

THRESHOLD TEST

Test protocol

FUNCTIONAL THRESHOLD AND TRAINING INTENSITY

Accurately monitoring intensity is essential for ensuring that you get the most out of your training. With work, family and other commitments outside of cycling pressing your time on the bike, making the most of your valuable training time is essential. Monitoring intensity guarantees that you will be making the most of the time you do get to ride and maximising your fitness gains. To find out more about the importance of monitoring intensity look here.

This is why one of the first priorities of all of the British Cycling training plans is to conduct a functional threshold test which will give you your functional threshold heart rate (FTHR) or functional threshold power (FTP). From these figures you can then determine accurate and personalised training zones. To find out more about training with heart rate, look here and for training with power, look here.

WHAT IS FUNCTIONAL THRESHOLD?

Functional threshold represents the highest physical intensity that you can sustain for approximately one hour. Many riders think of this as similar to performing a 25-mile time trial effort as this requires a maximal, but evenly distributed effort for the entire distance. If you ride above this functional threshold intensity then fatigue will set in rapidly and your pace will drop significantly. Functional threshold can be thought of as your cycling “red-line” and from this figure, highly accurate and personalised training zones can be calculated.

WHY ONLY TEST FOR 20 MINUTES?

Although the test is named the 20 mins functional threshold test, it is actually performed over 30 mins (the test protocol explains this further). An hour maximal effort is physiologically, psychologically and logistically extremely demanding and an unrealistic proposition for the majority of riders. However accurate results can be estimated from a shorter, but still intense, 20-minute effort. If you are using power, the average power value for the 20 minute test, minus five percent will be your functional threshold power (FTP). Five percent is removed from the power result as this reflects the decline in power that would be seen should the test have been conducted for the full 60 mins. Nothing is subtracted from the heart rate value, as this parameter would normally remain stable for the entire hour.

Once you have your average heart rate or power figure then you can input them into our [calculator](#) which will give you your training zones.

WHY TEST FOR THRESHOLD RATHER THAN MAXIMAL HEART RATE?

After working with numerous riders from complete novices to olympic champions, we’ve found testing for threshold to be far more accurate and reliable. Testing for maximal heart rate is extremely unpleasant, requires high levels of motivation and, the level you can achieve, can easily be affected by fatigue, low level illness or just having an “off-day”. Additionally, riding at threshold will be a far more familiar and relevant effort level to the majority of cyclists than an all-out maximal effort which makes accurately pacing the test far easier.

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WHAT DO I NEED?

If you are following any of the British Cycling training plans, you will need a heart rate monitor and cadence sensor. To complete the threshold test, the heart rate monitor will need to be able to log and recall average heart rate for the test period. Intermediate and advanced riders are also given the option of testing and training using a power meter.

You will also need to find a course that allows you to ride uninterrupted for 30 mins at an even intensity. Avoid sharp bends, heavy traffic, junctions, traffic lights and steep climbs or significant descents. The ideal is a continuous slight climb but these can be hard to find. You can also complete the test on an indoor trainer but some riders do find they're unable to push as hard indoors and produce lower heart rate and power figures than when riding on the road. You may find it necessary to complete an indoor and outdoor test and produce training zones for both. The next time you repeat this test, you should complete it on the same bike and circuit or static trainer to keep the test valid. Remember to record the weather conditions (such as temperature, wind speed and direction) for future comparison.



TEST PROTOCOL

When done correctly, a threshold test is an extremely hard effort. Ensure you go into this test having had at least one rest day beforehand. Although the test is termed a 20 mins functional threshold test, it is actually performed over 30 mins, with the last 20 mins being where the functional threshold figures are established. It is essential that you complete the full 30 mins,

as this allows a steady state effort to be established.

If you start too hard and have to stop after 20 mins, then your result will not be valid and you will have to complete another test. You might want to err on the side of conservative pacing the first time you perform the test as you'll have opportunities to repeat it throughout the plans. For more advice on pacing the test, look here.

TEST PROCEDURE

 Duration	 Activity
Warm Up 20 minutes	<ul style="list-style-type: none"> This could be a ride to the circuit you are going to use or the British Cycling 20 minute warm up. Either way there needs to be an increase in intensity through this period. If you are completing your test on a static bike then use the British Cycling 20 minute warm up.
Main Test 30 minutes	<ul style="list-style-type: none"> Ride as hard as you can sustain for 30 mins. After 10 mins, start your monitor and record your average heart rate or power for the last 20 mins. Aim for a cadence of 90-100 rpm throughout the test. This is very important as it will help ensure consistency the next time you complete the test. Note down your average heart rate or power for the last 20 mins of the test.
Cool Down 10 - 20 minutes	Easy riding

To determine your training zones, input your average heart rate or power into our [calculator](#). NB: It is recommended that riders who are injured, new to exercise or have health concerns do not take part in cycling fitness tests. These tests are for regular cyclists who are looking to improve their cycling experience. If in any doubt then before undertaking any physical training or testing, please see consult your doctor who can advise you on taking up physical activity and fitness testing.