



REAL TIME FUELING

WHY ARE CARBOHYDRATES IMPORTANT DURING A WORKOUT/COMPETITION?

Consuming carbohydrates (and fluid) while conditioning, practicing or competing can help prolong your energy, delay fatigue and help you maintain your skill, timing and concentration. For long endurance training events or stop-and-go sports (including soccer, basketball or tennis) which last over one hour it is recommended to take in fuel to keep you going. In fact, the metabolic demands of stop and go and change direction are much greater than previously calculated. Think back to the fuel-tank analogy – during a long road trip, you will have to refuel at a rest stop at some point along the way—your body is the same! When your muscle glycogen runs low, you can feel fatigued and performance will suffer. Additionally, your mental acuity, such as your ability to execute plays or think quickly, can be compromised. How well your muscles were stocked starting out, the intensity of play, and how long you are active for will all determine how quickly to start fueling and how much you need. Typically, by 45 minutes to one hour in it is helpful to fuel. If not possible, use half time to get in 15-25 grams of carbohydrate.

WHAT TYPES OF CARBOHYDRATES SHOULD I CONSUME?

It is important to consume a carbohydrate source that is rapidly digested and does not place stress on the gut. Think simple sugars (low fiber) which can easily digest and raise blood sugar for your muscles to utilize quickly. The best intra-workout sources combine different types of simple sugars, such as glucose and fructose, to increase absorption rates from the GI tract (called “multiple transport”) and to increase oxidation (use) by the muscles. There are actually multiple types of transporters within your small intestines which help move different types of sugar to get energy into your system!

For activity lasting 1-2.5 hours you can consume **30-60g/hr**, and for activity lasting >2.5 hours, you can consume up to **90g/hr**. It is also important to balance carbohydrate intake with adequate fluid; this is especially important when consuming sports gels or chews. Water helps absorption and without fluid, the sugars will pull fluid into your stomach, potentially causing gastric discomfort and even cramping. Sports drinks, which hydrate, also provide carbohydrate, so be careful if you are also consuming gels, goos, or bars, and recognize how much carbohydrate you are consuming at a time.

TRAIN YOUR GUT

You can actually train your gut to tolerate and absorb more carbohydrate while in motion. **It just takes practice.** Try it out for yourself, and see which foods/drinks work best for you. Sometimes, because of decreased blood flow to the gut (as it is all going toward your working muscles) individuals can experience gastrointestinal distress consuming food during a workout. Motility (the joggling of your stomach while running), types of food, and nerves, can all contribute to what is now termed “*Exercise Induced Gastrointestinal Syndrome*” (formally known as Runner’s Trots). For some, it may also be a FODMAPs (certain types of carbohydrates) sensitivity that is exacerbated with activity, causing distress.

It is best to try out different options while training so you can feel confident and comfortable while competing. Work with your sports dietitian-nutritionist on types and timing. You want to start before you “need” the fuel. Depending on intensity, distance and what you ate before you began, you may start fueling anywhere from 45 - 75 minutes into your training/competition or earlier if you missed your pre-snack and it has been over several hours since you have eaten.

Look to the list below to explore some easy to digest carbohydrate sources to consume during your training. Many of these products also come in versions with caffeine as well, but remember – it is *carbohydrate* that your body needs to fuel working muscle.

Food	Serving Size	Carbohydrate Amount
Honey	1 tbsp	17
Haribo Gummy Bears	13 pieces	23
Pretzels, snaps	24 snaps (30g)	25
Potatoes (baked)	1 medium, white	36
Dry Cereal (e.g. Honey Nut Chex)	¾ cup	28
Raisins	1.5 oz	34
Applesauce, unsweetened	1 cup (244g)	27
Banana	1 medium	27
SPORTS PRODUCTS		
Gatorade Prime Energy Chew	1 pack (6 chews)	24
Gatorade Endurance Energy Gel	1 pouch (37g)	20
Gatorade Endurance Formula Thirst Quencher Powder	½ pack (12 fl oz)	45
Gatorade Endurance Carb Energy Chews	1 pack (4 chews)	31
Jelly Belly Sport Beans	1 package	25
Gu Sports Nutrition Energy Gel	1 packet (32g)	23
Gu Roctane Energy Gel	1 packet (32g)	21
Honey Stinger Energy Chews	1 packet (50g)	39
Honey Stinger Energy Gel	1 packet (34g)	26
Gatorade Original Thirst Quencher	20 fl oz	36
Gatorade Organic Thirst Quencher	16.9 fl oz	30
Gatorade Thirst Quencher Powder	1 2/3 tbsp (23g) – makes 12 fl oz	22
Bobo's Oat Bites	1 packet	24
Stinger Snack Bar	1 bar (42g)	23
Gu Energy Stroopwafel	1 packet (30g)	21



*Nutrition facts retrieved from brand's respective websites January 2020.

If you are buying anything considered a supplement make sure it has the NSF seal to know it has been tested and is safe for sport.