

## Fueling During Endurance Events

Carbohydrate intake is essential for prolonged exercise lasting over 2.5 hours. Appropriate carbohydrate intake during endurance events improves performance and can decrease time to fatigue. Generally, carbohydrate intakes anywhere between 30 to 90 grams per hour may be needed with higher rates of consumption for those who are exercising at higher intensities. This can be obtained through solids, semi-solids, and liquids. Combinations of carbohydrate types (sucrose, glucose, fructose and maltodextrins) can also improve maximal amounts of carbohydrate absorption and utilization. Learning to consume carbohydrates during endurance events can be difficult. Gastrointestinal discomfort can occur while attempting to maintain appropriate fueling levels during events primarily by high concentrations and/or type of carbohydrates (high fructose). For this reason, it is imperative that you develop a race plan and practice how you will fuel during the event.

A variety of foods, fluids and gels can be consumed during events to meet your carbohydrate and sodium needs. Solids may even be more desirable during prolonged events to provide more flavor and texture alternatives to help relieve hunger. Additionally, solids and gels offer compact forms of carbohydrate but keep in mind, appropriate hydration and fluid intake should not be forgotten. Contact a sports dietitian if you need more help in development or help working around digestive issues with regards to your race plan.

### Fuel Examples During Endurance Events based on 50 g Carb Equivalent:

**Type: Sports Drink: Gatorade Endurance**  
~900 mL  
Meets hydration need. ~725 mg sodium.

**Type: Sports Gel: Clif Shot Blok** ~1 blok; 6 pieces.  
Does not meet hydration need; will need to drink fluid. ~100 mg sodium.

**Type: Food: Jam Sandwich**  
2 slices white bread + 1 tablespoon jam  
Does not meet hydration need; will need to drink fluid. ~300 mg sodium.

**Type: Food: Rice Cakes: ~ ¾-1 cup size**  
Carbohydrate and sodium content will vary slightly per ingredients & recipe.

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