

# Western National 4-H Roundup FCS Classic



## Family & Consumer Sciences Bowl 2010 Study Resources

In addition to the study materials in this packet you will also need to study:

- Be the E member guide (available from National 4-H Council)
  - [My Pyramid.gov](http://MyPyramid.gov)

# Trail Foods

If you are planning a hiking, camping, or backpacking trip you will need to plan which foods to take along. You can use a lot of energy when taking part in these activities, so you will need to think carefully about the foods you plan for your trip.

Carbohydrates come in two basic forms: complex and simple.

- Complex carbohydrates will provide you with energy over a long period of time. Whole foods with complex carbohydrates like whole grain breads, pastas and cereals and other whole grain snacks provide long term energy.
- Simple sugars will provide you with fast energy, but your body will burn them quickly. Chocolate, candy and powdered drinks are examples of simple sugars. Simple sugar foods are ok for a quick pick me up, but plan to choose more nutritious foods for the long run.

Protein foods provide more energy over a longer period of time. Your body burns proteins more slowly than carbohydrates. Protein foods include nuts, beans and meats, fish and poultry. Protein is vital for muscle and tissue repair, which is necessary for an active lifestyle.

There are eight criteria for choosing foods for the trail.

1. They must be easy to prepare. You won't have room to bring along a lot of tools for cooking so they must be simple.
2. The second is to keep your budget in mind when preparing food. You can plan menus for the least cost while still getting the nutrients you need along with great taste.
3. Another criterion is to make sure your food is non-perishable. You will have no refrigeration on the trail so take foods that don't have to be kept cold or that won't spoil easily.
4. Including food from a variety of the MyPyramid food groups will provide you all of the nutrients you need for a healthy lifestyle.
5. Choose foods that taste good to you. The better they taste to you the more likely you will be willing to eat them to get the energy you need.
6. Since you will have a lot of physical activity on your journey, choose foods that will give you the energy you need to keep up to others on the trail. Foods high in energy will meet your exercising needs.
7. Think about how much space the food might take up in your backpack and how heavy the food will be to carry when planning foods for the trail. You don't want to worry about having to carry a lot of weight either in your backpack or on your bicycle.
8. Finally think about packaging. You might not have places to throw out your garbage. Fruits are biodegradable and animals will eat the leftovers. Plan for foods and packaging that will not harm the environment. Fruits are a good example of a food that will either be eaten by animals or will break down in the environment. Also plan to take food out of store packaging and repack it in plastic storage bags. The plastic storage bags are lightweight and can be stored in your pocket or backpack until you get home and they can be disposed of properly.

Always remember to bring along enough water. Plan for 3-4 quarts of water per person per day.

According to the Outdoor Adventures 4-H project the following foods are good choices to take out on the trail. They are light weight and will not spoil quickly. They are high in the nutrients you need each day and give you energy.

**Protein Rich Foods**

Peanut butter  
Cheese  
Powdered eggs  
Jerky  
Beans and legumes  
Canned chicken and tuna

**Carbohydrate Rich Foods**

Bagels  
Crackers  
Pita bread  
Mountain bread/flour tortillas  
Pasta  
Oatmeal  
Fresh fruit

**Nuts and seeds** (contain a healthful balance between carbohydrates, fats and protein)

**Fat Rich Foods**

Cheese (also good source of protein)  
Oils

**Carbohydrates-simple sugars**

Hard candies  
Chocolate  
Powdered drink mixes like lemonade

**Important Note:**

There are many people who have nut and peanut allergies. Make sure the foods you bring along contain no nuts or peanuts or have not been processed with nuts. Read the food labels to make sure there are no references to peanuts or nuts like walnuts, cashews, almonds, or pecans.



## MP3 Players

MP3 players are definitely not one-size-fits-all. They come in a range of shapes and sizes, use different types of memory, and support different formats. Based on these and other features, certain players are better suited to certain uses--you should choose the player (or *players*) that meets your needs. Along with type of memory and compatible formats you should consider storage capacities, features, accessories and intended use when shopping for a player. It is also important to think about where you will get music and the software you will need.

### *The Two Basic Types MP3 Players*

#### **Hard-Drive Based MP3 Players**

The MP3 players with the largest capacities are hard-drive MP3 players. They store the music and files on an internal hard drive, which means MP3 players of this type can have large capacities. Some feature up to 80GB of space, which would require an awful lot of music and videos to fill. The downside of hard drive MP3 players is that hard drives have moving parts, that is, shake-able, breakable parts – not the best choice for people who want a portable MP3 player for working out. Hard drives also take up a little more space, so the MP3 players won't be quite as slim and light as others.

#### **Flash-Based MP3 Players**

Flash-based MP3 players feature flash memory, which has no moving parts. Flash MP3 players are light-weight and slim (perfect for the gym or a jog), but flash-drive MP3 players have smaller capacities. Their highest capacities max out at about 8GB, which is still plenty of space for most people. Generally, more memory in a portable MP3 player means higher cost. There are plenty of affordable MP3 players between 1 and 80GB.

