

NUTRITION

THE ATHLETIC ADVANTAGE

As an athlete, you look for an “edge” over your opponents. What can give you that “edge”? Your sports performance depends on several factors:

Genetics affects your body type which may guide your choice of a sport at which you can be successful.

Training affects your technique, skill level, and body development.

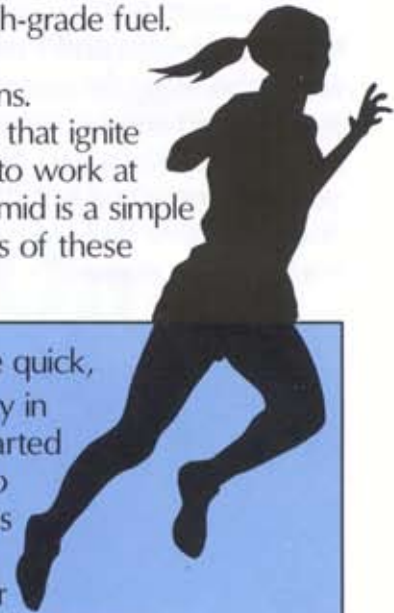
Dedication and discipline determine the effort you put into your practice sessions as well as other factors affecting your sports performance—sleep, socializing, and so on.

Nutrition affects the amount of energy, strength, and endurance you have for practice and competition. Among equally trained and dedicated athletes, nutrition can be the “edge” that makes the difference between winning and losing.

Power Your Engine

Food is fuel for your body. Compare your body to a car that needs gas, water, oil, grease, spark plugs and the proper amount of air to operate. Your body needs similar items in varying amounts, depending on your body type and sport. Your car can run on low-grade gas and oil with a minimal amount of water, but like a car, your body will run best with high-grade fuel.

Food supplies body fuel in the form of nutrients— carbohydrates, fats, and proteins. Vitamins and minerals are the spark plugs that ignite the fuel. Water is essential for your body to work at maximal efficiency. The Food Guide Pyramid is a simple guide that helps you get the right amounts of these nutrients.



Carbohydrates: These are quick, easy-to-use fuels. They're like the battery in your car. Your body uses them to get started at practice or events. Carbohydrates also keep you moving once your engine turns over because they help your body burn fats for energy. Glycogen is the name for the carbohydrates stored in your muscles and liver.

Athletic Advantages:

- Sprinters and other athletes moving short distances at a time rely mostly on carbohydrates for power.
- Middle and long distance runners, or other athletes who keep a constant pace for several minutes, still need carbohydrates to keep their bodies powered. For example, during an hour of constant practice, about half your energy comes from carbohydrates.
- Proper training and eating enough carbohydrates all season can double the amount of carbohydrates you can store in your muscles.
- Maximum carbohydrate storage helps you avoid “hitting the wall” or “bonking” (running out of stored glycogen) at practice or an event.

Food for Fuel:

• You can get carbohydrates from every group in the Daily Food Guide Pyramid. The grain, fruit, and vegetable groups are the most concentrated sources. Dairy foods like milk are also good sources of carbohydrates. Sugary foods at the tip of the pyramid provide carbohydrates, but are missing important vitamins and minerals to spark your body's engine. (See *Training Meals* handout for more information.)

• Slower burning complex carbohydrates (starchy foods), like whole grain bread, cereal, pasta, rice, dried beans and fresh fruits and vegetables give you a more constant fuel source than simple carbohydrates such as candy and soft drinks (sugar). Simple carbohydrates help you feel energized but the effect doesn't last long. You'll be more likely to run out of energy in the middle of an event if you depend on sugary foods.

Food for Fuel:

• Fats are in all the food groups in varying amounts. Many athletes try to limit fats, but may cut too much. Even a 100 pound athlete can consume at least 50 grams of fat per day. To give you an idea of what that means, here's the fat content of some popular foods.

1/4 of a 12" pizza, meat/veggies/cheese	11 grams fat
1/2 fried chicken breast	9 grams fat
1 Taco Bell taco supreme	15 grams fat

• If you are going to limit fats, cut back on foods like cookies, cake, and donuts that don't have many vitamins, minerals, and other nutrients.

Proteins: In a pinch you can use them for power, but their primary purpose is building and maintaining your muscles.

Athletic Advantage:

• There is no advantage to using protein as a fuel. In fact, excess protein will be stored as fat.

