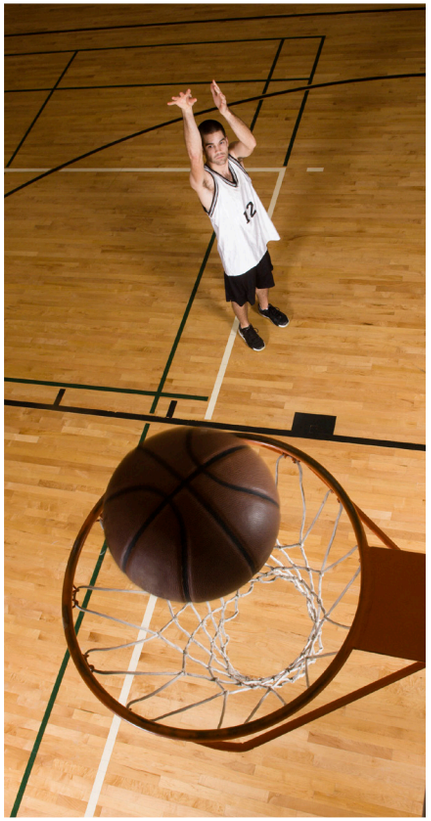



SPORTS NUTRITION 101

SPORTS NUTRITION 101

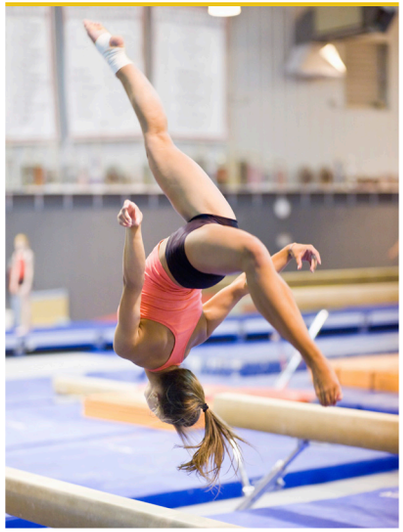
Created by United Dairy Industry of Michigan with input from Chris Flood, MS, Healthy Habits Today and Christine Alongi, MS, RD.

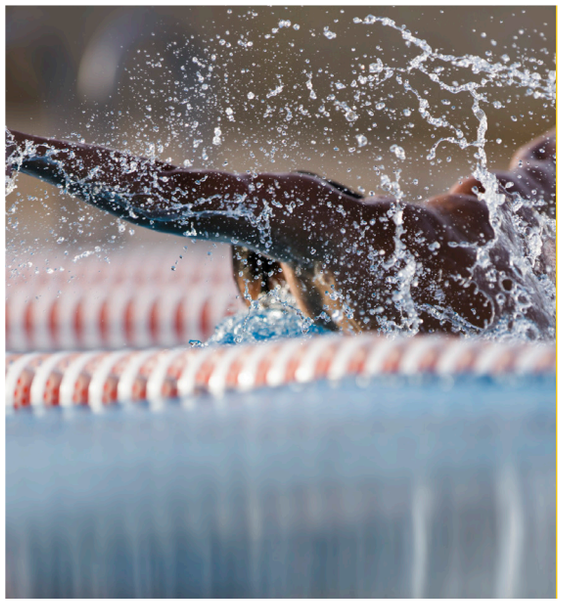
Oakridge High School

Athletes: (L to R) Jordan Wahr, Billy Drummond, and Chris Mason

Team: Varsity Football Team

Fuel Up Advice: Chocolate Milk is a HUGE hit with our football teams! They definitely look forward to the recovery drink after summer workouts, practices, and games.





Inside

The Basics

What do I need?

Athletes – just like everyone else – need healthy food and exercise. Proper training, nutritious food, and water are what you need to be at the top of your game and to be the best you can be at your sport.

Research shows that athletes don't need a diet that is much different from everyone else. What they do need is to:

- pay careful attention to the foods they choose for meals and snacks;
- make sure they eat several times a day, and at the right times so they have the energy they need and the right fuel to recover;
- drink enough water to stay hydrated.

The Big Three

All athletes – regardless of their sport – need these three nutrients found in food.

Carbohydrates

Your body loves carbs and for good reason: Carbohydrates (carbs) are your body's first choice for fuel when you exercise. Fruits, veggies, grains, and milk all contain carbs. At least half of the calories you eat in a day should come from healthy high-carbohydrate foods such as yogurt, milk, fruit, starchy veggies, popcorn, rice, potatoes, beans and whole grain breads, cereals, and pasta.

Protein

Protein helps to build, repair, and maintain your muscles. You need to eat protein every day. Milk, yogurt, cheese, nuts, seeds, soy, eggs, fish, poultry, and lean beef are good protein sources. Protein should be consumed at meals throughout the day, not just at dinner.

Fat

You need to eat some healthy fat every day but not too much. Your body uses fat for energy at certain times. Healthy fats that are best for athletes are nuts, seeds, avocado and liquid oils such as canola, olive, corn or soybean oil.

