

Fuel for Training and Competition

Timing of Meals

While your day-to-day food habits affect your health and overall sports performance, timing is everything when it comes to fueling during training and competition. Use the guide below to properly fuel before, during and after exercise.

**PEAK
POINT**

Don't forget carbohydrates and fluids at your pre-event meal.

The Pre-Competition Meal

Eating before exercise is necessary to prevent hunger before and during the event. This meal helps you stay physically comfortable and mentally alert.

The timing of the last meal before competition will depend on the duration, intensity and type of event. Experiment with the timing of your meals during training, not before competition. The closer your event draws, the less you should eat. A good rule of thumb is to have your last meal one to three hours before exercise. You want to start most events with an empty stomach but you do not want to feel hungry or weak. Food choices should include carbohydrates which supply fuel to working muscles and fluids to hydrate the body.

Here are some sample pre-competition meals:

BREAKFAST

Oatmeal with milk and sliced bananas, 1 piece of whole-grain toast with a tablespoon of peanut butter, and orange juice

OR...

English muffin with jam and cheese (try fontina or ricotta), orange and milk

SNACK

Whole-grain crackers and cheese

OR...

Fresh berries and a cup of Greek yogurt

LUNCH

Broiled chicken sandwich with lettuce and tomato, green salad, fig bars and milk

OR...

Tofu stir-fry with carrots, peppers, and broccoli over brown rice, peach and chocolate milk

SNACK

Apple slices with peanut butter

OR...

Fruit smoothie made with frozen fruit, milk and yogurt
- try the Berry Blast Smoothie

DINNER

Tostada (tortilla, lettuce, tomato, beef, onions, beans, salsa and cheese), orange, milk and frozen yogurt

OR...

Salmon with pineapple-mango salsa, green beans, rice and milk

**RULE
OF THUMB**

Have your last
meal 1 to 3 hours
before exercise.

Berry Blast Smoothie

Makes 2 servings

- 1 cup frozen raspberries
- 2 (6-ounce) containers fat-free blueberry yogurt
- ½ cup fat-free milk
- 1 Tbsp unsalted, natural almond butter
- 1 Tbsp honey

In a blender, add frozen raspberries, yogurt, milk, almond butter and honey. Cover and puree until smooth. Pour into two tall glasses and serve.

For more recipes, visit NationalDairyCouncil.org.

Fuel for Training and Competition

Eating During Competition

During competition, it's important to not only maintain proper hydration, but if you have the opportunity, fuel your body every 30 to 60 minutes. Endurance activities deplete your muscles' carbohydrate stores. Keep your muscles charged and your energy levels up with carbohydrates during your event. Some examples of foods to try are:

- Fresh fruit
- Dry cereal
- Peanut butter and jelly sandwich
- Crackers
- Sports drinks
- Fruit yogurt

If you are competing in events lasting several hours, solid foods will stave off hunger. Remember to drink plenty of fluid along with food. For many athletes, a combination of solid and liquid, such as banana and sports drink, works well.

Learn which combinations work best for you by experimenting with different drinks and foods during training. Don't wait until competition day to try something new.

Eating Between Events and Heats

Two-a-day practices or competing in several events or heats over one or more days (tennis or wrestling tournaments, swim or track meets, or several basketball or soccer games) can present nutritional challenges. Some athletes may be short on time or not feel like eating between events; however, maintaining energy stores and staying hydrated are critical to performance.

The amount of time between events or heats determines the amount and type of food you eat. Make sure water and sports drinks are always available. The longer you have between competitions, the more you can eat since there is more time to digest food. Use the following tips to guide your choices:

ONE HOUR OR LESS between events or heats, choose fluids or high-carbohydrate foods:

- Sports drinks
- Fruit
- Whole-grain toast or bagel with water
- Graham crackers with water
- Pudding cup

ONE- TO THREE-HOUR BREAKS, try high-carbohydrate foods with lean protein:

- Bowl of cereal with low-fat milk
- A handful of grapes with fruit-flavored yogurt
- Almond butter and crackers
- String cheese and a banana
- Low-fat chocolate milk