### *Understanding Storage Capacities*

Before you can really shop for a portable MP3 player you need to know the difference between megabytes (MB) and gigabytes (GB). Memory storage capacities are measured in bytes. More bytes in an MP3 player equal more space to hold all of your songs. A megabyte is 1 million bytes. A gigabyte is 1 billion bytes (and therefore bigger and better). You won't see too many digital MP3 players with capacities measured in megabytes, but there are still a few out there. The table below gives you an approximation of storage capacities in relation to music:

Capacity	# of Songs	Hours of Play
128 MB	60	4
256 MB	100	8
512 MB	250	16
1 GB	Over 500	30+
20 GB (only on a hard drive player)	5000	300+

#### ***Battery Type and Life***

Generally battery life is viewed as a critical factor in selecting an MP3 Player. Most hard-drive-based players come with non-removable lithium-ion batteries, which typically last two to four years. Many manufacturers have some sort of return/repair plan, so check the warranty policy before you buy. Flash MP3 players are split between those using AA or AAA batteries and those with an internal rechargeable cell. Since flash players need to be synced more often and it's easy to recharge as you sync, flash players with rechargeable batteries are usually preferable.

\*You have to be really careful with power adapters for both car power ports and wall plugs. Use only those provided by the manufacturer; even if the plug physically fits, you still need to confirm the adapter's polarity, voltage, and amperage. While amperage can usually be 20 percent less or up to 100 percent more than what's needed by the player, polarity and voltage must be identical to the unit's requirements. If you're unsure about these factors, skip the bargains and buy the power adapter sold by the manufacturer--you'll avoid frying your player.

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## *Audio Formats*

Songs and other audio files can be saved in a variety of file formats, some higher quality than others; MP3 is the most common (hence the term "MP3 player"). Different online music stores may use different formats. While most MP3 players are compatible with most formats, you should check before you buy. The most common formats you need to be aware of are: MP3, AA, WAV/AIFF and WMA. One special note on formats: Songs in the AAC (Advanced Audio Coding) format are copyright protected.

With an MP3 player, you have to consider where your music is coming from to ensure your device will play your music. Here's what you need to know about music compatibility:

### **Existing music on your computer**

If you've already ripped and/or downloaded lots of music, choose a player that supports the format(s) you're already storing. If it's MP3, you're OK with any player, but rarer formats are supported by only certain devices.

### **Compact discs**

If all of your music is still on CDs, you can buy just about any MP3 player since you'll first need to convert your discs to MP3, WMA, OGG, or one of the other common formats.

### **Online music stores**

If you plan on buying music downloads from an online music store you need to make sure your player will work with the formats offered. In an ideal world, you'd be able to play any legally purchased music on any MP3 player, but due to format wars and DRM (Digital Rights Management), that's not possible. If you know you're going to buy tunes online, you'll first have to select a store you like, then a player that supports the store. The files sold by these stores come with usage restrictions that commonly limit playback to three computers and stop you from mass-producing burned mixes. These restrictions can cause device compatibility problems, but the trade-off for consumers is that those safeguards make the labels comfortable enough to license their songs to online stores.

### **Subscription-based music services**

You can legally fill up your MP3 player with endless gigabytes of tunes from an online music store and pay less than the price of a CD. How is this possible? Well, you're not actually buying the tracks; instead, you're renting them in an all-you-can-eat scenario for a monthly subscription fee.

### **P2P networks**


Most tunes available on file-sharing networks (also called peer-to-peer or P2P networks) are already in the MP3 format, so there are no compatibility issues in this situation. Since someone else did the encoding, however, the audio quality of files on these services varies. Also, the legality of these sites is seriously questionable, so there's a risk of getting in trouble with the RIAA, which could lead to hefty fines or even jail time.

### **Vinyl/cassettes**

If you have lots of music on vinyl, cassettes, or even 8-tracks, you can record it on to your computer, turn the files into MP3s, then transfer those to any MP3 player. In order to simplify the process, consider buying a player that has line-in recording and allows you to encode MP3s directly from your stereo. If your stereo has a digital optical output and you want to record MP3s this way, make sure to find a player that has a digital optical input; this will preserve sound quality during the recording process. If there's no digital optical output on your stereo, any player with an analog input will do.

