

# The Tournament Diet

Reprinted with Permission of  
TennisPro Magazine, the official publication of  
Professional Tennis  
Registry

## What to Eat Throughout the Day During a Competition

by Dawn Weatherwax-Fall, RD, CSSD, LD, ATC, CSCS  
& Mark Kovacs, PhD, CSCS

We all know what an athlete eats every day makes a big difference in their performance on court. Tournament day is just as important. So where should a player start in determining their nutritional habits and needs?

### The Tennis Player's Nutritional Checklist

**Energy needs...** Take in enough calories to maximise performance and recovery.

**1. Evenly disperse calories throughout tournament day:** This ensures consistent energy levels.

**2. Hydration:** Consume enough fluids and electrolytes before, during and after the match.

**3. Pre-game nutrition:** Make sure to have appropriate timing, calories, fluids and foods that have the right mixture of carbs, protein, fat and electrolytes to maximise performance.

**4. During competition:** Very important to hydrate and intake proper amounts of carbohydrates and electrolytes.

**5. Post-match nutrition:** Replace fluids lost and take in appropriate nutrients within 30-45 minutes after each match.

### Energy needs

A major mistake many tennis players make during tournaments is not eating enough calories to fuel the energy requirements needed to perform at the highest level (1). Research has shown that an average competitive male tennis player may burn more than 500k calories per hour of match play(2). Calorie needs vary greatly from athlete to athlete because of differences in gender, body composition, age, level of activity, duration and efficiency of movement(3,4,5).

One of the best ways to help your players know exactly what their needs are on the day of competition is food and hydration journaling, possibly measuring energy expenditure

with a calorie expenditure device and having personalised tournament menus developed by a nutrition expert. It is important to experiment with these techniques before major competitions to make sure that the food choices and quantities do not result in any adverse side effects, such as bloating, the feeling of fullness, cramping or lethargy.

Secondly, it is important that the athlete spreads the calories and fluids consumed evenly throughout the day in order to have consistent energy levels and maximize performance (6). This is accomplished by keeping blood-sugar levels constant. Many athletes make the mistake of eating the majority of their energy needs after the event. If the athlete is starving after competition, they did not come close to meeting their nutritional needs before the tournament started.

Also, if the match goes on for longer than expected, they could run low on energy reserves, which could also negatively impact performance. It is very important to always prepare for the worst-case scenario, and have enough snacks on hand to fuel the body if there is a rain delay or matches go on

*Dawn Weatherwax-Fall is a registered/ licensed Dietician and specialises in sports nutrition. She is the founder of Sports Nutrition 2Go ([www.sn2g.com](http://www.sn2g.com)). She is also a board-certified specialist in Sports Dietetics. Weatherwax-Fall is the author of The Official Snack Guide for Beleaguered Sports Parents, The Complete Idiot's Guide to Sports Nutrition, and wrote a chapter in Unique Considerations for the Female Athlete. She has also been featured on television shows, including Good Morning America, MSNBC, Geraldo Rivera and Fox News.*

*Dr. Mark Kovacs is a former professional tennis player, collegiate All-American and NCAA champion. He is currently the senior manager of Strength and Conditioning/ Sport Science for the USTA. He is the co-author of Tennis Training: Enhancing On-Court Performance, which can be purchased through the PTR pro shop.*

longer than expected.

### Pre-match carbohydrates & hydration needs

Due to the variability of tennis, pre-game nutrition can be very challenging. Evidence suggests that the closer the athlete gets to activity, the less fat, protein and calories the body can tolerate, and the need for appropriate levels of carbohydrates and hydration are important(7,8,10).

### Pre-game hydration guidelines

- 2-3 hours before a workout or competition, drink approximately 2-3 cups (16-22oz) of fluids.
- Then 1 hour before a workout or competition, drink approximately 1 cup (8oz) of fluid.
- 15 minutes before the workout or competition, drink approximately 1 cup (8oz) of fluid.
- If the facilities allow, it is a good idea to monitor an athlete's change in body weight before and after the match by having the athlete weigh and record their weight to compare with post-match weight. Weighing an athlete should not be performed at a tournament without the athlete being used to weighing before and after previous matches or practice sessions. It is never a good idea to add/change a routine on tournament day.

Pre-game guidelines also vary greatly from athlete to athlete due to different physiological and anthropometric numbers, energy expenditure and gastric emptying (the speed at which fluid moves out of the stomach). The best way an athlete will know what works is by practicing their nutritional strategy on non-competition days(10).

**During matches**

During tennis matches, maintaining an appropriate level of hydration is important in minimizing fatigue, which can lead to errors, the increased chance of injuries, and a decrease in speed, power and strength(11,12). The goal of the athlete is to keep their weight constant throughout the match. For example, if the athlete weighed 142lb before they started the match, then they want to finish their match weighing close to 142lb. In long matches in hot and humid conditions, it may not be possible to replace all the fluid lost during a match. This can have severe effects, because if an athlete is as little as 2-3% dehydrated, their performance can decline up to 10%. More concerning is that some studies have shown that 66% of all athletes are poorly hydrated before an event(13).

Replacing electrolytes is important – especially sodium. Sodium content in an athlete’s sweat is highly varied. A salty sweater is someone who, when they sweat and are wearing dark clothing or a dark hat, will leave a white residue. This white residue is the sodium in the sweat. A rule of thumb is 70mg



of sodium per 8oz during competition, or 0.3 to 0.7g sodium per litre of fluid during hot and humid days(14).

Hydration needs vary greatly from athlete to athlete, so defining what amounts work best could take several trials, and it would be helpful to consult a trained professional experienced in nutrition and hydration.

It is also important for tennis players to consume enough carbohydrates before and during competition to prevent fatigue and the lowering of blood sugar levels. The amount of carbohydrates to consume during matches is based on each individual’s metabolism, body composition, sweat



rate and movement efficiency. Research suggests that consuming food or fluid with a 4-to-1 ratio of carbohydrates to protein may be as effective, or possibly more effective, than carbohydrates alone in aiding performance(15). More research is required to determine if this ratio produces the same results in tennis performance.



### In-game hydration/nutrition guidelines

- During each changeover, a good rule of thumb is to drink between 4-12 (4-12oz) sips of water or some kind of sports drink (carbohydrate/electrolyte formula). The higher-end of the range is typically for individuals who are heavy sweaters.

Experiment with this formula and then adjust it accordingly for each athletic activity you engage in. Do this until you find that your weight remains within a close range from the start until the end of the match.

- Consume approximately 70mg or more sodium per 8oz of fluid.

- 30-60g of CHO per hour.

- If activity last longer than an hour - Carbohydrate beverage should be a 5-7% carbohydrate solution. Beverage could possibly have a 4-to-1 carbohydrate to protein ratio.

### Post-match nutrition

If the athlete is unable to keep their body weight the same during a match, it is important to replace any fluid lost to maximise recovery and minimise fatigue. The goal is to drink 20-24oz of fluid for every pound lost(9). If an athlete gains weight during the match, this weight gain should never exceed two pounds. It is important to make fluid adjustments for the next match.

From a nutritional standpoint, the goal is to replace the carbohydrates and protein used during the match. The athlete wants to consume at least 6-20g of protein and 30-60g of carbohydrates within 30-45 minutes to maximize recovery and to restore energy levels for the next match(16).

### Different scenarios

Below are different menu examples for tennis tournaments. These menus are designed for a 142lb female with a body fat of 18% who needs 3 000 calories on tournament days.

### Tennis tournament menu • Matches at 11am & 3pm

#### Morning 7-9 am

4oz whole wheat bagel  
1 whole egg  
2 egg whites

1oz low fat cheese  
1 cup fresh strawberries  
10oz juice - orange juice  
10oz water

#### Pre-Match 9-11am

20oz water

#### Match 11am-1pm

10oz electrolyte beverage that contains 5-7% carbohydrates (~14g CHO per 8oz solution or a 4-1 ratio/rest water an hour)  
1 energy bar (~210cals - contains 42g of CHO and 6g of protein) couple of bites during change overs.

May also need more fluid than indicated depending on sweat rate.

#### Lunch 1-2pm (have within 30-45min)

1 nutritional shake (~360cals - 54g CHO, 20g protein, 8g of healthy fat).  
2 cups of fruit  
16oz water – replace any fluid lost during match.

#### Pre-Match 2-3pm

16-20oz water

#### Match 3-5pm

10-20oz electrolyte beverage (Gatorade® or Cytomax®) that contains 5-7% carbohydrates (~14g CHO per 8oz solution)  
1 energy bar (~210cals - contains 42g of CHO and 6g of protein) couple of bites during change overs.

Replace any fluid lost and preferably eat dinner within an hour.

May also need more fluid than indicated depending on sweat rate.

#### Evening Meal 5-6pm

2oz grilled chicken  
1 cup whole wheat pasta  
1 cup green beans  
16oz skim/1% milk or juice

#### Evening Snack 9-10pm

8oz low-fat yogurt  
1oz salted nuts  
2 fresh fruits  
10-16oz water

### Tennis tournament menu • Match at 3pm only

#### Morning 7-9 am

4oz whole wheat bagel  
1 whole egg  
2 egg whites  
1oz low fat cheese  
1 cup fresh strawberries  
10oz juice - orange juice  
10oz water

#### Snack 10-11am

1 energy bar (~210cals - contains 42g of CHO and 6g of protein)  
16oz water

#### Lunch 1-2pm

1 nutrition shake (~360cals - 54g CHO, 20g protein, 8g of healthy fat)  
2 cups fruit  
16oz water  
Or  
1 turkey sandwich on whole wheat bread, mustard, tomato, lettuce and fruits, baked Lay's® chips, Vitalicious™ cranberry muffin top (VitaTop™)

#### Pre-match 2-3pm

20oz water

#### Match 3-5pm

10-20oz electrolyte beverage that contains 5-7% carbohydrates (~14g CHO per 8oz solution or a 4-1 ratio/rest water an hour)  
1 energy bar (~210cals - contains 42g of CHO and 6g of protein, e.g., Powerbar® energy bars)

Replace any fluid lost and eat dinner within an hour.

#### Evening meal 5-6pm

2oz grilled chicken  
1 cup whole wheat pasta  
1 cup green beans  
16oz skim/1% milk or juice

#### Evening Snack 9-10pm

8oz low-fat yogurt  
1oz salted nuts  
2 fresh fruits  
10-16oz water

## Rain delay

During delays, it is important to maintain fluid, carbohydrate and electrolyte levels. When delays happen (and typically they do during tournaments), it is important to have liquids and easily digested foods available in order to be ready at any moment.

The best way to know if these items work is to have the players try out products as close as 15 minutes before heavy practices and note any intolerance issues.

Examples of rainy day items: nutrition shakes, Naked@/Odawalla@ protein or regular smoothies, salted pretzels, mini bagels, Vitalicious muffin tops and low-fat crackers.

## Summary

Thousands of hours are spent on technique, tactics, physical and psychological training to prepare for competitive tournaments. It is imperative that all this hard work is not undone by poor nutrition, especially during tournaments. The goal of this article was to provide some practical information to help your players succeed on court when it counts the most – in competition.

It is important to maximise these efforts with a sports nutrition and hydration tournament plan that allows for top level performance. Remember, sports nutrition is a scientific discipline and it requires a combination of the correct knowledge, experience and individual application to each athlete to perfect an ideal plan.

## References

1. Hinton P, Sanford T, Davidson MM, Yakushko O, and Beck N. Nutrient intake dietary behaviors of male and female collegiate athletes. *Inter J of Sports Nutrition and Exercise Metabolism*, 2004;14: 389 – 390.
2. Fernandez-Fernandez J, Sanz-Rivas D, Sanchez-Munoz C, Pluim

BM, Tiemessen I, Mendez-Villanueva A. A comparison of the activity profile and physiological demands between advanced and recreational veteran tennis players. *J Strength Cond Res*. 2009 Mar;23(2):604-10.

3. Webb P. Energy expenditure and fat-free mass in men and women. *Am J Clin Nutr*. 1981;34:1816–26.

4. Paffenbarger, R Jr, Wing A, Hyde R. Physical activity as an index of heart attack risk in college alumni. *Am J Epidemiology*. 1983;30:10-15.

5. Pentz J. Nutrition for Professionals. *Life-style Management Associates* 2008:128 130.

6. Hornery D, Farrow D, Mujika I, and Young W. An integrated physiological and performance profile of professional tennis. *British Journal of Sports Medicine* 2007;41:531-536.

7. Kovacs MS. Carbohydrate intake and

tennis: are there benefits? *Br J Sports Med*. 2006;40(5):e13.

8. Burke, LM, Kiens, B, & Ivy, JL. Carbohydrates and fat for training and recovery. *Journal of Sports Sciences*, 2004;22, 15-30.

9. Casa D, Armstrong L, Hillman S, Montain S, Reiff R, Rich B, Roberts W, Stone J. National Athletic Trainers' Association Position Statement: Fluid Replacement for Athletes. *Journal of Athletic Training* 2000;35(2):212–224.

10. Position of the Dietitians of Canada, American Dietetic Association, and the American College of Sports Medicine. Nutrition and Athletic performance. ... *Dietetic Association, Dietitians of Canada, and the American College of Sports ...* Also in *J Am Diet Assoc* 2000;100:1543-1556 and *Med Sci Sports Exerc* 2000;32:2130-2145

11. Sharma VM, Sridharan K, Pichan G, Panwar MR. Influence of heat-stress induced dehydration on mental functions. *Ergonomics* 1986;29:791-99.

12. Cian C, Koulmann N, Barraud PA, Raphael C, Jimenez C and Melin B. Influence of variations in body hydration on cognitive function: effect of hyperhydration, heat stress, and exercise-induced dehydration. *J Psychophysiol* 2000;14:29-36.

13. Wildman R and Miller B. *Sports and Fitness Nutrition*. Wadsworth 2004.

14. Casa, Douglas et al. *ACSM'S Health & Fitness Journal*. Avoiding Dehydration Among Young Athletes. 2005;9(3):20-23, May/June.

15. Harmon JH, Burchard JR, Seifert JG. Ingestion of a carbohydrate-protein supplement improves performance during repeated bouts of high intensity cycling. *Medicine & Science in Sports & Exercise*. 2007;39(5):S363.

16. Levenhagen, D.K., Gresham, J.D., Carlson, M.G., Maron, D.J., Borel, M.J., & Flakoll, P.J. (2001). Postexercise nutrient intake timing in humans is critical to recovery of leg glucose and protein homeostasis. *American Journal Physiology – Endocrinology and Metabolism*. 2001;280, 982-993.

