Nutrition Course

provided by USA Swimming

Lesson 1 - Fueling Your Stroke, Buying and Burning Gas

Six 200's descending on five minutes. Twenty-five 50's on :58. Whatever your "favorite," every set during every workout and dryland session requires energy.

Nutrients are the "chemicals" that supply the body with energy. Carbohydrate, protein and fat supply energy in the form of calories. These are your "Energy-Yielding Nutrients." Vitamins, Minerals and Water don't supply energy in the form of calories, but their presence is required in order for the body to access the energy provided by carbohydrate, protein and fat.

During exercise, the body gets its energy primarily from carbohydrate and fat. It likes to save protein for other things (building and repairing muscle tissue, hormones and red blood cells, and supporting the immune system). The only time the body uses protein as an energy source during exercise is when carbohydrate and fat are not present in sufficient quantities. This happens when the total caloric intake is too low over a period of months, and or the bout of exercise is so long that the body's accessible sources of carbohydrate and protein become exhausted. Neither of these scenarios is desirable for swimmers.

Think about money. When you have lots of it, you don't mind paying full price for things. But when money is scarce, or there is just too much you have to buy, you look for bargains. You're not being cheap, just thrifty. Simplified to some extent, your body knows how to shop.

Now instead of dollars, think of your currency as oxygen. When swimming is "easy," say during warm-up or your easiest sets, there is plenty of oxygen available to support the exercise. The body perceives itself as "rich" and doesn't mind splurging on fat (1 gram of fat costs 9 oxygens). In fact, it automatically does so because it knows it might need carbohydrate at a later time.

When exercise is hard (we're talking *tough* sets, definitely your *hardest* sets), oxygen is not plentiful. In fact, the body needs every bit it can get to support the exercise, but even *that* is often not enough, and the body is forced to derive energy in ways that do not require oxygen (i.e. *anaerobic* metabolism). In this situation, the body perceives itself as very "poor" and becomes very thrifty with its "purchase" if fuel. Since carbohydrate costs less than fat (1 gram of carbohydrate costs 4 oxygens), the body chooses to rely primarily on carbohydrate for its energy.

Keep in mind that this entire fuel burning process is never a case of "all or none." In other words, the body is always using some combination of carbohydrate and fat, but the **intensity** of the exercise dictates which fuel source will be the *dominant* one. When swimming is easiest, fat is the primary fuel source. When swimming is toughest, carbohydrate is the primary fuel source. When swimming is about 50% of maximum effort, carbohydrate and fat contribute about equally.

Let's face it – the majority of workouts are hard. Above 50% for certain. If you consider the typical swim workout, it's pretty safe to say that **the primary fuel source for swimmers IS carbohydrate.**

Lesson 2 - Eat Colorful Foods.

What are the first three foods that come to mind when we say "carbohydrate?"

1. Pasta
2. Rice
3. Bread

Each if these is excellent. But what do they have in common? They're all white!

One of the most overlooked sources of carbohydrate is fruit. Yes, FRUIT. Fresh, canned, frozen, dried or juiced. No matter how you look at it, fruit is an excellent source of carbohydrate. Not only does fruit provide carbohydrate in the form of natural sugars (versus refined sugar), the bright colors of fruits indicate that they are also excellent sources of vitamins and minerals, including a sub-group called **anti-oxidants.**

You might recall that exercise is the stimulus that leads to training adaptations. And that adaptations to training occur ONLY is you give the body the right kinds of fuels during periods of rest.

Well, one of the side effects of exercise is the generation of "*free radicals*." Free radicals are molecules that can actually cause damage to muscle tissue above and beyond the damage caused by exercise. The damage caused by exercise is normal. It serves as part of the stimulus for training adaptation to take place. But damage caused by free radicals is NOT a desired part of the training process. Damage caused by free radicals (aka "scavengers") circulating in the bloodstream after workout can continue well into the recovery period. This is when the body is supposed to be adapting!

Anti-oxidants "absorb" free radicals, neutralizing their effect in the body before their damage to muscle tissue can amount to much. A diet consistently rich in fruits (and other colorful foods, such as VEGETABLES) is apt to keep the body consistently supplied with anti-oxidants, which will assist the body in keeping free radical formation to a minimum. This a good reason to eat lots of colorful foods during the recovery time between workouts.