Ask the Sports Dietitian

Q. Will a high-carbohydrate diet make me fat?

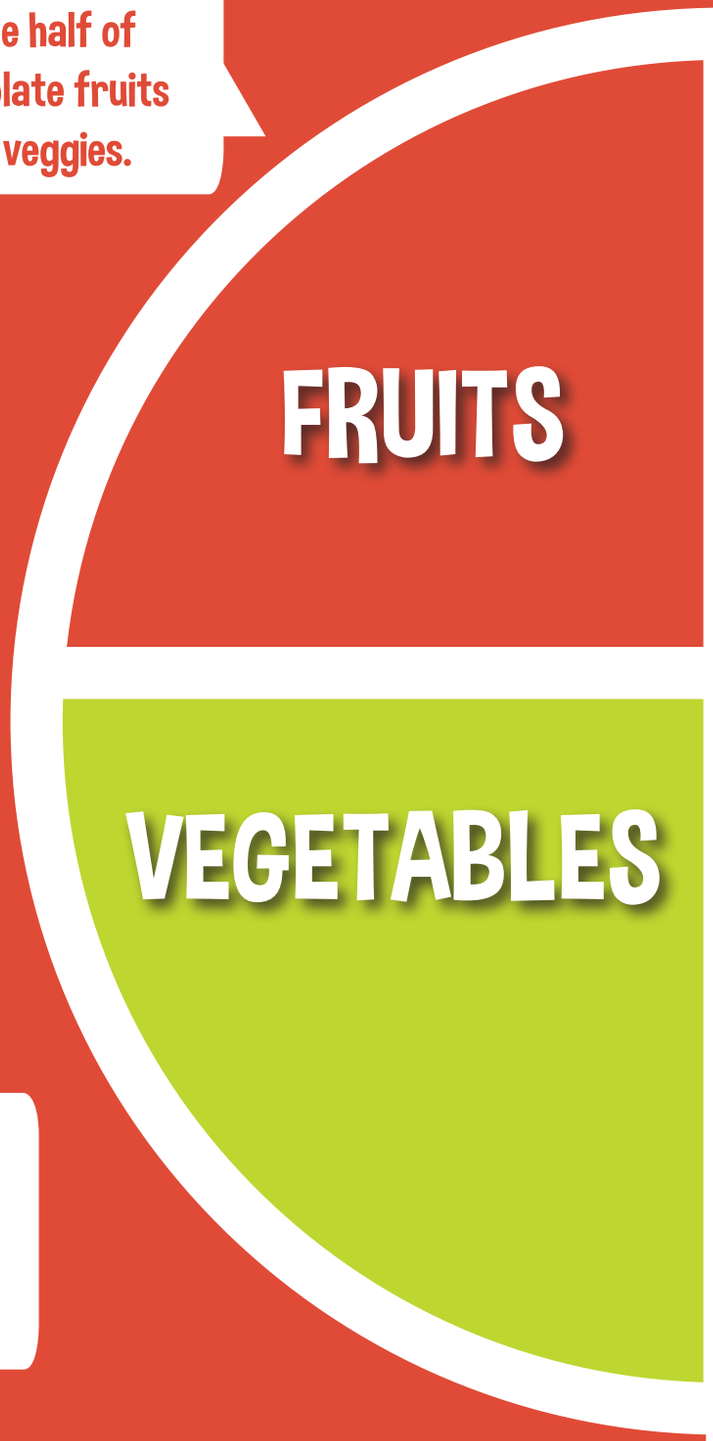
A. No. When you eat more ***calories*** than your body needs, you gain weight. Eating too much of any food – carbs or no carbs – may lead to weight gain. That includes too much protein and too much fat. It's the amount of food you eat and the amount of exercise you do that leads to weight gain or weight loss.

Maximizing MyPlate

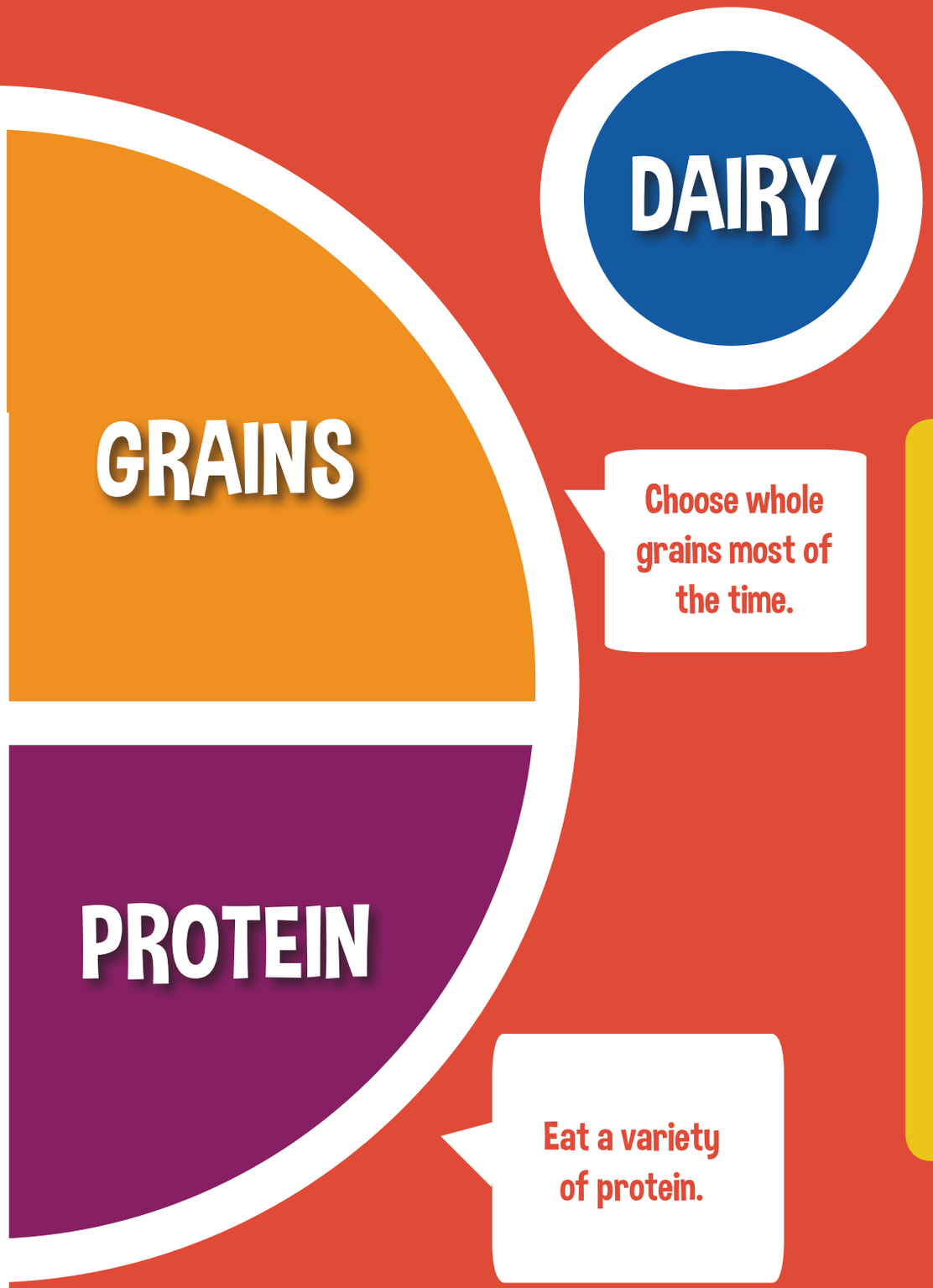
MyPlate is a graphic that shows you how to create a healthy plate. You should eat from all of the food groups of MyPlate to get the nutrition your active body needs. Your plate doesn't have to look like this every time you eat but if you really want to fuel yourself for peak performance try to fill your plate this way most of the time:

- ½ fruits and vegetables
- ¼ lean protein
- ¼ grains, mostly whole grains
- A serving of low-fat or fat-free milk or dairy products

Focus on fruit! Make half of your plate fruits and veggies.



Vary your veggies! Pick vegetables of all colors.



Dairy is more than milk. Don't forget about yogurt and cheese!

Choose whole grains most of the time.

Eat a variety of protein.

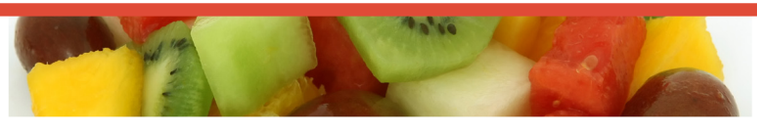
Ask the Sports Dietitian

Q: I'm a vegetarian. Do I need to eat any special foods?

A: There are lots of different types of vegetarians; some exclude only red meat, some exclude all types of meat but eat dairy foods, and some eat only fruits, vegetables, and grains. A vegetarian diet can be a healthy diet. Just be sure to regularly eat non-meat sources of protein such as dairy, soy, hummus, nuts, eggs, peanut butter, and legumes such as black beans, pinto beans, and garbanzo beans.

Healthy Eating Tips

Eat many different kinds and colors of food. Don't eat the same thing every day.



Fill half your plate with fruits and vegetables whenever you can.

Pick from whole foods such as whole grains, oatmeal, whole wheat bread, and fresh fruits and veggies.

Choose lean meats, beans, and low-fat or fat-free milk and dairy products.

Drink water and other healthy fluids often. Replace fluids lost in sweat.

Switch to fat-free or low-fat milk and milk products.

Vary your veggies. Pick vegetables of all colors.

Limit processed high-sugar, high-salt foods such as chips, cookies and soda.

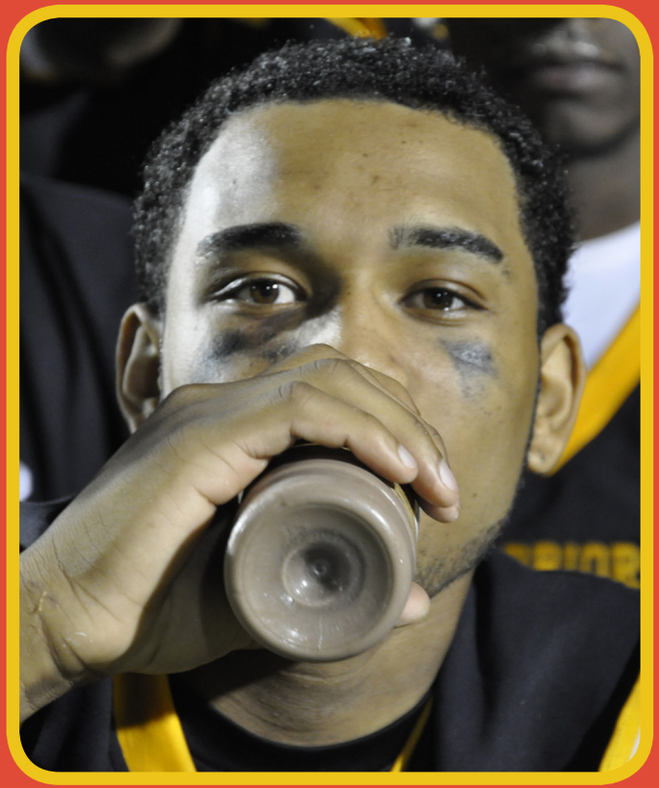
Eat a variety of lean proteins.

For more information on your individualized eating plan, visit www.choosemyplate.gov.

Ask the Sports Dietitian

Q: Should I take vitamins?

A: Vitamin and mineral supplements can't make up for poor food choices and they don't contain all the nutrients found in food. To get the nutrients your body needs, eat a variety of foods from each of the food groups and drink plenty of water, milk, and other healthy beverages.



Waverly High School

Athlete: Dee Roberts

Sport: Football

Fuel Up Advice: Dee was a Safety/QB for the Warriors and fueled up with healthy foods during school, at home, during the summer, and especially on game days!

Training Table

Power Meals

During training your body needs healthy food throughout the day, every day. Eat three meals plus two or three snacks every day to get the energy you need to fuel your workouts, practice, and competition.

Power Meal #1: Start the Day with Breakfast

Athletes need to eat breakfast **every day**. Eating breakfast…

- Gives you the energy you need to practice and compete.
- Wakes up your body and your brain; and revs up your metabolism.
- Feeds and strengthens your muscles, bones and organs.
- Makes you feel better and helps you to be more focused in school.

