

NUTRITION

FOR THE VOLLEYBALL STUDENT-ATHLETE



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Between training, school, travel and competition, it's hard to stay consistent with good nutrition throughout the season. During the competitive season, all the traveling and eating out start to take a toll that impacts my fitness, athletic and academic performance. How can I create a nutrition strategy that works well at home and on the road?

Collegiate volleyball is a fast-paced, demanding sport that requires year-round training and conditioning. Volleyball student-athletes maintain a high muscle mass-to-fat ratio and work hard to achieve a balance between strength, speed, endurance and skill. Workouts include strength training, conditioning, skill-building sessions and near daily games or scrimmages.

The keys to developing a nutrition strategy that maximizes volleyball training and performance include; establishing a balanced and consistent core eating and hydration plan, promoting a positive team culture toward nutrition, applying sound nutrition practice before and during the game, and emphasizing recovery nutrition.

Information presented by



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Volleyball is a dynamic and explosive total-body sport that requires power, strength, speed and agility. During competition, student-athletes are constantly engaged — mentally and physically — and need to be ready to react quickly and with precision. Collegiate volleyball players wanting the best outcomes from training and performance must adopt consistent, well-planned nutrition and hydration strategies tailored to their individual needs.

PRESEASON: BUILD A STRONG NUTRITIONAL BASE

A focus on core fitness and skill training is the key to preseason training. Because of extended and often multiple daily training sessions, obtaining adequate fuel and hydration is critical to your health, safety and a high-quality training session. Under-fueling during this phase will delay adaptation to training, increase your susceptibility to colds and injury, and slow the recovery processes.

Foundation Diet

A strong and consistent, yet flexible, core diet helps ensure you'll achieve nutritional balance and improve training and performance outcomes. A consistent diet should:

1. Spread your calorie intake during the day, starting with breakfast.

- Begin eating early enough to pre-fuel for morning workouts. Do not skip meals and spread intake out over the entire day.

2. Calculate your carbohydrate (CHO) requirements to form the foundation of your eating plan.

- To calculate the number of calories (kcal) you need from carbohydrate, multiply six to eight grams (g) of CHO per kilogram (kg) of body weight (bw) for general training (6-8 g/kg bw/day), or up to eight to 10 grams for heavy, more frequent training. *Example for a 160-pound (73 kg) individual: 73 kg x 6 g/kg = 438 g CHO; 438 g CHO = 1,752 kcal from CHO*

3. Include a variety of foods and food groups in each meal.

- Mixed meals — those containing a variety of food groups — are most likely to supply the nutrients your body needs in the balance required.
- When deciding on what to eat for meals, always include a whole-grain carbohydrate, a lean protein and a high-fiber fruit or vegetable.

4. Hydrate throughout the day.

- Drink fluids throughout your day — before, during and after performance. Always keep a full water bottle handy

PRE-EVENT MEAL EXAMPLES

Breakfast (two to three hours before)

½-1 cup oatmeal (with dried fruit and chopped nuts)
Low-fat yogurt
Banana
Milk, juice or water

Lunch/Early Dinner (three to four hours before)

Chicken breast (or vegetarian alternative)
Rice or pasta
Steamed or raw carrots
1 or 2 percent milk (or dairy alternative)
Fresh fruit



and consider using a sport drink one hour before and during training sessions to provide well-absorbed fluid and energy.

- Be aware of dehydration-related symptoms. Consume fluids frequently during training sessions, with the goal of four to six ounces every 15 to 20 minutes.

COMPETITION

Volleyball competitions range in duration and frequency. Single matches require different nutritional approaches than

tournaments. Because the duration of a match is not known in advance, student-athletes must have a fueling strategy in place to deal with multiple contingencies.

Pre-Event Fueling

Collegiate volleyball competitions are primarily, although not exclusively, held during afternoon or evening hours. Tournament play is the exception. For non-tournament play, the regular schedule allows players to consume a pregame meal and an immediate prematch snack as needed.

- The pregame meal is best consumed three to four hours before the start of competition (*not the start of warm-ups, as this could begin an hour before competition starts*).
- The best pregame meal contains fluids, is low in fat, provides a small to moderate amount of high-quality protein, includes whole-grain starchy carbohydrate sources, and is not too high in fiber.
- Pre-event meals should be consumed in trial during the training season to identify obvious problems with food choices (excessive gas production, stomach cramping, nausea, slow digestibility, etc.).
- Include some fluids but do not over-consume, because this may prevent consuming adequate calories and nutrients needed during competition.
- If there is limited time (early-morning competition or back-to-back matches), consider consuming higher fluid-content foods in smaller amounts closer to competition. Examples: low-sugar yogurt with low-sugar cereal, peanut butter and jelly, banana and sports drink, and a less-sweet energy bar with water.
- A small snack may be needed in the hour before the start of a match — for example, one to two cups of a sports drink, half of a green tip banana, a few pretzels or small fig bars, or approximately 100 calories of a pre-event sport food.

During-Competition Fueling

Opportunities for volleyball players to refuel and hydrate during competition are limited, but not absent. Substitutions, timeouts and media breaks, and between sets, provide fueling opportunities that should not be overlooked. Due to the explosive (predominantly anaerobic) nature of volleyball, athletes will benefit from small, frequent doses of carbohydrate and other fuel consumed during competition.