Colorful foods include, but are not limited to:

Apples, Strawberries, Blueberries, Bananas, Oranges, Kiwi, Watermelon, Raspberries, Grapes, Mango, Papaya, Apricots, Red peppers, Broccoli, Corn, Squash, Carrots, Peas, Green beans, Tomatoes

Colorful foods DO NOT include: Skittles, Jelly Beans, M&Ms, Mike&Ikes, Fruit Loops, etc.

Lesson 3 - Carb, Protein, Fat...How Much is Enough?

We talk a lot about the body using carbohydrate, protein and fat as it Energy-Yielding Nutrients, but the requirement from swimmer to swimmer varies. A swimmer's energy requirements depend on several variables, including their age, gender, body weight (and possible composition) and level of training.

According to the American College of Sports Medicine, American Dietetic Association and Dietitians of Canada Joint Position Statement on Nutrition and Athletic Performance,

"Protein requirements are slightly increased in highly active people. Protein recommendations for endurance athletes are 1.2-1.4 g/kg body weight per day, whereas those for resistance and strength-trained athletes may be as high as 1.6-1.7 g/kg body weight per day. These recommended protein intakes can generally be met through diet alone, without the use of protein or amino acid supplements, if energy intake is adequate to maintain body weight." (ACSM, ADA, Dietitians of Canada, 2000, p 2131)

The generally recommended daily intake of protein for swimmers in training is 1.4-1.8 g/kg of body weight. Typically this should account for 12-15% of total calories. For a 160 lb athlete, that equates to 102-131 g/day, which is 12-15% of a diet of 2,720-4,367 kcal/day.

Meeting this requirement typically ensures adequate dietary intake of all of the necessary amino acids. It is important, however, that high-quality protein products be selected. Sources include meats, dairy, beans, dried peas, milk, eggs, and grains. These sources provide a more complete mixture of the necessary amino acids and therefore have a higher "biological value" or protein efficiency score. If these protein needs can be met by selecting good dietary sources of protein on a daily basis, the amounts of amino acids required to achieve the effects observed in the studies mentioned above can easily be met as well. There is no evidence that ingesting protein in amounts far in excess of the recommended intake is beneficial to either protein balance or exercise performance. The primary role of protein, and therefore amino acids, is to synthesize structural proteins and TCA-cycle intermediates. Excess protein can be stored to some degree, but that which is not used for the aforementioned purpose is typically metabolized and excreted. Protein is generally not used for energy during exercise.

The American College of Sports Medicine, American Dietetic Association and Dietitians of Canada Joint Position Statement on Nutrition and Athletic Performance also states that:

"Carbohydrates are important to maintain blood-glucose levels during exercise and to replace muscle glycogen. Recommendations for athletes range from 6 to 10 g/kg body weight per day. The amount required depends upon the athlete's total daily energy expenditure, type of sport performed, sex of the athlete, and environmental conditions." (ACSM, ADA, Dietitians of

Canada, 2000, p 2131)

The general recommendation is that carbohydrate intake should account for at least 60% of total caloric intake. In addition, long-supported research by Costill (1988) indicates that athletes training more than 2 hrs/day require a carbohydrate intake of 9-10 g/kg of body weight on a daily basis to prevent chronic depletion of carbohydrate stores.

Body Weight in lbs (kg)	Carbohydrate Required (g) to meet Intake of 9 g/kg	Carbohydrate Required (g) to meet Intake of 10 g/kg	Protein Required (g) to meet Intake of 1.4 g/kg	Protein Required (g) to meet Intake of 1.8 g/kg
120 (54.5)	491	545	76	98
130 (59.1)	532	590	83	106
140 (63.6)	572	636	89	115
150 (68.2)	614	682	95	123
160 (72.7)	655	727	102	131
170 (77.3)	695	773	108	139
180 (81.8)	736	818	115	147
190 (86.4)	777	864	121	155
200 (90.9)	818	909	127	164
210 (95.5)	859	955	134	172
220 (100.0)	900	1,000	140	180

Lastly, The American College of Sports Medicine, American Dietetic Association and Dietitians of Canada Joint Position Statement on Nutrition and Athletic Performance also states that:

"Fat intake should not be restricted, because there is no performance benefit in consuming a diet with less than 15% of energy from fat, compared with 20% to 25% of energy from fat. Fat is important in the diets of athletes as it provides energy, fat-soluble vitamins, and essential fatty acids. Additionally, there is no scientific basis on which to recommend high-fat diets to athletes." (ACSM, ADA, Dietitians of Canada, 2000, p 2131)

The general recommendation is that swimmers get 20-25% of their calories from fat. For the swimmer whose daily caloric requirement is 2,000 kcal, this translates to 400-500 kcal from fat, or 44-56 grams of fat per day. Use the following table to determine that amount of fat you should be consuming on a daily basis:

Total Caloric Need (kcal)	Daily Fat Intake (g) To meet 20-25% of this Caloric Intake

2,000	44-56
2,500	56-69
3,000	67-83
3,500	78-97
4,000	89-111
4,500	100-125
5,000	111-139
5,500	122-153
6,000	133-167
6,500	144-181
7,000	156-194

Lesson 4 - Eat Early and Often to Recover Well.