THREE OR MORE HOURS, a meal is the way to go:

- Pancakes topped with yogurt and berries, scrambled eggs and 100% fruit juice
- Turkey and cheese sandwich, baby carrots and low-fat milk
- Vegetable pizza with a mixed green salad
- Peanut butter sandwich on whole-grain bread, apple and low-fat chocolate milk

Fuel for Training and Competition

Post-Exercise "Refueling"

Eating for peak performance includes recovery from workouts and competitions. During exercise, your muscles use their primary energy source, carbohydrate. Just like a car needs fuel to run, you need to refuel your muscles after a workout or competition. It takes 24 hours to replace muscle carbohydrate (glycogen) used during exercise. However, by eating within 30 to 60 minutes after exercise, then eating small meals at two and four hours post-exercise you can completely refill muscle energy stores in 12 to 16 hours. Proper refueling also helps reduce soreness and repair muscles so you are ready for your next practice or event.

Essential Recovery Tools

These "fab four" are essential components to any athlete's post-exercise nutrition plan. They help accelerate your body's recovery so you are ready for your next practice or game.

Carbohydrates replenish muscle energy stores	Protein repairs and rebuilds sore and damaged muscles	Fluids rehydrate the body	Sodium maintains your body's water balance
--	---	-------------------------------------	--

Check out these tips:

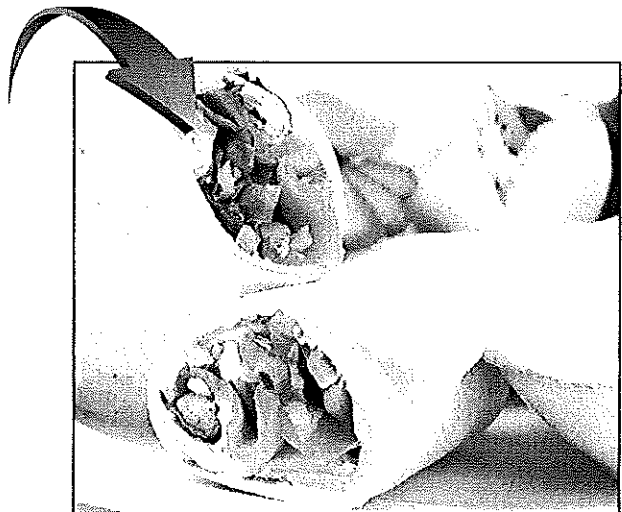
- Within 30 to 60 minutes after exercise, choose high-carbohydrate foods such as graham crackers, 100% fruit juice and a bagel, or yogurt and fruit. Include sources of protein such as lean meats, low-fat milk or yogurt, eggs or beans to repair and rebuild muscle.
- If you can't take solid foods after exercise, try milk, white or flavored – it tastes great and contains all of the "fab four," in addition to other essential nutrients that support healthy bones and bodies.
- Replacing fluids lost from sweat is a priority. After exercise, drink 20-24 ounces for every pound lost.

Examples of recovery meals which are high-carbohydrate and protein-rich:

- Cereal with milk, toast with peanut butter, a piece of fruit and a glass of 100% fruit juice
- Cheese and crackers, fruit and milk
- A fruit smoothie made with frozen fruit, milk and yogurt
- Whole-grain tortilla wrap with ham, cheese, tomato and lettuce, with fresh fruit
- A baked potato with cheese, salsa and a dollop of Greek yogurt, and a glass of 100% fruit juice.

PEAK POINT

After exercise, refuel with the "fab four" – carbohydrate, protein, fluid and sodium. They rock for recovery.



Fuel for Training and Competition

How do you fuel for training and competition?

Use the ideas presented in this handout to create your own fueling plan.

My favorite foods and drinks pre-competition are...

1 _____

2 _____

3 _____

My favorite foods and drinks during competition or between heats and events are...

1 _____

2 _____

3 _____

My favorite foods and drinks to refuel with after exercise are...

