



Greetings and welcome to the Next Level Newsletter - Volume V, Issue II.
February, 2008, the Leap Year Edition!

In Athlete news:

- Debbie Darr takes 3rd AG at the Suncoast 10k
- Jennifer Patzkowsky takes 3rd AG at the Suncoast 10k
- Mike Beaman takes overall Master champ at the Mount Mitchell Marathon
- Rudy Kahsar takes 3rd overall at the Valentine's day 5k
- Bri Gaal takes 2nd overall at the Inside-Out Sports Winston-Salem Duathlon
- Feb 10 - Michele Povilaitis PRs at the Gasparilla marathon
- Shauna Anstey runs her first marathon at Gasparilla
- Candice Pulliam PRs by 9 minutes at the Gasparilla half
- Mike Napoli PRs at the Gasparilla 15k
- Coach Bri takes 4th AG at the Uwharrie 8 mile trail run
- Cam Cole PRs and takes 3rd AG at the Orlando Xtreme half
- Jennifer Patzkowsky takes 1st AG at the Twilight Rotary 5k

Powerstroke Triathlon Clinic, April 19, at FITniche, Lakeland FL

Join us on April 19 at the [FITniche](#) specialty fitness store in Lakeland, Florida! This seven hour triathlon clinic will include a Powerstroke swim practice with open water swimming techniques, a running drills session, and three lectures related to triathlon training. Lunch and a CD of camp materials are included. Cost is \$85 for OSB athletes and return attendees, \$95 otherwise.

[Click here](#) to register today!

**OSB Blue Ridge Mountains Summer Camp – Lake Logan, North Carolina
August 18-24, 2008**

Join us for a scenic triathlon training camp in the beautiful Blue Ridge Mountains of Western North Carolina! One Step Beyond campers will stay at the Lake Logan Episcopal Center in Canton, NC. The Episcopal Center is located on pristine Lake Logan and offers 300 acres of privacy and mountain solitude, with summer temperatures in the low 80s.

Cycling access to the Blue Ridge Parkway is just a couple miles away, and the surrounding state and national parks offer extensive hiking/running trails. Historic Asheville and Waynesville are both just twenty minutes away. This is going to be a great summer getaway for outdoorsy types. [Read all the details here.](#)

OSB Cary Masters Swimming – Cary, NC

Practices are held Monday, Wednesday, and Friday mornings from 6-7 AM at the Triangle Aquatic Center. Dues are \$45 per month and include entry into the facility. For all the details, [click here](#).

Training Tips – A brief explanation of lactate threshold training [Coach Marty Gaal](#)

The science of lactate threshold and threshold training is essentially this: As your muscles transition from mostly aerobic to mostly anaerobic energy production, increasing amounts of lactate are produced, to the point where more lactate is produced than is metabolized by your muscles or re-converted to glucose. Our goal during any sort of triathlon or run training is to:

- 1) Raise the point at which more lactate is produced than metabolized
- 2) Increase buffering capacity, or the ability of the cells to withstand a higher lactate buildup than before beginning training
- 3) Improve the energy systems via increased mitochondria density (cellular adaptations to training)

Aerobic energy production is produced with oxygen and fat utilization while anaerobic energy is produced via a process called anaerobic glycolysis or via the phosphagen system (ATP). Anaerobic energy is produced in the absence of oxygen. Aerobic energy production can go indefinitely at low levels, while anaerobic energy production is limited by a) creatine phosphate stores for exercise lasting less than 30 seconds, b) total muscle glycogen stores for exercise lasting more than 30 seconds, and c) amount of lactate produced. Hydrogen ions released during the anaerobic process are the real limiting factor, they interfere with muscle cellular performance.

At all levels there are some of both energy systems going on whether it be an easy or all-out workout. The two main points we're concerned with can be called lactate threshold (LT) 1 and LT2. These have different names depending on who you're talking to. LT2 is also often referred to as the 'anaerobic threshold.'

LT1, aka onset of blood lactate (OBLA), is also called aerobic endurance threshold (AeT), where your breathing becomes 'steady' and what I like to refer to as comfortably fast.

The second (LT2) is where your breathing transitions from steady to a somewhat more rapid and/or ragged - this is where lactate production is now either just equal to or higher than lactate re-absorption. Lactate is reabsorbed into and turned back into energy or stored as glucose - it is a misconception that soreness the day after a workout is from lactic acid buildup - it is from muscle protein breakdown and intercellular edema (fluid leakage). This effort is moderately hard to hard depending on your ability and experience.