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## Key Features of MP3

File Management	Transfer Speed/Port Type	Software
<p>MP3 files include ID3 tags that list the artist, track, album name, genre, and more. Working with this data, a player can organize the files for you. Most hard drive-based players sort files into artist, song title, and genre lists, and can read playlists that you create with software. You obtain song information easily via software enabled to work with an online track-listing database, or you enter the info manually. Look for an easy-to-read LCD screen that shows the information you frequently use.</p>	<p>Most players today use the USB 1.1 interface, but downloading one 5GB batch of songs from your PC can take all night. Look for players that employ the much faster USB 2.0 standard. With FireWire you can transfer an entire song in seconds, but few PCs have a FireWire port. (You can add a FireWire PCI card to your PC for a small fee.)</p> 	<p>All players come with software that allows you to download songs to them. Some of the more popular units have drivers you can use within online music stores and computer software; this permits you to rip from a CD-ROM and download the resulting MP3 file to your player from the same application. Other players come with their own specialized software. And some hard drive-based players appear as a drive within Windows Explorer, so you can drag and drop files into the device.</p>

## Additional Features

- **Data storage:** Some MP3 players also serve as data storage, so you can transfer other types of non-music files between computers.
- **Photo viewing:** If you are a photographer, or if you just like to share your family pictures with everyone, you need an MP3 player with photo viewing capabilities. If you have a lot of high-resolution photos, get something with a lot of memory, like a 20GB MP3 player.
- **Recording:** Some MP3 players feature digital voice recorders, which are great for recording lectures or personal reminders, but not music. If you want to record music, get something that has an audio input jack, so you can record directly from other devices.
- **Video playback:** Most portable MP3 players with video playback are great for watching short clips and maybe a digitized TV show or two. They're probably not the best for watching feature films, however, because the screens are too small.
- **Wireless capability:** Many of the newer MP3 players are able to transfer songs and files wirelessly. Just make sure your other devices use the same wireless technology so they are compatible.
- **Hold switch:** If you're like most people, you'll be storing your digital MP3 player in your pocket or backpack. That means you may inadvertently bump a button now or then, which could potentially waste valuable battery life or skip to then next song before you're ready. A hold switch will make that less likely to happen, essentially making the MP3 player controls ineffective until you release it.
- **Expandability:** More and more MP3 players feature memory expansion slots, where you can insert flash memory cards. This can be handy for transferring files, or for listening to a few songs once or twice that you don't want taking up space on your MP3 player
- **Radio:** Many players offer FM radio reception, although they're more common on flash devices, which lack the spinning hard drives and the CD-playing features that can interfere with the signal. Other radio-related features include FM recording (usually to MP3), transmission (for playing back audio wirelessly through home and car stereos with FM tuners), and presets.
- **Personal information management:** Some MP3 players can accept phone books and schedules. The information is generally entered into Outlook or another PIM program, then synced to the device where you can view it but not change it on the go.
- **Sound-tweaking options:** Digital signal processing (DSP changes a song's equalization or spatial characteristics. Since digital audio files come from multiple sources and people have individual sonic preferences, EQ and other DSP settings can be useful. Look for a customizable EQ setting (the more bands the better; five is the norm), as well as the standard presets (Rock, Jazz, Bass Boost, and so on).
- **Advanced playback features:** Just about every player offers shuffle, repeat, resume, and playlist functions. Still, there's room for improvement. Newer models offer the ability to create on-the-fly playlists without a computer; smart playlists; song-rating methods in which preferred tunes appear more frequently in Shuffle mode; automatic cross-fading that adds smooth transitions between songs; and automatic volume control, which makes all songs equally loud.

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## *Meeting Your Needs*

Below is a listing of some of the most common uses of MP3 Players with information on the best players to meet specific needs. If you truly need a player for more than one of the common uses, you might consider buying an additional player. For instance, you might want an ultra-compact flash player for jogging or skiing and a high-capacity hard-drive-based device for traveling. Most people just want an MP3 player for general, day-to-day use – in that case, buy a quality product in your price range with the features you want.

### **Commuting**

You listen to your stereo at home and to your computer at work, but filling your commute with tunes requires a portable player. If you commute by car, look for a hard-drive-based model; size doesn't matter much in this situation, so feel free to save money by buying a heftier unit. You'll also need a cassette style adapter and a cigarette-lighter charger. The former can be purchased anywhere, but for the charger, stick with manufacturer-approved accessories; that way, you'll avoid frying your player with the wrong voltage or polarity. If your car has no cassette player, you're going to need an FM transmitter device or a direct line-in jack on your car stereo. If you commute via subway or bus, look for a compact flash-based player and, to seal out as much of the din as possible, a pair of noise-canceling or sound-isolating headphones.

### **Traveling**

If you spend a lot of time on the road, you need an MP3 player that will enhance your journeys with music yet doesn't add undue weight to your carry-on. If you travel with the same laptop that stores your music, a compact flash-based player is the way to go, but if you'd rather leave the laptop at home, try a higher-capacity player that will hold all or most of your music--bonus points for one that has an easily removable and replaceable battery. Accessories worthy of consideration include noise-canceling or sound-isolating headphones for the plane, as well as a portable speaker setup for your hotel room.

