

How to eat before, during, and after a sports competition

For an athlete to reach his or her full potential, proper nutrition is essential. The right fuel at the right time—before, during, and after a competitive event—not only ensures sustainable peak performance but also helps with injury prevention and recovery. As a former amateur athlete and a father who watches his daughter endure the intensity of competitive volleyball, I have developed a great appreciation for the power of food (both positive and negative).

Many factors such as the type of sport, timing during the day, age, gender, weather conditions, intensity, and even a person's response to stress can come into play. This article will focus on sports nutrition geared for the timing around and during an event. I will cover general recommendations for most athletes. If you are unsure about your nutritional needs, please consult your chiropractor or other health care professional. To provide greater detail, I will coverage fluid intake in my next article.

For the day of an event (and every day if possible), foods should be whole, fresh, and unprocessed. Keep your foods REAL as much as you can. Strive for organic (when available), local, and seasonal. Mix in a variety of natural colors. If you eat animal sources, go for lean meats that are range-fed. Wild fish is best. Fill your diet with fruits, vegetables, nuts, and seeds (raw is preferable), and whole grains (limit or avoid if sensitive).

Here are the nutritional basics to keep in mind: foods are comprised of carbohydrates or “carbs” (sugars and starch), proteins, and fats. All are important, but at varying proportions depending on event timing. Good carbs are derived from fruits, vegetables, and grains. Healthy protein is found in nuts, seeds, egg whites, some dairy, beans, some meats, and fish. Healthy fat sources are mainly olive oil, fatty fish, raw nuts, and avocados.

Before moving on, I would like to share a few examples of foods that are detrimental to optimum sports performance which should be avoided or greatly limited:

- Carbohydrates: candy, anything with high fructose corn syrup or much added sugars, white or refined grains, and undiluted fruit juices.
- Proteins: processed meats (salami, hot dogs, etc.), grilled, barbequed or fried meats, red meat, high gluten wheat, or GMO (genetically modified) soybeans.
- Fats: hydrogenated/trans fats (margarine or shortening), fried foods, and highly saturated animal fats (including dairy cream).

One week before the event

This is the time to build up your energy reserves (carbohydrate-loading). The type of energy you want to store is called glycogen, which is a form of glucose that is stored mainly in your liver and muscles. It is used as a source of quick energy. The below chart illustrates how you want to proportion your food starting on the sixth day prior to the event:

Days before the event	Carbohydrates %	Proteins %	Fat %
6	50	20	30
5-4	50-55	15-20	25-30
3-2	70	12-15	15
The day before	70-75	12-15	10-15

Let's run through an example using a person who weighs 132 pounds eating a 3000 kcal diet. If it's day two prior to the event, they would be consuming 70 percent of their diet from carbohydrates. Based on this person's size, it would be desirable to eat about 525-600 grams of carbs per day (you can use 4.5 grams of carbs per pound to calculate the amount needed for carbohydrate-loading). Considering that a banana contains about 24 grams of carbs, a half cup of sweet potato has 24, and one cup of cooked whole grain pasta has 37, you can get a good idea how to plan your meals and snacks. Sure, you can load up on carbs from ice cream, donuts, and potato chips, but such carbs prove to be counterproductive and hurt your performance and level of endurance.

The day of the event

Eating correctly on this day is important to prevent weakness and fatigue, improve endurance, minimize low blood sugar, prevent hunger, and avoid distress in your stomach and intestines. Please use the following chart for the hours leading up to your event:

Hours before the event	Carbohydrates Gram(s) per pound of body weight	Proteins	Fats
4-5 hours (as a meal)	1-1.5	Moderate	Low
2 hours (as a snack)	1/2-1	Moderate	Low
½ to 1 hour (another snack)	1/2	Low	Low

Adjustments should be made based on your size keeping in mind that you want to remain comfortable (no bloating, stuffed-feeling, etc.). Examples of good event-day carbs are fruits such as bananas and berries, sports bars, and toast. Be careful to limit or avoid high-fiber and high-fat foods on event day. Also, avoid pure sugar, syrup, honey, and fruit juice.

During the event

This gets trickier depending on the event and schedule. A typical volleyball tournament day has three matches with two to three sets in each. There is usually a break between at least one of the matches where nutrition can be taken in. It is a good time to replenish with carbs and fluids. I like to use berries,

bananas, and energy bars. Smoothies work well and provide both the carbs and fluids and are easy to digest.

After the event

It is good to eat within 15-30 minutes following the event and continue one small meal per hour for about 4 hours. This is vital to restock depleted glycogen stores, rebuild muscle and repair injured tissue and improve your performance if involved in multi-day events.

Use the chart below as a general guideline (adjusting for size) for immediately following the event:

Immediately after the event “Window of Recovery”	15-30 minutes	30-60 minutes
Carbohydrates	20-40 grams	20-40 grams
Protein	6-20 grams	6-20 grams
Calories	120-240	120-240

The chart below is to guide the athlete for each hour of feeding following the event (for four hours total). It uses the formula that one should consume .8 to 1.2 grams of carbs per kilogram body weight per hour and .2 to .5 grams of protein per kilogram of body weight per hour.

Body Weight	Carbohydrates (.8 to 1.2 g/kg/hour)	Carbohydrates Range	Protein Range (.2 to .5 g/kg/hour)
100 pounds (36 kg)	54 grams per hour	36 to 68 grams per hour	9 to 23 grams per hour
150 pounds (68 kg)	82 grams per hour	54 to 102 grams per hour	14 to 34 grams per hour

Now that you have the numbers, times and concept, I would like to share two last charts to give you sample menu items.

Food	Grams of Carbohydrates
1 medium bagel	50 grams
Slice of bread	12-25 grams
½ cup pasta	15-20 grams
½ cup peas	10 grams
1 cup strawberries	15 grams
1 tbs. jelly/jam	15 grams

15 tortilla chips	20 grams
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Food	Grams of Protein
3 oz. Chicken breast	26 grams
8.2 oz. Greek yogurt	10-15 grams
1 egg	6 grams
½ cup canned beans	7 grams
½ cup hummus	6 grams
1 oz. almonds	6 grams
3 oz. Salmon	20 grams

As an example for the first meal on the day of the event for a 100-pound athlete, the meal would require at least 100 grams of carbohydrates, moderate protein and low fat. One appropriate meal would contain one bagel (50 grams carbs, 10 grams protein, 1.5 gram fat), jelly (20 grams carbs), one egg (6 grams protein, 5 grams fat), one cup sliced strawberries (15 grams carbs, 1 gram protein, ½ gram fat), and an apple (25 grams carbs, ½ gram protein).

By mixing science with a bit of experimentation, you can better achieve your athletic potential. Keep note of what makes you feel good, energetic, and ready to go. Also, note what makes you feel sluggish, tired, and unmotivated. Be patient and take time to figure it out. Once you get the formula right, you will be able to perform at your absolute best and more easily endure your event to the final second.