

## Annie's Angle: Nutrition

Athletes spend hours perfecting technique, enhancing fitness, and preventing injury through proper training. This year I will spend 650 hours training. Despite the increased load in training, I am still only *actively* training for roughly 7% of this year. Yet, I consider skiing to be a “full-time” commitment. Full time skiing doesn't necessarily mean you are doing it professionally- it means you are dedicated to the sport with a commitment and drive to improve.

To be a skier, a lot more goes into your performance than active “on time.” For this month's *Carpe Skiem* article, I am going to focus on the importance of **nutrition**.

It's important to remember first and foremost that everyone has different nutritional needs. Everyone burns calories at a different pace, and what people need to replenish their stores varies greatly. However, what everyone does have in common is that everyone **must** be eating enough to build muscle and adequately recover. Proper nutrition is one of the easiest ways to ensure maximal performance come race day, so don't set yourself back! Make sure you get enough before, during, and after training and racing.

### *Pre-Training/Racing*

The key to pre-training (or racing) nutrition is eating enough to keep you feeling full and satisfied without weighing you down. As an exaggerated example, 10 Boston cream doughnuts might keep you full, but they won't keep you feeling lithe and fast. The best pre-training/racing breakfast foods are mainly carbohydrates. You want to limit fat and fiber—fat takes too long to digest, while fiber can give you G.I. discomfort. Remember that whole grains contain *a lot* of fiber. Normally, whole grains are better for you, but pre-race/training pick white over wheat! And while you want your breakfast to be carb-heavy, some protein is important to keep you feeling full.

Further, you might have to eat more than you think pre-race. For an endurance event like the Birkie, research suggests that a 150-pound athlete should consume 1,000 calories before starting the event. While that would be a lot to stomach in one sitting, when consumed over 3-4 hours it becomes manageable.

### *Mid-Training*

From my experience, the most important part of mid-training/race nutrition is proper hydration. Don't get me wrong-food is important as well. But replenishing electrolytes, salt, and sugar during vigorous exercise is paramount\*.

As a rule, many athletes go by the mantra, “feed early and often.” By the time an athlete feels they need a feed (a small bottle of sports drink, or de-fizzed caffeinated soda), it is too late and the body is already suffering from the effects of dehydration. Further, it is important to intake calories associated with sports drinks instead of just water. Calories are energy, and you cannot go fast without energy. Sports drinks provide carbohydrates in the form of glucose (easily digestible and quick acting), sodium and other essential electrolytes lost in sweat. It is important to remember that just like pre-training/racing food, each individual will have a different routine that best maximizes his/her performance. Test these out before a big day! Try different combinations, drinks, and feeds during intervals or time trials. Ideally during a big interval session or race I intake some kind of feed every 30-45 minutes. My preferred feed is diluted Gatorade, or power gummies (Honeystinger, Cliff bar, and Powerbar all make some great gummy fuel).

### *Post-Training*

The most important rule for post-training nutrition is eating something (anything) within 30 minutes of completion. As a general guideline, take your body weight, divide it in half, and that is the grams of carbs you need. For a 150 pound athlete, that is 75 grams, or roughly 300 calories. Shoot for a 4:1 carbs to protein ratio, but most importantly get something in your system! It is better to have McDonald's than nothing.

During vigorous training or racing, muscle is broken down. To rebuild that broken down muscle, protein is important. Also important is restoring glycogen levels (RE: Carbs!). Finally, fat is also necessary. During a long event, your body will work through easily accessible energy first (simple sugars), and then turn to fat stores. So chances are that you will significantly deplete your fat sources as well as your glucose sources, and need to rebuild and replenish both.

With the above in mind, here's an example of what I eat before, during, and after a hard training session or race. Again, just because it works for me doesn't mean it will work for you, but you have to start somewhere!

### **2-3 hours before training/racing**

Oatmeal (2 servings, 1 cup dry)

½ cup plain Greek yogurt

1 cup berries

2 tablespoons peanut butter

### **30 minutes to 1 hour before**

Half a bar or some gummies, 16 ounces diluted sports drink

### **During**

Big sip of diluted or normal sports drink every half hour (or between sets of intervals)

Gummies or snack on a bar

### **After**

Whole Wheat Bread

2 tablespoons peanut butter

2 tablespoons jam

Water

Sports drink if I was really sweaty (meaning I lost a lot of electrolytes)

All this said remember everyone is different! Eat when your hungry, cover your bases, and you'll be set for optimal performance. Next month in Annie's Angle look for an article on the importance of recovery!

\*Recently there has been debate surrounding the effect of dehydration on athletic performance. In two studies conducted on cyclists, one found a significant negative effect on performance when dehydrated<sup>1</sup>, while the other found dehydration had no significant effect on performance<sup>2</sup>. Both studies defined dehydration as a scenario in which an athlete has lost 2% of his bodyweight due to water loss. One problem with the above findings is its transferability from cycling to skiing. Further, the second study took place in controlled conditions, with a fan blowing air onto the subjects to emulate wind resistance. Albeit realistic, having a strong wind has a cooling effect, and could interrupt the findings regarding dehydration effects. Despite the no correlation finding, the vast majority of research since the early 2000s suggests that dehydration does increase heart rate and thereby oxygen consumption. Further, dehydration during exercise increases recovery time<sup>3</sup>

1. <http://www.ncbi.nlm.nih.gov/pubmed/23952038>

2. <http://bjsm.bmj.com/content/early/2013/09/20/bjsports-2013-092417.short>

3. [http://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=1099&context=sferc&sei-redir=1&referer=http%3A%2F%2Fscholar.google.com%2Fscholar%3Fhl%3Den%26q%3Ddehydration%2Bmckinney%2B2013%26btnG%3D%26as\\_sdt%3D1%252C45%26as\\_sdt%3D#search=%22dehydration%20mckinney%202013%22](http://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=1099&context=sferc&sei-redir=1&referer=http%3A%2F%2Fscholar.google.com%2Fscholar%3Fhl%3Den%26q%3Ddehydration%2Bmckinney%2B2013%26btnG%3D%26as_sdt%3D1%252C45%26as_sdt%3D#search=%22dehydration%20mckinney%202013%22)