

# TRAINING DIET

## Carbohydrate – Go Food

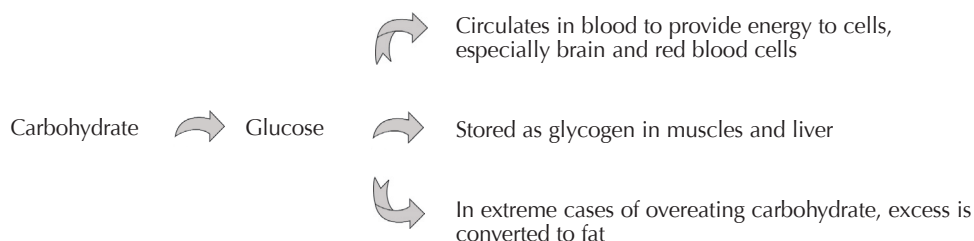


**Question:** (Answer at the bottom of page 2)

Carbohydrate is an important source of energy for your body.

- TRUE       FALSE

Carbohydrate is the most important source of food energy for exercise. In the body, carbohydrate is broken down to glucose. Glucose circulates in the blood and can be stored as glycogen in the muscles and liver. Muscles use this glycogen for energy and the liver uses glycogen to keep the glucose (sugar) level in the blood stable. The human body can store only a small amount of carbohydrate as glycogen. When you over-eat carbohydrate, your body tends to waste this extra energy, frequently by producing more heat. Only in extreme cases is the extra carbohydrate converted to fat.



Carbohydrate (in the form of blood glucose, liver glycogen or muscle glycogen) is the main source of energy for athletic events requiring intense efforts. For long duration endurance activities, carbohydrate is still an important energy source; but, stored body fat will also be used. The major reason so much emphasis is placed on carbohydrate is that the body has a limited ability to store it.

A high carbohydrate intake is needed for optimal performance. A minimum of 6 grams of carbohydrate per kilogram (kg) body weight should be consumed daily. Athletes training at high intensities for more than 3 hours per day may need to consume 10 or more grams of carbohydrate per kg body weight per day to meet their energy demands.

### ***How can you increase the carbohydrate in your diet?***

**Question:** (Answer at the bottom of page 2)

Grain products are the only good source of carbohydrate.

- TRUE       FALSE

At meals and snacks, you should choose breads, cereals, rice, pasta, potato, vegetables, fruit, juice, dried peas, beans, lentils, milk, and yogurt. These are good food sources of carbohydrate. The “**Energize with carbohydrate!**” chart can be used to select foods that have a little or a lot of carbohydrate.

Additional carbohydrate can be found in sport drinks, bars, and gels (see “**Evaluating Dietary Supplements**”). Such highly refined products lack vitamins, minerals, and other nutrients that are naturally packaged in whole foods.

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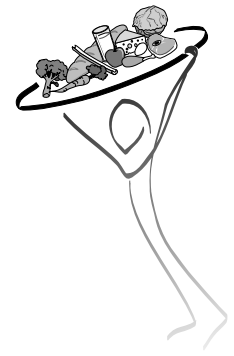
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## Carbohydrate – Go Food, page 2



### ***Glycemic Index is a method to rank carbohydrate-rich food.***

Glycemic Index explains how some carbohydrate foods, when eaten alone, affect blood sugar level. Some carbohydrate foods supply energy over time while other foods increase blood glucose level quickly. High glycemic index foods increase blood sugar levels more quickly than low glycemic index foods. The glycemic index is the body's response to the chemical properties of a food.

Athletes need to select a varied, nutritious diet. Glycemic index is meant to be used with other factors to select appropriate foods, especially before and after exercise.

### ***Limitations of the Glycemic Index***

Glycemic index applies only when single foods are eaten. Adding other foods containing carbohydrate, fibre, protein or fat changes how slowly or quickly glucose enters the blood stream.

The glycemic index might be beneficial to athletes for the following situations:

- In the meal before exercise, a low glycemic index carbohydrate food provides energy over a long time.
- Alternatively, an endurance athlete may want to eat less than 60 minutes before exercise. A high glycemic index food will increase blood glucose level. To benefit, the athlete must keep the blood glucose level high by consuming a sport drink until exercise starts.
- During exercise, high glycemic index foods are digested and absorbed quickly, increasing blood glucose.
- In the first few hours after exercise, high glycemic index foods permit rapid muscle glycogen storage. This may be a factor for multiple training days or between events.
- Because blood sugar level influences appetite, foods with a lower glycemic index may satisfy you longer.

### ***Higher Glycemic Index Snacks***

- Bread
- Bagel
- Low fat crackers
- Honey graham crackers
- English muffin
- Rice cakes
- Watermelon
- Raisins
- Cantaloupe
- Sport drink

### ***Lower Glycemic Index Meals and Snacks***

- Pasta
- Baked beans and meals made using legumes (dried beans, peas, and lentils)
- Fruit (except melons and raisins)
- Fruit juice
- Milk
- Yogurt

The value of glycemic index varies from one sport to another. It is most beneficial to individuals competing strenuously for more than 90 minutes. The effect of glycemic index on exercise performance is still controversial and requires additional research. Coaches and athletes who want more detailed information on food selection for their sport should contact a registered dietitian with expertise in sport. You can contact the dietitian at your Canadian Sport Centre or someone listed under the Sport Nutrition Registry on the CAC website. If there is no dietitian with expertise in sport listed in your area, Dietitians of Canada may list a dietitian near where you live.

In general, you need to select nutritious, carbohydrate-rich foods at meals and snacks so you have plenty of energy for training, competition, growth and health.

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1. TRUE – Your body needs more carbohydrate than any other nutrient except water! That's why more than half the food we eat should come from carbohydrate foods like whole grains, legumes, fruit, vegetables, and milk. For general good health, eat at least twice as many servings from the Grain Products and Vegetables and Fruit Groups as you do from the Milk Products and the Meat and Alternatives Groups.

2. FALSE – Fruit, vegetables, dried peas, beans, lentils, milk, and yogurt also provide carbohydrate.