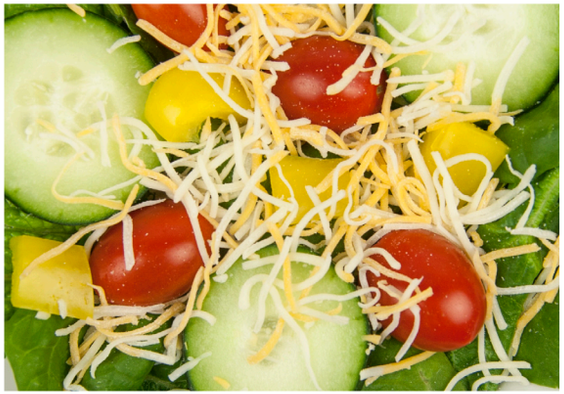
Healthy Breakfast Combos

For breakfast, eat whole grain carbs, a little protein, and a fruit or vegetable for peak performance.

Examples:

- Whole grain cereal, sliced banana, milk
- A bagel, a slice of cheese, red and green pepper strips, and a small glass of juice
- Whole grain English muffin, scrambled egg, strawberries, yogurt
- Cheese stick, apple, granola bar, chocolate milk

Without breakfast, your body will burn some of the protein in your muscles for energy. Over time, this will make your muscles weaker. Don't skip breakfast!



Power Meal #2: Eat a Healthy Lunch

By midday an athlete's body needs more fuel. At home and at school, keep your muscles primed and your energy level high by eating a quick and satisfying lunch. Examples:

- Tomato soup, turkey sandwich with lettuce and tomato, yogurt and an apple
- Chili, baked potato with cheese, carrot sticks, and chocolate milk
- Two tacos with meat or beans, cheese, lettuce and tomato; rice, baked chips, salsa, and milk

Power Meal #3: Refuel and Recover with your Favorite Healthy Foods at Dinner

Try to include one food from each of the MyPlate food groups. Examples:

- Spaghetti with meatballs, cooked vegetables, whole grain breadstick, salad, yogurt with peaches, and chocolate milk
- Baked fish, brown rice or noodles, peas, whole grain roll, pear, and milk
- Chicken and vegetable soup, baked potato, whole grain bread, pudding, banana, and milk

Foods in the protein group and the dairy group contain protein. Whole grains, fruits and veggies, and dairy foods contain carbs.

Healthy Snacking

Snacking is a must for athletes. Healthy snacks fuel your body before, between, and after practices and competitions. Make your snacks count and choose foods from at least two food groups for the perfect refueling combo of **carbs** and **protein**.

Powerhouse Snacks

Protein	Carbohydrates
Peanut Butter and...	Banana
Fat-free Chocolate Milk and...	Whole Grain Granola Bar
Cheese Stick and...	Apple
Sliced Turkey and...	Whole Grain Bread
Cheese Slices and...	Whole Grain Crackers
Almonds and...	Popcorn or Dried Fruit
Hummus and...	Carrot Sticks
Yogurt and...	Canned Peaches or Granola

Sample One-Day Menu

Breakfast

- 1 cup whole grain cereal with sliced banana
- 1 cup low-fat milk
- 1 hard-boiled egg
- 1 piece whole grain toast
- 1 cup fresh berries

Lunch

- Peanut butter and banana sandwich:
  2 slices whole grain bread,
  2 tablespoons peanut butter, banana slices
- 1 cup cherry tomatoes
- 1 cup grapes
- 1 - 6-8 oz. yogurt

Dinner

- 1 large baked potato topped with shredded cheese
- ½ cup cooked spinach
- 3 oz. lean pork chop
- 1 cup sautéed colorful peppers
- 1 cup low-fat or fat-free chocolate milk

Morning Snack

- Whole grain crackers with 1 tablespoon peanut butter
- 1 orange
- Water

Afternoon Snack

- 1/4 cup hummus
- 1 cup carrot sticks
- Water

Evening Snack

- 1 oz. almonds
- 2 cups popcorn
- Water

On the Road

Getting to practices and competitions takes time – a lot of time! Athletes are busy people, but with a little pre-planning and nutrition know-how you can make healthy choices no matter where, or how busy you are.

Carbohydrates rule as fuel. Don't forget -- your body wants half of what you eat to be carbs. These high carb, grab-and-go foods are quick to fix and eat before practice, competition, or when you're on the road.

Yogurt* and cereal or granola
Fresh fruit, any kind
Whole grain bagel**
Pretzels
Fig bars
Tortilla with beans or cheese*
Whole grain cereal**
Pudding

Cup of soup
Drinkable yogurt*
Animal crackers
Dried apricots, raisins, and nuts
String cheese* and crackers
Peanut butter and crackers or rice cakes
Granola bars

Graham crackers
Yogurt* in a tube, frozen
Half a peanut butter sandwich
Bananas
Low-fat popcorn
Milk* and flavored milk*

*Keep cold food cold with an ice pack and cooler.
**Know your body. You may need to be careful with high-fiber foods, especially before a competition.

At Restaurants

Stick to the basics. You can make healthy food and drink choices at restaurants, fast food places, and gas stations:

- Choose whole grain waffles, pancakes, breads, muffins, and cereals.
- Stay hydrated. Drink lots of water while traveling and drink low-fat or fat-free plain or chocolate milk instead of soft drinks, sweet teas or energy drinks.
- Skip fatty meats like bacon and sausage and choose leaner, higher-protein foods such as chicken breast, eggs, beans and fish.
- Round out a meal with a yogurt parfait, a baked potato, a side salad, chili, or 100% juice.
- Order extra veggies on burgers, tacos, subs, or pizza.
- Choose healthy pasta dishes with tomato sauce and vegetables.

Game On: Fueling for Training and Competition

Timing of Meals

The Pre-Competition Meal

To prevent hunger and energy-burnout you need to eat before you compete. This meal helps maximize stored energy, and helps you stay comfortable and alert.

