

TRAININGBIBLE

COACHING

Joe Friel's Quick Guide to Training With Heart Rate, Power and Pace

This Quick Guide will help you get the intensity of your training plan workouts right whether you use only a heart rate monitor or also train with a power meter and/or a runner's speed and distance device such as a GPS or accelerometer. Swimming pace is also described here for Triathletes. For a more complete guide to training with heart rate, power and pace please see my book [Total Heart Rate Training](#). You will also find more detailed information on the subject of measuring intensity in my [Triathlete's Training Bible](#), [Cyclist's Training Bible](#) and [Mountain Biker's Training Bible](#) books. Feel free to share this Quick Guide with your training partners

How to Train With Heart Rate (Running and Cycling)

Step 1. Determine your lactate threshold heart rate (LTHR) with a short test. (Do not use 220 minus your age as this is as likely to be wrong as right.) This LTHR test is best done before starting the training plan. To find your LTHR do a 30-minute time trial all by yourself (no training partners and not in a race). Again, it should be done *as if it was a race* for the *entire* 30 minutes. But at 10 minutes into the test click the lap button on your heart rate monitor. When done look to see what your average heart rate was for the last 20 minutes. That number is an approximation of your LTHR. Note: I am frequently asked if you should go hard for the first 10 minutes. The answer is yes. Go hard for the entire 30 minutes. But be aware that most people doing this test go too hard the first few minutes and then gradually slow down for the remainder. That will give you inaccurate results. The more times you do this test the more accurate your LTHR will become as you will learn to pace yourself better at the start.

Step 2. Establish your training zones. Use the following guide to establish each zone by sport.

Run Zones	Your Zones
Zone 1 Less than 85% of LTHR	< _____
Zone 2 85% to 89% of LTHR	_____ - _____
Zone 3 90% to 94% of LTHR	_____ - _____
Zone 4 95% to 99% of LTHR	_____ - _____
Zone 5a 100% to 102% of LTHR	_____ - _____
Zone 5b 103% to 106% of LTHR	_____ - _____
Zone 5c More than 106% of LTHR	> _____

Bike Zones	Your Zones
Zone 1 Less than 81% of LTHR	< _____
Zone 2 81% to 89% of LTHR	_____ - _____

Zone 3 90% to 93% of LTHR	_____ - _____
Zone 4 94% to 99% of LTHR	_____ - _____
Zone 5a 100% to 102% of LTHR	_____ - _____
Zone 5b 103% to 106% of LTHR	_____ - _____
Zone 5c More than 106% of LTHR	> _____

Step 3. When following the heart rate-zone directions in your training plan use your zones as established above.

How to Train With Power (Cycling)

Step 1. Establish your Functional Threshold Power (FTPw). Use the same 30-minute time trial test above for LTHR to determine your FTPw. The only difference is that the average power *for the entire 30 minutes* is an approximation of your FTPw. This may be done on the road or on an indoor trainer. As with LTHR testing, the more times you do this test the more accurate the results will become since there is a learning curve associated with such an effort. This is best done before starting the training plan. The more times you do this test the more accurate your FTPw will become.

Step 2. Set up your personal power training zones using the following guide.

Zone 1 Less than 55% of FTPw	< _____
Zone 2 55% to 74% of FTPw	_____ - _____
Zone 3 75% to 89% of FTPw	_____ - _____
Zone 4 90% to 104% of FTPw	_____ - _____
Zone 5 105% to 120% of FTPw	_____ - _____
Zone 6 More than 120% of FTPw	> _____

Step 3. When following the power-zone directions in your training plan use your zones as established above.

How to Train With Pace (Running)

Step 1. Determine your Functional Threshold Pace (FTPp) using either a runner's GPS device or an accelerometer. To do this, warm up and then run for 30 minutes just as described under "Training With Heart Rate, Step 1" above. Your FTPp is your average pace for the entire 30 minutes. This is best done before starting the training plan. The more times you do this test the more accurate your FTPp will become.

Step 2. Compute your pace zones with the following guidelines using your pace as minutes and seconds. It is easiest to work with if you convert seconds to tenths of a minute. For example, 7 minutes 30 second would be 7.5 minutes.

Zone 1 Slower than 129% of FTPp	> _____
Zone 2 114% to 129% of FTPp	_____ - _____
Zone 3 106% to 113% of FTPp	_____ - _____
Zone 4 99% to 105% of FTPp	_____ - _____
Zone 5a 97% to 100% of FTPp	_____ - _____
Zone 5b 90% to 96% of FTPp	_____ - _____

Zone 5c Faster than 90% of FTPa <_____

Step 3. When following the run pace-zone directions in your training plan use your zones as established above.

How to Train With Pace (Swimming)

Step 1. Determine your T-time. There are many ways of doing this. One of the most common is to swim a 1000-meter/yard time trial at your pool. It may help to have someone on deck counting laps as it's easy to lose track in such a test. What you are trying to determine is your average 100 pace for the test. Simply swim 1000 and then divide your finish time by 10. This is your T-time. This should be done before starting the training plan. The more times you do this test the more accurate your T-time will become as there is a learning curve that has to do with pacing in the first few minutes when doing this test.

Step 2. In your training plan the swim workouts will often refer to pace as T-time plus (+) or minus (-) a few seconds. For example, T-time + 5 seconds would mean swimming at a pace that would be the equivalent of your T-time plus 5 seconds. So if your T-time is 91 seconds this workout would be calling for you to swim at 96 seconds per 100. If it is a 50 meter/yard set you are doing the time you are shooting for is 48 seconds. In the same way, if the set calls for you to swim 150 meters/yards at T-time + 5 you would swim the distance in 2 minutes and 24 seconds (96 sec + 48 sec).