

Nutrition Needs for the High School Rower:

Fluids: Staying Hydrated

- If exercisers lose too much fluid in sweat without replacing what they've lost in both fluids and electrolytes (like sodium and potassium), they risk becoming dehydrated.
- Exercisers of all ages are susceptible to dehydration and should pay special attention to their fluid intake.
- Dehydration can diminish energy and impair performance. Maintaining proper hydration is important for all types of fitness.



Hydration for Improving Workouts

Exercisers who work out in warm weather or a hot gym risk dehydration. The risk becomes greater the longer the workout lasts, or when there is more than one workout in a day. Here's how to prevent dehydration and get the most mileage out of a general fitness routine:

- Remember fluids throughout the day. This may be as simple as grabbing a sports drink first thing in the morning, then using water fountains, coolers, and bottles for carrying through the day.
- Hydrate 2 to 3 hours before exercise. Active people should aim for at least 16 ounces (2 cups) of fluid at this time and an additional 8 ounces (1 cup) 10 to 20 minutes prior to exercising.
- Drink during workouts. Sports drinks, like Gatorade®, can help ward off dehydration and muscle cramps because they help replenish both fluid and electrolytes (i.e., sodium and potassium) lost in sweat without overdrinking. However, for active people who prefer to drink plain water, fitness water, such as Propel Fitness Water®, may be a better option.

Make sure your pre-game meal plans follow these guidelines:

- Allow enough time for digestion. Eat the meal at least three hours before an event.
 - 3-4 hours (large meal) – spaghetti, Subway
 - 2-3 hours (small meal) (see snack ideas)
 - 1-2 hours (liquid or blended meal)
 - <1 hour (snack or carbohydrate meal)
- **Choose a meal that's high in starch.** Starch is easy to digest and helps steady the levels of blood sugar. Consuming carbohydrates before meals helps keep glycogen stores high. (**Glycogen:** stored glucose in muscle used for energy when glucose runs out)
- **Consume only moderate amounts of protein.** Protein foods take longer to digest than starch. And high-protein meals may lead to increased urine production, which can add to dehydration.
- **Limit fats and oils. They take too long to digest.**
- **Restrict sugary foods.** Sweets can cause rapid energy swings in blood sugar levels and result in low blood sugar and less energy.
- **Avoid foods and drinks that contain caffeine.** Caffeine stimulates the body to increase urine output, which can contribute to dehydration problems.

Quick Snack Ideas

Try these quick snack combinations to fuel the fit system before or after workouts, or provide energy throughout the day:

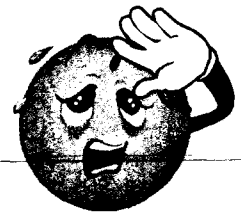
- Whole grain crackers with peanut butter and raisins
- Oatmeal topped with fresh strawberries
- Low fat yogurt with walnuts and dried apricots
- Whole grain pita with hummus and fresh spinach
- Cottage cheese with fresh peaches and almonds
- Pasta salad with fresh tomatoes, carrots, and green peppers
- 1/2 of a turkey and mozzarella sandwich on rye bread
- Broccoli and cauliflower with light ranch dip
- Scrambled eggs and whole grain toast
- Watermelon, raspberry, and blueberry fruit salad

Conditioning & Competition Needs: Important points

1. UP YOUR FLUID INTAKE:

How and when should you drink?

- Do not sip: drink in gulps of water
- 2 hours before practice: 10-18 ounces
- 15 minutes before exercise: 8-16 ounces of water or sports drink
- Every 15 minutes during exercise: 4-8 ounces of alternating water/sports drink
- Post-exercise: 24 ounces of fluid



If a sweet drink is preferred, the carbohydrate content should be less than 10%, so as not to delay fluid emptying. It's important NOT to wait until you feel thirsty to replace fluids. Thirst usually doesn't develop until 1-2% of body weight is lost through dehydration, and performance can be adversely affected at a 2% loss!

Sports and Energy Drinks:

These drinks contain easily digestible fuel in the form of carbohydrate particles and are an ideal way of boosting your energy stores mid-row.

2. CALORIE NEEDS: vary between individuals

Minimum:

Current weight x 20 = number of calories for Women

Current weight x 25 = number of calories for Men

Competitive Rowing burns about 700-1000 calories/hour (**no breaks!!!**)

BUT....Don't overdo it:

1 double cheeseburger + medium fries + medium soda = 1059 calories. When you are not rowing..those calories are added up and stored as fat.

3. MEAL FREQUENCY

Small, more frequent meals will give you consistent energy more quickly to provide available fuel for your body. Think of eating 5 or more snacks/meals per day every 3-4 hours during the regatta season.



4. CARBOHYDRATE NEEDS

Intense training depletes carbohydrate stores resulting in poor performance and increased fatigue, so rowers need to consume carbohydrates with every meal:

Great sources of carbohydrates include: bread, bagels, fruit, vegetables, English muffins, muffins, pita bread, tortillas, rice, pasta, dry non-sugar cereal, crackers, pretzels, potatoes, cereal bars, sports drinks.

What to Consume Before, During, and After Workouts:

Before exercise: All meals should be 2/3rd carbohydrate (grains) and 1/3 protein (meat and meat alternatives)

During exercise: 30-60 grams of carbohydrate per hour OR pre-load when eating during exercise is NOT possible.

5-10 ounces of sports drink every 15-20 minutes OR 2 sports gels per hour OR a packet of honey work well.