When you eat your pre-competition meal depends on the duration, intensity and type of event you are competing in. Every body is different. Experiment with the timing of your pre-competition meal during training, not on competition day. A good rule of thumb is to have your last meal two to four hours before exercise or competition. It's best to start most events with an empty stomach but you shouldn't feel hungry or weak.

Eat carbs and drink plenty of fluids before you compete. **Your body needs carbs for fuel.** If you don't eat enough carbohydrates, your body will use the protein in your muscles for fuel, which could hurt your athletic performance.

It may be tempting to reach for an energy drink as a quick-fix, but the impact it has on your body isn't safe. Instead, focus on carbohydrates and fluids, like low-fat milk, for your pre-event meal.

Sample High-Carb Pre-Competition Meals

Breakfast

#1
Oatmeal, milk, English muffin and peanut butter, 6 oz. grape juice

#2
Pancakes with fruit on top, yogurt, chocolate milk

Lunch

#1
Broiled chicken sandwich with lettuce and tomato, green salad, fig bars and milk

#2
Lean roast beef sandwich with lettuce and tomato, apple, carrot sticks, milk

Dinner

#1
Tostada (tortilla, lettuce, tomato, beef, onions, beans, salsa and cheese), orange, milk, frozen yogurt

#2
Spaghetti with tomato sauce, bread sticks, green salad, pear, milk

Pre-planning is important. Don't get caught hungry or without food or water before you compete.

East Lansing High School

Athlete: Hannah Guyer

Sport: Soccer

Fuel Up Advice: Hannah makes sure she eats enough protein and carbohydrates throughout the day. Her favorite recovery drink is chocolate milk!

Eating During Competition

Whether you're training or competing, it's important to refuel your body with carbs during extended endurance activities. Endurance activities deplete your muscles' carbohydrate stores. Keep your muscles charged and your energy levels up with low-fat sources of quick-digesting carbs during your event.

During extended endurance activities, eat something light every 30 to 60 minutes. Some examples of foods to try are:

- Sports drinks or gels
- Fresh fruit or a 4 oz. 100% juice
- Bread, cereal or graham crackers

Extended endurance activities are those lasting 60 minutes or longer.

Eat foods that are high in carbs and low in fat like fruits, veggies, grains, milk and low-fat dairy foods. High fat foods take more energy to digest and you want to save your energy for your sport!

Ask the Sports Dietitian

Q: Will a sports drink enhance my performance?

A: For exercise that lasts an hour or longer sports drinks may help. They contain quick-digesting carbohydrates which provide energy to your muscles and delays fatigue. For activities that last less than 60 minutes, water is best. At meals choose nutrient-rich fluids such as low-fat milk or 100% juice to help keep you hydrated.

Liquid or Solid Foods?

Your body doesn't care! Both liquid and solid foods supply your body with energy. However, if you are competing in events lasting several hours, solid food will help stave off hunger. Remember to drink plenty of fluid along with solid food.

Learn Your Body

Different foods and drinks work for different athletes. Experiment during training and find out which food combinations work best for you. Don't wait until competition day to try something new.

Q. What should I eat the day before a game or competition?

A. Eat a healthy meal that looks like MyPlate on page 3. You don't need to eat anything special or different. If you are competing in an endurance sport, it may help to consume an extra serving or two of high carbohydrate foods such as pasta, rice, or cereal. In addition be sure to drink plenty of fluids and get enough rest.

Eating Between Events and Heats

Two-a-day practices or competing in several events or heats in one day (tennis or wrestling tournaments, gymnastics or swim meets, or several basketball or soccer games in one day) can present nutritional challenges. To perform your best, you need to give your body the nutrients it needs. Keeping up your energy stores and staying hydrated are critical; however, some athletes may not have time or feel like eating between events.

The amount of time between events or heats should help you determine how much and what you'll eat. **Make sure you always have water.** The longer you have between competitions, the more you can eat since there is more time to digest food.

Tips to Guide Your Choices

1 hour or less between events or heats

Stick with fluids or high carbohydrate foods, if tolerated, such as…

- Fruit
- Graham crackers
- Whole grain toast or bagel
- Pudding cup
- Sports drinks
- Banana
- Chocolate milk

1 to 3 hour breaks

Try high carb foods with some lean protein such as…

- Bowl of cereal with low-fat milk
- A handful of grapes with fruit-flavored yogurt
- Peanut butter and crackers
- Protein bar and 100% juice
- Banana and peanut butter

Longer breaks (3+ hours)

Eat a healthy high-carb meal such as…

- Pancakes topped with berries, scrambled eggs, and 100% juice
- Turkey or ham 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 chocolate milk

Dansville High School

Athletes: Varsity Volleyball Team

Fuel Up Advice: Prior to practices or competitions, players would fuel their bodies with small snacks of protein and carbohydrates such as granola bars or trail mix. After practice or competition, players would replenish their bodies with chocolate milk. The potassium, protein, and carbohydrates would help their muscles begin recovering at a faster rate than consuming nothing at all. The players noticed a difference in muscle recovery and energy levels when drinking the chocolate milk immediately after physical activity.

Recover and Refuel

After a hard workout or competition you need to:

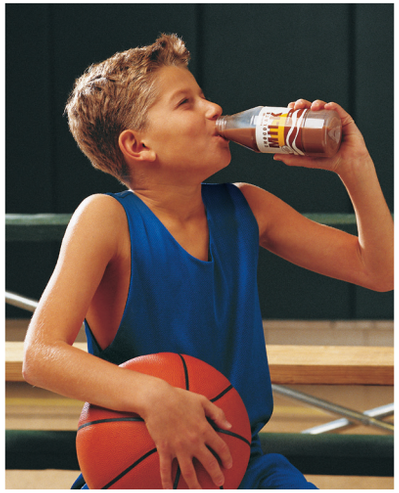
1. Replace fluid you lost by sweating. You can do this by drinking water. Drink 2-3 cups of water for every pound lost during exercise to rehydrate.