Knowing how much carbohydrate, protein and fat to get in a day is good. But knowing **when** you should be getting those nutrients is even better. When it comes to optimal nutrition, timing really is everything.

In general, following these guidelines for incorporating carbohydrate, protein and fat into your day:

· Spread carbohydrate intake out over the course of the day (i.e. smaller meals and frequent snacks). This keeps blood sugar levels adequate and stable.

· Eat *some* carbohydrate before morning practice. Note: This can be in the form of juice.

· Eat carbohydrate in the form of a carb-electrolyte drink, such as Gatorade or Powerade, during workout **IF** workout is 90 minutes or longer. Gels are also acceptable.

· Eat carbohydrate and protein within the first 30 minutes after practice. This enables the body to replenish glycogen stores and repair muscle tissue. **This is perhaps the most important time to eat!!!!**

· Eat again (something substantial, like a real meal) before two hours post-practice has elapsed. **This is critical to maximizing recovery!!!!**

· Incorporate fat into the day at times that are not close to workout. Fat is *necessary*, but contributes little to the workout or immediate post-workout recovery period.

Part of the reason good nutrition is critical during recovery has to do with the fact that the body

is extremely good at making the most of what it is given. Following exercise, the body is very sensitive to the hormone *insulin*. Insulin is that hormone that rises every time blood sugar rises. In other words, every time a swimmer eats carbohydrate, which causes blood sugar to rise, insulin goes up. Well, it's insulin's job to remove sugar from the bloodstream, and it does so by facilitating its storage as **glycogen**. Glycogen, the storage form for carbohydrate, is what the body taps into for fuel when exercise is very intense. This can happen quite a bit during a tough workout, which is why it's important to see that glycogen is replenished before the next practice.

The American College of Sports Medicine, American Dietetic Association and Dietitians of Canada Joint Position Statement on Nutrition and Athletic Performance states that:

"After exercise, the dietary goal is to provide adequate energy and carbohydrates to replace muscle glycogen and to ensure rapid recovery. If an athlete is glycogen-depleted after exercise, a carbohydrate intake of 1.5 g/kg body weight during the first 30 min and again every 2h for 4 to 6h will be adequate to replace glycogen stores. Protein consumed after exercise will provide amino acids for the building and repair of muscle tissue. Therefore, athletes should consume a mixed meal providing carbohydrates, protein, and fat soon after a strenuous competition or training session." (ACSM, ADA, Dietitians of Canada, 2000, p 2131)

In addition, research (van Loon et al, 2000) has implicated immediate post-exercise carbohydrate ingestion (1.2 g/kg/hr for 5 hrs) in the enhancement of glycogen re-synthesis.

Body Weight in lbs (kg)	Carbohydrate Required (g) to meet Intake of 1.2-1.5 g/kg
120 (54.5)	65-82
130 (59.1)	71-89
140 (63.6)	76-95
150 (68.2)	82-102
160 (72.7)	87-109
170 (77.3)	93-116
180 (81.8)	98-123
190 (86.4)	104-130
200 (90.9)	109-136
210 (95.5)	115-143
220 (100.0)	120-150

Lesson 5 - Know the Scoop on Cereals.

For swimmers, cereal is great just about any time of the day. Competitive athletes are encouraged to choose nutrient dense cereals, which contain more of the right kinds of

nutrients (carbohydrate, protein, vitamins, minerals) per serving than their "candy cereal" counterparts. More bang for the buck, so to speak.

Generally speaking, the best cereals are high-carbohydrate (>25 grams/serving), moderate-protein (5-10 grams/serving), low-fat (<5 grams/serving), and moderate-fiber (2-4 grams/serving). Most cereals on the market today, including "candy cereal," are fortified with vitamins and minerals, such that one serving usually provides 20-100% of a given vitamin or mineral. However, these values are based on a 2,000 calorie diet, which is well below the energy requirements for most competitive swimmers in their teens and twenties.

