

# NUTRITION

## FOR THE TENNIS STUDENT-ATHLETE



**A**n elite tennis athlete needs power, agility and on-court endurance. This requires a nutrition strategy that meets the fuel needs for both endurance and repeated energy bursts. Tennis student-athletes need to focus on daily nutrition habits to ensure adequate recovery and necessary training adaptations.

Many collegiate student-athletes struggle with balancing academic responsibilities and proper fueling and hydrating for their sport. Often, they arrive at practice in an under-fueled, dehydrated state. This leads to early fatigue and increases the risk for muscle cramps — and both will inhibit you from performing optimally.

Information presented by



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## THE UNIQUE PHYSIOLOGY OF TENNIS

Many factors make tennis a unique sport. Although tennis is a team sport, a major component of tennis is individual performance. Therefore, your nutrition plan must be individualized and adjusted daily to accommodate varying training loads.

Tennis also differs from other sports in its sudden stop-and-go nature. **Because tennis athletes use both anaerobic and aerobic energy systems, fueling strategies should address both endurance and explosive bursts.** Tennis also is typically played in warm and hot environments, exacerbating sweat loss. Tennis athletes can lose up to 5 or 6 pounds of sweat per hour, with each pound of sweat containing about 500 milligrams of sodium. Thus, hydration and electrolytes are critical to performance.

These factors make tennis athletes more prone to muscle spasms and cramping. For optimal performance, the nutrition plan should address all these factors.

## PRESEASON PHASE

Tennis season can be split into three phases: preseason, competition and championship. During preseason, the goal is to adapt to increased conditioning, resulting in improved cardiorespiratory fitness and power. Hydration and fueling are key to ensuring that adaptation occurs. It is vital to adopt sound nutrition strategies during this phase because these healthy habits will set you up for a season of either optimal energy and recovery, or of struggling to recover from one match to the next. During preseason, it is most important to:

- Drink adequate fluids;
- Eat breakfast daily;
- Consume adequate fruits and vegetables; and
- Take recovery nutrition seriously.

**Maintain Hydration:** Hydration is overlooked by many tennis players

— at least 50 percent are in a state of dehydration, primarily because they rely on thirst to stimulate fluid intake. But by the time you are thirsty, you are already about 1 percent dehydrated. If dehydration continues, strength, aerobic capacity and neuromuscular function will be compromised, thus impacting your performance. **Proper hydration not only is beneficial for endurance and power, but also it is helpful for concentration and stroke precision.**

### Hydration Recommendations:

- Divide your body weight in half (in pounds) to know the minimum amount of fluid (in ounces) to drink on a consistent basis. Harder workout days will require more fluid to replace sweat and electrolyte losses.
- Carry a water bottle throughout the day to make sure you meet your goals.
- Keep water, electrolyte-containing drinks and carbohydrate-containing drinks courtside to drink during stoppages as needed.
- A great way to think of on court hydrating and fueling is “bites and gulps.” Take fluids in large gulps and fuel consistently with bites of fruit, chews, bars or trail mix.

**Eat Breakfast:** Breakfast provides a good fuel source to start the day and stops the catabolism (muscle breakdown) that occurs overnight when food is not eaten. It is easier to eat optimal amounts of all nutrients when you start with breakfast. Student-athletes who skip breakfast tend to be overly hungry later, and tend to backload meals – eating more at the end of the day than the beginning – which is associated with less muscle mass and higher amounts of body fat.

Tennis may require frequent long-distance travel, making breakfast even more important, because it might be the only sit-down meal of the day. Tennis may require multiple spurts of activity in a day if playing in both singles and

doubles tournaments. This places greater importance on breakfast in preparation for the competitive season. Getting used to eating breakfast in the preseason will make it much easier to do so when the competitive season begins.

**Fruits and Veggies:** Many student-athletes eat inadequate amounts of fruits and vegetables, making them vulnerable to stress and greater inflammation. This can weaken your immune system and lower your work capacity.

