

SYNERGY FITNESS TEACHES LANCE ARMSTRONG'S TRAINING SECRETS

July has arrived in Vermont, and with it the **Tour de France** to my television. American interest in the sport of *cycling* seems to build up and peak each year around this event. Even if you haven't been on a bike in 10 years, you may wear a yellow **Livestrong** bracelet and tune in to see the Texan handle this 21 stage 2200mi sufferfest. An estimated 50million Americans have been drawn into the sport by Armstrong's success in winning 7 Tours, heroic battle with cancer, best selling book, and leader of the gigantic cancer charity. At 38, Lance's supernatural fitness is a curiosity also to fellow cyclists, and his training methods and coaching are considered bible to the sport.

LANCE'S COACH SAYS

As Lance's coach **Chris Carmichael** put it – Anyone can be strong for a relatively short period of time, but it is a whole other thing to exert and maintain a significant level of force over a long period of time. In order to do that, your body's capacity to process lactate and resist fatigue must be improved.

As Triathlete and Cycling Instructor at **Synergy Fitness**, I feel Carmichael's observation is spot on, and perhaps even describes a fitness ideal many strive for- *Training your muscle groups to maintain a high force load over a long period of time*. The level of *force* and the duration of *long* may be as different as the individual, but I think anyone would appreciate going faster & longer- without pain! The best part is that it does not imply shelling out \$10k for a Lance Edition Trek Madone, but to actually invest real time in developing muscular coordination, specific leg strength, good form, better body composition, and building the aerobic engine you can rely on.

WHAT TO EXPECT AT SYNERGY INDOOR CYCLING

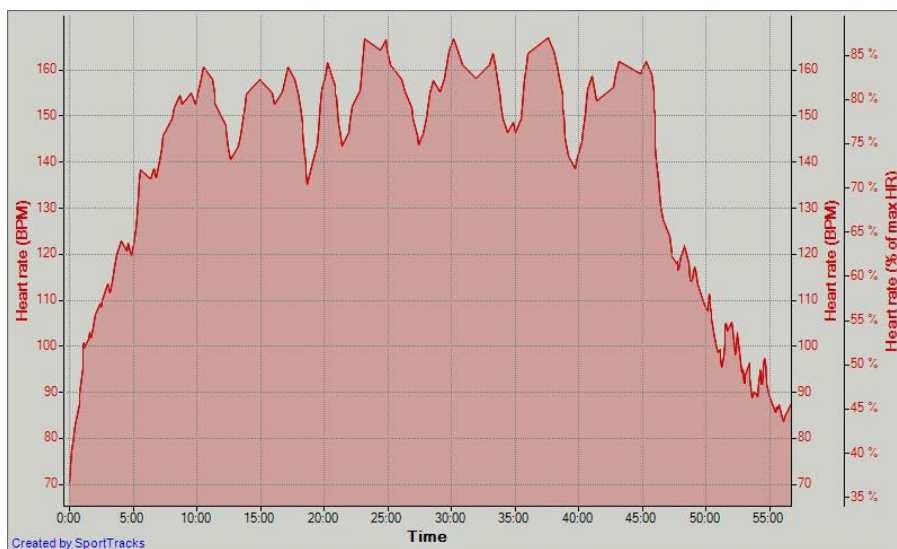
At **Synergy Fitness**, I strive to incorporate dual passions of music and sport, and synthesize an accessible 55 minute workout for all members- especially non & new cyclists! Students in my (Tuesday/ Thursday 5:30pm) classes can expect a visual workout "plan" or "roadmap" to identify work duration, recovery points, and goal intensities. This is helpful for gauging progress, maintaining key thresholds, respecting limits, and preparing surges and recoveries. With a color graph of personal Heart Rate data and work out zones, I illustrate and clearly introduce exertion level riders will experience. I spend additional time to include reminders regarding body position, bike fit, hydration levels, target cadences, and, of course, encouragement. These classes are a great way to blast 600 to 1000 calories, even for the non-cyclist! Typical Indoor Cycling "plans" include steady-state low aerobic zones for boosting the fat-burning metabolism, to vigorous anaerobic race-day simulations for leg strength and boost power. In order to prevent injury and properly attenuate effort, each class includes an 8 min warm-up and 5min cool down & stretch-out.