After exercise: Chocolate and Strawberry milk, Cereal bar, Pop-Tarts, crackers, pretzels, dry cereal, bagels, graham crackers, fruit punch/drink, frozen yogurt, fruit ice.

5. PROTEIN NEEDS



Protein is used as a means to build muscle and to provide energy – a prolonged inadequate protein intake results in the body breaking down its own muscle tissue. Protein needs for teenagers vary based on your weight.

To calculate protein needs:

DRI: 0.8g protein per kg of body weight

1. Calculate kg: take wt. in lbs and divide by 2.2
2. Multiply wt. in kg by .8

Example: 160 lb male; $160/2.2 = 72.7$

$72.7 \times 0.8 = 58$ g Protein needed per day

Protein sources include: chicken, fish, turkey, soy burgers, certain yogurts, peanut butter, peanuts, eggs, cheese, milk, shellfish, beef, pork, veal, assorted non-salted nuts.

6. FAT REQUIREMENTS

Fat is an essential fuel source for endurance activity. Too much can cause cramps and not enough can cause you to fatigue more quickly. Try to limit high fat food before and during exercise.

Foods to limit before and during exercise include: chips, French fries, pizza, burgers, onion rings, ice cream, doughnuts, chocolate, nuts, fried meats, bologna, salami, and pepperoni.

Be sure to include sources of healthy fats during the day. Examples are: peanut butter, almonds, walnuts, cashews, avocado, olive oil, corn oil.

7. PRE-WORKOUT MEALS



There is no single ideal pre-event meal and it will vary with the individual rower; you should try out as many different combination meals as possible in training until you discover what works for you. The following general guidelines may be of help:

Eat a small meal of no more than 500-800 calories about 2-3 hours before you row, so your stomach has time to empty. Emphasize starch or "complex" carbohydrate foods that are digested quickly and can boost glycogen supplies in the working muscle.

8. RECOVERY FOODS: Refueling the Muscles

Eating within two hours of exercise is the most important time to replace carbohydrates. To maximize muscle glycogen repletion between daily training sessions or competitive events, and to minimize fatigue during frequent bouts of intense rowing, carbohydrates should be consumed after exercise. Equal amounts of both solid and liquid carbohydrate (Gatorade) feedings work well in influencing muscle glycogen replacement.

Conclusions: Rowers need proper nutrition!

Rowers have very high energy and carbohydrate requirements to support training loads and meet body weight and strength goals. All rowers need to work hard to recover between training sessions.

A high energy, high-carbohydrate, nutrient-dense diet is required. Rowers need to pay particular attention to recovery after training and organize themselves to have high carbohydrate snacks on hand immediately after training sessions are completed.

Rowers should go into each race with fluid and fuel stores topped up, and feeling comfortable after the last meal. Suitable foods include breakfast cereal, toast, muffins, sandwiches, yogurt, fruit, pasta with tomato sauce, and rice.

Rowers need to organize themselves to have nutritious food supplies at their fingertips at all times. Take along a supply of cereal bars, liquid meal supplements, sports bars, fruit bars, dried fruit, sandwiches, yogurt, juice, etc.

Don't neglect fluid needs. You can be dehydrated from your rowing, practices, or from sitting in the sun watching the competition.

Additional Resources:

www.mypyramid.gov – USDA Food Guide Pyramid

www.acsm.org – American College of Sports Medicine

www.eatright.org – American Dietetic Association Website

**The information in this handout was adapted from: Gatorade Sports Science Institute and American College of Sports Medicine

Keep Healthy Foods at Your Fingertips

Food Group	Examples
Grains	<ul style="list-style-type: none"> • Whole grain breads • Whole grain cereals like oatmeal or whole wheat flakes • Oatmeal or Cheerios • Brown rice • Whole grain pastas or couscous • Whole grain crackers like stone-ground wheat and Triscuit crackers • Barley or bulgur
Fruits	<ul style="list-style-type: none"> • Citrus fruits like oranges, grapefruit, and tangerines • Bananas, kiwi, and pineapple • Apples, pears, nectarines, papaya, and peaches • Plums, prunes, and apricots • Grapes and raisins • Watermelon, honeydew, and cantaloupe • Strawberries, blueberries, raspberries, and cherries • 100% fruit juices • 100% fruit leather and dried fruit • Frozen 100% fruit bars
Vegetables	<ul style="list-style-type: none"> • Avacado, broccoli, cauliflower, and brussels sprouts • Potatoes, sweet potatoes, and yams and winter squash • Green beans, snap peas, corn, and asparagus • Tomatoes, tomato sauce, and tomato juice • Spinach, cabbage, kale, collards, and greens • Green, red, and yellow peppers • Onions and leeks
Milk/Dairy Products	<ul style="list-style-type: none"> • Low fat/nonfat milk or soymilk • Low fat/nonfat cheese or cottage cheese • Low fat/nonfat yogurt and kefir • Low fat/nonfat frozen yogurt or ice milk
Protein Sources	<ul style="list-style-type: none"> • Skinless chicken or turkey breast • Pork loin • Lean roast beef • Eggs • Salmon, tuna, whitefish, and shrimp • Soy-based vegetarian burgers and meat alternatives • Tofu and tempeh • Nuts, seeds, and nut butters • Dried beans and peas • Energy bars
Dietary Fats	<ul style="list-style-type: none"> • Guacamole, Olive Oil, Peanut Butter, Nuts (any kind), Sunflower seeds,