1 _____

2 _____

3 _____

Ask the Sports Dietitian



Q: Why is caffeine added to some sports bars, gels and beverages, and how does it affect my performance?

A: Studies show that caffeine may enhance performance by improving alertness. However, the American Academy of Pediatrics recommends against the use of caffeine containing products for children and adolescents because in excess amounts, caffeine has been associated with harmful cardiovascular and neurological effects. Instead, it's important to choose nutrient-rich foods and beverages and build balanced meals – let these serve as your fuel for athletic success.



Q: Why is milk good after a workout?

A: Milk – both white and chocolate – provides key nutrients athletes need after exercise.

Milk's Winning Team:

- Milk is 90% water and a great tasting choice after practices and games. Milk's fluids and electrolytes, including calcium, potassium and magnesium, rehydrate the body and replenish what's lost in sweat.
- Carbohydrates refuel muscles after exercise.
- High quality protein helps with muscle recovery.
- Calcium, vitamin D, and phosphorus build and maintain strong bones.
- Milk's potassium helps ward off muscle cramping.
- B vitamins help convert food to energy.

Emerging research in adult athletes indicates that one serving of milk post-exercise may help reduce muscle damage and improve muscle recovery – which in turn, may help the body perform better during its next workout. Improve your post-exercise regimen by refueling with milk within 30-60 minutes after exercise.



2163 Jolly Road
Okemos, MI 48864
(800) 241-MILK (6455)
www.MilkMeansMore.org

May be reproduced for educational purposes. © 2012 Western Dairy Association

Fluid Facts

Importance of Fluids

Water is the most important part of any athlete's diet and for good reason. During activity you lose fluid in the form of sweat. The harder you exercise, the more fluid is lost.

It's not uncommon to lose up to 32 ounces (4 cups) of fluid per hour of exercise in hot, humid conditions. That's a loss of two pounds of body weight. The resulting decrease in strength and endurance can be surprisingly dramatic.



How much to drink?

To stay hydrated and perform your best, follow this simple rule...

Take a fluid break every 15 to 20 minutes – two to three big gulps ought to do it.

Another way to think about it:

Take a peek at your urine.

1. How often are you urinating?
2. What color is your urine?

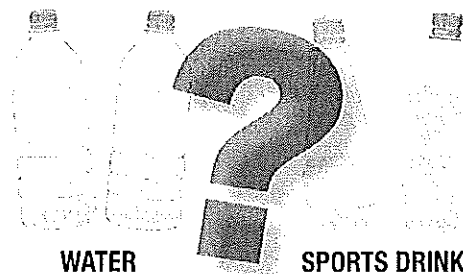
If it's dark and there's not much of it, you need to drink more. If it's pale yellow (think lemonade), you're probably close to proper hydration.

PEAK POINT

Drink enough fluids daily to prevent thirst; milk, 100% juice and watery foods all contribute to fluid balance. To avoid dehydration due to fluid loss during exercise, take two to three gulps every 15 to 20 minutes.

What to Drink

Individual preference, including taste and energy needs, affects what you choose to drink. For most activities, cool water is the best choice. However, for training camps and long competitions, sports drinks provide a beneficial energy boost. They are designed to replace fluid and provide energy. Many also contain electrolytes such as sodium and potassium, which are lost in sweat.



Fluid Facts

Exercising in Heat: What to Watch For

Compared with adults, and even teenagers, preteens need to be especially mindful to drink enough fluids. They do not handle temperature extremes well; they sweat less, and in general, have a harder time dissipating heat and regulating body temperature, so fluids are important.