• An adequate protein intake and exercise will develop and strengthen muscles.

• Usually, your body uses proteins for fuel only when you're cutting weight too quickly or when you're on a diet that is not balanced.

Food for Fuel:

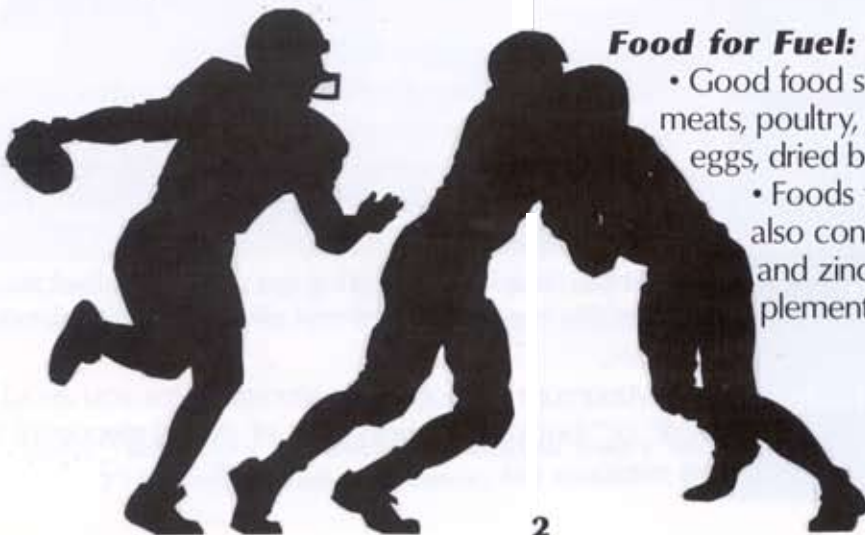
• Good food sources of proteins include meats, poultry, fish, milk, cheese, yogurt, eggs, dried beans and peas.

• Foods that are good protein sources also contain other nutrients like iron and zinc. However, most protein supplements contain only proteins.

Fats: These are fuels for the long haul. They're like gas in your tank. Once you get your engine running with carbohydrates, fats become important to keep you moving in activities which last more than 20 minutes.

Athletic Advantage:

• Fats are an essential part of your diet to fuel practice sessions and longer events.



Different Fuels for Different Sports?

Vitamins and minerals:

These are your spark plugs. Your engine needs them to release energy from carbohydrates, fats and proteins.

Athletic Advantage:

- There is no scientific evidence that proves supplements improve athletic performance.
- Excesses of some vitamins and minerals from supplements can be toxic.
- Excessive amounts of vitamins and minerals from some supplements can decrease the effectiveness of other nutrients. For example, too much iron from pills will decrease zinc absorption.

Food for Fuel:

- Vitamins and minerals from food are essential for producing energy.
- Getting your vitamins and minerals from food is safe because its hard to overdose on nutrients from food.

Water: Your body produces energy through chemical reactions that need water. If you are dehydrated, your power system isn't working at its peak and your performance suffers.

Athletic Advantage:

- Stay well hydrated. Even a slightly dehydrated body may affect your concentration, reaction time, strength and endurance.

