



C25K: Pre & Post Workout Nutrition

Eating regularly throughout the day is essential for providing your body with appropriate fuel for your workouts, but individual nutritional requirements can be quite different depending on your daily activities, exercise routines, and workout intensity and duration. For specificity in your individualized nutrition plan, please [schedule an appointment](#) with a Registered Dietician.

One of the critical times to pay attention to your nutritional needs is prior to and after your workout session. Inappropriate fuel for your exercise routine can result in the breakdown of muscle tissue and may even make you more prone to injury.

When Should I Eat My Pre-Workout Snack?

The timing of your meal is also an important aspect of pre-exercise nutrition. To maximize the results of your training, try to eat a complete meal containing mainly carbs, light protein and low fat 2-3 hours before exercise. It is important for runners or endurance athletes to focus on carb consumption during those meals in order to fuel for the central nervous system and muscles for future activity. It is suggested that runners consume 1-4 gm of carbohydrates per kilogram of bodyweight 1-4 hours before working out. For example, if you eat 1 hour prior, eat 1 gm of carbs for every kg of your body weight. If you eat 2 hours prior, eat 2 gm of carbs for every kg of your body weight, etc.

However, in some cases, you may not be able to get in a full meal 2-3 hours before working out. In that case, then you can still eat a decent pre-workout meal. However, keep in mind that the sooner you eat before your workout, the **smaller** and **simpler** the meal should be with mainly carbs (banana, CHO gel, or muscle milk). This will help prevent any stomach discomfort during exercise.

Ideal Pre-Workout Snacks

A pre-workout snack should include a good balance of carbohydrates for quick energy coupled with small amounts of protein to help build and repair muscle tissue and regulate the release of glucose in the blood. By keeping these meals low in fat and fiber, you can help avoid common digestive problems such as cramping and nausea

A pre-workout snack could include:

- String cheese with crackers
- 1 banana with or without 1-2 tablespoons of peanut butter
- Turkey sandwich with low fat cheese and a piece of fruit
- Peanut butter-filled celery stalks covered with raisins
- Chicken Sandwich and fat-free yogurt

Post-Workout

The optimal carbohydrate-to-protein ratio for this post workout nutrition is 3:1 (3 grams of carbohydrate for every 1 gram of protein). (To calculate the amount of protein a runner should eat after a workout, multiply 0.14 (new runner) **to** 0.23 grams (elite runner) of **protein** for every pound of your body weight.) Research shows this carbohydrate-protein combination consumed within 30-60 minutes of exercise nearly doubles

the insulin response, which results in more stored glycogen. This stored glycogen is then ready to fuel your client's next running session. Generally, you want to aim to balance proteins and carbohydrates, while avoiding excessive amounts of fat and high-calorie processed foods.

One thing to consider is the amount of protein intake a day will differ for individuals, depending on one's activity level and body weight. It is suggested that new runners should intake approximately 1.2-1.5gm of protein per kg of bodyweight a day, while for an elite athlete, individuals are suggested to consume 1.5-1.8gm of protein per kg of body weight a day. For a more customized and specific nutrition plan, please meet with a [Registered Dietician](#).

Post Workout Meal/ Snack Ideas

- Fat-free Greek yogurt topped with fruit
- Graham crackers with peanut butter
- Low-fat chocolate milk
- Stir fry with grilled chicken, vegetables and brown rice
- Breakfast burrito on whole-wheat tortilla with scrambled egg whites, beans, low-fat cheese and salsa

Hydration Guidelines

Before, during and after workouts, water is key to helping us avoid dehydration, which can negatively affect both athletic performance as well as recovery. Hydration requirements vary individually, but general guidelines include the following:

- **Drink 8-10 8oz. glasses of water a day.** Add an additional 2 servings of water for every workout session completed in a day.
- Ensure you drink **17 to 20 ounces** of water two hours prior to your exercise.
- During your workout session, continue drinking **8 to 10 ounces** of fluid for **every 15 to 20 minutes of exercise.**
- Follow up with **a minimum of 16 ounces of water** for **every pound of body weight lost** during your routine.

Am I Hydrated? A Urine Color Chart:



Hydration from food sources:

Water does not only come from a cup, the food we eat can also help hydrate us throughout the day too. The foods with the highest water content are:

- Grapes
- Melon
- Oranges
- Strawberries
- Cucumbers
- Broccoli
- Iceberg Lettuce
- Pineapple
- Pears
- Cooked Zucchini and Squash
- Spinach
- Cauliflower
- Celery
- Cottage cheese
- Broth based soups
- Yogurt
- Tomatoes

4 Easy Ways to Drink More Water

1. Strategize

- If you find yourself so busy that you forget to drink enough water during the day, have a plan to help make it easier.
- Fill up a glass of water before you go to bed, and when you wake up, drink those 8 ounces of water upon arising.
- Decaffeinated and herbal tea count toward your intake, so sip some tea for your morning beverage.
- Set an alarm on your phone or computer to go off at the top of every hour and drink 8 ounces each time it rings. By the end of an eight-hour workday, you will have consumed 64 ounces (about 2 liters).