Regardless of age, hot and humid days require even more care. High temperatures cause heavy sweating resulting in dehydration if nothing is done to replenish fluids. Not only will performance suffer, potentially life-threatening symptoms of heat illness can appear if thirst is ignored and fluids limited. Watch for these body signals and be prepared to take appropriate action to correct them.

	symptoms	treatment
heat cramps	<ul style="list-style-type: none"> • Thirst • Chills • Clammy skin • Throbbing heart beat • Nausea 	Athlete should: <ul style="list-style-type: none"> • Drink ½ cup of water every 10 to 15 minutes • During breaks, move to shade and remove as much clothing as possible
heat exhaustion	<ul style="list-style-type: none"> • Reduced sweating • Dizziness • Headache • Shortness of breath • Weak, rapid pulse • Lack of saliva • Extreme fatigue 	Athlete should: <ul style="list-style-type: none"> • Stop exercising and move to a cool environment • Drink 2-3 cups of water for every pound lost • Take off wet clothing and sit on a chair in a cold shower • Place an ice bag on head
heat stroke	<ul style="list-style-type: none"> • Lack of sweat • Dry, hot skin • Lack of urine • Visual disturbances • Swollen tongue • Deafness • Aggression • Unsteady walking 	You should: <ul style="list-style-type: none"> • Call for emergency medical treatment immediately • Move athlete to a cool place indoors or under a shady tree • Place feet higher than head to avoid shock • Remove clothing and sponge athlete with towels that are soaked in cold water or spray athlete with cool water • Until help arrives, place ice bags on back and front of athlete's head

PEAK POINT

Bottom Line: Drink water FIRST! Water is your best friend. Remember to take frequent breaks to rehydrate and drink plenty of fluids, even if you don't feel thirsty.

Ask the Sports Dietitian

Q: Sports drinks and energy drinks, tell me more.

A: The American Academy of Pediatrics (AAP) acknowledges that sports drinks can be beneficial for some young athletes (during prolonged activities or day-long events). In most instances however, the Academy encourages water to rehydrate and low-fat or fat-free milk to help meet nutrient needs.

The terms 'sports drink' and 'energy drink' are often used interchangeably, however, they are very different in composition. Sports drinks are typically a combination of water and carbohydrates, with a small amount of sodium and potassium. Energy drinks, on the other hand, in addition to carbohydrates, protein, vitamins and minerals, typically contain stimulants, such as caffeine and guarana (a substance with a similar effect to caffeine). Energy drinks do not provide long-term energy – instead they result in an energy high before "the crash." According to the AAP, stimulant-containing energy drinks have no place in the diets of children and adolescents.



2163 Jolly Road
Okemos, MI 48864
(800) 241-MILK (6455)
www.MilkMeansMore.org

May be reproduced for educational purposes. © 2012 Western Dairy Association

What's in YOUR (Spirit) Bag?



All students deserve to be recognized for efforts in and outside of the classroom. Participation in extra-curricular activities is to be celebrated. Yet, the excessive nature of some Spirit Bags undermines the nutrition education being delivered in our schools, and is contrary to what we know about athletic/academic performance and a healthy lifestyle.

Enormous containers of candy, sports drinks, and other "junk" foods do not convey the message that we, as responsible adults, value the health and well-being of our students. They encourage over-consumption of foods that are generally very high in fat and sugar content, and connect food with reward, "forcing" food upon the recipient even when he/she is not hungry.

Your Alma Public Schools Wellness Committee challenges those who wish to provide Spirit Bags to consider these, and other, alternatives to food items:

Books/magazines	Music downloads	Stickers
Video rentals	Movie theater coupons	Games
Puzzles	Mugs	Clothing items
Hats	License plate frames	Magnets
Frisbees	Calendars	Buttons, pins
Wristbands	Balloon bouquets	Bath items
Candles	Window clings	Lanyards
	Gas cards	

Food items the Committee suggests for Spirit Bags include:

Bottled water	Fresh fruits/vegetables	Yogurt
Baked chips	Whole grain crackers	Nuts/seeds
Fig cookies	Animal crackers	Low-fat popcorn
Granola bars	Soft pretzels, bagels	String cheese
Pudding	100% fruit juice (12 oz. or less)	Milk

Before you cram that basket full of sports drinks, "Big Grab" chips, cookies, and candy, please consider the effects of fueling your student with empty calories, excessive fat and sodium, and loads of sugar. In order to reach peak condition, both physically and mentally, students need sound nutrition. Your thoughtful consideration of how you reward your student can make a difference on the field or court, and in the classroom. Thank you.