### **File Hoarding**

If your appetite for digital music has your computer's hard drive(s) bursting at the seams, you fit the description of the file hoarder. While sound quality and features are important to you, what you need most is an enormous capacity: at least 40GB but maybe even more. It shouldn't be difficult for you to find a hard-drive player with enough storage to suit your needs, but it may be more expensive and larger than other options.

### **Working-Out**

If you want an MP3 player for working out – it should be compact and easy to operate with one hand. Rather than looking for one with massive storage, choose a flash-based model that can withstand tough workouts better than hard-drive-based players. You may also want an armband, an option on many ultra-compact models, and a set of headphones that will stay in place rather than the cheap earbuds typically included. Also, look for sweat-resistant models and other fitness-friendly extras, such as a calorie counter or pedometer.

### **Listening to Audiobooks**

MP3 players have quickly become the medium of choice for listening to audiobooks. Compared to CD and cassette players, an average MP3 player is small and has the capacity to hold many hours worth of audio. If you're looking to purchase an MP3 player that works well with audiobooks, there are a couple things to keep in mind. The first is whether it's compatible with popular audiobook sites. The second is if the player has bookmarking, that will keep you from having to fast-forward through files.

### **Recording Audio**

Some players on the market can record from line-level sources such as CD players or stereo outputs, so they're great for converting CDs, tapes, and vinyl records to digital formats such as MP3, WAV, or WMA. Those wishing to record live audio can do the same, although they'll need a powered microphone that can output a line-level signal. If voice recording is all you need, look for a model with a built-in mic.

### **Watching Video**

Nowadays, many MP3 players and portable video players (PVPs) come all in one, as the majority of devices hitting the market include video playback as a feature. MP3 players with relatively large screens make the best substitute PVPs--make sure you look for those that are at least 2-inches diagonal.

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## *Accessories*

There are many optional items you can purchase to enhance your player:

- FM transmitters
- MP3 car chargers
- In-line remote controls
- Jogging kits
- Deluxe carrying cases
- Flash memory adapters
- Flash memory
- Docking stations
- USB/FireWire kits
- Extra rechargeable batteries
- Cassette adapters

Just to name a few! You might also consider a higher quality set of headphones. Often, the headphones included with MP3 players are not the highest quality, and they are usually ear buds, which can be uncomfortable for some people. If your MP3 player has wireless capabilities, you can try some wireless headphones. You can also get some noise isolating headphones or wraparound buds that stay on while you bounce around working out.

## *Refurbished MP3 Players*

New MP3 players don't always have to be new or expensive. If you want to save money on a quality digital music player, you should think about getting a refurbished MP3 player. These are players that have been lightly used or demoed before being factory reconditioned to like-new condition. Nobody will know it was a discount MP3 player because it looks and performs like a brand new one.

The best buy on an MP3 Player will be the one that meets your needs with the features you want at an affordable price.

### **Remember to consider:**

- Storage Capacity
- Battery Type
- Compatible Audio Formats
- Key and Added Features
- Intended Use
- Available Accessories
- Price



## **References**

Six Tips for Buying an MP3 Player with Flash Memory, *Microsoft*, 2007, Microsoft.com.

MP3 Player Buying Guide, *Overstock*, 2008, Overstock.com.

MP3 Key Features, *PC World*, 2007, pcworld.com

MP3 Player Buying Guide, *CNET Editors*, 2008, cnet.com.

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# HEALTH

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## Nutrition for the Athlete

no. 9.362

by J. Anderson, L. Young and S. Prior<sup>1</sup>

### Quick Facts...

Athletes achieve peak performance by training and eating a variety of foods.

Athletes gain most from the amount of carbohydrates stored in the body.

Fat also provides body fuel; use of fat as fuel depends on the duration of the exercise and the condition of the athlete.

Exercise may increase the athlete's need for protein.

Water is a critical nutrient for athletes. Dehydration can cause muscle cramping and fatigue.

Becoming an elite athlete requires good genes, good training and conditioning and a sensible diet. Optimal nutrition is essential for peak performance. Nutritional misinformation can do as much harm to the ambitious athlete as good nutrition can help.

### Carbohydrates

Athletes benefit the most from the amount of carbohydrates stored in the body. In the early stages of moderate exercise, carbohydrates provide 40 to 50 percent of the energy requirement. Carbohydrates yield more energy per unit of oxygen consumed than fats. Because oxygen often is the limiting factor in long duration events, it is beneficial for the athlete to use the energy source requiring the least amount of oxygen per kilocalorie produced. As work intensity increases, carbohydrate utilization increases.

Complex carbohydrates come from foods such as spaghetti, potatoes, lasagna, cereals and other grain products. Simple carbohydrates are found in fruits, milk, honey and sugar. During digestion, the body breaks down carbohydrates to glucose and stores it in the muscles as glycogen.

