

# PRECOMPETITION AND COMPETITION NUTRITION MANUAL

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### NUTRITION LEADING UP TO COMPETITION

When you wait until a pre-competition situation to decide to eat well, you've waited far too long. Good nutrition is *training nutrition*, the food you eat day in and day out while preparing for competition day. Simply put, the adaptations that take place during your training (and the food you eat during this time) are what lead to successful competition-day performances. Your only goal during a pre-competition feeding is to not screw things up.

So, what do I mean when I tell you not to screw things up? Well, check out the following competition-day nutrition mistakes.

- *Competition Day Mistake #1 – Overeating on Competition Day*  
Overeating within the few hours leading up to a competition will certainly screw things up. Some individuals have the notion that eating a lot before a competition will give them an abundance of energy for optimal performance; however this is an ineffective way to fuel the body. Large feedings delay stomach emptying and therefore this feeding strategy will simply cause sensations of fullness, a diversion of blood flow from the muscles to the gut, and a feeling of discomfort during competition. Rather than eating a lot of food, eating small amount of easily digested food (and hydrating) during the hours leading up to a competition is the best way to handle the pre-competition period. If your event is long in duration, drinking some energy (carbohydrate and protein) during competition is also a good strategy.
- *Competition Day Mistake #2 – Eating Novel Foods on Competition Day*  
Eating foods that are novel or that disturb the gastrointestinal tract causing gas, the urge to defecate, or stomach cramping will certainly screw things up. Rather than trying foods or supplements that you typically don't eat (including things like novel energy bars, drinks, and gels – supposed performance boosters), you should stick with foods that you know will not upset your stomach.
- *Competition Day Mistake #3 – Trying to Carb Load on Competition Day*  
Athletes often screw things up by attempting to “carb load” prior to competition by having large carbohydrate meals within a few hours of competition. This is an unwise strategy for several reasons. First, carbohydrate loading only is effective during prolonged exercise (events lasting longer than 90 minutes). For shorter duration activities (<90 minutes), carb loading isn't all that important; so why bother downing all that food and running into the problems discussed in problem #1 above?

Also, even if carbohydrate loading is required for your event, eating a big carbohydrate meal is not the same as a targeted carbohydrate load spread out over 3 days prior to competition. You don't get the same muscle glycogen boost.

Finally, eating a large feeding of simple or rapidly digesting carbohydrates too close to a competition can actually dull mental acuity and lead to rebound hypoglycemia, a condition in which blood sugar falls low, high insulin concentrations decrease fat utilization during exercise, and premature fatigue sets in. That's definitely not the way to win your races.

In the 3 situations above, I caution you against common competition-day mistakes. In the 2 situations below, I want to caution you against common pre-competition day mistakes.

- *Pre-Competition Day Mistake #1 – Eating Different Foods or Too Little Food Before Competition Day*  
Pre-race jitters & concerns, an exhausting travel schedule, and difficulty obtaining good nutrition can all easily lead to poor nutritional choices and under eating. Don't fall into this trap and screw yourself up by forgetting to bring the foods you know you should be eating, by choosing easily available foods vs. nutrient dense foods, or by forgetting to eat while traveling. Instead, you should be following your typical nutritional intake (hopefully "Precision Nutrition Approved" intake) as closely as possible. From here, based on your event, you can adjust your intake by eating less or more food.
- *Pre-Competition Day Nutrition Problem #2 – The Big Pasta Dinner*  
As nutritional intake can be sub-optimal on the days leading up to competition (discussed above), many athletes will try to make up for their intake with a big pasta or other carbohydrate dinner the night before competition. This is the athlete's attempt at "carbohydrate loading." There are a few problems associated with this.

First, carbohydrate loading takes a few days to accomplish – one meal won't do it.

Secondly, not all athletes need to carbohydrate load – for those athletes who don't, carbohydrate loading can actually be a liability. As mentioned above, specific carbohydrate loading is only really effective for longer duration events. If you're loading on carbs for shorter duration events, you should be aware that carbohydrate loading can increase body mass anywhere from 0.5 to 2kg; this mass coming from a combination of muscle glycogen and intracellular fluid as carbohydrates hold about 3g of water for every 1g of carbohydrate stored. Therefore, during shorter duration

events, unnecessary carbohydrate loading leads to unnecessary increases in body mass – water weight.

### **NUTRITION LEADING UP TO COMPETITION – TAKE HOME MESSAGES**

- 1) Assuming you're following the Precision Nutrition recommendations, there is usually no need to alter your typical food selections leading up to a competition. Although your food volume may vary, you should simply continue to eat the same way you do at home (or as close to it as possible).
- 2) If your energy levels are waning during a competitive period and you're competing in shorter distance events, simply increase your total calorie intake. Eat more of each of the macronutrients with each meal leading up to an event rather than more carbohydrates alone.
- 3) Only when competing in longer duration events should carbohydrate loading be considered. In order to effectively carbohydrate load, simply eat your typical menu (as above), but "supplement" these meals with additional starchy carbohydrates. Choose nutrient dense, fiber rich selections such as whole grain breads and cereals.
- 4) Regardless of your event, stay away from single, heaping carbohydrate dinners or heaping carbohydrate pre-race meals. This is not to say avoid carbs. However, 3 huge plates of pasta for dinner or pre-race are not necessary. For sprinters, if you're steadily eating more leading up to your competition (as discussed in #2 above) you'll be fine. For distance competitors, the modest increase in carbohydrate intake during each meal (as discussed in #3 above) will increase muscle glycogen without you having to slam huge carb meals.
- 5) During the competition day itself, be sure to eat small, frequent, easily digested feedings – eating your last meal about 2 hours prior to competing. Be sure to experiment with this as some athletes prefer eating their last meal anywhere from 1-4 hours before competition. In the end, as indicated, the goal of the pre-competition feeding should be to eat a comfortable amount of familiar foods within the few hours prior to competing and stopping the solid food intake far enough in advance of the competition to prevent rebound hypoglycemia and to prevent stomach discomfort.

