

Power Profile Test Protocol

Total Time	Session	Intervals				Recovery after set	Details
		Reps	Duration	Rest Int	Intensity		
1:00	Power Profile Test	2	6 seconds	2 minutes	max	3 minutes	2 x 6 second sprints at max effort (out of saddle)
		1	15 seconds		max	4 minutes	1 x 15 second sprints at max effort (out of saddle)
		1	30 seconds		max	5.5 minutes	1 x 30 second sprints at max effort (out of saddle)
		1	1 minute		max	8 minutes	1 x 1 minute efforts at max intensity (start out of saddle)
		1	4 minutes		max	10 minutes	1 x 4 min effort, think of this as 4 min all out TT effort
		1	10 minutes		max	Cool down	1 x 10min effort, think of this as 10 min all out TT effort

Test Instructions

The power profile test is used to provide 'best' power outputs over a range of durations. These durations have been carefully selected as they provide insight into the various energy systems, as follows:

- 5 seconds - Peak sprint power, Alactic energy system (nb, each sprint is 6 seconds to ensure you capture a good 5 seconds of data)
- 15 seconds - Alactic energy system capacity
- 30 seconds - Peak power, Lactate energy system
- 1 minute - Lactate energy system capacity
- 4 minutes - VO2 max, aerobic capacity
- 10 minutes - Aerobic threshold power (also known as lactate threshold or anaerobic threshold)

Prior to completing this test it is **vital** that a suitable warm up is completed. This should include at least 20 minutes of riding at mixed intensity as well as two sub-max (~80%) sprint efforts to prime the legs and that energy system for a max effort.

Each effort needs to be completed as a maximal effort, that is to say that all sprint and lactate effort (everything up to 1 minute in duration) needs to be all out with no holding back. The 4 minute effort can be paced, however it still needs to be a maximal effort, that is to say that you need to feel you could not possibly have gone any faster. Your breathing will be very heavy for the second half of this effort as you will be in oxygen debt but you need to push to the end. The 10 minute effort should be approached the same way as the 4 minute however the intensity will obviously be slightly lower.

When selecting a location to do these tests it is vital that it is an uninterrupted stretch of road. This means no traffic lights or intersections where you need to stop and no corners where you cannot continue to pedal at your maximum intensity. This should be relatively easy for the shorter efforts but tricky on the longer ones. Ideally these can be done on a short hill (up to 3-4km's long) with a moderate gradient 4-8%.

Recovery time between efforts can (and should) be extended if you feel you are not ready for the next effort. The recovery times listed have been selected as they represent sufficient time for the energy systems to be replenished (Alactic and Lactate) or for excess lactate to be removed (Aerobic efforts). As such do not shorten the recovery times, even if you feel ready for the next effort. All recovery time should be ridden at ~40% of peak aerobic intensity (ie below E1)