

## Multisport Endurance Training/Racing and Nutrition

The essentials of endurance training/racing do not include just training principles and accessories but also the nutrition behind the training and racing. The following information is too used as guidelines to develop better nutrition and eating behaviors habits that will assist you in managing your nutrition requirement during your training and racing.

### Ingestion of Liquid and Solids During Training/Racing:

During -Exercise- Purpose: to supply carbohydrate to working muscles for energy production

3+ hrs workout – steady to moderate effort

2-3 hr workout – steady to hard effort

1.25-2 hr workout – mod. hard to hard effort

1.25-2 hr workout – steady to moderate effort

Hydration – To replace the appropriate amount of fluid, weigh yourself at different fitness levels (less fit =sweat less; more fit =sweat more), for several different types of workouts and in different weather conditions prior to the workout, then weigh yourself after the workout to calculate sweat loss, accounting for fluid intake during the workout. This is the fluid level you should try to replace. Bottom line; don't let your fluid loss be greater than 2% of your body weight after your workouts and your pea should be light color.

Fluid sources include Accelarade, Gatorade, Gatorade Endurance, Power Bar Endurance, GPUSH, GU<sub>2</sub>O, Perpetuem, HEED and Cytomax.

General – 12-28 oz per hour

Specific: Light sweat - drink 3-4 oz. Mod sweat – drink 5-6 oz Heavy sweat - drink 7-8oz. Every 15-20 minutes.  
50-50 Alternate between water and sport drink. Sports drink should be CHO 6-8% solution.

Sodium Intake – although these recommendations are specific to sodium it is best to take electrolyte replacements that include sodium, potassium, calcium and magnesium which are all involved in muscle contraction. Also lessen your intake by 100-200 mg for cool dry conditions and increase your intake by 100-200 mg for hot, humid conditions.

Electrolyte sources include electrolyte drinks (see above), Gels with added sodium such as Power Gel and supplements such as E-caps or Nunz.

Light sweat – 500mg Mod sweat – 600mg Heavy sweat - 700mg Per liter, 1000 mil or 35 oz of fluid  
50-50 Alternate between water and sport drink. Sports drink should be CHO 6-8% solution

Fuel – body weight does not affect CHO intake

Up to 90 grams or up to 360 calories per hour but partial intake every 20-30 minutes. Consume with appropriate intake of WATER ONLY!!

Fuel – body weight does not affect CHO intake

30-60 grams or 120-240 calories per hour but partial intake every 20-30 minutes. Consume with appropriate intake of WATER ONLY!!

Fuel – body weight does not affect CHO intake

30-40 grams or 120-160 calories per hour but partial intake every 20-30 minutes. Consume with appropriate intake of WATER ONLY!!

Fuel – body weight does not affect CHO intake

30 grams or 90 calories per hour but partial intake every 20-30 minutes. Consume with appropriate intake of WATER ONLY!!

Fuel Source: predominately carbohydrates with small amount of protein and fat. Carbohydrates should be a mix of simple sugars such as fructose and a more complex sugar such as maltodextrin, this allows for greater uptake of carbohydrates. Solid sources include Power Bar, Cliff Bar, Stingers and Gelatin Blocks or Gel sources (Carb-BOOM, Cliff, Gu, Hammer, Accellerade, Power Gel, etc) which should be taken with 4-8oz of water or 1-2 full mouths of water. Non-sport related foods can supplement packaged sources: fruit, dried fruit, fig nuetons, pretzels, saltines, crackers, bread, pancakes and potatoes. **It is beneficial to alternate taking a solid CHO supplement with water and a liquid CHO/electrolyte supplement during a race and workouts 1.25 hrs or longer at the specified interval mentioned earlier.**

#### Sources:

- Academy of Nutrition and Dietetics, Powers & Howley, Exercise Physiology, Theory and Application to Fitness and Performance, 1994
- Medicine & Science in Sports & Exercise, 48(3):543-568, March 2016.
- USAT – Level 1 Coaching Manual Nutrition Science for the Multisport Athlete, Jennifer Hutchins and Sports Nutrition for Triathlon Coaches, Bob Seebohar, 2017