You can still perform if you eat poor quantities of produce, but over time the lack of nutrients can lead to greater muscle injury, more frequent illness and lengthened recovery time. Try to eat a fruit or vegetable at every meal or snack to minimize injuries and recovery time between competitions.

It is essential to get a colorful variety of fruits and vegetables daily. The more “colors” you eat, the more essential vitamins and minerals you provide your body. During hot and humid days on the court frozen grapes, sliced bananas, orange wedges or cold pickles can help provide good sources of electrolytes and water to help prevent cramping or dehydration.

**Recovery:** One definition of recovery is returning to a normal and better condition. For tennis players, this is getting your body back to how it was before the training session or competition.

**The quicker you recover, the sooner you can train or compete at an optimal level again.** There are three main areas you should focus on: replacing fluids lost through sweat, replenishing carbohydrate stores and repairing the muscle damaged during the workout.

**Carbohydrates:** Carbohydrates contribute to increased muscle glycogen stores used for peak performance. A low-carbohydrate diet can hinder high-intensity exercise and endurance performance, both of which take place in tennis. As an intermittent sport, tennis

## FRUITS AND VEGETABLES BY COLOR

Red	Yellow/Orange	White	Green	Blue/Purple
Cherries	Butternut Squash	Apples	Asparagus	Black Olives
Cranberries	Cantaloupe	Bananas	Avocado	Blackberries
Dried Cranberries	Carrots	Cauliflower	Broccoli	Blueberries
Raspberries	Grapefruit	Onions	Brussels Sprouts	Eggplant
Red Bell Peppers	Oranges	Pears	Collards	Plums
Red Cabbage	Peaches	White Peaches	Green Bell Peppers	Prunes
Strawberries	Pineapples	White Potatoes	Green Olives	Purple Grapes
Tomatoes	Pumpkin		Guacamole	Raisins
Watermelon	Sweet Potatoes		Kale	
	Tangerines		Mustard Greens	
	Yellow Bell Peppers		Romaine Lettuce	
			Spinach	







## HOW TO FOCUS NUTRITION FOR COMPETITION

**Day before competition:** Your eating pattern should be same as your normal routine, with a focus on refueling your muscles with carbohydrates (e.g., fruit, pasta, potatoes, rice, bread, grains).

**One to three hours before bedtime:** Eat a small snack that includes carbohydrates and a moderate amount of quality protein (e.g., Greek yogurt, cottage cheese, milk, eggs, chicken).

### Hydrate

- Multiply your body weight (pounds) by 0.6 to 0.7. This is the number of ounces of fluid you should drink the day before competition.
- Drink 16 to 20 ounces of water, sports drink or milk before going to bed.

### Electrolytes

- Salt your food or eat salty snacks such as pretzels.
- Get enough electrolytes during the day. Possibly supplement extra electrolytes, if directed by a sports registered dietitian. Your electrolyte needs are specific to you, because people vary drastically in their sodium losses in sweat. Inadequate electrolyte intake can produce muscle spasms, cramping and dizziness.

**Day of competition:** Eat a pre-match meal about three hours before the match starts consisting mostly of carbohydrates with moderate protein.

**One hour before and during competition lasting longer than an hour:** Eat easily digestible carbohydrates (e.g., sports drinks, gels, energy chews, low-fiber energy bars).

### Hydrate

- Drink 16 to 24 ounces of water or sports drink two to three hours before the match starts.
- Drink another 8 ounces 15 to 30 minutes before the match starts.
- At every change of ends, drink 8 to 12 ounces of water or sports drink.
- Even in a tie-break change, have a few mouthfuls of water or sports drink.
- Drink at least 32 ounces of fluids after the match is completed.

### Refuel and repair

- Eat a combination of carbohydrates and protein immediately after the match (within 15-30 minutes). Eat a full meal one to two hours later with a similar composition to the pre-match meal.

is played in brief periods of four to 10 seconds of activity with short, active recovery. Tennis has no defined time limit, so the length of a competition varies greatly. Tennis players should plan ahead and bring convenient sources of carbohydrate to eat during the multiple stoppages in play.

