in replenishing glycogen stores in working



muscles, as well as electrolyte balancing and replenishment.

Intensity of exercise: Stomach and intestinal distress tend to increase during high-intensity training. Stomach fullness is also directly related to gastrointestinal discomfort levels during intense sporting activity. Different intensities result in different carbohydrate utilization. For instance, in endurance running and intermittent stop-and-go sports, there is a

creased muscle mass or water retention. While not all studies report ergogenic benefits, most studies warn about the danger in incorrect dosing. There are also concerns about muscle cramping and increased muscle injuries and, of course, GI distress. Ingesting a carbohydrate drink at the same time creatine is consumed has

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reduction in the rate of muscle glycogen depletion when carb drinks are consumed, but for strenuous cycling the rate of muscle glycogen depletion has not been shown to be affected.

Type of Carbohydrate: There appears to be no major difference between glucose, sucrose, maltodextrins, and starch on athletic performance itself; however, sports drinks that contain mainly fructose may cause GI distress due to the fructose’s slower absorption rate. Fructose is sweeter than maltodextrins and is often used to make the drink appealing. Read labels carefully and look for a combination of these carbohydrates. Maltodextrins remove the unpalatable sweetness and sucrose is absorbed more rapidly than fructose. Carbohydrates, regardless of whether solid or liquid, will aid in athletic performance, but consider drinking them rather than eating them, since the fluid takes care of two very important performance issues: hydration and energy.

Ergogenic aids: High doses of vitamins and minerals and some ergogenic aids, such as creatine, may cause GI distress. *Creatine has recently become one of the most popular ergogenic aids marketed to athletes.* Some studies have shown creatine supplementation may promote gains in strength, performance and fat-free mass, which is either due to in-

been shown to increase creatine accumulation in the muscle; however, it also increases water retention, as a result. The risk of developing GI distress is thus increased when combining sports drinks with ergogenic aids.

In order to stay hydrated but avoid GI distress, you should experiment with what combination of fluids work best for you. Water before, during and after is always a good option; however, it works best when exercise is less than one hour. Sports drinks, on the other hand, contain carbohydrates that provide an athlete’s muscles with the needed fuel to avoid early fatigue and poor performance. Sports drinks also contain sodium that helps athletes maintain blood volume, a factor that is critical to maintaining sweat rates and performance. There are various options available and all of them can be utilized when avoiding GI distress while exercising.

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