

# Exercising muscles need proper nutrients

January 16 2009, By Barbara Quinn

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My friend's teen daughter Kaitlyn commented on the meals she and her brother Ben had on a recent outdoor excursion with their uncle and cousins... all males.

"It was totally guy-food," she said. "Tri-tip, pork chops, shrimp, salmon . . . and macaroni and cheese." No vegetables? I asked.

"We had cauliflower one night . . . mixed into the macaroni and cheese."

Well, boys and girls, protein foods are important for active bodies. But increased endurance and the building of muscle involves more than steak and shrimp, according to a recent report in the Journal of the International Society of Sports Nutrition. Here are some key recommendations for what and when active individuals need to eat:

1. Gotta have carbs. An athlete without carbohydrates - sugars and starches in foods such as bread and cereal grains, fruit, vegetables and milk - is like a car without gas. Carbohydrates provide the primary fuel for working muscles and sustain blood glucose (energy) levels that maintain endurance.

Most experts recommend a high carbohydrate diet (65 percent of total calories) during training, increasing to 70 percent carbs in the days before competition to maximize the storage of glycogen fuel in the muscles. (The more glycogen stored in the muscles, the longer the body can go before becoming exhausted.) Maximum glycogen storage appears to happen when athletes continue their high carb regimen and cut back

on exercise 1 day to 3 days prior to competition, studies show.

2. Gotta have protein. When added to carbs, protein (found primarily in eggs, milk, meat, beans, nuts, poultry and fish) has been shown to increase strength and lean body mass (muscle) in endurance athletes such as cyclists and strength trainers such as weight lifters. Protein seems to be especially helpful when eaten before and right after a workout.

3. Gotta have carbs and protein before long bouts of exercise. Eating foods and beverages that offer a combination of carbohydrates and protein before exercise has been found to increase strength and lean body mass, i.e. muscle. Examples of carb-protein combo's include: milk or soy beverages, yogurt and fruit, low fat cheese and crackers, or a sandwich made with meat, poultry, tuna or peanut butter.

4. Gotta have carbs and protein during long bouts of exercise. Recent studies have shown that carbohydrates ingested about every 10 to 15 minutes (30 to 60 grams of carbs per hour) during a long cycling event delayed the time it took to become exhausted (that's a good thing). However, carbs plus a little protein (at a ratio of 3 to 4 grams of carbs to 1 gram of protein) "resulted in even greater performance" and helped minimize muscle damage to hardworking muscles, according to this report.

5. Gotta have carbs and protein right after long bouts of exercise. Carbs and protein (in the same 3 to 1 ratio) helps restore depleted stores of glucose (glycogen) into the muscles, especially when ingested within 30 minutes of intense exercise. One efficient and delicious way to get an almost perfect 3-to-1 ratio of carbohydrates to protein is with chocolate milk. One cup provides approximately 26 grams carbohydrate and 8 grams of protein.

Bottom line: Carbohydrates and protein are important before, during,

and after endurance as well as strength-training (resistance) exercise.  
That's totally the right food for every active person.

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