An 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.
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

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FRUITS AND VEGETABLES BY COLOR

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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
daily, such as nuts, seeds, olive oil and
fatty fish (e.g., salmon and tuna).

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.

Cherry juice or dried cherries, if
possible, to enhance recovery by
fighting inflammation. 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.

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,
thai 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.

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.

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.

Written by registered dietitians (RDs). For advice on customizing a recovery plan, consult an RD who specializes in sports, particularly a board-certified specialist in sports dietetics (CSSD).