

TRAINING DIET

Carbohydrate – Go Food

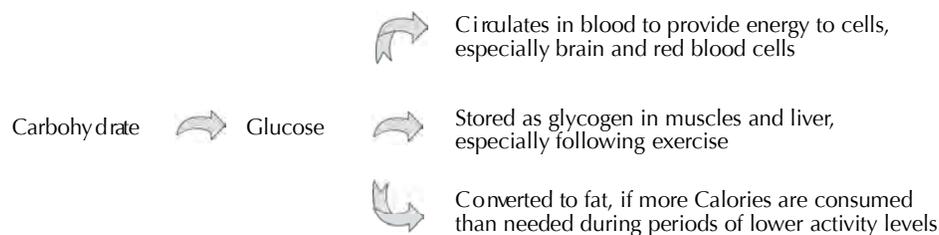


QUESTION: (Answer at the bottom of page 2)

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. If you are active, the carbohydrate that you consume is used by the body or stored as glycogen. If too many Calories are consumed as carbohydrate over time, they may be converted to fat, particularly during the off-season, tapering or light training.



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 there is a limited amount that can be stored in the body.

A high carbohydrate intake is needed for optimal performance. Most athletes need a minimum of 6 grams of carbohydrate per kilogram (kg) body weight daily. Athletes training at high intensities for more than 3 hours per day may need to consume 7–10 or more grams of carbohydrate per kg body weight per day to meet their energy demands. Smaller and lighter athletes such as gymnasts, divers and skaters may need as little as 4–5 grams of carbohydrate per kg of body weight per day. Because these athletes are eating smaller amounts, they need to select especially nutrient dense carbohydrate foods.

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 vegetables, fruit, juice, breads, cereals, rice, pasta, potato, milk, yogurt, dried peas, beans, and lentils.

These are good food sources of carbohydrate. The chart “**Energize with carbohydrate!**” 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 found in whole foods.

SNAC Sport Nutrition Advisory Committee
Comité consultatif sur la nutrition sportive



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

Glycemic index explains how carbohydrate containing foods, when eaten alone, affect the body's blood sugar level. The glycemic index is a measure of how fast a carbohydrate food is digested, absorbed and used by the body. Some carbohydrate foods supply glucose slowly over time while other foods increase blood glucose level quickly. High glycemic index foods increase blood sugar levels faster than low glycemic index foods.

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.

Uses and 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 value of glycemic index varies from one sport to another. High glycemic foods are most beneficial to individuals exercising strenuously for more than 90 minutes. Choosing low glycemic foods at meals may be helpful to athletes who are working towards a lower body fat. 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.

Athletes can choose carbohydrates with a low glycemic index in the following situations:

- In the meal hours before or after exercise, a low glycemic index carbohydrate food provides energy over a long time.
- Because blood sugar level influences appetite, foods with a lower glycemic index satisfy you longer, delaying hunger.

Athletes may choose carbohydrates with a high glycemic index for the following situations:

- A high glycemic index food eaten within 60 minutes before exercise increases the 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 couple hours after exercise, high glycemic index foods are useful for rapid muscle glycogen storage. This is important for multiple training days or between events or games.

Higher Glycemic Index Snacks

- Bread or bagel
- Carrots
- Low fat crackers or rice cakes
- Low fibre cold cereals
- Low fat cereal bars
- Potatoes
- Watermelon
- Raisins
- Cantaloupe
- Sport drink

Lower Glycemic Index Meals and Snacks

- Pasta with meat sauce
- Baked beans and meals made using legumes (dried beans, peas, and lentils)
- Fruit (except melons and raisins)
- Protein bars
- Milk, plain yogurt, cheese
- Nuts and seeds
- High fibre whole grain cold cereal

The effect of glycemic index on exercise performance 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.

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 vegetables, fruit, whole grains, legumes, and milk. For general good health, eat at least twice as many servings from the vegetables and fruit group and grain products group as you do from the milk and alternatives group and the meat and alternatives group.

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

ANSWERS:

