

2007

SOCCER NUTRITION



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Elite Soccer Conditioning
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Introduction



"Players who ate lots of carbohydrate ran the most and only walked about 25% of the total distance. Players who ate a "normal" meal covered about 25% less distance and covered most of it at a walk."

These guidelines are put in place to help you maximize your performance. It is important to eat at the right times and to eat the right things. Otherwise your performance will suffer, as will be shown later.

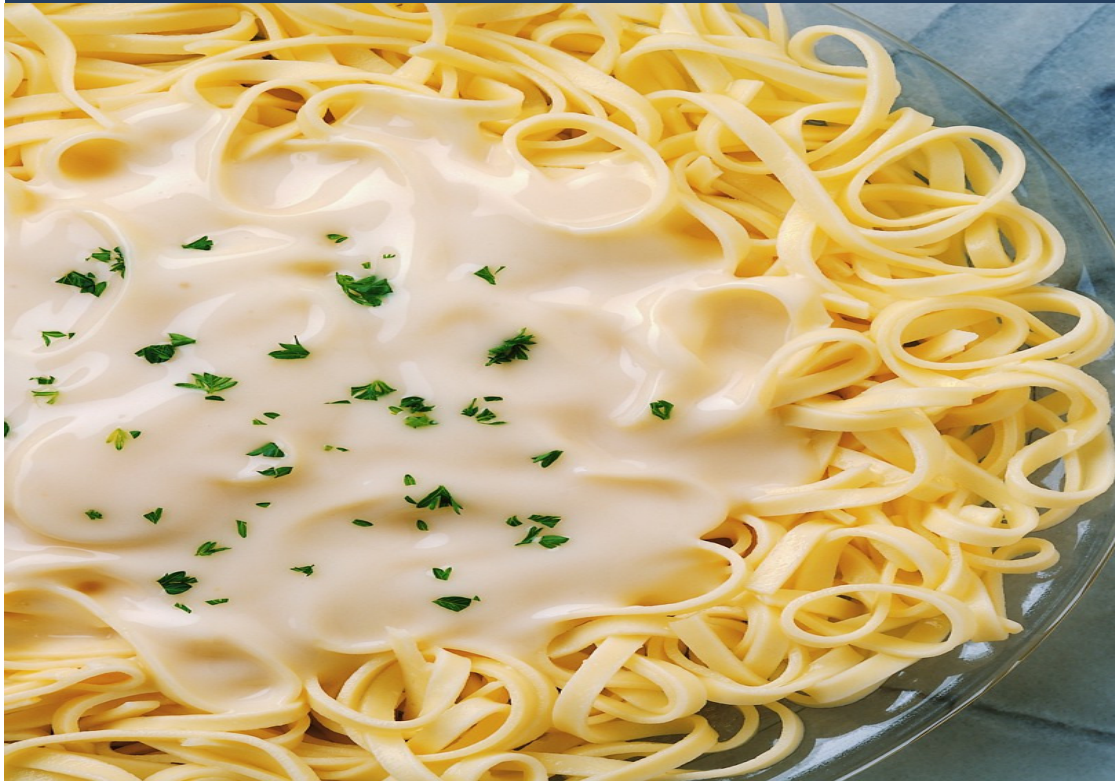
If you properly hydrate and feed yourself your performance will improve. Let's consider for a moment a few of the variables that contribute to a win. (Not all inclusive)

1. Individual skills with the ball
2. Individual strength, speed and conditioning
3. Team cohesiveness
4. Team tactics
5. Psychology
6. Eating right
7. Hydrating correctly

Although each of the above does not have an equal value in relation to contributing to a win, let's assume that each gets one point. If all of your focus was only put on 1-5 you would think you would earn 5 points total. But after further analysis the team that does not eat right or hydrate correctly will soon realize that #6 and #7 drastically affect many of the first five. Have you ever had a team with good speed look sluggish and slow because they did not hydrate enough or eat right the day before a game? Or because of fatigue for the same reasons athletes don't make the runs they normally make, thus killing tactics and cohesiveness? What could happen to the Psychology of an athlete when they are dehydrated?

Because of correct sports nutrition you will be able to run longer. You will feel better, have more energy and have less fatigue. One source said that 30% of all goals come towards the end of the game. If you can improve all seven of the performance areas and the others that were not listed you will win more games. In this E-Book you will discover a few tips and tricks that are vital to the success of your soccer athletes.

Day of the Game



"Athletes tend to have fewer problems with muscle cramping and fatigue when they eat a nutrient dense meal 2-3 hours before game time."

F O O D

Athletes tend to have fewer problems with muscle cramping and fatigue when they eat a nutrient dense meal 2-3 hours before game time. Nutrient dense meals are high in carbs (not candy or soda drink carbs) and some protein, (turkey, chicken, and other lower fat meats.). If we eat a meal that is properly nutritious for our bodies then we will feed our carbohydrate stores. Which translates to better performance during the game. The more carbohydrates we eat the more glycogen stores we will have which means the further and faster players run. A diet like Atkins or these other fad diets are not appropriate for athletic performance. A research study showed that players who ate lots of carbohydrate ran the most and only walked about 25% of the total distance. Players who ate a “normal” meal covered about 25% less distance and covered most of it at a walk. Can you guess who won this game?

If you eat a meal that is too large within two to three hours of a game or intense practice this may adversely affect your performance and make your stomach feel bad. When you start to play, the blood that was being used to digest the large meal in your stomach is now being transported to the working muscles for use. The food will now just sit in the stomach and may cause adverse effects.

Here are guidelines on when and how much to eat prior to competition. Don't eat the listed calories at 3-5 hours and also 2-3 hours and then 1-2 and also .5 to 1 hours prior to competition. That would be too much. These guidelines suggest that if you eat 3-5 hours prior to competition then eat 300-500 and if you eat 1-2 hours prior to competition then have liquid meal of 100-200 kcals and so on and so forth. These can be adjusted down if the athlete is smaller. Many restaurants or fast food places have a nutritional guide to help you select your meals.

3-5 hours prior to game-	large meal	300-500 kcal
2-3 hours prior to game -	small meal	200-300 kcal
1-2 hours prior to game-	liquid meal	100-200 kcal
.5 to 1 hours prior to game-	snack	50-100 kcal

Here are some ideas of good foods to eat:

Snacks

Bagel, Banana, Cereal bars, Dried fruit, Fig Newtons, Fruit, Graham crackers, Raisins, White Bread, Subway might be a good place to eat while on the road. Get the whole wheat bread with turkey or some other lower fat meat and some vegetables.

Meals

Baked potato, Corn, Breadsticks, Noodles, Rice, Baked Beans, Oatmeal, Whole wheat bread, Peas. (be aware of high fat sauces for pasta)

In restaurants or at a continental breakfast: hot and cold cereals, bagels, toast, English muffins, pancake with syrup, and fruit. Einstein bagels would provide plenty of carbohydrates for eating on the road.

Foods to stay away from

Candy, Soda pop. These are common foods or drinks that will hinder performance. Athletes have higher metabolisms than non-athletes. If you eat candy or drink soft drinks prior to a game, blood sugar may go down which can result in light-headedness, fatigue or loss of performance. Avoid drinking fluids that contain caffeine because they may stimulate excess urine production, or decrease voluntary fluid intake. Avoid high fat foods.

F L U I D S

A day or two before the game pay attention to your urine color. If the urine is clear like water or the color of lemon juice then that most likely means you are properly hydrated. The darker the urine the more fluid you may need. The clearer the fluid the better hydrated you are. Whether your urine is clear or not each athlete should drink a 16-20 ounce water bottle the night before the game, 16-20 ounces the morning of the game and 16-20 ounces 1-2 hours before the game. 16 ounces is 2 cups. You don't have to drink the 16 ounces all at one time.

During the Game



"It is vital that you drink even if you are not thirsty especially on hot days."

F O O D

Fruit, cereal bars.

F L U I D

During competition replacing lost fluid is vital to health and performance. Because of the continuous nature of soccer it is very difficult to properly hydrate yourself during a soccer game.

Here are some general guidelines to follow if possible that will keep you hydrated and keep performance up:

- During Competition Consume 1 cup cool fluid every 15 minutes (if possible) and during breaks (it is vital that you drink even if you are not thirsty especially on hot days) if you wait till you are thirsty it may be too late, you could already be dehydrated. Flavored sport drinks are not needed unless playing at a high intensity or if the exercise session lasts 45-50 minutes. So a sports drink would be good for a game.
- Be sure to rehydrate during halftime even if you are not thirsty. Gatorade or other sports drinks would be a good choice to replenish carbs and electrolytes that were lost during the first half.
- One problem with water is that it can sometimes shut off the osmotic drive (thirst mechanisms) that you get for drinking. As little as 1 pint of water can turn this mechanism off even though you may have lost 4 pints of fluid. So you may drink a little water and not feel thirsty anymore, but in actuality your body still needs more water. Therefore thirst is not a good indicator of when you should drink. If you wait to drink when you are thirsty then it may be too late. You may already be dehydrated. Also water doesn't replace the lost electrolytes which are important in preventing muscle cramps. Drink plain water throughout the day before competition but when it comes to competition it may at times be better to drink the sports drink.
- Sports drinks may be superior to water in that it doesn't seem to turn off the thirst mechanism. This may be because of the sodium in the sports drink. Sports drinks are good because they replenish electrolytes, carbs and fluid all in one. Another reason is that carbohydrates in fluids have the effect of improving rates of fluid absorption by the intestines (a 6-7% carbohydrate solution is considered best), and the carbohydrates also help to replenish the muscle glycogen used during the exercise.
- An athlete can lose performance when he or she loses only 1-2% of their body weight as fluid. Here are some things to be aware of:: if you weigh 100 lbs. a 2% loss would

be 2 lbs. A good way to see if you are keeping your fluids up is to weigh yourself before the game or practice and then weigh yourself after. If you have lost 2 lbs. then you have not kept your fluids up.

- Recent research (abstract by Smith et al. J. Sports Science 16(5): 502-503) In this study, soccer players had less fatigue in the second half of a simulated soccer game when they consumed Gatorade before the game and at half time. In contrast, players showed greater fatigue (slower speeds, reduced jumping ability) when they drank the same volume of fluid without carbohydrate (water). The advantage of Gatorade is that it supplies fluid and energy. Fluid losses will contribute to fatigue independent of running out of energy. The concentration (6%) and types of carbohydrate in the Gatorade help stimulate rapid fluid absorption (Ryan et al. J Appl Physiol 84:1581-8, '98). The Snickers bar alone will not rehydrate the players. Also, by containing peanuts and other fat sources, the Snickers bar is not digested rapidly; thus, it's carbohydrate doesn't get into the body as quick as the carbohydrates in Gatorade. If the coach is set on feeding the team, I'd suggest foods that get into the body quickly. Low-fat granola bars or low-fat, high-carbohydrate sports bars would be better than the Snickers. I'd suggest first trying this approach during a practice scrimmage to be sure the kids tolerate any food. The use of the sports drink should be continued regardless of the food practice, again to help maintain hydration while providing energy. (Craig A. Horswill, Ph.D.)
- Athletes must be made aware that energy drinks are not appropriate substitutes for optimal fuel and fluid and may have no bearing at all on how energized they feel. In addition, athletes should be educated about these products. For example, some energy drinks do not contain the stated ingredients (Gurley et al., 2000), many are not cost-effective means of obtaining carbohydrate, and certain products may actually impair athletic performance. (Note; there is a difference between energy drinks and sports drinks, i.e., red bull and Gatorade)
- Hydration is not only important in hot but also cold environments. Be sure your athletes are drinking during the cold days also

Here are signs to watch for, during the game, to make sure athletes are not dehydrated;

L A C K O F F L U I D S A N D H E A T I L L N E S S

Dehydration can seriously compromise athletic performance and increase the risk of exertional heat injury. That's why it's important to recognize the warning signs.

- Thirst
- Irritability
- Headache
- Weakness
- Dizziness
- Cramps
- Nausea
- Decreased performance

Recovery



“In competition, it means being able to take part in the next round or event and to perform at the same or at a higher level.”

What is the meaning of recovery in sports?

Recovery is the process the athlete goes through to return to a state of performance readiness. Recovery involves a restoration of nutrient and energy stores, a return to normal physiological function, a lessening of muscle soreness, and the disappearance of the psychological symptoms (irritability, disorientation, inability to concentrate) associated with extreme fatigue. **(Dan Benardot, Ph.D., R.D., L.D.)**

In competition, it means being able to take part in the next round or event and to perform at the same or at a higher level. **(Ron Maughan, Ph.D.)**

What should the athlete do immediately following a game or practice?

After a game or practice do a cool down at sub maximal levels. This could be a slight jog maybe a walk, This will facilitate the removal of lactate that has built up during the competition and prepare the body for the next game. The athlete should also consume fluids to replace lost fluid and carbohydrates. It is important to note that if the athlete has another competition shortly following the event to not eat such a huge meal or not drink such a large amount of fluid because the meal or liquids may stay in the stomach for the next competition. The athlete who doesn't play for another 24 hours doesn't have to worry as much about eating a huge meal immediately following the game. The athlete needs to go through a full body stretching routine also.

What should I eat or drink immediately following the game?

For smaller athletes who have multiple competitions within a day, I might recommend a 200-250 calorie (1 MJ) energy bar or other snack containing mainly carbohydrate, along with 12 to 16 ounces (350-475 ml) of a sports drink to wash it down. This amount of food would increase proportionately with the size of the athlete and the situation. I encourage athletes who are finished for the day to consume 250-400 calories (1-1.8 MJ) of foods high in carbohydrates (pretzels, bread, fruit) with fluids before they shower, and then to eat the same amount after they shower and dress. **(Dan Benardot, Ph.D., R.D., L.D.)**

A good energy bar with lots of carbs and ample amounts of protein would be something like a **powerbar, clif bar, Gatorade energy bar**. When choosing an energy bar look for one high in carbohydrates with some protein in it. Don't buy an energy bar that is low in carbs and high in protein. The main fuel we are worried about replenishing is the carbohydrates. As little as 6 grams of protein is good to help the muscles following a game. More is not better.

Within two hours following a game players should replace lost carbs in the body with about 1 gram of carbs per 1 lb of body weight. If the match is too close to digest a high carbohydrate meal then choose from the list below on how to get quick energy for the next match:

Try combining several of the items below:

- Energy or fruit Bars
- Fresh fruit
- Fruited yogurt
- Bagels, muffins, cereal mixes with dried fruit and nuts

If an athlete feels uncomfortable eating solid food between matches, consider these convenient liquid options:

- Carbohydrate-rich drink
- Liquid meal

(MICHELE MACEDONIO, M.S., R.D. L.D)

Note: You can combine a carbohydrate drink like Gatorade with a energy bar as listed above.

When choosing how much to drink weigh yourself before and after the game. If you weigh 102 lbs. before the game and 100 lbs. after the game you should consume approximately 40-50 oz of fluid. 20 oz of fluid for every pound lost. Make sure at least some of the fluid is a sports drink like Gatorade. A smaller bottle might do the trick. No soda. One thing that may skew the results of the water lost would be the sweat on the clothes so if possible remove the sweaty cloths. But weigh yourself with the same amount to clothes before the game and the same amount after. So if you have shoes on before have the same shoes on after. If you have a shirt on weigh yourself with the same size and weight shirt both times.

Consuming carbs during the first 30 minutes of exercise or the game will help in synthesizing the carbs two times as fast as if you were to wait several hours after the game. This is crucial if you have a game later in the same day.

Post Game Replace lost fluids immediately after play. For every pound lost, consume two cups (16 oz.) of fluid. (Remember this for tournament play especially. Where you could play two games in a day or a game the next day. Always replenish your fluids lost during competition. You could weigh yourself before the game then after the game and see how much water weight you lost then replenish it.)

You won't rehydrate effectively unless you also replace the salts lost in sweat. (Maugh)

Are electrolytes important to speeding recovery after a game?

Electrolyte replacement is crucial. Salts act like a sponge, holding fluid in the body. If you drink a large volume of plain water, the body thinks that it is over-hydrated because the water dilutes the concentrations of sodium and other dissolved substances in the blood. This switches off thirst and switches on the kidneys to increase urine output.

Sodium is the most important electrolyte as it is the one lost in sweat in the greatest amounts, and that's why it is added to sports drinks. **(Ron Maughan, Ph.D.)**

Sodium in fluids is particularly important because, as Dr. Maughan said, sodium drives the desire to drink (a good thing), and the sodium also helps to maintain blood volume. The maintenance of blood volume is considered to be vital to sustaining athletic performance **(Dan Benardot, Ph.D., R.D., L.D.)**

Replacement of sodium and potassium can also help prevent muscle cramps during and after exercise. To be sure they are replacing lost electrolytes, I tell athletes to use sports drinks that contain sodium, eat ample fruits and green leafy vegetables, and lightly salt their food **(Tedeschi)**

Extra note: get enough sleep

Summary



"The goal of with any sports nutrition program is to get the athlete performing at their best and be healthy."

B E F O R E T H E G A M E

1. Eat a high carbohydrate meal with some protein in it about 2-3 hours before the game or if it is a morning game try to eat 1.5 hours before the game so it is digested. The reason you should eat it 1.5 hours before the game is because it is sometimes not feasible to eat 3 hours before competition if the game is in the morning.
2. Drink 16-20oz of water the night before, the morning of and 1-2 hours before the game.

D U R I N G T H E G A M E

1. If possible drink 1-cup every 15 minutes. The idea is to get the fluid to the stomach and then to the body. The best way to do this is to not sip the fluid but to chug the fluid.
2. Some possible foods to help would be fruit, cereal bars.
3. Don't wait till your thirsty to drink.
4. I recommend you drink water up to halftime then at and after halftime drink Gatorade as your replenishment.

A F T E R T H E G A M E

1. If you have a game later in the day, eat a sports bar like the Gatorade, powerbar or clif bar and drink a 12-16 ounce bottle of gatorade to replenish your carbohydrate stores and to provide a little protein.
2. If possible stay a little active after the game to remove the lactate built up. Do easy activity if possible. If you cant don't worry about it.
3. If you don't have a game later in the day then before you shower consume a meal of 200-400 kcal that are high in carbs and then 200-400 again after you have showered and gotten dressed. This would be a great way to eat if you have a game the following day. Try to eat those first 200-400 within the first 60-90 after the game if you can. If an organized meal is hard then have the energy bar with the Gatorade. Then after everyone showers and gets dressed go eat another meal later that is high in carbohydrates.
4. If possible do a weigh in before and after the game to see how much fluid you need to replenish. For every pound you lost you need to drink 16 oz of fluid. (not soda)
5. A general recommendation would be to lightly salt you food you eat in order to replenish the salt lost during the competition.

GUIDE TO EATING ON THE ROAD

Are you not sure where and what to eat when on the road? This should help.

McDonalds

McDonald's offers a tasty sports breakfast: pancakes/syrup, orange juice and milk.

Einstein bagels or some other bagel shop

Find a deli or bagel shop with whole-grain bagels, fresh fruit, juice and yogurt. A little low-fat cream cheese and/or jam can complete the meal. ([Www.vmaa-energy.com](http://www.vmaa-energy.com))

Einstein's is a great place for breakfast. They even have the breakfast burritos, which are decent choices or the breakfast sandwiches on a bagel. For those that have a larger appetite I would choose a breakfast sandwich with orange juice or milk. The smaller girls or those with less of an appetite could choose a regular bagel or maybe a half bagel with the breakfast burrito and orange juice or milk. They should have something more than just a normal bagel. It is okay to put the cream cheese on the bagel. I would try to have

them eat this 1.5 hours before the first game if their game is in the morning to make sure the food is digested and is available for energy. . Jayson hunter RD.

Subway

A half-foot subway sandwich has about 200-300 kcals. Here are good sandwiches to order: Any of the 7 under 6 grams of fat sandwiches. The size of the meal corresponds to the size of the athlete. Hold the Mayo if possible. To moisten the sandwich just add mustard or ketchup, tomatoes, lettuce. Best bets for meats are turkey, ham and roast beef.

Pizza Hut

If you must order a pizza I understand. Order a pizza that is thick with extra crust rather than cheese. The more dough, the more muscle fuels. For example, one slice of Pizza Hut's Pan Pizza (260 calories) has 10 more grams of carbohydrates than does a slice of its Thin 'n Crispy variety (200 calories). Pile on vegetables (broccoli, peppers, mushrooms, onions) for a vitamin boost. Blot off any grease with a napkin.

General guides to eating out for Performance

Thick crust pizza tastes great and provides lots of carbohydrate. The cheese also gives you calcium. Pepperoni or other greasy meats add fat, so try veggie varieties, meatballs or plain cheese. Any way you put it this is probably going to be very high fat. And not the good types of fat. If you go this route you will get carbs from the crust, but you are also getting tons of fat.

Order burgers with extra tomatoes and lettuce. Hold the sauce. If you're in the mood for fries, choose the small size.

Roasted or grilled **chicken** dinners are definitely better than fried chicken. But there's still a lot of fat in the skin. So remove the skin before you start munching.

Pasta (spaghetti or noodles with meat/poultry/veggies), **chili**, **hearty soups** are mmm good!

Salad bars can offer healthy high carbohydrate meals. Ask for extra broccoli, tomatoes, carrots, beans or other colorful veggies on top of your salad. Go easy on the salad dressing; you may add nearly 400 calories of fat! Or try diet dressing. Enjoy whole grain rolls or pasta salads. Be careful of cream sauce.

When ordering **deli sandwiches**, emphasize the bread and veggies. Go light on the spread. Choose whole grain breads to add fiber.

Wraps and pita sandwiches are a new trend in fast foods and they can be low or

high in fat calories depending on the ingredients. Choose wraps that are filled with lots of fresh vegetables, as well as meat or cheese. Watch out for high fat toppings which soak the wrap with calories. (www.hss.edu)

Best choices for different cuisine include:

- Mexican: salsa, gazpacho soup, black or red beans, Spanish rice, fajitas, soft chicken tacos
- Italian: pasta with marinara or tomato sauce, chicken marsala, pasta with red clam sauce, spinach tortellini, minestrone soup, bread sticks
- Chinese: steamed rice, chicken chow mein, chicken or beef chop suey, stir-fry with shrimp, vegetables or chicken, hunan tofu, hot and sour soup, wonton soup, fortune cookies (www.outreach.missouri.edu)

Baskin Robbins

If you need a treat, Baskin Robbins has some nonfat choices that might be good. High carbs low fat ice cream or yogurt might be a good treat.

Arbys

Roasted chicken deluxe

Roasted Turkey deluxe

Roast beef deluxe

Baked potato

Grilled chicken BBQ

Olive garden or other Italian places are good

Any pasta will be great for the game meal. But avoid any cream or white sauces. All other sauces are ok.

This list of places to eat at is not all-inclusive.

These food choices may be hard to follow. If you find it too hard to follow the above guidelines then just focus on finding something high in carbohydrates and don't worry about the fat. Also be sure you get hydrated and then re-hydrated