## NUTRITION AND SUPPLEMENTS DURING COMPETITION

### **Short Duration Competition**

Assuming you've followed the ideas above, you should have all the stored muscle energy you'll need leading up to your event. Further, dehydration, electrolyte balance, and blood sugar are not a concern for these events. So you won't need to worry about drinking during your races.

However, to maximize energy system efficiency and CNS performance, here are a few strategies that you might employ to optimize performance.

#### ➤ **Micronized Creatine**

Be sure you're taking your creatine (3-5g/day) for at least a month before your events. (Although about 50% of the PN athletes take creatine every day). The best kind is called "micronized" creatine.

At 3-5g/day you're unlikely to carry extra body mass. You will, however, benefit from improved maximal power generation, ATP-PC system power maintenance, a reduction in lactate accumulation at each submaximal workload and a reduction in maximal lactate accumulation at highest workloads.

#### ➤ **Caffeine**

Caffeine, in doses of 3-6mg/kg (150-300mg for a 50kg individual) taken 30-60 minutes prior to competition, can boost CNS output and fat oxidation, making it a great supplement for both short duration and longer duration competition. These benefits can lead to improved race performance – as long as you're not overstimulated.

To this end, it's important to experiment with caffeine during training to figure out your personal response to it. While many individuals have no problems with a few cups of espresso or 1-2 caffeine tablets taken about 30-60 minutes before competition, some individuals become far too nervous, others tend to begin races too fast and burn out early, and others can feel sick to their stomachs with caffeine use. Again, experimenting with dose and time of intake can help eliminate most problems while maximizing benefits.

#### ➤ **Tyrosine**

Tyrosine acts as a precursor to the stimulatory hormones epinephrine and norepinephrine. 3g taken 30-60 minutes before competition (mixed with a carbohydrate/protein sports drink) may boost performance.

#### ➤ **Acid Buffers**

Potassium bicarbonate, sodium bicarbonate, sodium citrate and other acid buffers may help boost performance by buffering cellular acidity and

prolonging fatigue if taken before competition. This is especially true in events where anaerobic contribution is high and lactic acid concentrations are high.

Be careful with these products though, as they are known to cause gastrointestinal discomfort. Potassium bicarbonate tends to be better in this regard vs. sodium bicarbonate. If you can tolerate these, 15-20g taken 60-90 minutes before competition should be a safe dose. Alternatively, you can take 5g every 30 minutes starting a few hours before the competition. Just be sure to experiment before your major competitions – you want to be sure you can tolerate these buffers.

- **Recovery Drinks Between Events on the Same Day**  
Between race heats, sipping a quickly, easily digested protein/carbohydrate drink is recommended. One good strategy is to mix up a big batch of recovery drink and just sip it throughout the day, between heats. If you want to snack on whole food between events, please do. However, large meals slow down digestion and absorption and you want rapid digestion and absorption in order to quickly replenish energy stores; so snack lightly in addition to constantly sipping your recovery drink. You can mix this solution with some ringer's lactate solution leading up to your heats (the ringer's will help with electrolyte replacement and to potentially buffer more acid).

### ***Longer Duration Competition***

Unlike in shorter duration competition, longer duration competition requires some attention to hydration, electrolyte concentrations, and blood sugar.

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➤ **Acid Buffers**

Potassium bicarbonate, sodium bicarbonate, sodium citrate and other acid buffers may help boost performance by buffering cellular acidity and prolonging fatigue if taken before competition. This is especially true in events like kayak/canoe where anaerobic contribution is high and lactic acid concentrations are high.

Be careful with these products though, as they are known to cause gastrointestinal discomfort. Potassium bicarbonate tends to be better in this regard vs. sodium bicarbonate. If you can tolerate these, 15-20g taken 60-90 minutes before competition should be a safe dose. Alternatively, you can take 5g every 30 minutes starting a few hours before the competition. Just be sure to experiment before your major competitions – you want to be sure you can tolerate these buffers.

➤ **Drinking During Races**

As hydration, electrolyte balance, and blood sugar are concerns, during-competition drinks should contain carbohydrate and electrolytes. Protein has also been shown to be beneficial in these conditions. Therefore mixing some recovery drink with Ringer's lactate solution is a great during-competition drink. (Ringer's lactate solution may also assist in buffering acid in addition to facilitating rehydration and preventing electrolyte imbalances during longer duration competition). Try to drink about 250 ml, containing around 15-20g of carbohydrate and 5-8g of protein every 20 minutes or so.