During exercise, the glycogen is converted back to glucose and is used for energy. The ability to sustain prolonged vigorous exercise is directly related to initial levels of muscle glycogen. The body stores a limited amount of carbohydrate in the muscles and liver. If the event lasts for less than 90 minutes, the glycogen stored in the muscle is enough to supply the needed energy. Extra carbohydrates will not help, any more than adding gas to a half-full tank will make the car go faster.

For events that require heavy work for more than 90 minutes, a high-carbohydrate diet eaten for two to three days before the event allows glycogen storage spaces to be filled. Long distance runners, cyclists, cross-country skiers, canoe racers, swimmers and soccer players report benefits from a precompetition diet where 70 percent of the calories comes from carbohydrates.

According to the Olympic Training Center in Colorado Springs, endurance athletes on a high-carbohydrate diet can exercise longer than athletes eating a low-carbohydrate, high-fat diet. Eating a high-carbohydrate diet constantly is not advised. This conditions the body to use only carbohydrates for fuel and not the fatty acids derived from fats.

For continuous activities of three to four hours, make sure that glycogen stores in the muscles and liver are at a maximum. Consider taking carbohydrates during the event in the form of carbohydrate solutions. The current recommendation is a 6 to 8 percent glucose solution.

You can make an excellent home-brewed 7.6 percent sports drink with reasonable sodium amounts. Add 6 tablespoons sugar and 1/3 teaspoon salt to

**Colorado**  
**State**  
University

**Extension**

**Table 1: Sample menu of a high carbohydrate diet.**

Food item	Calories	Grams carbohydrate
<b>Breakfast:</b>		
8 ounces orange juice	120	28
1 cup oatmeal	132	23
1 medium banana	101	26
8 ounces low-fat milk	102	12
1 slice whole wheat toast	60	12
1 tablespoon jelly	57	15
<b>Lunch:</b>		
2-ounce slice ham	104	0
1 ounce Swiss cheese	105	1
2 slices whole wheat bread	120	25
1 leaf lettuce	1	0
1 slice tomato	3	1
8 ounces apple juice	116	30
8 ounces skim milk	85	12
2 cookies	96	14
<b>Dinner:</b>		
3 cups spaghetti	466	97
1 cup tomato sauce with mushrooms	89 5	19 1
2 tablespoons Parmesan cheese	45	0
4 slices French bread	406	78
1 slice angel food cake	161	36
1/4 cup sliced strawberries	13	3
1/2 cup ice cream	133	16
<b>Snack:</b>		
16 ounces grape juice	330	83
6 fig cookies	386	81
<b>TOTAL</b>	<b>3,236</b>	<b>613</b>
	(75% of total calories)	

**Table 2: Recommendations for hydration.**

Day before	Drink fluids frequently
Pre-event meal	2-3 cups water
2 hours before	2-2 1/2 cups water
1/2 hour before	2 cups water
Every 10-15 minutes during the event	1/2 cup cool (45-55 degrees F) water
After event	2 cups fluid for each pound lost
Next day	Drink fluids frequently (it may take 36 hours to rehydrate completely).

each quart of water. Dissolve sugar and cool. The salt translates into a sodium concentration of 650 mg/liter. This small amount is good for marathon runners.

Electrolyte beverages can be used if the athlete tolerates them, but other electrolytes are not essential until after the event. Experiment during training to find the best beverage for you.

Eating sugar or honey just before an event does not provide any extra energy for the event. It takes about 30 minutes for the sugar to enter the blood stream. This practice may also lead to dehydration. Water is needed to absorb the sugar into the cells. Furthermore, sugar eaten before an event may hinder performance because it triggers a surge of insulin. The insulin causes a sharp drop in blood sugar level in about 30 minutes. Competing when the blood sugar level is low leads to fatigue, nausea and dehydration.

A diet where 70 percent of calories comes from carbohydrates for three days prior to the event is sometimes helpful for endurance athletes. (See Table 1 for a sample menu.) Water retention often is associated with carbohydrate loading. This may cause stiffness in the muscles and sluggishness early in the event. A three-day regimen minimizes this effect. The previously suggested seven days of deprivation/repletion is not recommended due to increased risks of coronary heart disease. In addition, electrocardiograph abnormalities may occur and training during the deprivation phase may be difficult.

## Water

Water is an important nutrient for the athlete. Athletes should start any event hydrated and replace as much lost fluid as possible by drinking chilled liquids at frequent intervals during the event. Chilled fluids are absorbed faster and help lower body temperature. (See Table 2.)

## Fats

Fat also provides body fuel. For moderate exercise, about half of the total energy expenditure is derived from free fatty acid metabolism. If the event lasts more than an hour, the body may use mostly fats for energy. Using fat as

fuel depends on the event's duration and the athlete's condition. Trained athletes use fat for energy more quickly than untrained athletes.

Fat may contribute as much as 75 percent of the energy demand during prolonged aerobic work in the endurance-trained athlete. There is evidence that the rate of fat metabolism may be accelerated by ingesting caffeine prior to and during endurance performance. However, insomnia, restlessness and ringing of the ears can occur. Furthermore, caffeine acts as a diuretic and athletes want to avoid the need to urinate during competition.

