

# Lactate Threshold Training vs. Interval Training

## *Factors to Consider:*

### **1) Age/Experience of the Runner**

Lactate Threshold workouts are typically Tempo Runs (defined as runs longer than race distance at 15-20 seconds slower than current 5k pace). Historically, young runners struggle with the longer efforts and might be more capable of handling Interval workouts that include periods of rest. This must be considered when implementing Lactate Threshold workouts.

### **2) Length of Season (Macrocycle)**

If there is adequate time to go through a reasonable progression through phases of training, then a Lactate Threshold phase of training has an equal value to an Interval phase. The strength that can be gained through a 6-week phase of training emphasizing Lactate Threshold development can be invaluable when trying to maintain fitness throughout a long season. Further, the body can adapt to Interval training better due to a pace progression from Aerobic Base training, to Lactate Threshold training, and finally to Interval training.

### **3) Length of Target Race**

While Lactate Threshold training can be valuable from 800m events to Marathons, its value varies from distance to distance. When considering how much Interval training and how much Lactate Threshold training to do, the race distance is a consideration. One may want to do a greater percentage of Interval training for 1500m + 800m, than for races 3000m and up.

### **4) Athlete's Ability to Recover**

#### **a. from workout to workout**

#### **b. with the training session**

I've found that young runners have difficulty recovering from quality Lactate Threshold workouts. They tend to be tougher and can wear them out. They also can turn into deterioration sessions, which is practicing failing. Interval training, by definition allows for periods of rest. How long one rests between efforts also effects the anaerobic benefits of the workout.

## **5) Psychological Factors**

### **a. how the young athlete handles challenges**

### **b. work on weaknesses in early season; strengths in late season**

The above mentioned possibility of rehearsing failing in workouts (Tempo runs for example) might have a lingering effect upon the athlete's confidence. Coaches need to work on both the runners' strengths and weaknesses during the training process. I've found that you can challenge their weaknesses during the earlier phases of training better than if you do so later in the process. One doesn't want to have athletes struggle in training if races are at hand. Once the competitive season begins a coach should feed the runner more training that goes toward their strengths. How this fits in the Lactate vs. Interval puzzle will, again, vary from athlete to athlete.

## **6) Weather Conditions**

At Florida State we can successfully do extended Lactate Threshold workouts in our Track-preparation macrocycle because of two factors. First, the weather is incredible so the wear-down effect is lessened. And second, we have more weeks to dedicate towards LT training than we do in Cross Country preparation. Similarly, we have to be careful as to how long and hard we can go in LT workouts during early cross country season where humidity is a factor.

## **7) Training Venues**

When you're doing extended Lactate Threshold workouts the running surface becomes an important factor. If you're blessed to have soft-surface training venues of several miles then you'll be able to do more LT work.

## ***“Inside Your Head” vs. “Outside Your Head”*** ***Examining the Psychology of Distance Racing***

### **“Inside Your Head”**

#### ***Functional Attributes:***

Athlete focused only on their task  
Worry-free  
Developing a good rhythm—song in their head  
Efficiency  
Distraction from Pain/Stress – makes race go by faster

#### ***Dysfunctional Attributes:***

Athlete “goes to sleep” and inadvertently slows down  
Athlete unaware of the competition  
Bad tactics--unable to respond to moves or even course challenges  
Athlete misses coaching advice or even encouragement

### **“Outside Your Head”**

#### **Functional Attributes:**

Aware of the competition—able to respond to moves  
Focused on splits or position checkpoints  
Good tactics—able to draft or “catch a ride”  
Can focus on their form  
Optimal positioning for finish or race

#### ***Dysfunctional Attributes:***

Too focused (causes fatigue)  
Can become worried about too many things  
Responding to everything and not sticking to plan  
Not rhythm oriented—can be inefficient  
Too aware of the crowd and other coaches  
Self inspecting all the time