Although there is always a risk that during-event fueling and hydration may distract you or cause a gastrointestinal response, these are not good reasons to disregard competition fueling. Instead, work with a sports dietitian to identify appropriate options and try these out with all players during heavy or hard-

training sessions to attempt to simulate a competition environment.

Best Practices for Competition Fueling

- Be sure to communicate with the team support staff if you feel your energy level is declining.
- Take advantage of all off-court times as an opportunity to fuel and hydrate.
- Consume solid food options in small amounts. Make sure they are very low in fat, fiber and protein, and ingest them along with fluids. Examples include small amounts (bites or a few ounces) of a sport drink and specially designed sport bars, low-lactose or lactose-free liquid meal replacements, energy gels, or other well-designed during-event sport food.



Post-Competition Recovery

Competitions can be held back-to-back within days or even hours. Regardless of the timing of the next competition, all athletes who participated in the match need to consume some recovery nutrition and evaluate their rehydration needs.

Do not delay. Post-match debriefings or therapies, return travel to hotels, or media interactions should not delay initiating recovery nutrition strategies.

- Plan ahead and purchase team recovery snacks or sports drinks for immediate post-match consumption.
- Take responsibility and bring your own recovery foods: vanilla wafers, pretzels, inexpensive shake or meal replacement drinks, or granola bars.
- Athletes who had significant playing time (more than 60 minutes) should consume one to 1.5 grams of carbohydrate per kilogram of body weight. If this quantity is difficult to

obtain, initiate recovery with a 50-gram carbohydrate dose.

- Choosing a bar or meal replacement drink will likely provide adequate protein to meet your body's recovery needs, but not adequate carbohydrate.
- Obtain additional recovery fueling and hydration within two hours after the match to continue the recovery process. This is critical if competition is expected again within 24 hours.

Tournaments

Tournaments and travel interject additional variables that impact an athlete's nutritional strategies for pre-event and performance fueling. The nature and challenges of tournament play add unpredictability and the possibility of

limited or extended down time between matches.

- When possible, plan for snacks or mini-meals based on the competition schedule.
- Investigate available food options. This includes restaurant options near hotels and competition sites that can accommodate your team size in a short period of time. Call ahead to reserve areas, review menus online for competition-site deliveries, and call sandwich shops even if they state they do not deliver, as large orders are attractive to these businesses.
- It is not likely that concession stands will have appropriate during-event fuel options. Recovery food options may be available, such as lemonade, chocolate milk or pretzels.

- If the time between matches is less than two hours, use immediate pre- or during-event fueling strategies to trickle in fuel and fluids.
- Bring your own water bottle and keep it filled. Sip on fluids during the day.

Championship and Postseason

More excitement, more stress and having more on the line add to the challenges of on-the-road eating and competition fueling. Stay consistent and focused with your eating plans. Spread your intake out during the day; do not miss meals and plan ahead to bring back-up snacks for pre-event and recovery fueling.

OFFSEASON

While you're likely to experience less stress, more rest and recovery, and changes in training volume and intensity during the offseason, make sure your nutrition continues to reflect your core



foundation nutrition plan. This is a time when your body composition can change significantly, be it a loss of muscle or gaining unwanted body fat.

- If your training volume has decreased, your calorie requirements also may decrease. Cut portion sizes, not food groups, and keep eating breakfast.
- Monitor your weight, but accept some changes and fluctuation, as there may be less glycogen and water in the muscles and a loss of some muscle mass, both of which are normal. Depending on your body weight, this normal fluctuation could be one to five pounds.
- If body composition changes are

desired, this is the time to address those. Confer with coaches, sport dietitians and athletic trainers to set reasonable goals. Develop an individualized plan and include frequent monitoring.

Body Composition Goals

Volleyball players are lean and have a high level of muscle mass. Reaching this body composition profile needs to be based on undergoing high-quality, specific training and obtaining adequate fuel and nutrients to achieve the desired outcomes.

1. If possible, use offseason opportunities to address body composition goals.

2. If body composition changes are desired during the season, do not under-fuel before or during training to accomplish these goals.
3. During two-a-day practices, do not restrict your caloric intake. Instead, focus on improving the nutritional quality of your diet and spreading your intake during the day.
4. Losing weight via under-fueling does not result in sustainable improvements in performance. Low body weight itself is not tied to improved athletic performance.
5. Approaches to changing body composition should be individualized and routinely monitored by a sports dietitian.



EATING ON THE ROAD

The combination of frequent trips, tapered training, disrupted sleep patterns, a limited per diem and eating at restaurants or hotels can add up and impact your next competition. These elements can also create a detraining effect (muscle loss and/or body fat gains) as the season progresses. To limit these unwanted effects:

- Investigate food and dining options before you travel.
- Review hotel continental breakfast menus and the availability of in-room refrigeration.
- Pack breakfast foods (oatmeal, granola, peanut butter, bagels).
- Keep to your foundation eating style as much as possible.
- Request stopping at grocery stores.
- Choose restaurants where sandwiches, light meals and low-fat options are available.
- Skip the appetizers — these are often the highest in fat and lowest nutrient-dense options on the menu.
- Try not to overeat in the evening. It can disrupt sleep and drive down appetite for breakfast. Remember, breakfast is a very important meal, regardless of the start time for competition.