

Endurance Coach Journal

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Endurance Coach Journal is provided as a free, on-line service to coaches worldwide by Joe Friel's **Ultrafit Associates** and www.CoachingBible.com. Its intent is to focus on leading edge training concepts and issues of interest to coaches of endurance athletes. ECJ is published in odd-numbered months and distributed by direct email to subscribers. The mailing list will not be released or sold to others. The opinions expressed by the authors are not necessarily those of Ultrafit or CoachingBible. Before prescribing exercise for clients based on what is suggested here, the reader is advised to carefully consider the health and well-being of the client. This may include having the medical clearance from the client's physician. For more information on articles in ECJ contact the authors directly.

Welcome to the Premiere issue of ECJ!

Thank you for signing up for a free subscription to our on-line newsletter for coaches. The ECJ newsletter is a joint project of **Ultrafit Associates** and **CoachingBible.com** intended to provide coaches of endurance athletes with information to help them grow professionally. We will try to provide you not only with leading edge training concepts, but also with ideas that challenge your thinking.

This first issue of ECJ starts with my reflections on more than 20 years of coaching endurance athletes. Then the "leading edge training concepts" part appears with two articles on how to set the intensity of workouts for your clients. This is perhaps the most difficult aspect of writing a schedule, I've found. These methods will more than likely challenge your methodology. Both of the authors are my Associates at **Ultrafit**.

ECJ will also keep you informed of coaching opportunities as we find out about them. Be sure to see our announcement below for a coaching symposium in Boulder, Colorado this fall.

We hope that this and future issues of ECJ will spur discussion among coaches and produce greater advances in the field we love so much. Please write me at jfriel@Ultrafit.com if you have suggestions for topics in ECJ.

Also, we'd appreciate it if you'd pass this along to your coaching friends. They may sign up for their own subscriptions [here](#).

Joe Friel
Publisher

Lessons Learned in Twentysome Years of Coaching

by Joe Friel

I started coaching high school athletes in 1966, but that experience was short lived as Uncle Sam needed me in Vietnam where I was, of all things, an aviation electronics officer in the Air Force. (To this day I know little about electronics.) There were a lot of lessons learned in the military, but they were mostly in the philosophy-of-life category.

By 1971 I was back to coaching at the high school level and, in retrospect, over the next nine years learned a lot about what *not* to do. Looking back, some of the workouts I scheduled were

just plain dumb and I learned the hard way. At the time, however, I thought that having a degree in physical education gave me all of the answers. By the time I got my masters in exercise science a few years later I realized I didn't know anything. (I'm told that by the time one gets a doctorate it becomes clear that *no one* knows anything!) But my masters work got me started reading research which I continue almost daily to this day.

By 1980 I was coaching adult athletes in Northern Colorado. Somehow athletes outside of my hometown heard of me and I eventually found myself coaching people around the globe. At one point I was coaching 63 athletes (I was the K-Mart of coaching) and was not providing a level of service I was happy with. So I took a risk and raised my fee to the astronomical level of US\$79 monthly. That had no effect on my numbers so I just kept raising my fee. Now I charge \$1,000 per month – a number I would have said was impossible a few years ago when there were only a handful of freelance, endurance-sport coaches in the country.

Having worked with hundreds of clients, read volumes of research, done clinics with thousands of athletes, talked with scores of sport scientists, and coached several elite athletes in three sports, I've learned a few lessons. Here are the ones that stand out for me. Most were learned the hard way.

Lesson 1: Conservative is best. Training is similar to investing in stocks. The high-yield potential workout is also the riskiest. Pushing athletes to their limits frequently is eventually going to cause a breakdown of some sort – injury, overtraining, illness or burnout. I learned this the hard way as a young athlete myself and managed to relearn it many times with the early athletes I coached. As a coach, you do not earn your fee by prescribing hard workouts; you earn it by helping the client achieve his or her goals. Seems simple enough, but many new coaches don't really understand this.

Lesson 2: You must think long term. It's obvious to anyone who has coached for a while that serious athletes are shortsighted – they see only the next race on the schedule. This means they want to be at the highest levels of fitness all of the time. It also means that self-coached athletes seldom, if ever, reach a true peak of fitness. As a coach you must think long term on behalf of your clients. What are the most important races of the season? What can they achieve next year and the year after that? The newer the athlete is to the sport, the more important such an outlook is.

