

Choosing a Sports Carbohydrate Replacement



If you are exercising vigorously for 1-2 $\frac{1}{2}$ hours then it's smart to consume a 120-240 calories (30-60 grams of carbs, lower amount for person weighing less and/or less vigorous exercise) per hour snack or beverage to keep your blood sugar and energy levels stable throughout your hike.

If you are exercising vigorously for over 2 to 3 hours then it's smart to consume a 240-350 calories (60-90 grams of carbs) per hour snack or beverage to keep your blood sugar and energy levels stable throughout your activity.

We've known for a long time that carbohydrate is the critical fuel for performance that carbohydrate ingestion during exercise can increase exercise capacity. For those activities lasting greater than 2.5 hours, consume 90 grams per hour of only a multiple transportable carbohydrate.

A multiple transportable carbohydrate is absorbed by different methods (transporters or pathways) in the intestine and this means a better delivery of the carbohydrate, increased fluid delivery, less gastrointestinal distress, reduced fatigue and

higher performance. The carbohydrate source should be a mix of glucose and fructose, or maltodextrin and fructose in a ratio of roughly 2:1, so there is 60 g/h of glucose or maltodextrin (to saturate the SGLT1 transporters) and 30 g/h of additional fructose for oxidation. Source: <http://www.gssiweb.org/Article/sse-108-multiple-transportable-carbohydrates-and-their-benefits>

Sports Drinks

Avoid low-calorie version. Low calorie means less sugar and the purpose of a sports drink is to replenish glycogen.

Look for a combo of glucose and fructose, called multiple transportable carbohydrates since those carbs will be absorbed faster, will enhance endurance by increasing exogenous carbohydrate oxidation, reduce the reliance on endogenous carbohydrate stores and cause less GI distress.

Examples: [PowerBar ISOACTIVE](#) or [CytoSport Cytomax Sports Performance Mix](#) found at Amazon.

The most efficient and effective sports drinks have a carbohydrate concentration of 6 to 8 percent. This concentration allows the fluid to absorb into the bloodstream quickly, at about the speed of water.

Avoid pure fruit juice since this will provide too much fructose and can cause digestive issues when you are doing heavy exercise.

Electrolytes such as potassium and sodium are necessary, extras like vitamins or herbal supplements aren't necessary.

Energy Gels and Solids

Energy gels and solids such as gummies, are much more calorically-dense than sports drinks, and are designed to enable a person to get a high amount of carbs intake during a difficult long distance event.

When you eat energy gels, drink water so it digests and enters the blood stream. And don't take with as sports drink or you can get too much sugar at once time.

Gels can be hard on the digestive system causing cramps, bloating and diarrhea and nausea. So practice using these.

The least expensive carbohydrate replacement is plain honey. Plus it has right ratio of glucose and fructose for maximum carb absorption, and there aren't any additives.

Protein Bars

Choose real food instead. Many of these types of bars have lots of unhealthy saturated fat and other processed junk like partially hydrogenated soybean, palm, and palm kernel oils, additives, simple sugars.

Hydration for Sports Guidelines

- Drink plenty of fluids with meals.
- Drink 16 oz. 2 hours before activity.
- Drink another 8 to 16 oz. 15 minutes before activity.
- Drink 6 to 12 oz. every 15 minutes during exercise.
- Drink 24 oz. for every pound of body weight lost after exercise.
- In events lasting longer than ninety minutes, performance will likely be enhanced with the use of a sports drink.
- Daily, drink a half ounce fluid per pound of ideal body

weight.

Nutrition for the Dancer



Dancers are performing athletes and nutrition can make a tremendous difference in performance, muscle strength, fatigue, and injury rates. To perform at their best, dancers need to be well fueled for classes, rehearsals, and performances.

Working with a registered dietitian who understands the demands of these unique performing athletes is the first step in increasing performance, finding a strong healthy weight, and reducing injuries.

Calorie Needs

One important challenge facing many dancers is ingesting sufficient quantities of food to meet the energy demands of dance. When a dancer goes for too long without eating or restricts calories, the body breaks down muscle in order to operate. So starving the body results in less muscle, lower metabolic rate, and higher percentage body fat. A low caloric

intake will not only hurt energy availability, it can also lead to an under-consumption of many micronutrients that could affect performance, growth and health.

The first step in planning a high performance diet is to be sure that the dancer is obtaining adequate caloric intake. The easiest rough estimate of how many calories a dancer requires during regular moderate training is 15 calories per pound of body weight for females and 18 calories per pound of body weight for males. For a more accurate assessment, dancers should consult a dietitian. Professional dancers who have a rigorous schedule such a two hour dance class and a 4-6 hour rehearsal and performance schedule will need significantly more than this.

To diminish the risk of energy imbalance and associated disorders, dancers must consume at least 30 kcal/kg fat-free mass/day, plus the training energy expenditure. For macronutrients, a daily intake of 3 to 5 g carbohydrates/kg, 1.2 to 1.7 g protein/kg, and 20 to 35% of energy intake from fat can be recommended. **

Caloric needs can then be divided as needed such as: Breakfast, Morning Snack, Lunch, Post-rehearsal re-fuel, Dinner before performance, Post-performance re-fuel.

