

NUTRITION PERIODIZATION

A Time for Transition from Recovery back into Training Season

By , M.S., Sports Nutritionist

As the Ultra season starts up again and the weather turns warmer, many ultrarunners are coming out of hibernation which hopefully included rest, recovery, cross training, family time and getting some of those overdue projects finished. With the downtime helping with muscle, exercise and mental recovery, you should now start preparing for transition training, and that includes transition nutrition or increasing your calories to match those increasing weekly miles. If you have over-indulged in the holiday goodies, then you may not want to increase the calories during your *meals* (yet), but you will definitely want to increase your calories during *exercise* to fuel the muscle adaptations that the increased workload brings about. Switching back into the “basic four food groups” of sports drinks, gels, chews and bars (and those ever-important “spices” of electrolyte tablets) can be a challenge for your teeth, stomach and even your health; so getting it right is important.

The amount of food (energy) you need as you go through your periods of build-up and racing changes and so should your calorie intake. If you eat the same amount of calories all year long, you will be over-eating some periods and almost for sure, under eating others. And the *kinds* of food you eat will also change. As you begin your base training, you should dial in your basic healthy nutrition. Around an ultra race or big mileage weeks, you are burning huge amounts of carbohydrates for energy. As you finish up the season you need to replace some of the other nutrients that you lost through heavy training. You want your nutrition to rebuild your immune system while maintaining the neuromuscular adaptations that all those miles have produced during your training. Lets review what you need to ensure you start *this* season fully prepared.

Recovery Nutrition

As you transition from off-season to base training, be sure you have totally recovered from last season. A concern for the ultrarunner at the end of season is the loss of -- or low level of -- certain vitamins and minerals. Although vitamins and minerals are not used for energy (calories), they act as metabolic catalysts that regulate body processes and chemical reactions. They are *essential* for boosting, or just recovering, the immune system as well as overall health. These nutrients must be obtained from the diet, as we are unable to manufacture them in our own bodies. Equally important, mega dosing on vitamins and mineral will not improve your performance or your recovery, but a deficiency will most certainly delay your base training weekly strength-gaining. The Food and Drug Administration sets the Recommended Dietary Allowances (RDA's), but research has shown the standards are on the lower side for athletes. The RDA's are the *minimum* amount that will keep you out of a deficiency state, not necessarily the optimum amount for an endurance athlete. The micronutrients that the depleted ultrarunner needs to focus on are most likely the antioxidants Vitamin C, E, and beta-carotene and the minerals Iron and Calcium. The following chart shows what function

each substance is involved in (as it relates to ultrarunning), what foods provide these nutrients and suggested safe amounts for athletes.

NUTRIENT	FUNCTION	FOOD SOURCES	DOSAGE
Vitamin C	Antioxidant- counteracts free radicals, regenerates Vitamin E	Vegetables (peppers, broccoli) & Fruit (strawberries, oranges, papaya, cantaloupe)	500-1000 mg./day (Water soluble)
Vitamin E	Antioxidant- counteracts free radicals, maintains cellular membranes	Wheat germ, almonds, other nuts, safflower oil, corn or soybean oil, broccoli	200-400 IU/day (May need a supplement to reach this level)
Beta Carotene	Antioxidant- counteracts free radicals, pre-cursor of Vitamin A (helps body resist infection)	Beef liver, carrots, sweet potatoes, squash, spinach, mango, tomato juice, cantaloupe	No RDA Take no more than 5000 IU of Vitamin A/day
Iron	Blood cell formation, oxygen carrying role	Heme Sources: Beef liver, lean ground beef, pork, poultry Non-heme Sources: fortified cereals, soybeans, spinach	15 mg./day for premenopausal women, 10-15 mg./day for men
Calcium	Bone health, muscle contraction, nerve transmission	Dairy — yogurt, milk, cheese, light ice cream, fortified cereals	1000 mg./day for adults 19-50, 1500 mg. for post-menopausal women

Base Period/Beginning of Training Nutrition

As you ramp up your training this spring, your intensity of running effort will change and so will the substrate, or nutrient type, you use for energy. The energy needed when racing can be up to 90% from carbohydrates and 10% from fats (more anaerobic) while base mileage at a slower minute per mile pace can be 20% or less from carbohydrates and the rest from fats (more aerobic). While a rough estimate of percentages of calories ultrarunners get from food is 60% from carbohydrates, 15% from protein and 25% from fat, when carbo-loading for a race, your percentage of complex carbohydrates usually increases from 60% to 70%, your protein stays at the 15%-18% range and your fat percentage *decreases*. During the foundation phase of your nutrition periodization you can actually *increase* your fat percentage a bit. This is the main fuel you will use during the longer, slower runs in the early part of the season. The important thing to remember is that your overall calorie intake needs to increase as your hours of exercise increase. This periodization of nutritional intake will help you stabilize your weight over the year, matching you calorie intake to your energy expenditure. If you have

eaten approximately the same way throughout the year, you may have gained weight by over-eating for your decreased energy output in the rest and recovery phase and did not perform up to your maximum potential if you under-ate during your racing season.

As you come out of winter down-time, you may have put on a few pounds which can be healthy as long as the weight gain is 5% or less of your competitive weight. If you have increased the percentage of calories you consume from fats by adding healthy fats to your diet, it will help restore lean body mass lost from last season as long as you incrementally increase your running. Protein calories continue to be an important part of your diet in your build-up period. During this time, protein is needed to repair and rebuild (stronger) muscles and tissues that are damaged during long training runs. You need enough building block sources (amino acids) to fully recover and function efficiently. Foods that contain all the essential amino acids are known as *complete proteins* and include eggs, meat, fish, poultry and whey protein found in milk and yogurt. The only complete protein found in the vegetable world is the soybean, however by eating complementary proteins, you can also be assured of meeting your protein requirements. Good sources of complementary proteins are beans and rice, whole-grain bread with cheese and even cheese pizza. Your carbohydrate calories will increase, especially now that you are consuming them as fuel during your increased mileage, but adequate protein and fat will also help keep your blood sugar level stable allowing for balance, homeostasis and better sleep.

Looking Back - Time to Learn and Reflect on What Worked and What Did Not

At this early phase of training, you will have time to reflect on your past season's nutritional choices and consider what worked for you and what did not. Learn from your mistakes as well as your successes and take time in the early part of training to experiment with old and new foods. The ultrarunner that can absorb the most calories for the longest stretch of time will probably be performing best in the race. Even if speed is not your strong point, how many times have you seen the top runners side-lined by stomach or fatigue issues? Now is the time to see just how much, both of sports nutrition products and real food, you can comfortably eat while still running at your desired pace. The newer research suggests that you can absorb *more* than the old standard of "one gram of carbohydrates per minute of exercise (or 4 calories)" if you use different "transporters" to absorb these calories. That is, some from glucose that goes easily across the muscle cell wall and some from fructose, which uses a different transport system to take up this sugar. If you become uncomfortable, nauseous or even ready to vomit, at least you can slow down or stop and you have learned something about your limits during practice, not during a race. It's not a bad idea to "eat until you become sick" ... it may be a lot more food than you imagined!

So fuel, hydrate and try eating some *real* food in training and start even stronger this season. It's possible some new fueling strategies can help you perform and race to your full potential. Who knows, you may just pass that "top-runner" dealing with stomach issues beside the trail. But remember, you *MUST* practice – if you have time to train, you have time to fuel. ☺