LANCE'S SECRET TRAINING WEAPON

Although long term fitness programs and workout strategies should be developed by your **Synergy Personal Trainer** or Coach, I have found tangible training effects from workouts that bring the body into an **Anaerobic** state, however not necessarily to maximum effort. In Triathlon, I experience the longest racing leg on the bike portion of the Ironman, where I expect to cover 112 miles and 10k feet of climbing in about 5:30hours. I look for training strategies that provide increase power and speed over this standard distance, yet most produce results only by sacrificing endurance. I am concerned with exactly the opposite- **improving my body's capacity for power on the bike while protecting sufficient reserves to run the marathon that follows.**

From our Tour de France peloton riders, I've learned training in "Intervals" is about raising your cycling exertion to a point of discomfort, and conditioning your body to perform at this point for increasing amounts of time. It turns out Lance's coach agrees and has prescribed **Lactate Threshold** (aka Anaerobic Threshold) **Intervals** to bring both power and endurance and overall speed to his 2200mi Tour de France race.

Now you don't have to race Ironman or go to the Tour de France to get benefits from **Lactate Threshold Intervals**. They are arguably THE safer interval type work a cyclist can participate in, since the student is never MAXXed out, or jeopardizing safety for fitness. In our **LT Threshold** classes together, we stick our big toe into an anaerobic state, but instead of "going for it", the target heart rate peaks and holds between 82% and 85% of our maximum achievable heart rate. That way, I intend that students recover quickly between "harder" efforts, safeguard against injury, and recover quickly post-training. Sub-max cycling intervals allow you to enjoy additional (pain-free) weekly training days and other activities without feeling wasted while muscles rebuild.



Here is an illustration of the **Heart Rate** (beats per min) vs. **Time** (min) of a typical **Lactate Threshold Interval** class. After the appropriate 8min warm-up, you can see that the target intensity is held between **80-85% of Max Heart Rate** (far right column), and there are recovery points that drop as low as **70-72%**. Maintaining this range is difficult, a "16" on a

Borg scale of perceived exertion, but manageable with practice and direction from your instructor. As with all other aerobic fitness programs, results and adaptations are gradual.

THE UNDERLYING SCIENCE

From Chris Carmichael's publications, much of Lance's intensity training revolved around raising his power output (force) at **LT**. However, even if you own a heart rate monitor, it is confusing as to what this actually means! By definition, the **Lactate Threshold (LT)** is a measurable point during exercise of increasing intensity at where blood lactate accumulates above standard levels. To produce energy for cycling movement, the muscles primarily use fat and carbohydrate for fuel. When glucose – a sugar-based fuel source – breaks down, a by-product of the system is lactic acid is produced. As it seeps out of the muscle cells and into the blood, hydrogen ions are released and the resulting salt is called “lactate.”

As the intensity of exercise increases, the amount of this lactate in tissue also increases. At low levels of production, the body efficiently removes or recycles lactate and clears its waste into the bloodstream. The level of exertion where Lactate accumulates in the blood and begins to interfere with energy production and muscular contractions is the **Anaerobic Threshold (AT)**. This tipping point in blood chemistry, where the cycling intensity (measured in Heart Rate Beats per Minute) is taking your energy production from an Aerobic state, to an unsustainable Anaerobic state, also defined as the “Lactate Threshold.”

In sum, one of Lance's training secrets is to invest a lot of time cycling at this lactate threshold point. By doing so, he trained his muscles to maintain a high force load for a prolonged duration. This improved his body's capacity to process lactate, conserve fuel sources, and resist fatigue. Whether your priority is to ride farther over the Vermont landscape or just give your metabolism a boost, come check out **Synergy Indoor Cycling** this summer!

Stephen D Trull

Synergy Fitness Cycling Instructor

Stephen is a certified Spinning Instructor with Mad Dogg Athletics, and has raced over 25 marathons, ultramarathons and Ironman triathlons since 2004. He currently races for Green Mountain Multisport, a Vermont based triathlon team. He lives in Burlington, VT and works in mortgage finance, and in “spare time”, he coordinates the annual **Champs Challenge for Cystic Fibrosis**, a 40mi charity ride fundraiser for CFLF, a Burlington based nonprofit. Please check out the event this July 11th hosted by Basin Harbor Club. Info at www.champschallenge.org