#### **Factors to Consider:**

- 1) Length of race and the type of competition (xc or track)
- 2) The competitive situation (who you’re running against + what’s at stake)
- 3) Race conditions and course (weather, hills, mud, etc.)
- 4) The individual athlete’s abilities mentally

## **The Psychology of Distance Racing**

**Bob Braman –Florida State University**

**Concept** :Athletes go through different states of awareness during long-distance racing, sometimes in a functional state and sometimes in a dysfunctional state. Distance racing is lengthy enough that total concentration can be very fatiguing, and thus it's important to teach our athletes to be functional during both periods of concentration, as well as avoidance/distraction. I like to call these two different states simply as **Inside Your Head** or **Outside Your Head**.

Depending upon the situation or time in the race, either state of concentration can be productive or counter productive. Let's examine each state and then discuss situations where each state is either productive or counterproductive.

**Inside Your Head** : When an athlete is “inside their head” they often have a single thought or mission, or perhaps even a particular song, in their thoughts. I even had an athlete who said she counted during a race. She was certainly inside her head. During this state the athlete is concentrating only on their own race and their plan; kind of like a horse with blinders on. The athlete does what he or she intends to do in the race and doesn't concern themselves with the competition. Sometimes this is described as being in a zone, being in a rhythm. Certainly a song can help with rhythm. The athlete is trying to think about anything other than the enormity of the assignment or the length of the race. They are trying to ignore the pains and stress of focused racing in an attempt to be as efficient as possible in their task.

**Outside Your Head** : When an athlete is “outside their head” they are acutely aware of the competition, the conditions and circumstance of the race, and also how functional they are (whether or not they are on-task to the pre-race goals). This athlete is exercising race strategy against both the course and the competition. Splits and scoring position checkpoints are critical. Racing strategy against the competition is a key element. This athlete wants to be sure that he/she is getting the job done and that they are leaving nothing to chance. They listen to coaching advice very keenly.

Let's examine together situations when it's beneficial to be “inside your head” and when it can hurt your performance. And then we'll look at the focusing used to be “outside your head” and how that can be helpful or detrimental.

# In-Season Distance Workouts

- I. Transition Workouts
- II. Traditional Distance Intervals
  - a. interval of 3-8 mins is # 1 way to improve Vo2 Max
  - b. rest ratio is 1/3 to 1/4 of interval distance
  - c. interval distance appropriate to target event
  - d. interval volume formulas
- III. Race Simulation Workouts
- IV. Speed Endurance Workouts
- V. Traditional “Speed” Workouts

# Transition Workouts

Mild speed workouts that help the body transition from a state of long, slow distance running to higher intensity interval workouts.

Types:

- Fat Man Miles -- mile repeats done at current 5k race pace plus 0-10 seconds per repeat; 2:00-2:30 recovery (400m jog)
- Cruise Miles -- mile repeats done at current 5k pace plus 10-20 seconds per repeat; typically 1:00 recovery (Daniels)
- Tempo Runs -- continuous runs of 3-4 miles at current 5k race pace plus 20-30 seconds (some say 10-20 seconds)
- Pick-Up Runs -- continuous runs of 3-6 miles starting at easy training pace and transitioning down to Tempo run pace
- Steady State Runs -- continuous runs of 3-6 miles run at 30-45 seconds slower than 5k race pace
- Strides -- 10 times an 80 to 100m acceleration after an easy training run; speed should be about 75% of maximum sprint

# Traditional Distance Intervals

## **I. Best Way to Improve Vo2 Max is Repeats of 3-8 Minutes**

## **II. Rest Ratios**

- a. Beginning Runners                      rest = interval distance
- b. Intermediate Runners                  rest = ½ interval distance
- c. Advanced Runners                      rest = ¼ interval distance

## **III. Best Interval Length for Race Distance**

- a. 800m = 200-300m repeats
- b. 1600m = 400m-600m repeats
- c. 3200m = 800m repeats
- d. 5000m = 1600m repeats

