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### **Hydration, Sports Drinks and Race Fueling**

Workouts lasting 60 minutes or less probably don't warrant any fuel or hydration at all. Workouts over one hour or in heat require some careful consideration. There are three variables to consider when choosing what and how much to drink during exercise. You need to know:

1. Volume of total fluid
2. Amount of sodium
3. Number of calories in the form of carbohydrate per hour

#### Amount of Fluid:

Calculate your *sweat rate* to determine how much water your body loses per hour of typical exercise. Weigh yourself nude immediately prior to a 60 minute workout without drinking fluids, towel off, and weigh yourself nude immediately afterwards. Typical weight loss is between 1-4 pounds per hour.

Until recently, scientists believed that we should replace 16 oz of fluid per pound of "water" weight lost per hour. My experience with athletes indicates that we need to consume less than this – both because part of the weight loss is due to burned fuel (glycogen, fat stores) along with fluid loss, and it *is not actually necessary to replace all losses during exercise*. Aim to replenish, not replace. It makes sense that you will lose weight during a hard workout, even if it's just temporary. Drink every 15 -20 minutes during workouts and estimate the amount you need to replenish based on your hourly weight loss – 1 pound of weight loss might indicate that you need 2 oz (one to two gulps) every 20 minutes. Be aware that losing between 1 and 2 percent of your body weight per hour decreases athletic performance and that each one of us has different biochemistry and fueling needs.

Cycling is the most convenient endurance sport during which to eat/drink, water sports can create a significant challenge. If you are a Triathlete, aim to fuel as soon as you get on the bike after your swim transition and be prepared to drink every 20 minutes during the run. If you are



underwater or on a board for long periods of time, do your best to hydrate and fuel in advance of the event.

Sodium: This is the main electrolyte lost in sweat. Typical Americans consume far more salt than they need – processed, packaged foods are loaded with it. If you eat a diet rich in *real food* and/or you are a “salty sweater”, you may benefit from electrolyte replacement. Common signs of electrolyte imbalance are cramping, easy fatigue, frequent muscle/tendon injury or pain.

Sodium requirements are very individual. If you are a heavy sweater or usually see a salty white crust on skin or clothing after exercise, you need more. If you sweat little or eat processed foods, you need less. Consider increasing sodium if you have trouble with exercise or recovery. Start slow and gradually increase your intake. When choosing a sports drink, look for one with at least 100 g of sodium per 16 Oz/fluid. The rest should come from foods or energy gels/blocks/bars along with your carbohydrates – be sure to consume carbs at least every 45 minutes during exercise.

Keep in mind that if you are having symptoms of electrolyte imbalance, it’s probably better to err on the side of more sodium than too little during training – you might have digestive trouble but it would likely be milder than the pain/cramping of deficient electrolytes. Please take this advice with a grain of salt! Talk to us about determining your individual health needs.

My professional experience leads me to believe that electrolyte replacements containing a significant amount of magnesium are better than those that don’t – especially if you ever experience muscle cramping.

Carbohydrates/Calories:

Look for between 30 and 60 grams of carbohydrate per hour during exercise lasting longer than one hour. This is about 120-140 calories specifically from carbs. Be sure to get some fuel at least every 45 minutes during long workouts. As with fluid volume, less is probably more. In general athletes overdo calories during training. Unless you are working out/racing longer than 5 hours, don’t use protein during training. It’s too hard to digest and simply not useful during exercise itself – save it for your general diet and recovery after the workout.



When choosing a sports drink, consider:

- Concentrated sugar slows the rate at which your body absorbs the drink. Too sweet = Not useful.
- Avoid products that contain High Fructose Corn Syrup, and any artificial sweeteners or food coloring. *This really narrows the field.*
- Look for products with multiple sources of sugar (sugars end in -ose) as they are absorbed at different locations along the digestive tract and you want to maximize absorption of the product.
- Your stomach is unique – find what products work well and which don't – early on in your training. *Nothing new on race day.*
- I recommend a product called Endura by Metagenics, or Hammer products. Metagenics products are exclusively sold through licensed health care practitioners, but Hammer is widely available. AthletiZen carries Hammer below suggested retail prices in order to give athletes a break on expenses. Call ahead to be sure we have what you are looking for; it can be special ordered if we don't.