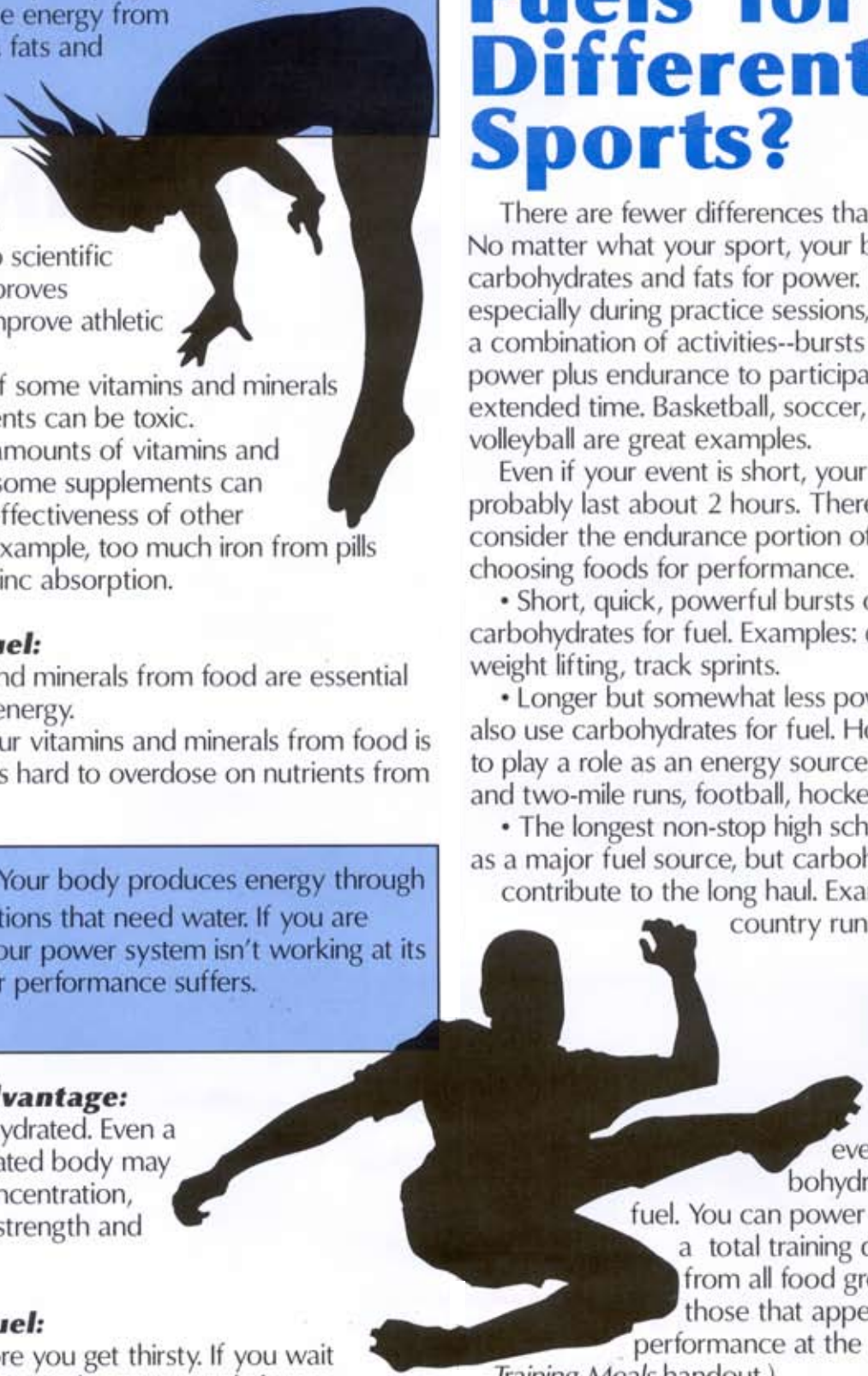
Food for Fuel:

- Drink before you get thirsty. If you wait until you feel thirsty, there's a good chance you're already dehydrated. (See *Fluids* handout for a plan to avoid dehydration.)

There are fewer differences than you might think. No matter what your sport, your body needs both carbohydrates and fats for power. In most sports, especially during practice sessions, you need to use a combination of activities--bursts of speed and power plus endurance to participate for an extended time. Basketball, soccer, tennis, and volleyball are great examples.

Even if your event is short, your practice sessions probably last about 2 hours. Therefore, you need to consider the endurance portion of practice when choosing foods for performance.

- Short, quick, powerful bursts of activity use carbohydrates for fuel. Examples: diving, gymnastics, weight lifting, track sprints.
- Longer but somewhat less powerful activities also use carbohydrates for fuel. However, fats begin to play a role as an energy source. Examples: One- and two-mile runs, football, hockey, soccer.
- The longest non-stop high school sport uses fats as a major fuel source, but carbohydrates still contribute to the long haul. Example: cross-country running.



Athletes in every sport need carbohydrates and fats for fuel. You can power your engine with a total training diet including foods from all food groups, not just those that appear to benefit your performance at the event. (See *Training Meals* handout.)

Building Strong Muscles

It might be nice if eating high protein foods would build stronger muscles, but proteins don't build muscle by themselves. You also need muscle-building workouts. You can be a "pro-teen" by combining resistance training and good nutrition.