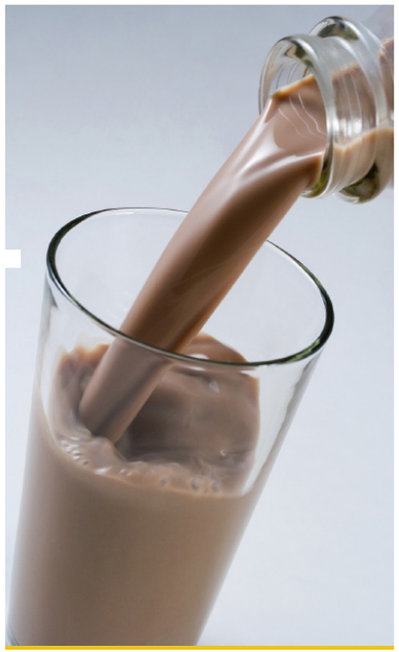
2. Replace muscle glycogen (stored carbs) which is the energy you burned during exercise. You can do this by drinking sports drinks or other fluids that are high in carbs or, consuming carb-rich foods and/or beverages as soon as you can. Something high carb with a little protein is the best choice.

Remember:
Every body is different.
Some athletes can't eat right away after a hard workout. If that's you, be sure to replace lost fluid and energy with a high carb drink that contains a little protein. Chocolate milk is a great choice!

Go-To Recovery Snacks

- Cheese stick and 100% juice box
- Granola bar and chocolate milk
- Yogurt and fruit
- ½ peanut butter sandwich





Ask the Sports Dietitian

Q. How soon after I exercise should I eat or drink?

A. The best time to refuel your body and your muscles after hard exercise is within 30-45 minutes.

Fluids and Dehydration

Why Water?

Water is the most important nutrient for active people and with good reason. During activity you lose fluids in the form of sweat.

It's not uncommon to lose 4 cups (32 ounces) of fluid per hour when exercising in hot, humid conditions. That's a loss of 2 pounds, and some athletes lose a lot more! If you don't drink fluids and rehydrate your body, your strength, endurance, and your ability to do well at your sport will decrease dramatically.

How Much to Drink

To perform your best, stay hydrated by following these guidelines:

When?	How Much?
Daily	8-10 cups to avoid thirst
2-3 hours before activity	1 ½ to 2 ½ cups
Every 15 minutes during activity	¼ to 1 ½ cups (3-6 gulps)
After activity	2-3 cups for every pound of body weight lost

P-Chart

Preferred
Perfectly Pale
Pleasing
Pushing It
Poor
Pitiful
Pathetic

Lemonade color = GOOD
Apple juice color = BAD

Drink enough fluids daily to avoid thirst. Milk, 100% fruit juice, lemonade, and watery foods all contribute to fluid balance.

Caution: high sugar drinks such as lemonade, 100% juice, and some sports drinks can cause diarrhea in some athletes. Water those drinks down if you need to. Also, energy drinks are not a safe way to keep your body energized, and should be avoided.

What to Drink

What you choose to drink should depend on your individual preference, taste, and energy needs. For most activities that last less than 60 minutes cool water is the best choice.

What about Sports Drinks?

Sports drinks give an energy boost during longer-lasting activities. They are made to replace fluid quickly and provide energy in the form of carbs and different sugars. Many also contain electrolytes such as potassium and sodium, which are lost in sweat.

Saginaw Nouvel Catholic Central High School

Athlete: Taylor Hengesbach

Sport: Basketball

Fuel Up Advice: Taylor fueled up by eating well and always

Swimmers and other water athletes lose just as much sweat as others who workout on land. They just can't feel it.

Ask the Sports Dietitian

Q. I don't feel thirsty when I exercise. Do I really need to drink?

A. Absolutely! Not drinking water or a sports drink during exercise will increase your risk of dehydration and cause a decline in your performance. Find something that tastes good to you and agrees with your stomach. Drink often during exercise especially during hot, humid weather.

Q. Can I have a soda or soft drink instead of water or a sports drink?

A. Yes and no. Drinks that contain more than 10% carbohydrate (check the label) such as soft drinks, take longer to be absorbed. They can also cause stomach cramps, bloating, and diarrhea – something most athletes want to avoid. You really should avoid soft drinks on competition day, during exercise and immediately post-exercise.

Listen to Your Body

One of the most important things you can do as an athlete is to listen to your own body. No one knows your body like you do and if you trust it, it will tell you what it needs.

Your Body Rules

Rule 1:
Don't compare your body weight or size to others. Your body type is determined primarily by genetics and by social and environmental factors such as your diet and how much you eat and exercise. Some people are naturally thin, while others naturally carry more weight. Good athletes can be fit and healthy at any size.

Rule 2:
When you are hungry, eat. When your stomach growls it's telling you it's time to eat! Don't deny yourself the foods you like to eat. Follow the 90/10 rule: Eat healthy foods 90% of the time and save the other 10% for less healthy foods. Pay attention to your body cues and stop eating when you are full.

Rule 3:
Drink before you are thirsty. That means, make it a habit to drink lots of water before you get thirsty. By the time your body tells your brain that you're thirsty, you're on the way to becoming dehydrated.

Rule 4:
Skip fad diets. Whether you want to lose or gain weight, following fad diets, or taking supplements to lose or gain weight quickly isn't effective and is harmful. The best diet is a sensible one.

Rule 5:
When you are exhausted slow down, rest or stop. It's natural for good athletes to push themselves but not when it's truly painful. If you are feeling pain, extreme exhaustion, or dizziness tell your coach. It's probably time to rest, cut-back, or take a day off. In addition, get plenty of sleep and rest. Athletes need to sleep 7-10 hours a night.

If you feel dizzy or lightheaded you could be dehydrated. Be sure to drink plenty of water and other healthy fluids to avoid dehydration. (See page 19.)

