

**Great info about why when and what to use of all those “performance enhancers” The quick version is that there is some basis to using all of these products, but you can also get the same benefits from normal foods.**

## **SPORT DRINKS**

Sport drinks are mild carbohydrate-electrolyte solutions, designed to keep bodies well- hydrated and fueled during exercise of longer than 60-90 minutes. Drinking fluids during exercise also reduces the increase in body temperature and the amount of stress on the cardiovascular system, especially important when exercising in hot environments.

### **Composition**

Sport drinks offer approximately 14-20 grams of carbohydrate per 250 ml (8 ounces). This carbohydrate level (approximately 6-8 % carbohydrate in solution), delivers the optimal amount of both energy and fluid to enhance performance during exercise. The carbohydrates can come in many different forms: sucrose, glucose, fructose and glucose polymers. Sport drinks that contain mostly fructose may slow absorption down and cause stomach cramps because fructose is absorbed by passive diffusion in the gut.

### **What to look for:**

- \* drinks with higher percentages of the fast absorbing carbohydrates;
- \* glucose, sucrose and glucose polymers (malto dextrins);
- \* 6-8 % carbohydrate in solution;
- \* 14-20 grams of carbohydrate per 250 ml;
- \* approximately 100 mg sodium per 250 ml (8 ounces).

### **Suggested Use:**

For training sessions of more than 60-90 minutes sip continually on sport drinks throughout your exercise session. 4-6 ounces every 10-15 minutes during exercise are fluid guidelines to help maintain hydration status. The hotter and more humid it is the more you will need to drink. The primary purpose of drinking a carbohydrate solution rather than plain water is to maintain a sufficient concentration of blood glucose and to sustain a high rate of energy production from blood glucose and muscle glycogen. Ultimately, this will allow a longer exercise duration and the ability to increase the intensity (sprint!) at the end of the exercise bout.

### **Make Your Own:**

Buy fruit drink crystals and mix them with water to half the recommended strength. For each liter (4 cups) that you mix, add 1/5th of a teaspoon of table salt. This should give you a 6-8% carbohydrate solution with approximately 100 mg of sodium per 250 ml(cup).

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## **GELS**

Gels are highly concentrated carbohydrate products, available in palm-size packets or tubes. Their consistency (depending upon the brand) may be off setting at first. Squirting a gel into your mouth could feel like syrupy pudding at best or pasty hair gel at worst!

### **Composition:**

Gels offer 70-120 calories and 17-42 grams of carbohydrate per package. All gels include simple sugars (fructose or dextrose) and long chain carbohydrate/glucose polymers (maltodextrins, rice syrup or poly/oligoaccharides). Some gels however, are loaded up with other treats as well. Gu has Medium Chain Triglycerides (MCT'S), Power Gel has branched chain amino acids (a source of energy), caffeine (a stimulant), kola nut extract and ginseng; and Clif Shot has Korean Ginseng. None of these "additives" have been shown to have any consistent ergogenic effect, but they do add to the \$....and gels are exactly that...costly.

### **What to look for:**

- \* Easy to use format (squeeze bottle, tearable package)
- \* Bulk dispenser with easy to use refill bottle (holds 120 grams) (saves \$\$ and packaging)
- \* 80-100% carbohydrate content
- \* 0-20% branched chain amino acid content

**Suggested Use:**

Because there are few other nutrients nor fiber to interfere with digestion and absorption, these gels are easily and quickly absorbed into the bloodstream, delivering a potentially quick supply of ready energy within approximately 20 minutes. Most companies recommend that you take a "shot" of gel (1 package worth) every 30 minutes, followed by a water "chaser". When consumed at regular intervals during an endurance effort this can effectively get you 30-60 grams of carbohydrate per hour which can help eliminate muscle glycogen depletion and blood sugar spikes.

**Make Your Own:**

You can even make your own gel - a couple of tablespoons of jam or jelly, or a few gummy bears will give you about 25 grams of carbohydrate, enough to give you an energy boost comparable to a gel, at a fraction of the cost.

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**ENERGY BARS**

Sport bars can be effective energy boosters - but they are not magic. Without a doubt, they are an expensive source of Calories, but they are convenient and take no time to prepare! Composition: Sport bars are basically an easy to digest snack food - they are rich in carbohydrates but generally low in protein, fiber, and many other nutrients found in a well balanced diet. Most sport bars contain between 100-300 Calories, with most of the Calories coming from carbohydrates. Some bars have little fat to speak of (Energy Bar) while others are high in fat (Balance Bar) with claims of performance enhancing properties. A sports bar is not a complete meal so avoid using it as a meal replacement, regardless of what it says on the packaging.

**What to look for:**

- \* predominantly carbohydrate (>55% kcal)
- \* low in fat (< 30% of kcal)
- \* low to moderate in protein (15-20% of kcal)

**Suggested Use:**

What you eat pre and during exercise will be used to some degree during your training session. So if you are looking for an easy to carry, easy to consume pre-workout snack (for those early morning workouts or pre-supper training sessions) a sport bar could be a convenient fast fueler. They can also be used during training, during those long slow runs or during a tough training session. Experiment with them during training to determine which brand works best for you - and be sure to drink lots of water along with them!

**Make your own:**

There are standard foods that can fit the "sport bar" criteria - bagels, bananas, dried fruit, fig newtons, etc - can all give you the same energizing benefits!

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**RECOVERY DRINKS**

Recovery drinks are designed to maximize post workout refueling of muscle glycogen. Research shows that athletes who want to store maximal amounts of carbohydrate for peak performance might profitably shift their intake of nutrients to immediately after workouts. They should also use a carbohydrate-protein combination in place of carbohydrate alone to enhance the muscle glycogen storage and amino acids for muscle cell repair and synthesis. Recent studies at McMaster University in Canada, have shown that protein synthesis is an important component of post-exercise muscle recovery. Supplying the fatigued and depleted muscle with protein may enhance that repair process. Recovery drinks have been designed to promote greater recovery of muscle energy and muscle protein re synthesis than carbohydrate-alone sports drinks.

**Composition:**

Most of these recovery drinks contain carbohydrate and protein as this has been found to be an effective way to replenish muscle glycogen and to encourage amino acid (protein is important for cell repair and growth) uptake by the muscle. These drinks also have key carbohydrate and energy metabolizers including sodium, potassium, magnesium, zinc and vitamins.

**What to look for:**

- \* less than 10% of Calories from fat (preferably NO FAT)
- \* carbohydrate protein ratio of 4:1 up to 3:1
- \* fluid form is best to help with re hydration
- \* avoid high fiber foods/drinks

**Suggested Use:**

The current recommendation or refueling is 1-2 grams of carbohydrate/ kg of body weight to be consumed within the first 15-30 minutes post workout in order to maximize refueling. For most individuals that will be 50-100 grams of carbohydrate. Check out the table of Recovery drinks to see how much you might need to consume post workout.

**Make Your Own:**

Skim milk fruit yogurt, liquid yogurt drinks, or chocolate skim milk are other ways to encourage post workout refueling with LIQUID forms of carbohydrate protein combinations.

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