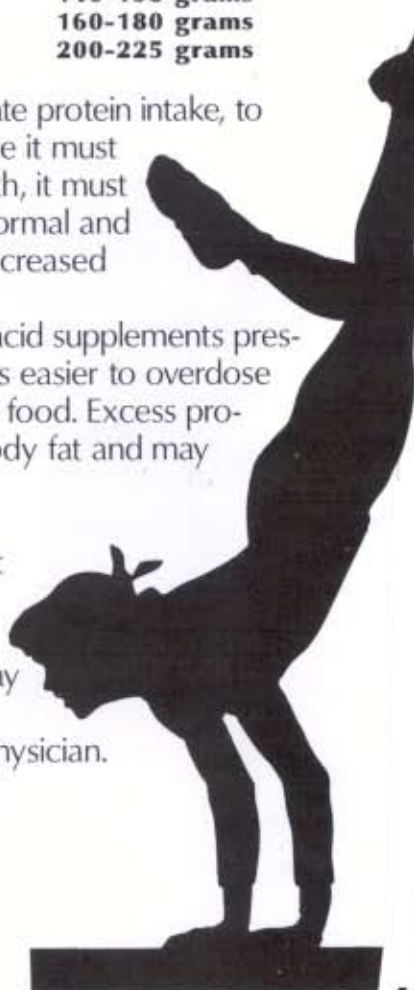
Get the amount of proteins you need by eating the recommended number of servings from the Daily Food Guide Pyramid. Teen-age athletes over 130 pounds may need additional servings from all the food groups to get enough calories and nutrients. The chart below shows how much protein you need:

Weight in pounds	Safe & Adequate Daily Protein intake
80	64-72 grams
115	92-104 grams
130	104-117 grams
150	120-135 grams
175	140-158 grams
200	160-180 grams
250	200-225 grams

Along with an adequate protein intake, to develop a specific muscle it must be exercised. For strength, it must be worked more than normal and the workload must be increased gradually.

Using protein/amino acid supplements presents potential dangers. It's easier to overdose on supplements than on food. Excess proteins will be stored as body fat and may cause kidney damage.

Vegetarians may be at risk for not getting enough proteins. If you are a vegetarian, you may want to consult a Registered Dietitian or physician.



Weigh to Go!

Wanna Win?

Did you know your body weight and eating habits can

make the difference between winning and losing? Being too thin, not eating enough, or eating too much can decrease your sports performance. Maintaining a healthy weight can help you perform at your best by maximizing your energy and strength potential. The key is to eat a well-balanced diet (a variety of foods in the right amounts) and to train properly.

Don't Lose Out

If you'd like to lose weight, first check with your doctor or a dietitian to find out if it's really necessary. A sensible weight loss plan can shed extra pounds and maintain muscle. The secret is a well-balanced diet and slow, but steady, weight loss.

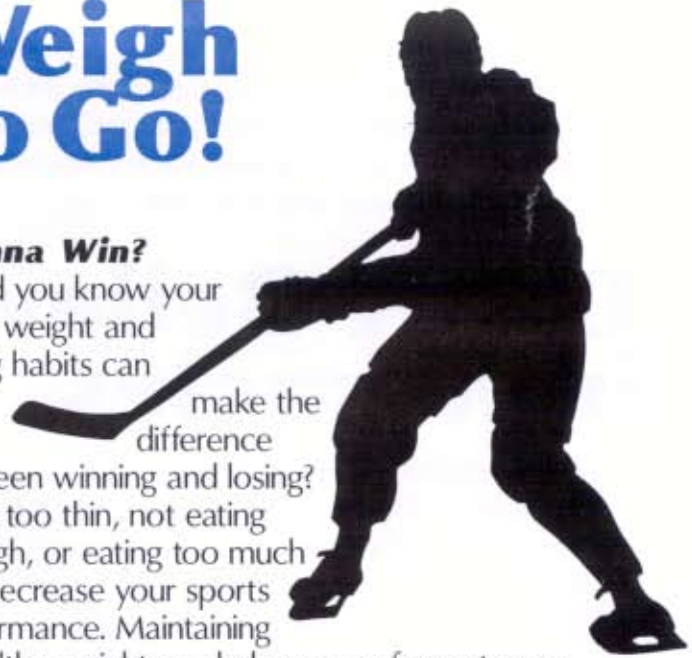
- Eat smaller portions of a variety of foods and don't over-do high-fat foods. (See *Training Meals* handout for fat-trimming tips.) This will help you get and stay lean but powerful.

- Lose no more than 1 to 1 1/2 pounds each week. It's the best way to take off body fat. You'll lose muscle and strength if you drop weight faster.