2. Flavor

- Do you find the flavor of water to be, well, flavorless? Here are some of our favorite flavor enhancers that don't any sugar or artificial flavors or colors:
 - Add some zip with your favorite citrus fruit. A generous squeeze of lemon, lime, orange, grapefruit or tangerine will add flavor and a small amount of natural sugar from the fruit's juice for a little boost.
 - Make it minty. Muddle some fresh mint leaves in the bottom of your glass or water bottle. This will make your water refreshing as the essential oils in mint help to energize your body and brain.
 - Invest in a water bottle with an infuser insert and fill it with berries. The fruit will flavor the water, while holding back any fruit or seeds from getting in the way when you drink.

3. Temperature

- Try experimenting with the temperature of your water.
- Some like it hot: Many people prefer warm or hot beverages like tea, especially on cold days. Green and herbal teas provide both flavor and immune-boosting, anti-inflammatory compounds.
- Some like it cold: Ice cold water is refreshing and helpful during a workout when your core body temperature rises; drinking cold water can cool you down and extend your time to



exhaustion. Place a water bottle in the freezer for an hour before exercising or fill your bottle with ice cubes and filtered water.

4. Texture

- If you enjoy the texture of sparkling water, substitute it for regular water at any point during the day. Bottled sparkling water is relatively inexpensive, but watch out for those that contain added sugar. An alternative is to invest in a machine that makes carbonated water. These are often sold with sugary flavor enhancers, but be sure to enjoy it plain or add some flavor from lemon or lime juice.

How to Avoid Nutrient Deficiencies:

Table 1. Deficiency Symptoms, Food Sources and Recommended Intakes of Various Electrolytes

Nutrient	Deficiency Symptoms	Food Sources	Recommended Intake*
Sodium	Muscle cramps	Dill pickle	1500 mg
	Loss of appetite	Tomato juice, sauce, soup	1300 mg for people over 50
	Dizziness	Table salt (1 tsp = 2300 mg sodium)	1200 mg for people over 70
Chloride	Changes in pH	Table salt	2300 mg
	Irregular heartbeat	Some fruits and vegetables (tomatoes, lettuce, olives)	2000 mg for people over 50 1800 mg for people over 70
Potassium	Muscle weakness	Potato with skin	4700 mg
	Muscle paralysis	Plain yogurt	
	Mental confusion	Banana	
Magnesium	Muscle	Halibut	320 mg for



	cramps	Pumpkin seeds	women
	Nausea	Spinach	420 mg for men
	Confusion		
Calcium	Osteoporosis, osteopenia	Dairy (yogurt, milk, ricotta)	1000 mg
	Muscle spasms	Collard greens, spinach, kale	1200 mg for people over 50
		Sardines	

Electrolyte Replacement Options:

Table 2. Description and Purpose of Electrolyte-replacement Options

Electrolyte Option	Sodium (mg)	Potassium (mg)	Other Nutrients	Purpose
A. Electrolytes + No/Very Low Calories				
Portable hydration tablets (< 10 calories)	125–180	23–50	Calcium Chloride Magnesium Manganese Vitamin C, B (5, 6, 12)	<ul style="list-style-type: none"> • Additional electrolyte replacement for salty sweaters and heavy sweaters • Additional electrolyte replacement in hot and/or humid conditions • Electrolyte replacement for individuals trying to achieve weight loss • Some products serve as a flavored alternative to plain water
Electrolyte capsules (0 calories)	40–150	25–43	Calcium Chloride Magnesium Manganese Selenium	



			Vitamin B-6 Zinc	
B. Electrolytes + Calories (10–80 calories)				
	60–120	15–43	Amino acids Calcium Magnesium Vitamin C, E	• Electrolyte and carbohydrate replacement during exercise sessions lasting 45–120 minutes including continuous and intermittent types of activities
C. Endurance specific electrolytes + Calories (10 – 80 calories)				
	180–250	10–107	Amino acids Calcium Chloride Choline Folate Iron Magnesium	• Electrolyte and carbohydrate replacement during exercise sessions lasting longer than 120 minutes • Electrolyte and carbohydrate replacement during exercise sessions lasting longer than 120 minutes
			Vitamin A, C, E, B	
*All amounts are per 8-ounce serving				

How can I make an appointment with a Registered Dietician?

The *Nutrition Clinic at UD Health* has a team of licensed Registered Dietitian Nutritionists (RDNs) with specialized training. The clinic’s RDNs perform a *thorough assessment* of your overall nutritional status, which includes a review of your medical history and biochemical lab tests, and assessment of your height, weight, body mass index, dietary intake, eating habits, and nutritional supplement intake. RDNs then work with you to develop a personalized treatment plan. Sessions also include recipes, tips for shopping, eating out, and planning meals and exercise.

To schedule a telehealth appointment, call the UD Nurse Managed Primary Care Center at 302-831-3195 to leave a message with your name, phone number, and that you are calling to schedule a Nutrition Clinic Appointment. You will receive a call back to schedule an appointment with one of our Registered Dietitians. You may also email us at nutrition-clinic@udel.edu. For more information, visit the Nutrition Clinic’s website at <https://sites.udel.edu/bhan/the-nutrition-clinic-at-ud-health/>.