Consider cereals in three categories: High Nutrient Density, Moderate Nutrient Density, and Low Density (aka "candy cereal"). Athletes looking for a good cereal but not a whole lot of calories, a Moderate Nutrient Density product is best. For those looking for density (i.e. lots more nutrients/calories in a smaller serving), then a High Nutrient Density cereal is the way to go. Swimmers looking for "candy cereal" should be encouraged to save this type of product for weekends and/or limited occasions. The following table offers a non-exhaustive list of cereals in each of the categories mentioned above:

High Nutrient Density Cereals >30 grams carb >4 grams protein <40% of carbohydrate is sugar	**Moderate Nutrient Density Cereals** 20-30 grams carbohydrate 2-4 grams protein <40% of carbohydrate is sugar	**Low Nutrient Density ("candy") Cereals** >40% of carbohydrate is sugar
Quaker Toasted Oatmeal Raisin Bran Smart Start Blueberry Morning Basic Four Wheaties Energy Crunch Raisin Nut Bran Honey Nut Shredded Wheat	Cheerios Team Cheerios Rice Crispies Corn Flakes Special K Total	Fruit Loops Cinnamon Toast Crunch Captain Crunch Cocoa Puffs Fruitie Pebbles Frosted Flakes

And of course, hot oatmeal and granola are always excellent choices. And all dry cereals make a great snack to take on the road. Just toss 1 cup into a plastic storage bag or air-tight container, and off you go. The point is to find a cereal that tastes good and also meets your nutritional needs. With all the products on the market, no swimmer should have any problem doing just that.

Lesson 6 - What IS One Serving?

Coaches….Got 15 bucks? Go to your local super store and splurge on one of the most valuable Nutrition teaching kits you'll ever own. You may even have these things lying around the house.

Here's the list:

· 1 tennis ball
· 1 baseball
· 1 deck of playing cards
· 1 book of matches
· 1 CD case
· 1 1" wooden cube
· 1 nickel

Why would you want these things? Each item represents the approximate size of a serving for various foods. See the table below for representations:

Item	Serving it Represents
Tennis ball	1 cup of cooked rice; 15 grapes
Baseball	12 oz potato; 1 cup of cold cereal
Deck of cards	3 oz cut of meat
Book of matches	1 tbsp of oil, salad dressing or mayo
CD case	1 slice of bread
1" wooden cube	1 oz of cheese
Nickel	2 oz of dry spaghetti, 1 cup of cooked spaghetti

For real life food models, try Nasco's on-line catalog of Food Replicas. (Health Education Materials - Nutrition)

Lesson 7 - Drink Early and Often.

There are 2 reasons to drink fluids: (1) to stay hydrated, and (2) to provide the body with fuel.

During Workout - Regardless of age or length of workout, all swimmers need fluids during practice to stay hydrated. Easily accomplished with a couple of sips from the water bottle every 15-20 minutes. As swimmers progress, workouts get longer and tougher. It's well established that exercise beyond 90 minutes benefits from a supplemental fuel source. The sports drink can provide it. But we still have hydration to think about. Drinks that are too strong, or "concentrated," can provide the fuel but also inhibit fluid absorption and often lead to cramping.

Years of research tells us that drinks that are 6-8% carbohydrate by weight provide the perfect balance. Enough carbohydrate to provide a fuel source during long exercise, but not so much that will inhibit fluid absorption. A couple of sips every 15-20 minutes keeps the body fueled, helps prevent unnecessary tissue breakdown, and maintains hydration. Today, only Gatorade and Powerade meet the 6-8% criteria. Most other drinks are too strong to be effective *during*

workout.

After Workout – Water is an excellent choice to replenish fluids after practice. It's always wise to drink at least one cup. But after a *tough* workout, replenishing fuel stores is equally important. Competitive swimmers need a little over 1 gram of carbohydrate for every kilogram they weigh (lbs/2.2) each hour after workout. And they need it **within the first hour**.

Oftentimes, a sports drink that is easily digested and quickly absorbed, such as Gatorade or Powerade can provide a convenient way to get some of this fuel within the first 20 minutes. Accelerade, a newer drink on the market may also do the trick. Endurox, perhaps, but beware of the high protein drinks, as they often forgo the carbohydrate, and carbohydrate is what you are trying to replenish within that first hour after workout. A little protein won't hurt, in fact a little bit of protein may actually help by supporting tissue repair and re-building processes. But too much protein, especially when it comes *in place of* carbohydrate, may actually be detrimental to the post-workout recovery process.

