



doctorholmes@sbcglobal.net

(623) 322-8690 (office)

(480) 822-0969 (cell)

www.holmesfitness.com

Performance Assessment for Cyclists and Multisport Athletes

Field testing is a simple way to evaluate your current performance level. There are a variety of tests you can employ as a cyclist and/or multisport athlete and they offer several benefits:

1. You can use the data to develop training zones based on lactate threshold heart rate (LTHR), functional threshold power (FTP) and pace.
2. You can determine your current fitness level.
3. You can evaluate the effectiveness of your training regimen.

Cycling Field Tests

The 30-Minute Time Trial

After a good warm-up, ride as hard as you possibly can for 30 minutes. Your heart rate for the last 20 minutes of this effort is a close estimate of your lactate threshold heart rate (LTHR). If you have a power meter, your average power for 30 minutes is a close estimate of your functional threshold power (FTP).



Dr. Tyrone A. Holmes, Ed.D., CPT
Speaker - Author - Consultant
Certified Personal Trainer
USA Cycling Level 1 Coach
TrainingPeaks Level 2 Coach
doctorholmes@sbcglobal.net



The 20-Minute Time Trial

After a thorough warm-up, ride as hard as possible for 20 minutes. Your average power for this ride is approximately 95% of FTP. For example, if AP is 300 watts for the 20-minute time trial, FTP is 285 watts (Allen & Coggan, 2010).

Two 8-Minute Time Trials

After a thorough warm-up, ride as hard as possible for 8 minutes but with an emphasis on consistency from one hard effort to the next. Spin easy for 10 minutes and then do another all-out 8-minute effort. The average power for the higher of your two efforts is approximately 90% of FTP. For example, if AP is 300 watts for the second 8-minute time trial, FTP is 270 watts (Carmichael & Rutberg, 2012).

Evaluating Your Cycling Field Tests

1. If you have a power meter it's simple: look for an increase in average power throughout the season.
2. Look for an increase in your LTHR.
3. Measure the distance covered in the 20 or 30 minutes and look for increases over the course of the season (using an indoor trainer helps reduce potential error).
4. Base your field test on distance (e.g., 10 miles) and look for decreases in the time it takes you to cover that distance.

Running Field Tests

The 30-Minute Time Trial

After a thorough warm-up, run as hard as possible for 30 minutes. Your average heart rate for the last 20 minutes of the time trial will be a close estimate of LTHR.

The 3-Mile Field Test

After a thorough warm-up, run as hard as possible for 3 miles. Your average heart rate for the test is approximately 101 percent of LTHR (Bernhardt, 2007). For example, if your average heart rate during the field test is 175, then your LTHR is 173 ($175/1.01 = 173$). If a 5K race serves as the field test, then your average heart rate during the race is about 105 percent of LTHR ($175/1.05 = 167$).

The Cooper 12-Minute Test

A physical fitness test designed by Dr. Kenneth Cooper in 1968 to evaluate the physical condition of soldiers in the U.S. military. The goal is to run as far as possible in 12 minutes. This is a good way to evaluate fitness improvement over time and the results correlate well with VO_2 max:

- $VO_2\text{max} = (35.97 \times \text{miles}) - 11.29$ (in miles)
- $VO_2\text{max} = (22.351 \times \text{kilometers}) - 11.288$ (in kilometers)

For example, if an athlete completes 1.7 miles during the 12-minute test, her estimated VO_2 max is 49.86 ml/kg/min.

Evaluating Your Running Field Tests

1. For the 30-minute and 12-minute field tests, look for increases in the distance covered from one test to the next.
2. For the 3-mile test, look for decreases in the time it takes to complete the test.

Cycling and Running LTHR

Research has shown that running lactate threshold is typically 5-10 beats higher than cycling LT (Bernhardt, 2007). If you know one, you can easily estimate the other. For example, if a cyclist has a LTHR of 160, her LTHR for running will be between 165-170 bpm. Conversely, if her running LTHR is 170, her cycling LTHR will be between 160-165 bpm.

Swimming Field Tests

The 1K Time Trial

After a thorough warm-up, swim as hard as possible for 1,000 meters. Use the time it takes to complete the test to determine a swim pace per 100 meters. For example, if you swim 1K in 18:30, your pace per 100 meters is 1:51. You can use this data to create workouts (Friel, 2009).

The 100-Meter Time Trial

After a thorough warm-up, perform 3 x 100 meter intervals as fast as possible, but with an emphasis on consistency from one hard effort to the next. Recover for 20 seconds between intervals. 100-meter training pace is the average of the three hard efforts. For example, three efforts of 1:30, 1:32 and 1:34 would yield a training pace of 1:32 (Bernhardt, 2007).

Evaluating Your Swimming Field Tests

1. For the 1,000 and 100-meter field tests, look for decreases in the time it takes to complete the test.

Cycle-Max Coaching

Cycle-Max Coaching is a one-on-one coaching process based on the idea that all cycling performance flows from three primary elements: *training*, *nutrition* and *recovery*. The primary objective of Cycle-Max Coaching is to integrate these elements in a way that allows you to achieve your cycling goals. Specifically, we work together to assess your current fitness level, identify your strengths and weaknesses, set SMART goals, and develop training plans that combine effective nutrition with sufficient rest and recovery. Visit my website at www.holmesfitness.com for more information and to sign up for a free coaching session.