Lesson 3: Ask questions—lots. In the early days I coached a runner whose goals seemed so apparent that I assumed what they were. I never asked. At the end of the season I discovered he was unhappy with my coaching because he didn't achieve his goals. They were not what I had assumed. Now I ask and keep on asking more probing questions not only about goals but about everything. Good coaches are better at asking questions than they are at pontificating. If you find your conversations with your clients are mostly you talking and them listening then you're doing your client a disservice.

Lesson 4: Be flexible. A couple of years ago I went to a presentation by a renown running coach of the 1960s. As a young man I had read and followed his principles closely. The thing that stood out for me at his talk was that he had not changed his ideas or methodology of coaching in 30 years. That's amazing. I find that every couple of years something I thought was right on, no longer is. People keep me asking me why certain aspects of my program as described in magazine articles I write don't agree with something I wrote a few years before. That's the problem with writing on paper, I guess. I believe that if you aren't flexible you'll be left behind. The world is changing at an ever-increasing rate and you need to keep up.

Lesson 5: Trust your instincts. If you've been around the sport for more than a couple of years you've probably developed and are continuing to refine a sense of what is appropriate given a set of circumstances. Trust that sense. This is the art of coaching. When writing a schedule for an athlete if a red flag pops up in my mind ("Should I really have him do that many?") I already know the answer. Red flags are sure signs that your instincts are working. That's why I tell the athletes I coach, "If in doubt, leave it out." I also tell them they can call me at any time and ask if they should do whatever it is given whatever is wrong, but that the answer I'll always give them is, "Don't do it." That gives them permission to make a decision. The best athlete I've ever coached, pro triathlete Ryan Bolton, is a whiz at this. It's one of the reasons he is so good.

Lesson 6: You can't know everything. As a coach you soon learn that there's just too much information out there. You can't know it all, not are you expected to know it all by your clients. You're a mere mortal. Accept this, but also surround yourself with people who do know. It's OK to say, "I don't know," but follow that with, "I'll find out." That's one of the benefits of my Ultrafit Association of coaches – someone in our group probably knows and is more than willing to help you because he or she also knows you'll return the favor one day. We trade ideas daily and everyone grows.

Lesson 7: Planning is paramount. Just as with any other endeavor in life, setting a path to the goal is critical. There's an old saying that goes something like this, "Without a plan a goal is but a wish." From my earliest days as an athlete and later as a coach I've been fascinated with the notion of "how vs. when." In fact, it could be said that I've built my career primarily on this aspect of sport. My wife says I'm an "analytical" and I guess that's right because I do enjoy measuring, quantifying, defining, and using this data to project future options. I've found this to be critical to success. I develop a unique long-term plan for each athlete I coach. The plan is perfect until we start training. Then the changes begin based on experience, insights, and new situations. We often wind up going down a completely different path than was originally projected. But the original plan got s started in the right direction.

Lesson 8: There's more than one way. While I'm associated with what may be called the "Training Bible" philosophy and method of coaching, I'm not naïve enough to believe that it's the only way or even the best way for most athletes. It's just one way. There are many other ways that are just as good and athletes prove at every race that this is right. This doesn't mean you shouldn't have a methodology. It merely means that you need to choose the one that best fits your philosophy and style of coaching. But don't "bad mouth" others who do something different. There's more than one way.

Joe Friel is the founder of Ultrafit and the co-founder of CoachingBible.com. He is also the author of the "Training Bible" series of books. For more information on this topic he may be reached at jfriel@Ultrafit.com.

Aerobic Threshold

by Gordo Byrn

I've been training for ironman-distance triathlons seriously over the last four years. In this time, I've noticed that the many intensity guidelines for endurance training always seemed a little "too fast" for me. As a coach, I've often found that my athletes tended to simply dial-up a heart rate and then switch their minds off. Over the last six months, two of my coaching mentors (John

Hellemans and Scott Molina) have worked with me explaining the concept of aerobic threshold (AeT).

How to Determine AeT?

My preferred evaluation method is to apply subjective perception. Start training at an easy pace and slowly increase the intensity of exercise. AeT is determined by noting the heart rate where you feel the first deepening of your breath. This deepening is caused by the body increasing its demand for oxygen to metabolize an increase in blood lactate.