This is why in training many of your key workouts for long distance will include time spent at AeT, while those of you training for short events will spend more time working on LT2. In Friel training zone terms, AeT is mid to high Z2, or about 20 beats below lactate threshold, which is the bottom number of Z5a.

Carbohydrate Confusion

By Jennifer Patzkowsky

Carbohydrates are the ultimate source of energy for our bodies and our brain. Most endurance athletes know that they need carbohydrates to fuel their workouts, but are confused about the different types and when to consume them. As an endurance athlete, you can include a variety of carbohydrate sources in your daily diet, and at various times.

Carbohydrates: Simple and Complex

Basically there are two main classifications of carbohydrates, simple and complex. Simple carbohydrates, often called simple sugars are composed of one or two molecules of sugar. Complex carbohydrates or complex sugars, are made up of longer chains, also called polysaccharides and include starch and fiber. Generally, as a carbohydrate becomes more complex, it takes longer to break down and digest.

Simple carbohydrates

Simple carbohydrates are monosaccharides and disaccharides (single and double molecule sugars). Glucose, fructose and galactose are monosaccharides. Some examples of common disaccharides include sucrose (table sugar made up of glucose and fructose), lactose (made up of glucose and galactose) and corn syrup (a combination of glucose and fructose commonly used in sports drinks).

Complex Carbohydrates

Complex carbohydrates, or *polysaccharides*, are composed of simple sugar units in long chains called polymers. Some examples include starch, glycogen and fiber. Most of the carbohydrates found in the plant world are in the form of polysaccharides, but not all complex carbohydrates are unprocessed, whole food sources. Glucose polymers or maltodextrin, which are made commercially from starch and are also technically complex carbohydrates, can be found in a number of sports drinks (such as Carbo-Pro) and carbohydrate gels. Sports drinks sweetened with polymers can provide more energy value with less sweetness than regular sugar provides. So you can see that there are many types of carbohydrates that should be included in both your daily diet and around training.

Daily Diet Carbohydrates

Emphasize carbohydrates such as whole grains, fruits, and vegetables in your daily training diet. These carbohydrate sources effectively replenish muscle glycogen stores between training sessions and also provide a variety of vitamins and minerals to keep your body healthy and immune system strong. Of course, when you eat real foods in the hours before training, you also have to consider your tolerances to specific food choices. Easily digested carbohydrates also make good recovery foods immediately after training.

Training Diet Carbohydrates

In contrast to your daily diet, the carbohydrates you consume during training must be palatable during exercise, easy to digest, and well tolerated, with performance being your primary consideration. These carbohydrates must effectively provide fuel for your exercising muscles and maintain blood glucose levels as your training continues to deplete your liver and muscle glycogen stores during longer or high intensity training sessions. Food and drinks also taste differently when you are exercising, so it is best to determine what product tastes best to you when you are exercising. Carbohydrates commonly seen on labels of sports drinks include fructose, glucose, maltodextrin, glucose polymers, and other carbohydrates. For instance, Gatorade contains a combination of glucose, sucrose and fructose. CarboPro contains medium and long chain glucose polymers and can be mixed with any sports drink.

What you need for top performance is a sport drink containing a carbohydrate that will quickly empty from your stomach and be easily absorbed through your small intestine. Keeping the carbohydrate concentration of a sports drink at 6 to 8 percent ensures that a drink can easily empty from your stomach. Moreover, a sports drink that has two different carbohydrate sources, such as both glucose and fructose also maximizes the potential of the drink to be absorbed through the small intestine. The sodium in sports drinks also facilitates absorption of fluid across the small intestine.

Your most important consideration for carbohydrate consumption during exercise is to find a sports drink that you tolerate, like, and can drink steadily to offset fluid and fuel depletion. Gels, which are much more concentrated in carbohydrate also raise blood glucose levels and must be consumed with water to prevent any gastrointestinal discomfort during exercise. You should also keep in mind that once you have reached a certain level of dehydration, fluids and gels take longer to empty from your stomach, so drink steadily from the start.

Jennifer Patzkowsky, MS, RD/LDN, is a competitive endurance athlete who provides nutritional counseling and meal planning to athletes and people interested in improving their health/fitness. For more information on her services, please contact her at (863) 513-2635 or floridardld@hotmail.com.

One Step Beyond Action Wear

If you'd like to show off the OSB colors, check out our new [Café Press Merchandise store](#). Everything you need to be the coolest kid on your tri team.

Ready for coaching in 2008?

Read more about the One Step Beyond coaches here:

[Head Coach Marty Gaal](#)

[Coach Melissa Hall](#)

[Coach Brianne Gaal](#)

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Marty Gaal
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