It can be difficult to know how many calories, carbohydrate, fat and protein are actually being ingested. One way to get a sense of how adequate a diet is in these terms is to periodically monitor on an online food journal such as My Fitness Pal. A profile with customization can be set up with the guidelines given here for calories, carbohydrate, fat and protein.

See a dietitian for a detailed meal plan including meal suggestions based on your individual assessment.

After calculating the number of calories needed, the next step is to estimate the necessary amount of carbohydrate, fat, and

protein, the building blocks of the diets.

Carbohydrate

A dancer's diet should be composed of about 50-55% carbohydrate, 20-25% protein, and 20-30% fat.

Carbohydrate is the key fuel source for exercise, especially during prolonged continuous or high-intensity exercise. The body stores carbohydrate as glycogen in the muscles and liver, however its storage capacity is limited. When these carbohydrate stores are not available to meet the fuel needs of a dancer's training, the results include fatigue, reduced ability to train hard, decreased competition performance, and a reduction in immune system function. For these reasons, active dancers are encouraged to plan carbohydrate intake around key training sessions and over the whole day according to their carbohydrate requirements as an exercise fuel.

To achieve a healthy high carbohydrate diet, food choices should be complex carbohydrate rather than simple sugars. Complex carbohydrate has many vitamins, minerals and fiber while simple carbohydrate foods are nutrient poor. The healthiest sources of carbohydrates are unprocessed or minimally processed whole grains, vegetables, fruits and beans.

Unhealthier sources of carbohydrates include white bread, pastries, desserts, sodas, and other highly processed or refined foods. Reading the product label can help determine if the item contains hidden sugar.

In addition to meals, other times when carbohydrate ingestion is important are before, during, and after class, rehearsal, or a performance. About 1-2 hours prior to these activities, a small carbohydrate snack should be consumed. This will increase glucose levels in the circulation and "top-off" muscle glycogen stores.

A small pre or post dance meal [or snack](#) should be mostly carbohydrate and some protein, to let it stay with the dancer a little longer, and should be very low in fat, to allow the stomach to digest the food quickly. Some examples of pre-exercise snacks could be:

- Yogurt with whole grain crackers
- Bowl of whole grain cereal with low-fat milk.
[Click here to learn](#) more about reading labels on whole grain cereal.
- Fig newtons and a glass of low-fat milk
- 100% [whole wheat bread](#) with slice of low-fat cheese or nut butter
- Fruit smoothie made with non-fat yogurt
- Oatmeal made with fruit and low-fat milk
- Banana and string cheese
- An apple with a level tablespoon of peanut butter (or other nut butter) sprinkled with cinnamon
- Non-fat yogurt topped with berries or one tablespoon of granola
- Low-fat cottage cheese and pineapple or peaches
- Ry-Krisp crackers whole-grain crackers with black bean dip
- A hardboiled egg and a piece of fruit

During hard rehearsals lasting over 90 minutes it is also important to ingest some carbohydrate to maintain glycogen levels to prevent fatigue. Ingesting carbohydrate in a sports drink (not fitness water) provides the added benefit of fluid replacement. Some research suggests that sports drinks offering a blend of carbohydrates, such as glucose and sucrose, rather than a single carbohydrate source may improve the amount of carbohydrate that eventually gets to the muscles as fuel.

After dancing, carbohydrate intake after exercise is essential for optimum recovery of glycogen stores. The hour after dancing is best to refill muscle stores and be ready for the

next activity.

Protein

Adequate protein is essential for all active dancers. Protein is needed to repair the breakdown of muscle that are stressed by continual use. Protein is also used as a secondary fuel, and it is important for synthesizing the many enzymes necessary for metabolism. For non-vegetarians, quinoa, fish, yogurt, lean chicken, turkey, eggs, beef and pork are excellent low fat protein sources. For vegetarians, tofu, seitan (wheat gluten), tempeh, veggie burgers and meat substitutes, nuts, seeds and nut butters and mixtures of beans, lentils, peas, quinoa and rice are good protein choices. Protein powders are not necessary. If a protein supplement is desired, the best choice is Instant Dry Milk powder. Expensive protein supplements on the market are not any better.

Fat

Dietary fat plays several key roles in our body. Ingestion of fat is important for the intestinal absorption of fat-soluble vitamins like vitamins A, D, E, and K. Components of fat are also important building blocks of all cells in the body. Fat makes up part of cell membranes, is an insulator around nerves, is part of the structure of hormones and is an important fuel for muscles. Fat is stored in the body as a triglyceride. During exercise, triglycerides are broken down into fatty acids which are used to produce energy for muscle contraction. Fatty acids are used as an energy source in the muscle for endurance activities such as during a long rehearsal where the body is continuously exercising for over 20 minutes at a time. A diet too low in fat can have serious health consequences and ultimately can impair performance.