Going on a quick weight loss diet will only backfire and can be dangerous. Unhealthy weight loss methods (like excessive calorie-cutting, fasting, dehydration, vomiting, use of laxatives or weight loss drugs) can cause major losses you may not expect: loss of muscle, water, strength, endurance, speed, agility, energy, concentration--even loss of life!

Keep the Muscle

Trying to build a "better" body by bulking up can also backfire. Eating excess calories and fat mainly adds body fat which can slow you down. Protein or



amino acid supplements aren't necessary and can damage your kidneys.

A slow weight gain will help ensure the added body weight is mostly muscle. Eat larger portions of a variety of foods from the Five Food Groups, go easy on high-fat foods and work your muscles.

Don't Believe in Miracles

You've probably heard of "miracle cures" or "magic bullets". They just don't exist. Good nutrition and maintaining a healthy weight will power your performance—not fad diets, miracle cures, or supplements. When reading the claims made about a nutritional supplement, remember the following four things:

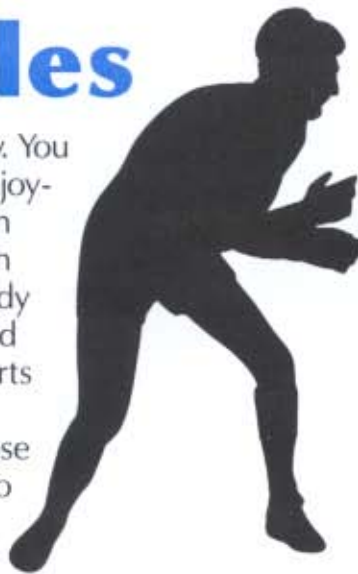
- Supplement manufacturers don't have to prove their products work!
- Supplement manufacturers don't have to prove their products are safe!
- Supplement manufacturers may make questionable health claims about their products, and,
- Supplements don't have to be manufactured according to any quality standards.

Food Attitudes

Food is not your enemy. You need to eat, so make it enjoyable! What and how much food you need is based on many factors including body type, training schedule, and current weight. While charts may list "average caloric intakes" for teenagers, those numbers may not take into account the needs of athletes.

First, you need some calories just to remain alive, about 10 calories per pound.

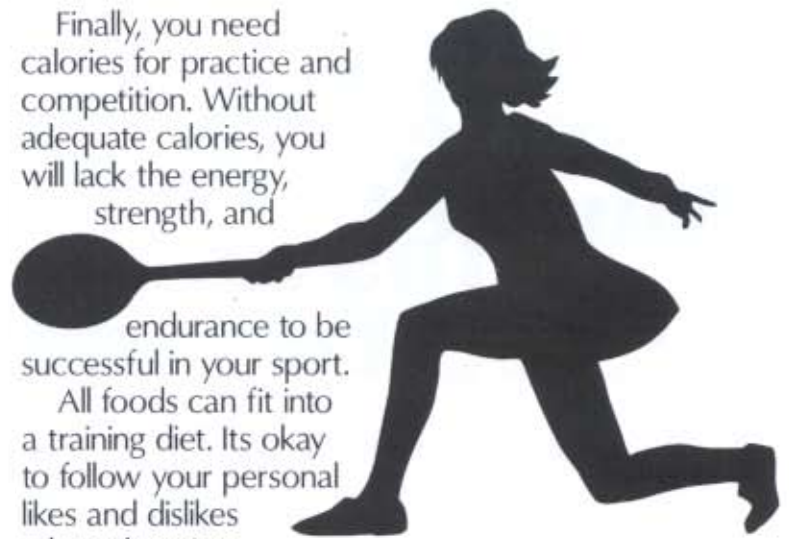
Then, you need additional calories for daily living—school, chores, hanging out with friends.



Finally, you need calories for practice and competition. Without adequate calories, you will lack the energy, strength, and

endurance to be successful in your sport.

All foods can fit into a training diet. It's okay to follow your personal likes and dislikes when choosing foods. You don't have to give up your favorite foods during your sports season. You may need to make some changes, like how often you eat them and how much you eat at a time. Potato chips can still fit in after the game but may cause sluggishness and an upset stomach if eaten as part of a pre-competition meal.