Many coaches and athletes prefer a more scientific approach to AeT determination. My view is that this takes away from one of the key benefits of AeT training, that being, having our athletes dial into their bodies. A flexible approach to determination is useful because AeT will often move 5-10 bpm based on an athlete's daily recovery situation.

To guide my athletes, I will tell them that AeT typically lies near the top of Friel Heart Rate Zone 1 ("Friel Zn 1"). I've found that in nearly all triathletes, their AeT will be below this point. Indeed, for triathletes, their "weak sport" AeT will normally lie 10 bpm or more below the top of Friel Zn 1. This is important because, as coaches, we often specify Friel Zn 2 as the appropriate intensity zone for endurance training. In doing this we could inadvertently be giving our athletes tempo training in their endurance sessions.

For my athletes who have access to a bike powermeter, I have found that AeT will typically lie in a zone that's 60-65% of their best average power for a 30 minute time trial (60-65% of CP30). Again, this is merely a guideline as highly trained endurance athletes can have an AeT that is up to 75% of CP30.

Finally, AeT can be determined by lactate step testing. John Hellemans provides a clear explanation of this method in his book, *The Training Intensity Handbook*. More info about this book can be found at <http://byrn.org/zonebook.htm>.

How to Use AeT

I have four main intensity zones that I use with my athletes.

- **Easy Pace** – defined as less than AeT. There are "degrees of easy". Well under AeT is recovery pace and also used for early season base building. I've found that slightly under AeT is a good pace for my novice and weaker athletes to build endurance. It's also a suitable intensity for my stronger athletes to do long over-distance workouts.
- **Steady Pace** – defined as AeT to AeT+10 bpm. My prime endurance objective is to maximize tolerance of (and pace for) steady state training. With my weaker athletes, I use upper steady (AeT+5 bpm to AeT+10 bpm) for their sport specific strength work. With my stronger athletes, we use upper steady for intensive aerobic training (done in low steady for my novices and weaker athletes).
- **Mod-Hard Pace** – known by many as Tempo Pace (Friel Zn 3). Defined as AeT+10bpm to AeT+20 bpm. This zone is typically marked by labored, rhythmic breathing and a novice can mistake this sensation for the AeT subjective marker. With my weaker and novice athletes, I use very little of this zone. While there are physiological benefits to this intensity zone, I've found that the time lost due to recovery and illness ends up making its use counterproductive. My stronger athletes use this zone for sport specific strength work and muscular endurance training.

• **Threshold Pace** – also known as Hard Pace. I don't like to use the word "hard" with my athletes as I find their economy suffers when they try to "go hard". So I prefer to use Threshold and/or Fast Pace. With my endurance athletes, this zone is used for intervals and, therefore, heart rates are less indicative of work being done. For running and swimming, we use 10K and 1000-meter best average pace, respectively. For cycling, we use CP30 wattage figures. I'm very cautious with this zone as it has the potential to result in extended recovery periods and deep fatigue.

Gordo Byrn is an Ultrafit Associate coach who divides his time between New Zealand and North America. He is the co-author (with Joe Friel) of Going Long. For more information on this topic write him at gordo@byrn.com.

Lactate Balance Point – Another Important Threshold

by Stephen Neal

Lactate Balance Point (LBP) can be described as the highest point that the athlete can have heart rate, lactate and performance all remain stable over a period of time. I use this level of effort to define the intensity of my clients' workouts. It lies at a lower level of intensity than what Joe Friel describes as the "lactate threshold" in his books.

The following is what has been found in lab studies on LBP:

- When riding on LBP heart rate, performance and lactate remained stable over the 16 minute tested time.
- When riding at a stable heart rate above LBP and below lactate threshold, the lactate would remain stable at a higher level and the wattage would decrease during the 16 minute tested time.

LBP heart rate is a dynamic point that will be found somewhere between aerobic threshold and lactate threshold depending on the level of aerobic fitness of the individual. Once you know your LBP heart rate you can define training zones for all aerobic sessions. Below are the zones that I use.

- Zone 1 – LBP HR –30 to 50 – Basic Endurance and Active Recovery
- Zone 2 – LBP HR –20 to 30 – Extensive Endurance
- Zone 3 – LBP HR to LBP HR + 10 – Intensive Endurance (Tempo)

To determine an athlete's LBP there are protocols for both indoors in a lab setting or for field-testing. Both protocols involve taking the athlete gradually to an exertion level equal to that of a six-minute time trial (CP6). Indoors you can use a 20- or 30-watt increase in work every 3 minutes. Outdoors you could use 6 minutes easy, 6 minutes medium, 6 minutes hard and then proceed to the second part of the test. Following is the protocol for the second part of the test.

