



LT Field Test on a Spinner®

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NOTE: For best results when taking this session, please be rested, and know how to use your heart rate monitor stopwatch and average function prior to class. Make sure you have a fresh battery in your heart rate monitor.

In Spinning® we use maximum heart rate (MHR) to determine training zones, an excellent method when used with the masses—but it does have its limitations.

For years, exercise physiologists and coaches have been using the more reliable marker of Lactate Threshold (LT) to determine training zones. They know that the exercise intensity at which lactate begins to accumulate in the blood is a powerful predictor of one's performance ability. Although LT is best measured in a lab, it can be estimated through the use of a field test. Physiologists have found that for a relatively fit individual, LT can be maintained for about 60 minutes. Studies have shown that a 20-minute field test is a good predictor of LT.

The best measure of performance is through the use of a power meter, but they are expensive and aren't practical in a Spinning environment. Heart rate is the next best measurement of intensity.

Requirements for an accurate indoor field test:

- Heart rate monitor (HRM) with an average function, a stopwatch function and a new battery
- Be well rested, fueled (45 min prior to the test) and hydrated
- The test should be repeatable and relatively easy to implement

The field test should be performed seated in the saddle. We are testing output over time, and don't want to alter it with changing terrain. A Seated Flat is also more repeatable and comparable with future efforts. If riders need a break, jog easily for a few minutes at the end of the warm-up, or after the initial 5-minute effort.

Protocol:

- 20-minute warm-up at an easy pace (60%–70% MHR)
- Give a moderately hard effort of 75%–85% MHR for 5 minutes in order to prime the legs and activate the body's energy systems. Performing the test without this initial effort will produce less than favorable results.
- 10-minute easy pace
- Start the field test. Begin by ramping up to the highest speed, rhythm, power and cadence that you can hold for 20 minutes. (Take 1 minute to get into a rhythm before starting the stopwatch.) DO NOT sprint into the effort—you don't want to tire prematurely. We're looking for STEADY STATE effort. 80–95 RPM.
- At 20 minutes, stop your HRM and get the average.
- Cool down at least 8–10 minutes.
- Record your effort, RPE, how you felt, the room environment, what you ate prior to the test, etc. For future tests, try to duplicate the same environment if possible.

Training Zones Based On LT

Various coaches utilize different philosophies for their training zones. For example, Chris Carmichael has five zones below LT and he uses two 8-minute efforts and averages the two for his field test. Other coaches have three to five zones below LT, and one to two zones above it. Other methods for field tests include two 15-minute efforts, or one 30-minute effort, recording average HR only in the final 20 minutes.

A person's LT can occur anywhere from 75%–94% of MHR, depending on one's level of fitness, muscle fiber type, training program and of course, genetics. Therefore it is difficult to accurately compare LT training zones with Spinning Energy Zones™ based on MHR. But I will attempt to do so in the following chart in order to give you an idea how to compare LTHR zones with the Spinning® Energy Zones™. Keep in mind that you should also use RPE to assess intensity.

Spinning Energy Zone

Recovery
Endurance
Strength
Interval (LT or above, not counting recovery)*
Race Day

HR% based on Field Test HR

<70%
70–88%
88–102%
100–115+%
95–106%

*Interval recovery should be < 75% LTHR.

Keep in Mind:

- Aerobic intervals can be done 5-20 beats below threshold.
- Threshold intervals are done at 100% of field test HR.
- High intensity intervals are done above threshold HR. The type of interval you are performing has more to do with your intensity than a precise HR.
- You can learn more about HIT intervals (High Intensity Training) to understand intensity, duration and recovery for each type of HIT interval in the MDA HIT workshop, or by attending Jennifer's Triple Threat workshop.

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