## Protein

After carbohydrates and fats, protein provides energy for the body. Exercise may increase an athlete's need for protein, depending on the type and frequency of exercise. Extra protein is stored as fat. In the fully grown athlete, it is training that builds muscle, not protein per se. The ADA reports that a protein intake of 10 to 12 percent of total calories is sufficient. Most authorities

*A varied diet will provide more than enough protein as caloric intake increases.*

**Table 3: Two pre-event meal plans.**

<b>Pre-Event Meal Plan I (approximately 500 calories)</b>	
Milk, skim	1 cup
Lean meat or equivalent	2 ounces
Fruit	1 serving (1/2 cup)
Bread or substitute	2 servings
Fat spread	1 teaspoon

<b>Pre-Event Meal Plan II (approximately 900 calories)</b>	
Milk, skim	2 cups
Lean meat or equivalent	2 ounces
Fruit	1 serving (1/2 cup)
Pasta or baked potato	1 cup 1 medium
Bread or substitute	2 servings
Vegetable	1 serving (1/2 cup)
Fat spread	1 teaspoon
Dessert: Angel food cake or plain cookies	1 piece 2

### Resources

- *Winning Sports Nutrition, video and training manual, University of Arizona, 1995.*
- *Sports Nutrition Guidebook, by Nancy Clark, Leisure Press, 1990.*
- *For recipes, see Athlete's Kitchen by Nancy Clark, published by Bantam Books, 1983.*
- *Nutrition for Athletes: A Handbook for Coaches produced by the American Alliance for Health, Physical Education and Recreation, 1201 Sixteenth Street, NW, Washington, DC, 20036.*
- *Order a copy of You: A Guide to Food, Exercise and Nutrition from Colorado Dairy Council, Inc., 12450 North Washington Ave., P.O. Box 33120, Thornton, CO, 80233-0120; telephone (303) 451-7711; cost \$1.*

recommend that endurance athletes eat between 1.2-1.4 grams protein per kg of body weight per day; resistance and strength-trained athletes may need as much as 1.6-1.7 grams protein per kg of body weight. (A kilogram equals 2.2 pounds.)

Japanese researchers demonstrated that "sports anemia" may appear in the early stages of training with intakes of less than 1 gram/kg of body weight per day of high quality protein. To calculate your protein needs, divide your ideal weight by 2.2 pounds to obtain your weight in kilograms. Then multiply kilograms by the grams of protein recommended.

A varied diet will provide more than enough protein as caloric intake increases. Furthermore, Americans tend to eat more than the recommended amounts of protein. Excess protein can deprive the athlete of more efficient fuel and can lead to dehydration. High-protein diets increase the water requirement necessary to eliminate the nitrogen through the urine. Also, an increase in metabolic rate can occur and, therefore, increased oxygen consumption. Protein supplements are unnecessary and not recommended.

### Vitamins and Minerals

Increased caloric intake through a varied diet ensures a sufficient amount of vitamins and minerals for the athlete. There is no evidence that taking more vitamins than is obtained by eating a variety of foods will improve performance. Thiamin, riboflavin and niacin (B vitamins) are needed to produce energy from the fuel sources in the diet. However, more than enough of these vitamins will be obtained from the foods eaten. Carbohydrate and protein foods are excellent sources of these vitamins. Furthermore, the B vitamins are water soluble and are not stored in the body. Some female athletes may lack riboflavin. Milk products not only increase the riboflavin level but also provide protein and calcium. The body stores excess fat-soluble vitamins A, D, E and K. Excessive amounts of fat-soluble vitamins may have toxic effects.

Minerals play an important role in performance. Heavy exercise affects the body's supply of sodium, potassium, iron and calcium. To replenish sodium lost through sweating, eat normally following the competition. Avoid excessive amounts of sodium. Eating potassium-rich foods such as oranges, bananas and potatoes supplies necessary potassium. Salt tablets are not recommended.

Sweating naturally increases the concentration of salt in the body. Salt tablets take water from the cells, causing weak muscles. They also increase potassium losses. Potassium is important to help regulate muscle activity. Salt added to beverages during endurance events may be helpful.

Iron carries oxygen and is another important mineral for athletes. Female athletes and athletes between 13 and 19 years old may have inadequate supplies of iron. Female athletes who train heavily have a high incidence of amenorrhea and thus conserve iron stores. Amenorrhea is the absence of regular, monthly periods. Iron supplements may be prescribed by a physician if laboratory tests indicate an iron deficiency. Excess iron can cause constipation. To avoid this problem, eat fruits, vegetables, whole grain breads and cereals.

Calcium is an important nutrient for everyone. Female athletes should have an adequate supply of calcium to avoid calcium loss from bones. Calcium loss may lead to osteoporosis later in life. Dairy products, especially low-fat choices, are the best source of calcium.

