

## FTP explained:

To determine a cyclist's performance, lactate threshold (LT) plays a key element. LT is the point which lactate is being accumulated in the muscle. LT can be used to determine the ability to sustain different levels of aerobic efforts.

Functional Threshold Power (FTP) is the maximal power that can be sustained for a one hour effort. FTP is highly correlated with LT, thus can be used in order to determine different aerobic training levels using a power meter.



### Determining FTP:

Though FTP states the power which can be sustained for 60 minutes, it is very difficult to pull off such a test. Optimal environmental and physical conditions are needed. There are two other types of tests are preferred, and more relevant in order to determine the FTP:

### 20 minute test:

After a good warm up, ride 20 minutes at the highest average power available. This test is mostly done outdoors and can be done a long climb or during a TT session. The maximal power produced for 20 minutes should be reduced by 5%, giving you the FTP value.

### 8 minute test:

This protocol is commonly done on a trainer. After a good warmup (maybe with a couple of short sprints), ride 8 minutes as hard as you can. Then roll easily for 10 minutes, followed by another 8 minutes. For calculating your FTP, you must take the average between those two efforts, and reduce that value by 10%. An important remark- this test is suited for experienced cyclists since high physical fitness is needed in order to produce a maximal 8 minute effort. Another way to determine FTP is by monitoring 20 minute peak power during monthly training. For many cyclist, such efforts are done on a weekly basis, allowing them to update their FTP without specific testing.

### Training Zones:

After determining your FTP, the Powerbeat app can now calculate you training zones. 6 training zones will be determined, allowing you to plan your training, focus in on different aspects of your training. The table below explains these 6 zones, by showing the effort and use of each zone in training and racing:

It is possible to improve cycling performance by different training methods at each zone. In example: 2 hours of tempo training can help improve long efforts like a race breakaway or a half Ironman TT. 2X20 minute TT at zone 4 can help TT performance. 4X4 minute climbing can help short climbing ability.

Zone	Effort	Use	In race use	Main Energy Source
1	Very weak to weak.	Active Rest, recovery ride		Fat
2	Weak to moderate	Endurance training, Long rides	Long flat races, drafting	Fat
3	Moderate to somewhat strong	Tempo training, sweet spot training	Breakaways, very long climbs	Fat/Carbohydrate
4	Somewhat strong to strong	Threshold training, TT training	TT, climbing	Carbohydrate
5	Strong to very strong	VO2max training, maximal aerobic capacity training	Short climbs, pulling off a breakaway	Carbohydrate
6	Very strong to maximal	Anaerobic training, sprint training	Attacking, sprints	Carbohydrate



Use the POWERBEAT™ app to help maximize your performance!