**Protein:** Protein is necessary after workouts and competitions to repair the damage that occurred during exercise. Exercise intensity and body weight dictate how much protein is needed. A good target to aim for is **at least 20 grams of protein within 15 minutes after practice or competition**, or multiply your weight (pounds) by 0.2 grams. If muscle building is your goal, protein intake should be on the higher end of the range of 0.55 to 0.8 grams per pound of body weight, depending on the intensity of your strength and conditioning program.

## COMPETITION PHASE

During the competition phase, student-athletes build upon the habits developed during preseason. Athletes and coaches often make the mistake of emphasizing the importance of the pre-competition meal while neglecting the daily nutrition routine. **Daily nutrition is more vital to performance than the one meal leading into a competition.** During the competition phase, the focus is on overall weight and muscle maintenance and fueling for workouts and matches. Carbohydrates are the key fuel for the high-intensity, maximum-outburst activity of tennis. Primary sources of carbohydrate are fruits, potatoes and grains. Eat these at each meal and before and after training.

Be sure also to eat adequate protein and fat. Protein aids in muscle growth, muscle repair and boosting the immune system. Key sources of protein are low-fat dairy, eggs, chicken, and lean beef and pork. To maximize muscle repair, aim for eating 20 to 25 grams of lean protein every three to four hours. One 3-ounce chicken breast (about the size of a deck of cards) or a can of tuna provides the recommended high-quality protein.

Fat may have a bad reputation for increasing weight and disease risks, but eating too little of it may impair tennis performance because it is

the main energy source for low- and moderate-intensity exercise. Eating the right types of fat can help your body fight inflammation and aid in hormone regulation. Strive to include healthy fats daily, such as nuts, seeds, olive oil and fatty fish (e.g., salmon and tuna).



**The Pre-Competition Meal:** The goal of the pre-competition meal is to maintain normal blood glucose levels for optimal mental focus, provide carbohydrates to delay fatigue, and ensure proper hydration leading into the match. There is no magic formula for this pre-match meal to guarantee top performance, but it should be familiar, and be eaten three to four hours before the match begins. It should consist of mostly carbohydrates, lean protein, and some fruit or vegetables. Avoid high-fiber items that can disturb the gastrointestinal system and high-fat items that can delay food leaving the stomach. Another option that some athletes prefer is a smaller meal and snacking on easy-to-digest carbohydrates (e.g., sports drinks, gels, energy chews, low-fiber energy bars) one hour before the match starts and during the competition.

## CHAMPIONSHIP/ POSTSEASON PHASE

During the championship phase, tennis athletes can play long matches on successive days, which can be grueling. **Proper fueling and recovery are essential to performing on successive days of competition.**

The fueling strategies you used during the regular season should continue through the championship season, but increase your focus on post-match

nutrition. Once you have finished play for the day, your two main nutritional concerns are rehydration and rapid replenishment of glycogen stores.

Plan to have carbohydrates and protein readily available at courtside when you finish the match. Great protein-based snacks for recovery are low-fat string cheese, yogurt, hard-boiled eggs or beef jerky. For carbohydrate recovery foods, it is hard to beat fresh fruits, and the more colors, the better. Great combo foods include a lean deli meat sandwich, trail mix and a cup of low-fat chocolate milk. The post-match snack begins the process of glycogen replenishment and muscle repair, while giving you time to shower, go to the training room and rest before dinner. The post-match meal should include:

- Starches, such as baked potatoes, rice or pasta, covering at least two-thirds of the plate.
- Moderate protein, such as a chicken breast or salmon fillet, to enhance glycogen storage.
- Fruits and vegetables to provide antioxidants, more carbohydrates and water.
- Cherry juice or dried cherries, if possible, to enhance recovery by fighting inflammation.
- The addition of salt to foods and enough fluids to replace the sweat lost during the match.

