

Healthy Choices for Base Training – Food in the Day of an Endurance Athlete by Sunny Blende, Sports Nutritionist

Does calorie-deprived, over-trained and chronically dehydrated, describe your nutrition habits? Are you a sports bar or protein supplement junkie? A fat-phobic? Do you train on empty and indulge in a nighttime feeding frenzy; gorging at dinner and into the evening? Do you have all the energy you need?

A well-designed food plan is the foundation for any endurance athletes base training program and is just as important as the mileage 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. Research has clearly shown that endurance athletes as a group do not ingest enough calories and/or do not consume enough of the right type of macronutrients (carbohydrate, protein, and fat) and therefore do not always adapt to training and do not always reach their full potential. General fitness athletes involved in 30-40 minutes of exercise a day, three times per week can usually meet their caloric needs with a normal diet of 1800-2400 calories per day. Athletes performing a moderate to intense level of training 2-6 hours a day, five to six times per week will require much more. This level of intense exercise may use 600 to 1200 calories per hour (!) of running and would require thousands of calories per day. Endurance athletes must maintain energy while exercising for hours and hours in order to perform at peak levels, even if the intensity of the exercise is not always extreme. Nutritional analyses of these athletes' diets show that many are susceptible to maintaining negative energy balances. Deficient calories lead 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 you as an ultra athlete engaged in high-mileage weeks 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 PR's later in the season!

Timing Your Food Choices

Your goal here is to be consistently fueled. Ideally you'd be walking around with an IV drip in your arm, constantly injecting the amount of caloric energy you need for each activity you do. Since this isn't possible, you need to eat **evenly** throughout the day. Endurance athletes susceptible to negative energy intake must snack, and/or eat four to six smaller meals each day. Nutrient-dense food or even higher caloric supplements can also help. 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 four hours for carbohydrates to be digested and begin to be stored as muscle and liver glycogen. Therefore if your exercise is 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 1:3 or 4 (one gram protein to three or four grams carbohydrate) as this will aid in quicker recovery too.

Let's look at the latest research and recommendations from the International Society of Sports Nutritionists. The overall findings show 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.

Carbohydrate

Carbohydrates remain the cornerstone of any endurance athletes diet. Whereas runners in a general fitness program may need 3-5 grams of carbohydrate per kilogram of body weight per day, athletes in moderate and high volume training may need 5-8 and 8-10 grams/kg/day respectively. For someone exercising 3-6 hours a day in one to two workouts, that could mean one to four pounds of spaghetti! It is difficult to eat that much carbohydrate and still find time (and stomach comfort) to exercise. Dense grains and sports nutrition products containing maltodextrin may help endurance athletes in getting enough carbohydrates.

***One Caveat :** While all 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 athletes 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 ultramarathoners require one and a half to two times the RDA of protein (which is 0.8 to 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 however. 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 (casein and whey). 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 athletes 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 to 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, but not essential fats. Use nuts such as almonds and walnuts in salads, on yogurt and cereal, and monosaturated and polyunsaturated oils on salads for their Vitamin E and essential fatty acids. Most are high in “good” fats, which lower your total cholesterol and LDL cholesterol (bad type) in particular. Use olive and canola oil when cooking and baking. They are a much better alternative than butter, which is high in saturated fats. 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.

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 reviewed that seem to possess health or ergogenic value under *some* circumstances are calcium, iron, sodium phosphate, salt (sodium chloride) and zinc.

Water

When just 2% of an athlete’s body weight is lost through sweat, performance can be impaired which makes water the most important nutritional ergogenic aid for any endurance athlete. 4-5% of body weight loss during exercise can lead to heat illness, heat exhaustion, heat stroke and even death. Normal sweat rates of athletes’ ranges from 0.5 to 2.0 liters per hour, with temperature, humidity, exercise intensity and “trained” vs. “non-trained” all affecting that rate. Endurance athletes should

learn to use a scale to weigh themselves before and after a training session to learn their own personal sweat rate. Our longstanding rule of “Drink two to three glasses of water for every pound lost on a run.” still is applicable in *training*. During the actual *endurance race (since it is usually much longer than a training bout)*, studies have shown it is common and possibly even desired to lose a couple of pounds without any drop in performance. That being said, accumulating dehydration with day after day of training can reduce your eventual race performance. Preventing dehydration may be the *single* most important thing an ultra athlete can do for his or her performance and maintenance of exercise capacity.

Check out the *Endurance athletes Eating Plan* (see chart) and fill in the blanks for your personal food plan. Adapt the chart for your own needs; obviously if you do not run or exercise in the morning, you do not need both a Pre-breakfast snack and a Breakfast. You may only need an Evening snack the day before a race or a really long training session. 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 omega3-rich fish or some other low fat quality protein. Use some of the ideas from the list on the right hand side of the chart and add your own favorites.

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 exercise!

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, 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.*”

Endurance athletes Eating Plan

Sunny Blende, MS

Pre-Breakfast Snack:

AM WORKOUT

Breakfast:

Morning Snack:

Lunch:

Afternoon Snack:

PM WORKOUT

Dinner:

Evening Snack:

(Pre-Race Day)

Daily Vitamins:

Other:

PRE-BREAKFAST SNACKS:

Bananas - fruit juice with a piece of toast or breakfast bar - sports bar & water - sports drink

BREAKFAST:

Whole grain cereal with berries, nuts, raisins - yogurt & piece of fruit - waffles w/ fruit & sausage - bean burrito - egg omelet & fruit

MORNING SNACKS:

Yogurt (+ grape nuts) - nuts & fruit, cheese - bagel w/ PB - breakfast or sport bar

LUNCH:

Sandwiches - PB or soy butter with jam - sliced turkey, cheese - humus & vegetables - tuna - all on WHOLE grain bread
Soups - lentil - vegetable - broth based - all w/ bread
Salads - add protein source like beans, chicken, watch high calorie dressings

AFTERNOON SNACKS:

SAME as MORNING

DINNER:

VEGETABLES (colorful & a variety) - wheat pasta, 100% whole grains & breads, brown rice - beans - fish - skinless chicken - lean meat, hamburger - low-fat pizza - stews - salads - soups

EVENING SNACKS:

Low-fat frozen yogurt w/ granola - chocolate milk - oatmeal-type cookie & low-fat milk - fruit & nuts

SUPPLEMENTS: balanced multi-vitamin, possibly C, E, CA

GOAL: Emphasize fruits, vegetables, whole grains, and fat-free or low-fat milk products in addition to including lean meats, poultry, fish, beans, eggs, and nuts. Try to not go too long without eating; at least eat a small snack. Every two to three hours is best.