1. Take maximal lactate at the end of the CP6 effort.
2. Reduce heart rate to that equal to 65% of maximal reached during the test. Ride at this heart rate for 5 minutes and take lactate sample.
3. Increase heart rate 10 beats higher and ride for 5 minutes. Take lactate sample.
4. Increase heart rate 5 beats higher and ride for 5 minutes. Take lactate sample.
5. Continue to repeat Step 4 until the lactates stops clearing and starts to accumulate.

The heart rate at which the deflection took place (where the lactate stopped clearing and started accumulating) is the Lactate Balance Point. There will also be a workload attached to this heart rate that can be used to track progression.

Knowing the LBP of your athlete can help plan both the durations and intensities of your training sessions. In planning extensive endurance training sessions, the athlete must train below LBP, how much below depends on the athlete's muscular endurance and ability to supply fuel, but the LBP is definitely a heart rate ceiling for such training. The longer the session, the more below LBP the athlete must exercise. For important sessions such as Tempo, often the first muscular endurance session most athletes perform each season; LBP is the absolute ceiling for this workout in order to be able to increase the time of the workout towards one hour while keeping stable performance.

In different sports LBP can be useful for unique reasons. As an example, for mountain bike cross-country it is very beneficial to have LBP performance at 70 to 75% of the athlete's maximal workload. This will put the LBP within five to fifteen beats below lactate threshold. In triathlon, comparing the LBP relative to lactate threshold in each sport may help determine weaknesses.

All examples in this article are for cycling. This test protocol, however, can be performed for many sports such as running, swimming, rowing and cross country skiing.

Stephen Neal is an Ultrafit Associate coach in Ontario. For more information on this topic feel free to contact him at fact.ontario@hardwoodhills.ca.

CoachingBible.com: The Endurance Operating System

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Just Ask Them

We are proud to list just a few of the distinguished coaches who have chosen CoachingBible.com as their operating system of choice:

Neal Henderson – Head of Sports Science, Boulder Center for Sports Medicine

Gale Bernhardt- 2003 USA Triathlon Pan American Games Head Coach

Adam Zucco-Head Coach Multisport Madness

Kim Morrow- Elite Fit Coach

Wes Hobson- Wes Hobson Performance

Joe Friel- Author of "The Training Bible", Ultrafit Associates founder.

Ultrafit Associates: Developing Endurance Athletes Since 1980

Ultrafit Associates is proud to be one of the very first endurance coaching businesses dating back to 1980, when founder Joe Friel established a network of coaches within northern Colorado. Ever since, the message of high quality coaching services provided by Ultrafit has spread throughout the athletic community.

The past 23 years has only helped Joe grow Ultrafit Associates into a truly unique association of world-class coaching businesses. Ultrafit members have evolved and come to define how great the occupation of coaching is, and how their chosen profession can be a truly successful business venture.

Think of Ultrafit Associates as the ultimate "B to B" organization for coaches. Ultrafit wants you to keep your brand recognition and unique coaching style. If you are a successful coaching

business Ultrafit applauds you, and exists to make you an even stronger business. Ultrafit provides the resources to grow your passion to the next level. Consider just some of the benefits Ultrafit provides its members:

Resources:

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- Exposure to thousands of serious endurance athletes worldwide through our monthly e-Tips newsletter, the TrainingBible.com message board, the Ultrafit.com website and other media.
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- All of the tools needed to coach including CoachingBible.com at greatly discounted rates (same fee for assistant coaches).
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For more information on Ultrafit Associates feel free to visit www.Ultrafit.com .

Ultrafit Coaching Symposium: November 1-2, Boulder, Colorado

Ultrafit is proud to present our first annual Coaches Symposium. Triathlon and cycling coaches will meet in Boulder, Colorado on November 1-2, 2003 for presentations by some of the leading experts in fields directly related to triathlon and cycling performance. USAT certified coaches will receive 15 CEUs toward recertification—all that's needed to renew your license. The

symposium will cost \$295. Package deals available. For more information, write Ken Mierke at KMierke@erols.com .