Living On The Edge

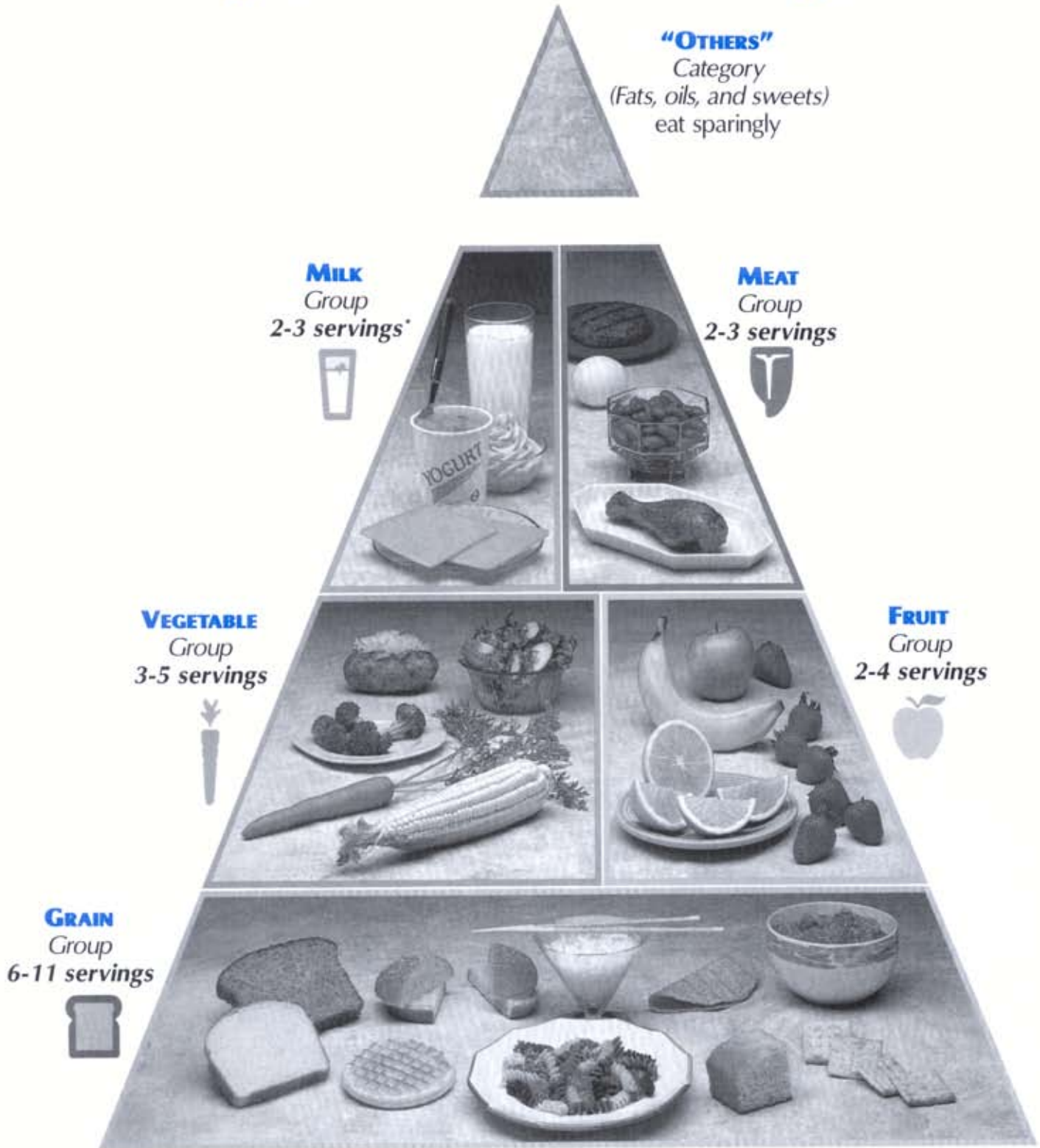
Many myths and misconceptions surround the relationship between eating and getting the athletic "edge." In truth, following the wrong nutrition advice can lead to decreased performance, injury, or serious health issues. A balanced diet is still the best source of energy and nutrients for athletic success and overall health!



United Dairy Industry of Michigan

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Daily Food Guide Pyramid



*Preteens, teens, and young adults (age 11 to 24 and pregnant and lactating women need 4 servings from the Milk Group to meet their increased calcium needs.

Source: National Dairy Council

Brochure produced by United Dairy Industry of Michigan
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