Hunger Cues

Check in with your body. Your body will tell you when it's hungry. When you are hungry you need to eat! Some signs that you are hungry are:

- Your stomach is growling
- Your stomach feels empty
- You are having a hard time focusing
- You feel light headed, dizzy or shaky

Don't skip meals or deny yourself food when you're hungry. Without food as fuel, your body will feed on your muscles for energy and you need muscle strength to be good at any sport.

More Questions - Answered!

Q. I'm a girl. Are there any special nutrients I need?

A: Both girls and boys need basically the same nutrients every day. However, girls can suffer from iron loss through blood during their monthly cycle. Iron helps your blood carry oxygen to your muscles, so it's important for you to get the iron you need. Be sure to include iron rich foods in your diet, and, if you have heavy periods, be sure to talk to your doctor about taking an iron supplement.

Iron-rich foods: lean meats, fortified cereal and grains, beans, dried fruit, dark leafy greens

Q. Why are sports drink salty?

A. You lose sodium and water when you sweat. The sodium (salt) in sports drinks replaces lost sodium and helps move water and carbohydrates into your body quickly.

Q. Will caffeine make me better at my sport?

A. Some studies show that a little caffeine enhances athletic performance, and can help athletes train harder and longer. What's tricky about caffeine is that the same dose can affect people differently, especially young people. Too much can make you jittery, nauseous, or urgently in need of a trip to the restroom! It's best to consume little, if any, and learn through trial and error – and NOT on competition days – the amount of caffeine that works best for your body.

Q. Are protein bars, powders or supplements good for you?

A. Only about 15% of the total calories you eat in a day need to come from protein. Although athletes require slightly more protein than less active people, a hungry athlete tends to eat bigger meals with larger portions of protein-rich foods. An extra peanut butter sandwich, a bigger piece of chicken, or an extra glass of milk can satisfy all your protein needs without any bars, powders, or supplements. Protein bars will most likely add unwanted additional sugar.

Q. Are sports gels better for you than food if you're a long distance runner?

A. Sports gels are made of easy to digest carbohydrates for quick energy. They are also low in fiber, which can cause diarrhea in some people. Gels are fine during competition or really long runs but be sure to refuel afterwards with healthy foods that contain carbohydrates and a little protein.

Q. What supplement should I take to build muscle fast?

A. There are no supplements that will help you build muscle fast. Strong muscles come from consistent, and the right kind of strength training, along with a healthy diet that includes small portions of lean protein such as chicken, fish, beans, eggs, lean meats, and even low-fat milk.

Q. I feel tired all the time. Is there anything I can eat that might help?

A. First, make sure you are getting enough sleep (athletes need 7 - 10 hours a night) and drinking enough water or other healthy beverages that you are not dehydrated. In addition, make sure you eat breakfast every day and that you eat something healthy every few hours. If you are still tired all the time, you may want to ask your doctor to check your iron.

Q. Sports Drinks or Water? Which is best and when?

A. A sports drink is designed to be taken during endurance exercise that lasts more than 60 to 90 minutes. Your pre-exercise meal or snack should help maintain your energy level for 60 to 90 minutes. After that, you'll need some energy. Some athletes prefer a sports drink, others want water plus gels, gummy candy, or dried fruit. Experiment and find out what works best for you.

Q. What's the best way to lose weight?

A. S-L-O-W and S-T-E-A-D-Y. Healthy weight loss for an athlete is 1-2 pounds a week. Any more than that and you'll probably end up losing muscle, too. If you want to lose weight, eat a variety of foods from all of the food groups and limit less healthy foods such as candy, soda, chips and crackers.

Q. Do athletes need fiber?

A. Like everyone else, teen athletes need 25-35 grams of fiber a day to promote regular bowel movements. If you fill up on lots of white bread, bagels, crackers, pasta and other foods made with refined white flour, you may end up constipated. If you eat too much fiber you may have the opposite problem! Moderate amounts of whole-wheat bread, whole grain cereal, fruits and vegetables are generally good choices. If you are concerned about diarrhea during your sport, limit your intake of high-fiber foods the day of games and competitions.

Sports Nutrition Terms

Amino Acids
The building blocks of protein. There are 20 total. Your body makes 11 of them. You need to get the other 9 from eating a variety of foods. If you consume extra amino acids your body doesn't need, they are excreted by your kidneys.

Ammenorhea
When a woman or girl who has previously been menstruating monthly stops. This can be because a female athlete exercises too much, eats too few calories or both. In order to have regular periods women need to consume a certain number of calories and maintain around 16 percent body fat or more. If a woman has too little body fat the ovaries stop producing estrogen and the woman stops menstruating. This is not healthy and can lead to weak bones and osteoporosis.

Bonking
When your brain is out of fuel. The liver supplies glycogen (stored energy) to the brain. Once that's gone an athlete may feel lightheaded, uncoordinated, confused, and weak. That's why it's so important to consume adequate energy (carbs) before strenuous activity, so your muscles, and your brain have the energy they need.

Calcium
A mineral your body needs to build strong bones. Foods high in calcium include milk, yogurt, cheese, fish with edible bones, leafy greens, almonds and calcium fortified food such as some kinds of orange juice, some cereals, and soy and almond beverages. Most people can get all the calcium they need by eating three servings of dairy foods each day.

Calories
The form of energy found in food. Female athletes need about 10% fewer calories than male athletes. Calorie needs for athletes range from about 1800 to 5000 calories per day, depending on age, sex, and activity level. Too few calories can result in muscle loss or wasting, while too many calories can lead to unwanted weight gain.

Carbohydrates
Your body's favorite fuel for energy! You get healthy carbohydrates from breads, pasta, cereal, fruits, vegetables, milk and other dairy foods.

Carbohydrate Loading
When an athlete prepares for an endurance (more than 90 minutes) event by eating lots of high carb foods to saturate his/her muscles with glycogen (stored energy).

