

## Healthy Choices for Base Training: *Food in the Day of an Athlete*

February 2012

Does calorie-deprived, over-trained and chronically dehydrated describe your nutrition habits? Are you a sports bar or protein supplement junkie? Do you train on empty and indulge in a nighttime feeding frenzy? Do you have all the energy you need? A well-designed food plan is the foundation for any athlete's base training program and is just as important as the training plan. Your diet should meet your energy needs and incorporate proper timing of nutrients in order to optimize performance, enhance your recovery and provide even, sustained energy throughout the day.

### How Much to Eat

Research has clearly shown that endurance athletes as a group do not consume enough calories and/or the right type of macronutrients (carbohydrate, protein and fat), and therefore do not reach their full potential. General fitness athletes involved in 30-40 minutes of exercise a day, 3x/week can usually meet their caloric needs with a normal diet of 1800-2400 calories per day. Athletes performing a moderate level of training 2-6 hours a day, 5-6x/week may use 600-1200 calories per hour of exercise and require thousands of calories per day. Nutritional analyses of these athlete's show that many maintain deficient calories which leads to loss of muscle mass, increased susceptibility to illness and an increase in overtraining...*not to mention being a fatigued, grouchy person*. Although it may be difficult for an athlete engaged in long workouts to consume enough calories, planning can make a real difference in both your health and your race performance. Start off on the right foot early in your base training to assure some PRs later in the season!

### Timing Your Food Choices

Your goal is to be consistently fueled, eating 4-6 smaller meals evenly throughout the day. Concentrate on keeping your blood sugar level EVEN and don't get hungry. Try to draw your calories more to the beginning of the day. It takes 4 hours for carbohydrates to be digested and begin to be stored as muscle and liver glycogen. Therefore if you train in the afternoon, breakfast becomes your most important meal. And don't forget the refueling window following your workout to accelerate your muscle glycogen re-synthesis and storage; try to eat .5 gram of carbohydrate per pound of body weight. Add a little protein in a ratio of 1 gram protein to 3-4 grams carbohydrate, as this will aid in quicker recovery too.

### Carbohydrates

Carbohydrates remain the cornerstone of any athlete's diet. Participants in general fitness may need 3-5 grams of carbohydrate per kilogram of body weight per day, whereas athletes in moderate volume training may need 5-8 grams/kg/day. It can be difficult to eat enough carbohydrates and still find time and stomach comfort to exercise. The latest research from the International Society of Sports Nutritionists recommends that "athletes involved in moderate and high volume training may need greater amounts of carbohydrate and protein in their diet to meet macronutrient needs" and this may mean calorie dense foods that are in a processed or supplement form in addition to healthy, fresh whole foods.

## Healthy Choices for Base Training, continued

*One Caveat: While endurance athletes require a high volume of carbohydrates, especially during races, it is important not to be spiking your blood sugar all the time. In the early stages of base training, choose your carbs from low glycemic foods, possibly avoiding most "white" carbs all together. Add LOTS of vegetable, plenty of fruits and reasonable amounts of WHOLE grain carbohydrates. To avoid spiking issues, eat some 1) fiber 2) protein or 3) fat (in descending order of choice) along with your carbs...ESPECIALLY if they are "white". This will keep you in homeostasis....or in plain language – keep your blood sugar even!*

### Protein

The amount of protein needed in an athlete's diet remains one of the most debated subjects in sports nutrition. New research over the last ten years has shown that athletes involved in intense training such as endurance events require 1.5-2 times the RDA of protein (0.8-1.0 g/kg/day) to maintain nitrogen balance. A negative nitrogen balance can increase protein breakdown and slow down recovery. Over time, this results in muscle wasting and poor training tolerance. Not all protein is equal. The source, processing and amino acid profile all affect the availability as well as the rate of digestion. Protein choices should be high quality and low fat. The best sources include light skinless chicken, fish, egg white and skim milk. The best sources in supplements are whey, colostrums, casein, milk proteins and egg protein.

### Fat

Recommended fat intake for athletes is similar to that of non-athletes as far as general health is concerned. However, the goal of maintaining energy balance can be a reason for increased intake in an endurance athlete's diet beyond 30% of daily caloric intake. Replenishing intramuscular fat stores and consuming adequate essential fatty acids are also of importance. Data from recent research suggests athletes may need more fat when participating in a heavy volume of training. Testosterone suppression can occur during high volume over-training and higher fat diets maintain circulating testosterone concentrations better than low fat diets. On the other hand, athletes trying to decrease body fat should keep their level of fat to 0.5-1.0 gram per kilogram of body weight per day. Type of fat can be important too. For long-term health, limit your intake of saturated fats such as red meats, butter, palm oil, and high fat dairy products. Use nuts such as almonds and walnuts, and monosaturated and polyunsaturated oils for their Vitamin E and essential fatty acids. Use olive and canola oil when cooking and baking. Polyunsaturated fats found in fish, soybeans, walnuts, and seed oils are essential to proper immune function. Include these to get the benefits of omega fatty acids, especially omega-3 fatty acid.

### Vitamins

Vitamins are essential organic compounds that regulate metabolic processes, neurological processes and help with energy production. Research has demonstrated that specific vitamins may possess some health benefits for endurance athletes, but not much ergogenic (performance enhancing) value. Vitamin C and E may help athletes tolerate heavy training by reducing oxidative damage and maintaining a healthy immune system. This effect may indirectly improve performance. Sports Nutritionists as well as the American Medical Association now recommend that athletes involved in moderate to heavy training consume a low-dose one-a-day multivitamin.

