

The Four R's of Recovery Nutrition

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If you have been following the monthly nutrition tips I have been providing as a service to those doing the B2B, you will have learned that I strongly endorse a perfect balance of excellent nutrition and a dialed-in fueling plan along with proper training: long, steady rides balanced with ample recovery. I've written about hydration, electrolytes, energy sources and the importance of practicing your plan.

The final part of the perfect nutrition plan for an athlete is Recovery Nutrition. I emphasize four "R's": rehydrate, refuel, repair, and rebalance. Let's go over the importance of each and see how we can easily accomplish these.

REHYDRATE

The best way to know how much fluid you need to consume after a workout is by weighing yourself before and after the workout and replacing the difference with a rehydration beverage. A warning for those of you trying to lose weight: the "weight loss" you see after a workout is not fat loss, but fluid loss and must be replaced. You can use a variety of beverages to help with your rehydration. Sports drinks will ensure that you are replacing electrolytes and fluid lost through sweat and carbohydrates needed to replace muscle glycogen (see below), but you might be happy to know that coffee can also be part of your rehydration plan! Caffeine has been shown to increase muscle glycogen when consumed with carbohydrate. So indulge that craving for caffeine, but make sure you offset the diuretic effects of caffeine. Drinking a 12 oz bottle of mineral water with a slice of lime will aid in rehydration and will help rebalance your body's pH.

REFUEL

To replenish depleted blood sugar and muscle glycogen stores and recover from the demands of a long or tough workout, you should try to consume high quality carbohydrates within 30 minutes post-workout. Our bodies convert carbohydrates to glycogen to be used during activity. As we exercise, we burn through our glycogen stores. The longer and the more intense the session, the more we use. Glycogen recovery is critical for athletes who are training multiple times per day, have back-to-back events, and for those athletes who may not be getting the carbohydrates they need throughout the day. Muscles rely on carbs for fuel and recovery, so type low-carb diets are not recommended for athletes.



REPAIR

Consuming some protein along with the carbs stimulates faster glycogen replacement. The protein also optimizes muscular repair and growth. The ideal ratio of carbs:protein is 4:1. Some easy to prepare, easily tolerated options are: cereal with almond milk, chocolate soy milk, bagel with a little peanut or almond butter or a smoothie with coconut milk, banana and a small scoop of protein powder.

REBALANCE

One of the most important parts of an optimal recovery plan is one that doesn't get a lot of press. Rebalance refers to balancing your body's pH with alkaline foods. Our bodies need to maintain a slightly alkaline environment of 7.36 to 7.44 on the pH scale, because every cell in our bodies functions optimally within this pH range. The concept of acid alkaline imbalance as the cause of disease is not new. In 1933 a New York doctor named William Howard Hay published a ground-breaking book, *A New Health Era* in which he maintains that all disease is caused by autotoxication (or "self-poisoning") due to acidosis in the body.

Unfortunately, the very workouts that are making us stronger and fitter, are also often stressful and cause the body to produce lactic acid, which is, of course, acidic. And many of the foods that are prevalent in the athlete's diet can be very acidic: coffee, white sugar, refined grains, alcohol, chicken, eggs and dairy products are all highly acidic. If you start your day with an energy bar and sports drink, followed by a workout, followed by a cup of coffee with cream and sugar and a bagel with peanut butter, you've just put your body in a highly acidic state. If you continue to up the ante on your workouts while fueling and refueling with acidic foods, your body will start to produce high levels of cortisol (also acidic!) which leads to chronic fatigue and weight gain. Incidentally, you know the aspirin or Ibuprofen that you take to relieve the sore joints and muscles? Also acidic.

Because it's dangerous for our bodies to be in a state of acidosis, the body has mechanisms to protect itself by maintaining acid-alkaline homeostasis. It does this by correcting the body's pH level by leaching alkaline substances from the body's cells. Since calcium is very alkaline, it will be leached from the bones to neutralize the highly acid environment and consequently, the bones and teeth are weakened. Acidosis can also lead to muscle breakdown when glutamine, the most abundant amino acid in the muscles, is leached out to neutralize the acidity in the body in the same way that calcium is leached from the bones.

Fortunately, fruits and vegetables are loaded with carbohydrate to refuel, water to rehydrate, and protein (check the protein content of broccoli and chick peas) to repair. They are also highly alkaline! You might be surprised to find that lemons and limes are among the most alkaline foods you can eat.

I keep a [chart](#) on my refrigerator to remind myself to eat enough alkaline foods throughout the day to balance any stress that I am putting on my body, and the irresistible morning cup of java. You can test your pH on a regular basis by using test strips which are available online. However, you should be able to tell that your body's pH is balanced when symptoms such as indigestion, heartburn, lack of energy, shortness of breath and muscle weakness resolve, and your fitness and performance starts heading in the right direction.

Seifter JL. Acid-base disorders. In: Goldman L, Schafer AI, eds. *Cecil Medicine*. 24th ed. Philadelphia, PA: Saunders Elsevier; 2011:chap 120.