****Remember…**

1. Carbohydrate is the primary fuel source during tough workouts. Protein is used as a fuel source during exercise only when carbohydrate and fat are not present is sufficient quantities. This can happen during long/tough workouts when the body uses much of its stored carbohydrate, and it must find an additional source. If an additional carbohydrate source (ex. Gatorade, Powerade) is not supplied, the body taps into *stored* protein, aka your muscles. This is why we drink carbohydrate-electrolyte solutions during workout…to **spare muscle protein**. And this is also why it is important to replace carbohydrate stores lost during a workout…so you start the next workout with a full tank of gas!

2. Following exercise, the body is very sensitive to the hormone *insulin*. Insulin is that hormone that rises every time blood sugar rises. In other words, every time a swimmer eats carbohydrate, which causes blood sugar to rise, insulin goes up. Well, it's insulin's job to remove sugar from the bloodstream, and it does so by facilitating its storage as **glycogen**. Glycogen, the storage form for carbohydrate, is what the body taps into for fuel when exercise is very intense. This can happen quite a bit during a tough workout, which is why it's important to see that glycogen is replenished before the next practice.

During the Day – Staying hydrated during the day is just as critical as hydrating during and after workouts. Most swimmers can do this by incorporating a variety of fluids into their daily diet. Water, fruit juice, milk, soups, etc, etc. Water is always an excellent choice, but other drinks, including sports drinks (defined as 6-8% carbohydrate by weight) are okay too. Just remember that variety is the key to a healthy diet. If you use a sports drink during and after practice, it may be better to drink water and juice during the day to stay hydrated. Juices are often healthier than sports drinks in that their sugars are natural. Always keep in mind that juices and sports drinks contribute to total caloric intake.

For the purpose of this article, a sports drink is defined as a 6-8% carbohydrate-electrolyte solution. Do NOT include "energy drinks," such as Red Bull, 180o, Sobe, etc. These dietary supplements fall into the Yellow Light category of the Dietary Supplements Health & Contamination Risk Chart.

Lesson 8 - Analyzing Your Diet

Diet analysis is comprised of two parts, *needs* and *intake*. Optimal nutrition is a matter of balance (nutrients-in versus nutrients-out). In other words, a swimmer's intake of nutrients must match his/her output of nutrients during rest and exercise. In terms of *energy* (aka calories), if the needs are greater than the intake, the net result is weight *loss*. Conversely, if the needs are less than the intake, the net result is weight *gain*.

There are three variables that contribute to a person's total nutrient and energy needs:

Resting Energy Expenditure (REE) – REE is the energy required for cellular and tissue processes that maintain physiological functions at rest, plus small amounts of energy related to previous muscular activity. It is the energy the body needs to maintain itself in the sedentary state, and this need tends to decrease with age. REE remains relatively constant for a given age and gender. In other words, the REE for most 120-lb 16-year-old males is about the same. Typically, REE accounts for about 60% of a swimmer's daily expenditure. For swimmers, about 40% of it is used to support REE.
Thermic Effect of Food (TEF) – TEF is the energy required by the body to digest, absorb, transport, store and metabolize food. Eating actually increases a person's metabolic rate temporarily, which translates into an elevation in energy expenditure. This effect is higher for protein and carbohydrate meals, versus fat meals. In fact, fat has little effect in elevating the metabolic rate at all. Typically, TEF accounts for about 10% of a person's daily expenditure. Similarly, about 10% of a person's daily caloric needs are to support TEF.
Thermic Effect of Exercise (TEE) – TEE is the increase in a person's metabolism due to moderate and strenuous physical activity. The exact amount of energy this accounts for depends on the physiological "cost" of the activity. Determining this directly involves monitoring a person's oxygen consumption (VO2) during exercise and translating that into calories burned. There are many reference charts available that indicate how many calories are required or spent to perform a given activity for a given period of time. Typically, TEE accounts for about 30% of a person's daily expenditure. For swimmers, about 60% of it is used to support TEE.

Since lean tissue is the site for most metabolic (energy conversion) processes, the more lean tissue a person has, the higher is their level of metabolic activity. For this reason, Resting Energy Expenditure and the Thermic Effect of Food are typically higher in males than in females, and higher in athletes than in non-athletes. Resting Energy Expenditure also tends to be higher in individuals who consistently meet their metabolic demands with an adequate intake of calories. Severe restriction of calories (<80% of calculated needs) for prolonged periods of time can lead to a decrease in the metabolic rate, usually because it results in a loss

of muscle mass. It should be noted that although stimulants, such as caffeine and nicotine will also increase Resting Energy Expenditure slightly, these products are not recommended for various health reasons. Changes in temperature can affect Resting Energy Expenditure as well, but the most powerful environmental influence is EXERCISE.