### The Pre-Game Meal

A pre-game meal three to four hours before the event allows for optimal digestion and energy supply. Most authorities recommend small pre-game meals that provide 500 to 1,000 calories.

The meal should be high in starch, which breaks down more easily than protein and fats. The starch should be in the form of complex carbohydrates

## Other Resources

- *Sports Nutrition Guidebook*, by Nancy Clark, Leisure Press, 1996.
- *Nutrition for Athletes: A Handbook for Coaches* produced by the American Alliance for Health, Physical Education and Recreation, 1201 Sixteenth Street, NW, Washington, DC, 20036 or visit their website at [www.aahperd.org](http://www.aahperd.org).
- Order a copy of *Eating for Peak Performance or Competition Nutrition* from Colorado Dairy Council, Inc., 12450 North Washington Ave., Thornton, CO, 80241; (800) 274-6455.
- Visit the American Dietetic Association's Web site at [www.eatright.org](http://www.eatright.org) for reliable nutrition information or to find a registered dietician.
- Visit the American College of Sports Medicine's Web site at [www.acsm.org](http://www.acsm.org) for a variety of information and brochures.
- *Position of the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and Athletic Performance*. Journal of the American Dietetic Association. 2000;100:1543-1556.

<sup>1</sup>J. Anderson, Colorado State University Extension foods and nutrition specialist and professor; L. Young, M.S., former, graduate student, food science and human nutrition; and S. Prior, former graduate intern, food science and human nutrition.

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(breads, cold cereal, pasta, fruits and vegetables). They are digested at a rate that provides consistent energy to the body and are emptied from the stomach in two to three hours.

High-sugar foods lead to a rapid rise in blood sugar, followed by a decline in blood sugar and less energy. In addition, concentrated sweets can draw fluid into the gastrointestinal tract and contribute to dehydration, cramping, nausea and diarrhea. Don't consume any carbohydrates one and a half to two hours before an event. This may lead to premature exhaustion of glycogen stores in endurance events.

Avoid a meal high in fats. Fat takes longer to digest. Fiber has a similar effect, as well.

Take in adequate fluids during this pre-game time. Caffeine (cola, coffee, tea) may lead to dehydration by increasing urine production.

Don't ignore the psychological aspect of eating foods you enjoy and tolerate well before an event. However, choose wisely — bake meat instead of frying it, for example.

Some athletes may prefer a liquid pre-game meal, especially if the event begins within two or three hours. A liquid meal will move out of the stomach by the time a meet or match begins. Remember, include water with this meal.

Regardless of age, gender or sport, the pre-game meal recommendations are the same. (See Table 3.) Following a training session or competition, a small meal eaten within thirty minutes is very beneficial. The meal should be mixed, meaning it contains carbohydrate, protein, and fat. Protein synthesis is greatest during the window of time immediately following a workout and carbohydrates will help replete diminished glycogen stores.

Maintain nutritional conditioning not only for athletic events, but all the time (See fact sheet 9.353, *Dietary Guidelines for Americans*). A pre-game meal or special diet for several days prior to competition cannot make up for an inadequate daily food intake in previous months or years.

Lifelong good nutrition habits must be emphasized. Combine good eating practices with a good training and conditioning program plus good genes, and a winning athlete can result!

## Sources of Information and Materials

### From Colorado State University Extension

Request other fact sheets from The University Resource Center, Colorado State University, 115 General Services Building, Fort Collins, CO 80523-4061; (970) 491-6198; Single copies are \$1.00. Fact sheets can also be downloaded from the Internet at [www.ext.colostate.edu](http://www.ext.colostate.edu).

9.312, *Water-Soluble Vitamins*

9.315, *Fat-Soluble Vitamins*

9.324, *Vegetarian Diets*

9.353, *Dietary Guidelines for Americans*

9.354, *Sodium in the Diet*

9.355, *Potassium and Health*

9.356, *Iron: An Essential Nutrient*

## References

- *Advances in Sports Medicine and Fitness*, Volume 2, 1989.
- *Nutrition for Fitness and Sports*, Melvin Williams; Brown, Benchmark, 1995.
- *Nutrition for the Recreational Athlete*, Catherine Jackson, editor; CRC Press, 1995.

# Savings Accounts

Georgia 4-H Cotton Boll and Consumer  
Jamboree 2004

## What is a savings account?

A savings account is an account set up with a bank or credit union to keep your money in while earning interest. Interest is the money the bank pays you for keeping your money there.

## What are the benefits of having a savings account?

**It's Safe:** A savings account is a safe, convenient and affordable way to save your money. It's much safer to keep your money at a bank than to keep a large amount of cash in your home. When you put your money in a bank, the bank keeps it in a fireproof locked safe. The federal government also insures your money. No matter what, you can't lose your money when it's in the bank.