NCAA Banned Drugs

All Alma High School athletes are PROHIBITED from using drugs or substances which are part of the NCAA Banned Drugs list (see below). It is your responsibility to check with the appropriate or designated athletics staff before using any substance.

The NCAA bans the following classes of drugs:

1. Stimulants;
2. Anabolic Agents;
3. Alcohol and Beta Blockers (banned for rifle only);
4. Diuretics and Other Masking Agents;
5. Street Drugs;
6. Peptide Hormones and Analogues;
7. Anti-estrogens; and
8. Beta-2 Agonists.

Note: Any substance chemically related to these classes is also banned.

The institution and the student-athlete shall be held accountable for all drugs within the banned drug class regardless of whether they have been specifically identified.

Drugs and Procedures Subject to Restrictions:

1. Blood doping;
2. Gene doping;
3. Local anesthetics (under some conditions);
4. Manipulation of urine samples; and
5. Beta-2 Agonists permitted only by prescription and inhalation.

NCAA Nutritional/Dietary Supplements Warning:

Before consuming any nutritional/dietary supplement product, review the product with the appropriate or designated athletics department staff. There are no NCAA approved supplement products.

1. Dietary supplements, including vitamins and minerals, are not well regulated and may cause a positive drug test result.
2. Student-athletes have tested positive and lost their eligibility from using dietary supplements.
3. Many dietary supplements are contaminated with banned drugs not listed on the label.
4. Any product containing a dietary supplement ingredient is taken at your own risk.

Check with your athletics department staff prior to using a supplement.

Examples of NCAA Banned Substances in Each Drug Class

**Note to Student-Athletes: There is NO complete list of banned substances.
Do not rely on this list to rule out any label ingredient.**

- 1. Stimulants:** Amphetamine (Adderall); caffeine (guarana); cocaine; ephedrine; fenfluramine (Fen); methamphetamine; methylphenidate (Ritalin); phentermine (Phen); synephrine (bitter orange); methylhexanamine, "bath salts" (mephedrone); octopamine; DMBA; etc. *Exceptions:* phenylephrine and pseudoephedrine are not banned.
- 2. Anabolic Agents** (sometimes listed as a chemical formula, such as 3,6,17-androstenedione); Androstenedione; boldenone; clenbuterol; DHEA (7-Keto); epitrenbolone; etiocholanolone; methasterone; methandienone; nandrolone; norandrostenedione; ostarine, stanozolol; stenbolone; testosterone; trenbolone; SARMS (ostarine); etc.
- 3. Alcohol and Beta Blockers** (banned for rifle only): Alcohol; atenolol; metoprolol; nadolol; pindolol; propranolol; timolol; etc.
- 4. Diuretics (water pills) and Other Masking Agents:** Bumetanide; chlorothiazide; furosemide; hydrochlorothiazide; probenecid; spironolactone (canrenone); triameterene; trichlormethiazide; etc.
- 5. Street Drugs:** Heroin; marijuana; tetrahydrocannabinol (THC); synthetic cannabinoids (e.g., spice, K2, JWH-018, JWH-073).
- 6. Peptide Hormones and Analogues:** Growth hormone (hGH); human chorionic gonadotropin (hCG); erythropoietin (EPO); IGF-1; etc.
- 7. Anti-Estrogens:** Anastrozole; tamoxifen; formestane; ATD; clomiphene; SERMS (nolvadex); etc.
- 8. Beta-2 Agonists:** Bambuterol; formoterol; salbutamol; salmeterol; higenamine; norcoclaurine; etc.

Additional examples of banned drugs can be found at www.ncaa.org/drugtesting.

**Any substance that is chemically related to the class,
even if it is not listed as an example, is also banned!**

Information about ingredients in medications and nutritional/dietary supplements can be obtained by contacting the **Resource Exchange Center (REC)** at 877/202-0769 or www.drugfreesport.com/rec password: ncaa1, ncaa2 or ncaa3.

It is your responsibility to check with the appropriate or designated athletics staff before using any substance.