## **IV. Best Interval Volume for Race Distance**

- a. 800m = 1 to 2 miles
- b. 1600m = 2 to 3 miles
- c. 3200m = 2 ½ to 3 ½ miles
- d. 5000m = 3 to 4 miles

## **V. Sample Workouts for Race Distance**

- A. 800m = 3 (3x300) E-M-H                      (300m recov.)  
800m = 4 (3x200) E-M-H                      (200m recov.)
- B. 1600m = 2 (3x600) E-M-H                      (300m recov.)  
1600m = 3 (3x400) E-M-H                      (200m recov.)
- C. 3200m = 6x800 @ CRP less 4-5 sec/400m      (300m recov.)  
3200m = 2 (4x600)@CRP less 5-7 sec/400m (200m recov.)
- D. 5000m = 3-4x1600 @CRP less 2-3 sec/400m(400m recov.)  
5000m = 5x1000m @CRP less 3-5 sec/400m(200m recov.)

# Race Simulation Workouts

Workouts done at current race pace or slightly faster. Typically short recovery workouts of a 4 to 1 interval to rest ratio (miles w/400m jog).

## *Types:*

**Long Repeats** -- 800m to 2000m intervals run under control and just under current 5k race pace

**Fartlek Runs** -- Surges during a continuous run, typically from 300m to 800m with intervals of active running recovery (not a jog). Can be structured by time or distance (3 min.hard--1 min.easy--2 min.hard--1min. easy).

**Continuous Intervals** -- Long intervals run on a 4 to 1 work to rest ratio where the recoveries are done at a medium gear or float, allowing only partial recovery.

**Timed Efforts** -- Not racing, but a true race simulation exercise. One effort, not repeats. Running at a maximum effort, but under a planned split schedule. These are typically not 100% of the race distance.

**Time Trials** -- Actual racing; intersquad competition. May or may not be done with a split schedule. May or may not be planned to work together.



# Speed Endurance Workouts

**I. Typically Longer in Length than “Regular” Repeats**

**II. Can be Achieved by Short Recovery**

**III. Can be Achieved by Total Volume Challenges**

**IV. Examples**

**a. Sample 800m Speed Endurance Workout**

**Seb Coe Ladder=100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200**

**(start at 100m marker and keep jogging back an extra 10m)**

**b. Sample 1600m Speed Endurance Workouts**

**Lancashire Ladder= 600m-500m-400m-300m-200m x 2 Sets**

**\* times eventually progressed to 3k pace, mile pace, 800 pace, 600 pace**

**(90 seconds recovery after each – 5 minute set break)**

**c. Sample 3200m Speed Endurance Workout**

**16 x 200m with recovery progression of 60-45-30-15 seconds**

**d. Sample 5000m Speed Endurance Workout**

**16 x 400m on a 100m jog**

# Traditional Speed Workouts

**I. Emphasis on Speed & Fluidity -- Sub-Race Pace**

**II. Longer Recoveries, Shorter Repeats**

**III. Best Speed Interval Length for Race Distance**

- a. 800m = 150's and 200's
- b. 1600m = 300's and 400's
- c. 3200m = 400's
- d. 5000m = 400's and 600's

**IV. Sample Speed Workouts**

**a. Go!! Drills**

800m Go! might be a 300m(45) going 32(200) and then 13(100)  
\*\* running at goal race pace, followed by a Go! acceleration  
over the  
last 1/4 th of the interval

**b. Build-Ups**

400m repeats(62) going 17-16-15-14 secs (progressive 100's)  
800m repeats(2:12) going 36-34-32-30 secs (progressive 200's)  
\*\* going from slower than CRP to faster than CRP within  
the interval

**c. Pacers**

800m= 100-150-200-250-300-400 all at goal race pace  
1600m = 100-200-300-400-300-200-100 all at goal race pace  
\*\*emphasis on hitting the pace and being fluid – recovery is  
1/2 distance