**It Pays:** Banks pay you a fee, called interest, for keeping your money with them. The higher the interest rate, the more money you'll earn. And, the more money you put into your account, the more money you'll earn in interest. Automatically transferring money from your checking account to a savings account each payday makes paying yourself automatically much easier.

## What are the costs of having a savings account?

As with other accounts, a bank may charge you fees for having a savings account. Every bank charges differently, so it pays to shop around. Some accounts are free, and others carry a general service charge. A lot of banks charge you if you do not maintain a minimum balance in your account, but not all accounts have minimum balance requirements. You can save a lot of money in fees by finding an account with low or no balance requirements.

## What are the different types of savings accounts?

Banks offer a variety of ways for you to save your money and earn interest. The most common accounts are:

### Basic Savings Account

The minimum deposit requirement for a basic account is low, from \$5 to \$200. Your money earns a relatively low interest rate, but you can put money into and take money

out of your account whenever you want. Basic saving accounts are also called passbook accounts.

### **Certificate of Deposit (CD)**

This account earns a higher interest rate than a regular savings account, but you have to make a larger minimum deposit, generally between \$1,000 and \$5,000. You also have to keep your money in the CD for a certain period of time. If you take your money out before the end of the term, you may have to pay a penalty.

### **Money Market Accounts**

This account earns a higher interest rate than a regular savings account, but you have to make a larger minimum deposit, averaging between \$500 and \$2,500. This account also limits the amount of times you can take out money each month.

### **Where can I open a savings account?**

You should shop around for a financial institution that meets your needs. Look for a bank or credit union that is close to your home or work, open during the hours you need it to be and charges low or no fees for a savings account. Banks that offer online banking, make managing your finances very easy.

### **What's the difference between a bank and a Credit Union?**

Banks store your money, and allow you to have easy access to it by writing checks or using ATM and debit cards. Banks insure your money with The Federal Deposit Insurance Corporation, which protects your account up to \$100,000 if the bank goes out of business. There are banks all over the country.

Credit Unions work like banks, but are nonprofit organizations. This means that you are more likely to get a loan, and get it at a better interest rate. Credit Unions are created for specific groups of people, like government employees or college graduates. Another kind of credit union, a community development credit union (CDCU) primarily serves low-income communities. Anyone living or working in those communities can join the CDCU serving that area. CDCUs are located in more than 300 urban and rural areas across the United States.

### **How do I manage my savings account after I open it?**

The key to managing any bank account is maintaining good records. Your register is a tool for keeping track of the amount in your account, or the balance in your savings account. You need to write down every transaction - deposits, fees and withdrawals - in your register so that you'll always know how much money is in your account.

At the end of each month, you'll receive a statement of your account's activity from the previous month. You can use the statement to balance your account by comparing your register with your account statement. After all financial transactions have been recorded

in both places; the balances should be the same plus the interest you earned from the bank.

### **Things to Look for in a Savings Account:**

Look for the account/institution that will best meet your needs. Compare accounts, and ask the following questions.

- Is the institution insured? Credit unions should be insured by the NCUSIF. A bank should have Federal Deposit Insurance Corp. (FDIC) insurance.
- What is the dividend/interest rate? Savings accounts generally have lower interest rates than other investments, but you'll still want to look for the best return you can get on your account.
- What's the annual percentage yield (APY)? The APY tells you how much your money can earn based on interest rate and frequency of compounding. The Truth in Savings Act requires all institutions to disclose APY, so consumers can compare accounts on an apples-to-apples basis.
- Does the institution offer tiered rates? Tiered rates apply to different balance amounts. If tiered rates apply, find out how.
- How often is interest compounded? Monthly? Quarterly?
- What is the minimum opening deposit?
- What is the minimum balance required?
- What fees apply to the savings account?
- Is there a charge if my account falls below a minimum balance?
- Is there a fee for closing the account?
- Is there a monthly maintenance fee?
- Am I required to use direct deposit in order to get a free account or reduced fees?
- Is there a limit on the dollar amount or number of transactions I can make?
- Are there any other fees or charges for the account? If so, what are they?
- Is there easy access to my money such as internet banking, ATM's, good banking hours, etc.?

Use the chart on the following page to help you compare savings accounts side by side:

<b>SAVINGS ACCOUNT COMPARISON CHART</b>	<b>BANK 1</b>	<b>BANK 2</b>	<b>BANK 3</b>	<b>BANK 4</b>
<b>Opening Deposit Amount</b>				
<b>Monthly Min. Balance to Avoid Service Charges</b>				
<b>Interest Rate Structures</b>				
<b>Interest Rate Structure</b>				
<b>Monthly Service Charges</b>				
<b>Free Basic Checks</b>				
<b>Transaction Fees</b>				
<b>Withdrawals Per Month</b>				
<b>Ease of access to Money ( hours, ATM, Internet banking, etc.)</b>				
<b>Other Considerations:</b>				

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