Choose healthy fats in your diet. There are four kinds of fat: saturated, trans, monounsaturated, and polyunsaturated fat.

Monounsaturated and polyunsaturated are healthiest. It best to keep the amount of saturated fat in your diet to 7-10% because ingestion of high amounts of saturated fats is associated with chronic disease.

Important Micronutrients

Vitamins. Vitamins and minerals comprise the micronutrients in the diet. Water soluble vitamins are the B vitamins and vitamin C. Vitamins A, D, E, and K are fat soluble. The B vitamins play important roles in energy production (especially thiamin, riboflavin, niacin and vitamin B₆) and in red blood cell formation (folic acid and vitamin B12). Deficiency of these vitamins can impair performance. Vitamins A (beta carotene), C, and E function as antioxidants that are necessary to help muscles recover from strenuous classes and rehearsals.

Vitamin D. Vitamin D is important in bone formation, it is used in the maintenance of several organ systems as well as the immune system. Because of its important functions, vitamin D deficiency can lead to many other health problems. Some chronic diseases have been associated with a lack of vitamin D.

Calcium. Dancers, particularly females, are in a high risk group for low bone mineral density and stress fractures. Adequate calcium can help maintain bone density and avoid an injury. Calcium is important in bone formation. By the age of 20, the average woman has acquired most of her skeletal mass. It is important for young girls to reach their peak bone mass in order to maintain bone health throughout life. A person with high bone mass as a young adult will be more likely to have a higher bone mass later in life. Inadequate calcium consumption and physical activity early on could result in a failure to achieve peak bone mass in adulthood. The richest source of calcium is dairy products.

Iron. Iron transports oxygen and manufactures hemoglobin, which are both vital in maintaining energy and good health. Many dancers, especially women, have a diet that is too low in iron. The most frequent cause is the elimination of red meat from the diet, and for women, the monthly loss of iron in the menstrual period. Dancers should include meat (especially lean red meats), poultry, fish, egg yolks, iron-fortified cereals, breads and other grains, legumes, nuts and seeds, dark green leafy vegetables, and dried fruits to get adequate iron. Because vitamin C increases the absorption of iron, eating a source of vitamin C along with food will maximize absorption of iron.

Supplements. A very small proportion of the U.S. population follows all of the dietary and lifestyle recommendations. As a consequence, over 40% of U.S. adults do **not** get, from their food, enough calcium, magnesium, potassium, and vitamins A, C, D, E, and K. Hence, taking dietary supplements is critical to fill these nutritional gaps and achieve optimum health. Taking a high quality vitamin mineral supplement containing equal to or less than the recommended level of each micronutrient is good insurance. Dancers should be cautious however about taking vitamin and mineral supplements that contain only selected micronutrients as this could do more harm than good. Excessive amounts of one can interfere with the absorption of another, and megadoses of some vitamins and minerals could be toxic. Check with a dietitian for a recommendation if you are unsure.

Dancers should increase the amount of fresh fruit and vegetables (recommended 5 servings of fruit or vegetables per day), whole grains, low-fat dairy products, and lean red meat. Because not all vitamins or minerals occur in all foods, dancers should ingest a wide variety of foods. A calorie restricted or repetitive diet could lead to a deficiency in some of these vitamins and could impair the ability to train and recover. See my post Best foods to Put in Your Grocery

Cart for some of the healthiest choices.

There are many dietary supplements on the market designed to enhance performance or decrease body weight. Most of these supplements are ineffective or even dangerous. Dietary supplements are not regulated and may be marketed without acceptable evidence that they are effective or safe. Energy drinks, supplements except for those on my list, creatine, protein powders, high dose vitamins, are unnecessary and can be dangerous. Check with a dietitian or a doctor before taking any supplement even if it's called "natural".

Fluid

Fluid loss from sweat results in dehydration that can impair performance and mental functioning, such as the ability to quickly pick up dance routines and perform them effectively. A water bottle should be part of a dancer's gear and brought with them everywhere. Dancers should get in a habit of drinking fluid on a regular basis. Guidelines are to consume half an ounce per pound of body weight.

- Drink plenty of fluids with meals.
- Drink 16 oz. 2 hours before activity.
- Drink another 8 to 16 oz. 15 minutes before activity.
- Drink 6 to 12 oz. every 15 minutes during exercise.
- Drink 24 oz. for every pound of body weight lost after exercise.
- In events lasting longer than ninety minutes, performance will likely be enhanced with the use of a sports drink.

A dancer can be dehydrated yet not thirsty. A simple way to monitor hydration is to check urine color: clear to light yellow is hydrated; yellow to dark yellow means dehydrated. Keep in mind that vitamin supplements will result in yellow urine and make this dehydration "test" inaccurate.

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demands of these unique performing athletes is the first step in increasing performance, finding a strong healthy weight, and reducing injuries. For a information on a personal consultation, contact Maria Faires at 425-522-2GYM or visit <http://www.myactivenutrition.com>.

[Med Probl Perform Art.](#) 2013 Sep;28(3):119-23.Nutrition and nutritional issues for dancers.**