Adding the Thermic Effect of Exercise to the Resting Energy Expenditure and Thermic Effect of Food constitutes calculating an individual's total energy needs for the day.

Total Energy Needs = REE + TEF + TEE

What changes with the competitive season is the relative contribution of each of the three variables to the total requirement. For example, during the **in**-season, Resting Energy Expenditure may account for about 50% (half) or a little less of the total energy expenditure, or total energy needs. During the **off**-season, Resting Energy Expenditure may account for 60-70%. This is because Resting Energy Expenditure does not change much, while *active energy expenditure* (i.e. the Thermic Effect of Exercise) is lower during the off-season due to a reduction in training volume. Because Resting Energy Expenditure plays a larger role during the off-season, keeping it elevated reduces the amount of dietary change that will be required to maintain body weight. This can be accomplished by maintaining lean tissue, as opposed to losing muscle during the off-season. Hence the role of exercise during this time.

Fortunately, the USA Swimming website offers a program to take care of calculating all three of the variables mentioned above. **Nutrition Tracker** is an on-line tool that calculates a swimmer's nutrient needs, based on age, gender, current body weight and daily training schedule.

Of course, the other side of the equation involves intake, or the amount of energy an athlete *consumes* on a daily basis. Nutrition Tracker can do this too. Using Nutrition Tracker, a swimmer can enter an entire day's food intake to see how much carbohydrate, protein, fat and calories are in it, compare what he/she ate to his/her individual needs, and track his/her habits throughout the season and off-season. Upon comparing nutrient needs with the swimmer's current intake, the program generates a feedback report, and stores the information for future reference. Swimmers are provided with an analysis of their current diet on which they can base changes or interventions. Deficiencies and excesses are highlighted based on comparisons with reference ranges established for swimmers. The best part is that the analysis is specific to swimming and current level of training. *(Nutrition Tracker is available to all USA Swimming members. National Team athletes have pre-established accounts. All other users must* ***register prior to first use****.)*

Any complete diet analysis, including Nutrition Tracker, involves a record of every food item that was eaten on that particular day. The most common way to do this is by using a *food recall*.

The typical food recall requires an athlete to report what he/she ate over a 3-7 day period of time. The energy content (i.e. kcal) of each food item and the exact amount eaten are used to

determine the total energy content of a full day's menu. Total carbohydrate, protein and fat intakes can also be determined using this format. Knowing the contribution of each of these macronutrients provides information on where the calories are coming from. Unfortunately, when athletes know they have to record what they ate, they (especially females) tend to under-eat and/or under-report their food intake. Therefore, a person's typical caloric intake based on food recall is often misrepresented, under-estimated, or both.

Specifics regarding an athlete's caloric needs are individual. They vary with seasonal changes in training volume and should be discussed with a qualified Sports Nutrition professional. What works for one athlete may not work for another. However, the following guidelines are a good place to start and can be used by anyone who has issues with off-season nutrition:

Do-s and Don't-s of Optimal Off-Season Nutrition*

Do… Focus on healthful eating and lifestyle habits.
Do… Use performance and energy level variables to monitor success.
Do… Decrease normal energy intake according to decreases in training.
Do… Substitute lower-fat foods for whole-fat foods.
Do… Reduce the intake of energy-dense snacks.
Do… Eat more whole grains, cereals, beans and legumes.
Do… Get at least 5 servings of fruits and 5 servings of vegetables each day.
Do… Eat low-fat dairy products and lean cuts of meat, fish and poultry often.
Do… Drink a variety of fluids to maintain hydration.
Do… Keep snacks on hand for times when hunger might set in.
Do… Find a place for "favorite foods" to fit in moderation.
Do… Continue to exercise, even if it's not as much as the in-season.

Don't… Focus on the scale.
Don't… Eat low-energy diets (i.e. less than REE).
Don't… Reduce energy intake by more than TEE.
Don't… Reduce fat intake to less than 15% of total calories.
Don't… Skimp on protein or calcium.
Don't… Skip meals.
Don't… Allow hunger to set in.
Don't… Deprive yourself of favorite foods.

**These guidelines have been adapted from the American Dietetic Association, Dietitians of Canada and American College of Sports Medicine Position Paper on Nutrition and Athletic Performance and Melinda Manore's paper on Chronic Dieting in Active Women (Women's Health Issues 6:332-341, 1996).*