Creatine
A natural compound found in muscles that is an important source of fuel for quick-burst athletes such as sprinters and basketball or raquet sports. Some athletes supplement with creatine to improve performance. Too much creatine can cause water retention and stress on the kidneys. Teen athletes should not supplement with creatine.

Dehydration
A serious condition where more water is moving out of your cells than the amount of water you are taking in through foods and drinks. Signs of dehydration include increased thirst, dry mouth, swollen tongue, weakness, dizziness, confusion, fainting, inability to sweat, decreased urine output, rapid heart rate, and high body temperature. Dehydration is serious and can cause death. Drink lots of fluids before during and after exercise to avoid dehydration.

DRIs
Dietary reference intakes (DRI) are a set of reference values for vitamins, minerals, and other nutrients important for good health. DRIs provide guidance about how much of each nutrient should be consumed. DRIs are specific to age group, gender, and for women, reproductive status.

Electrolytes
Electrolytes are minerals in your blood and other body fluids. They affect the amount of water in your body, the acidity of your blood (pH), your muscle function, and other important processes. You lose electrolytes when you sweat. You replace electrolytes by drinking fluids like sports drinks or water. Common electrolytes are: Calcium, Chloride, Magnesium, Phosphorous, Potassium and Sodium.

Energy Drinks
Energy comes from calories so most (but not all) energy drinks are high in carbohydrates and calories. Energy drinks often contain other substances thought to enhance energy such as caffeine and Guarana. If you are looking for a competitive edge, prevent the need for a quick energy fix by fueling your body with healthy meals and snacks. No energy drink will make up for a poor diet.

Female Athlete Triad
Three conditions ranging in severity: Energy Deficit/Disordered Eating, Menstrual Disturbances/Amenorrhea and Bone Loss/ Osteoporosis. Because of the clear associations between the three conditions it is likely that an athlete suffering from one condition is also suffering from the others.

Glucoronlactone
A substance often added to energy drinks to increase feelings of well-being, reduce sleepiness, and enhance reaction time. The safety of high doses has not been established.

Glycogen
A form of carbohydrates stored in your muscles and liver and broken down into glucose when your body needs energy.

Guarana
A common ingredient in energy drinks that is a natural stimulant. One gram of Guarana equates to about 40 mg of caffeine.

Hitting the Wall
In endurance sports such as cycling and running, hitting the wall or 'bonking' describes a condition caused by the depletion of glycogen stores in the liver and muscles, which is seen by sudden fatigue and loss of energy. Mild instances can be fixed by brief rest and eating food or drinks that contain carbohydrates. See also bonking.

Human Growth Hormone (HGH)
HGH regulates growth during childhood and metabolism as adults. Your body makes the HGH you need. HGH supplements are dangerous and can cause swelling, joint pain and enlarged breasts in men.

Hyponatremia
A low concentration of sodium in the blood. It can occur when an athlete drinks too much water (over hydrates) or sweats a lot but does not replace lost sodium. The early warning signs are often subtle, may be similar to dehydration, and include nausea, muscle cramps, disorientation, slurred speech, and confusion.

Iron Deficiency Anemia
When your body does not get the iron it needs to help transport oxygen to your muscles. Athletes at the highest risk of developing iron deficiency anemia are: athletes who are growing quickly, endurance athletes who lose extra iron through sweat, females who have heavy periods (blood loss), vegetarians who do not consume foods high in iron, and long distance runners who may damage red blood cells by pounding their feet excessively.

Lactic Acid
A by-product of metabolizing glucose or glycogen for energy. Lactic acid is partly responsible for muscle soreness.

Omega 3 fats
Healthy fats that are good for your heart. Fish, nuts, seeds, and some leafy greens are good sources.

Osteoporosis
A weakening and thinning of the bones that leads to fractures. Eating three servings from the dairy group every day can help prevent osteoporosis.

Pre-hydration
Drinking or eating high water foods before you compete or take part in a sport. The object is to maximize how much water is in your cells so you don't get dehydrated.

Protein
A nutrient found in foods needed to build and maintain muscle. Only 10 to 35% of total daily calories need to come from protein. Athletes require slightly more protein than non-athletes. Recommendations are in grams of protein per pound body weight (gms/lb):

Information below is for a 150 pound person

Sedentary person..... 0.4, 60 gms
Recreational exerciser, adult..... 0.5-0.75, 75-112gms
Competitive athlete, adult..... 0.6-0.9, 90-135 gms
Growing teenage athlete.....0.8-0.9, 120-135 gms
Maximum for all healthy athletes..... 0.9 gram pro / lb

Sodium
An important mineral that helps control how much water goes in and out of your body's cells.

Sports Drinks
Beverages specifically created to replace carbohydrates and electrolytes that are depleted during exercise.

Sunshine Vitamin (Vitamin D)
A vitamin that controls the way your body uses calcium. Sources of Vitamin D are fortified dairy foods like milk, cheese, and yogurt.

Taurine
An amino acid found in high concentrations in the brain, heart, and muscles. Taurine is often added to energy drinks. When combined with caffeine, taurine is reputed to enhance concentration and reaction time. More research is needed.

Vegetarian
Someone who does not eat foods that come from animals such as beef, eggs, or fish. Vegetarians must take extra care to avoid deficiencies of iron, calcium zinc, and vitamin B12, which can hurt exercise and strength training performance.

Whey Protein
Whey protein makes up 20% of the protein found in milk, while 80% is casein. Whey protein is digested and absorbed into the blood faster than other proteins so some athletes like to supplement with whey protein after a workout to refuel their muscles quickly. Casein, also found in milk, takes longer to absorb but is longer lasting.

Whole Grain
High-carbohydrate grains we eat where the whole grain is intact, such as 100% whole wheat bread, oatmeal, barley, quinoa and brown rice.

For more information about sports nutrition, visit www.MilkMeansMore.org

Milk Means More

United Dairy Industry of Michigan

(800) 241-MILK (6455)
www.MilkMeansMore.org