



## ARE YOU EATING ENOUGH CARBOHYDRATE?

To optimize performance in your sport, you must eat foods that contain plenty of carbohydrate. Doing so will increase the stored carbohydrate (glycogen) in your muscles and help maintain the level of sugar (glucose) in your blood. Both muscle glycogen and blood glucose are critical fuels that provide energy for your sport. Most experts recommend that serious athletes, especially endurance athletes, should consume 60-80% of their total dietary energy as carbohydrate. However, it is preferable to express this carbohydrate requirement as 7-10 grams of carbohydrate per kilogram of body weight (3.2-4.5 grams/pound) every day. You can calculate the range for the total grams of carbohydrate you should be eating each day by multiplying your body weight in kilograms by 7 and then by 10. If you prefer to use pounds for your body weight, multiply by 3.2 and then by 4.5. For example, if you weigh 130 pounds, you should be consuming between 416 and 585 grams each day ( $130 \times 3.2 = 416$  grams;  $130 \times 4.5 = 585$  grams).

Unless you skip meals, intentionally starve yourself, find yourself in situations where good food is not available, or make poor choices of food items, you should be able to obtain plenty of carbohydrate from the ordinary foods in your diet (see Table 1). Still, you may want to check your total diet to make sure you are getting enough carbohydrate daily to help you perform to the best of your ability.

How do you find out how much carbohydrate is in your normal diet? You can determine this by keeping a food record and having a nutritionist or dietitian analyze this record using a computer program. But with a little effort, you can also do this yourself by using the free *Healthy Eating Index* on the website ([www.usda.gov/cnpp/](http://www.usda.gov/cnpp/)) of the U.S. Department of Agriculture's Center for Nutrition Policy and Promotion. Once you arrive at this website, scroll down to "Interactive Healthy Eating Index" and click on the link to the appropriate website to begin your diet analysis.

### Using The Healthy Eating Index Site

- You need to have kept track of your food consumption for one full day (24 hours) prior to using the site.
- After entering your age and gender, you will have access to the food entry screen.
- Type in each food item, e.g., "chicken," that you consumed during the day, and then click on "Search" to bring up a list of types of chicken, e.g., fried, roasted, nuggets, etc.
- Click on the appropriate type of food in the search list to add it to your food list on the right of the page, and then repeat for each food item you consumed that day.
- Once you have entered all the foods you consumed, click on "Select Quantity" at the bottom of the list of foods you have entered on the right side of the page. This will show you the typical serving sizes for

the food item; choose the multiple of the most appropriate serving size. For example, if you ate 1/2 cup of rice and selected a serving size of 1 cup, list 0.5 servings of rice.

- When your list is complete, click on "Analyze." You can view the output of the analysis by three methods: **HEI Score** (a total score from 0-100 as well as 10 component scores such as "variety" and "total fat"), **Food Pyramid** (your degree of compliance with this diet assessment tool), or **Nutrient Intake** (list of kcal, macronutrients, and micronutrients).

The last method of analysis (**Nutrient Intake**) provides an estimation of your total carbohydrate intake in grams. You can compare this value to the calculated amount of carbohydrate that you should consume, i.e., 7-10 g/kg or 3.2-4.5 g/lb (see the first paragraph of this article).

To convert the total grams of carbohydrate intake to a percentage of energy as carbohydrate, you must multiply the grams of carbohydrate by 4 kcal/g to calculate the kcal of energy from carbohydrate, divide that value by the total kcal of energy you consumed (as shown on the **Nutrient Intake** analysis), and then multiply by 100 to convert to a percentage:

$$\begin{aligned} \text{--- grams of carbohydrate} \times 4 \text{ kcal/g} &= \text{--- kcal of carbohydrate} \\ \text{--- (kcal of carbohydrate/ total kcal of energy)} \times 100 &= \text{--- \% of} \\ &\text{total energy as carbohydrate} \end{aligned}$$

For example, if the **Nutrient Intake** analysis shows that you consumed 500 grams of carbohydrate and 3200 total kcal of energy for the day, your calculations would be as follows:

$$\begin{aligned} 500 \text{ g of carbohydrate} \times 4 \text{ kcal/g} &= 2000 \text{ kcal of carbohydrate energy} \\ 2000 \text{ kcal of carbohydrate energy/ } 3200 \text{ kcal of total energy} &= 0.6250 \\ 0.6250 \times 100 &= 62.5\% \text{ of total energy as carbohydrate} \end{aligned}$$

Note that the accuracy of the *Health Eating Index* or any dietary assessment is only as accurate as the data you enter. You must carefully estimate portion sizes, include all items (e.g., mayonnaise on a sandwich) and eat normally to get a true assessment of your diet. Contact a professional, e.g., a registered dietitian, if you are confused or need help interpreting this information.

### Carbohydrate in Typical Foods

If you determine that you need to boost your carbohydrate intake, choose foods from the accompanying table of energy and carbohydrate contents of common foods that are high contributors to carbohydrate intake.

(See Over)