## Healthy Choices for Base Training, continued

### Minerals

Minerals are essential inorganic elements responsible for a host of metabolic processes. Minerals can serve as structure, components of hormones and regulators of neural and metabolic control. Mineral status can be compromised in response to heavy training and prolonged exercise and in this case, exercise capacity may be reduced. Supplementation can positively affect exercise capacity and act as an ergogenic in some athletes, in contrast to vitamins. Minerals that seem to possess health value under some circumstances are calcium, iron, sodium phosphate, salt and zinc.

### Water

Water is the most important nutritional ergogenic aid for any athlete. When just 2% of an athlete's body weight is lost through sweat, performance can be significantly impaired. With 4% of body weight loss during training can lead to heat illness, heat exhaustion, heat stroke and even death. Normal sweat rates range from .5-2 liters per hour, with temperature, humidity, and exercise intensity all affecting that rate. Athletes should learn to use a scale to weigh themselves before and after a training run to learn their own personal sweat rate. Drink 2-3 glasses of water for every pound lost on a run. Preventing dehydration may be the single most important thing a competitor can do for his or her performance and maintenance of exercise capacity.

### A Day of Eating

Keep these things in mind... For a pre-breakfast snack, focus on fruit. Think sports drinks and gels just before your run. For breakfast, be sure to have some calcium-rich foods and some protein, or consider getting some iron from fortified cereals. Your mid-morning snack should help you stabilize your blood sugar – that makes yogurt an excellent choice. Don't spike your blood sugar here! Lunch can be a real variety depending on your personal tastes and the time of your run. Strategic afternoon snacking can also help with a late afternoon workout. Dinner should focus on fiber – vegetables and whole grains, and omega 3-rich fish or some other low fat quality protein.

If your goal is to maintain your peak training health, then, at the risk of stating the obvious, eat a healthy diet all the time. The key is to maximize the big three – fruits, vegetables and whole grains. Even the process of writing food intake down a couple of days will help you make positive food choices and become more aware of your energy level and caloric needs. Try it! See how much your endurance increases when you are fully fueled. Enjoy your run!

Check out Sunny's Tips on the next page to help you with your personal food plan and adapt the information for your own needs.

By Sunny Blende, M.S., Sports Nutritionist



Sunny Blende, M.S., Sports Nutritionist | [sunny@eat4fitness.com](mailto:sunny@eat4fitness.com) | Phone (415) 331-2330 | Fax (415) 339-0522

**Disclaimer:** This is intended for informational and educational purposes only and in no way should be taken to be the practice of physical therapy or professional healthcare advice or services. The information should not be considered complete or exhaustive and should not be used for diagnostic or treatment purposes without first consulting with your physical therapist, physician or other healthcare provider. The owners of this accept no responsibility for the misuse of information contained herein.

Presidio Sport & Medicine  
1162B Gorgas Avenue  
San Francisco, CA 94129  
P: 415.561.6655  
E: [info@presidiosport.com](mailto:info@presidiosport.com)  
[www.presidiosport.com](http://www.presidiosport.com)

## Sunny's Tips

**Pre-Exercise (one hour or more)** – bagel w/PB or low-fat cream cheese, toast w/jelly, breakfast bar, yogurt & lite granola, or breakfast burrito (maybe ½)

**Pre-Exercise (10 min. before)** – sports drinks, GU or raisins & water, banana

**During Exercise** – Water, sports drinks, sports gels & chews, pretzels, potatoes, pieces of PB & J or turkey sandwiches

**Post-Exercise** – Rehydrate! Sports drink, sports bar & water, chocolate milk, PB&J, simple burrito, yogurt, nuts, fruit, breakfast bar & a meal within two hours

### Timing of Foods

1. Eat *soon* to avoid low blood sugar (*any* foods, but low Glycemic Index foods will burn fat longer)
  - Upon waking up
  - Right after exercising
2. Do not *spike* blood sugar with high Glycemic Index foods
  - During the hour before exercise
  - Right before you're going to bed/sleep

### Insulin Spiking Issues

1. Avoid sugar from 1 hour to 10 min. before exercise
2. “*Bad*” carbs (high Glycemic Index) become “*Good*” carbs during exercise
3. Make good use of the “30-minute Recovery Window” during which time the muscles can store up to two times as much carbohydrate right where it is needed most (muscles) for the next bout of exercise

### Hydration Issues

1. The higher the heat or intensity of training, the more dehydration occurs
2. Sports drinks with electrolytes and carb calories help your body absorb more water and maintain blood sugar and stamina, especially if you are a heavy sweater or if it is a hot day; they may help you drink more

### To Help Burn Fat (Increasing Metabolism)

1. Eat breakfast; it revs up your engine
2. Include in each meal: **unsaturated fats** (nuts, vegetable oils, avocados, fish), **moderate protein**, at least one **vegetable** or **fruit**, a **whole grain** (100% grain bread or pasta, skin on potato, whole cooked grains or rice)
3. Eat Low Glycemic foods as much as possible; think “*Close to the Source.*” Good snacks include carbs with a small amount of protein.