



Calculating Training Zones



Whether you are using heart rate or power to monitor your training intensity my preferred method of determining training zones is through a functional threshold field test. These are simple tests that are performed as a maximal work trial over approximately 20-30 min. The average heart rate or power an athlete's holds over this work trial approximately represents their anaerobic threshold. Using this value along with some assumptions about heart rate and lactate, training zones can be calculated relatively accurately.

Step 1:

Determine your functional threshold heart rate or power through the following discipline specific field tests.

Cycling

- Warm up for 20 min. The first 10 min should be at a steady pace, then perform 5 min HARD to prime your energy pathways and the final 5 min of your warm up should be easy.
- Your planned course should be on a flat road with low traffic and minimal interruptions or on an indoor trainer. Ride as hard as you can for 30 min on this course in windless conditions if possible.
- After starting, settle into a strong pace that you can maintain for the full 30 min. After 10 min of riding push the lap button on your heart rate monitor so you get an average heart rate for the final 20 min (as this is will give us the best steady state heart rate info to calculate your heart rate zones) if you do not have a lap function, just start your heart rate monitor recording 10 min into the trial.
- Following the trial record all data, including distance completed in the 30 min, average heart rate for the final 20 min and record any other comments.
- Perform an easy warm down.

Running

- Perform a good 15 - 20 min warm up including some walking lunges and stride outs to open up your hip flexors.
- Following the warm up run 5 km on a flat course as fast as you can.
- Following the trial record your time, average heart rate, maximum heart rate, how you felt, weather conditions and any other comments.
- Perform an easy warm down.

Kayaking

- Warm up for 10 - 15 min focusing on your technique.
- Then perform a ~ 5-10 km time trial on a calm lake, harbour or river.
- Throughout the time trial focus on smooth, strong technique and working hard for the entire time.
- Following the trial record average heart rate, speed, distance and time for the time trial.
- It does not matter exactly how far this time trial is, just make sure that you do the exact same course each time in similar conditions.
- Perform an easy warm down.

Swimming

- Warm up for 10 - 15 min focusing on your technique.
- Then swim 10x100 m at a maximal effort with 10 s of recovery between each 100 m.
- Start your watch at the first 100 m and stop it at the end of the tenth one.
- If possible it is also good to record heart rate for the session as well but most heart rate monitors do not work in the pool.
- Following the test record your time, perform an easy warm down.

Step 2: Once you have got your average heart rate (THR) or power (FTP) for each test then it is time to calculate your training zones using the percentages below. These values are based off the Coggan method and can be calculated automatically on your Training Peaks account under the zones tab in your user settings.

Zones	Physiological development aim of the session	Subjective rating	% of THR	%FTP	Session Type
1	Active Recovery	Easy	<68	<55	Recovery/ technique
2	Aerobic Capacity	Steady	69 – 83	56 - 75	Long steady distance
3	Tempo Rides	Moderate	84 – 94	76 -90	Up tempo
4	Anaerobic Threshold	Hard	95 – 105	91 - 105	Long intervals
5	VO ₂ max	Very hard (maximal)	>106	106 - 120	Short intervals

Example:

If your average heart rate for your cycling test was 166 bpm your heart rate zones would be as followed.

Zone	% of THR	Your cycling values
1	<68	113
2	69 – 83	114-138
3	84 – 94	139-156
4	95 – 105	157-174
5	>106	174

Enter your values below

Zone	Cycling	Running	Kayaking	Swimming
1				
2				
3				
4				
5				

Re-testing

Step 3: Re-test

These testing sessions can also be used to track your performance improvement when they are used again in the future. Finding out that you perform 20% better with a howling tail wind is not much use to anyone. So to try and minimise the effect the environment has on your performance think about the following when planning your time trials.

- Choose a course that has minimal traffic and intersections
- Perform your time trial at a time of day that is calm so your performance is not effected by wind. Often the morning can be the calmest time of the day.
- Loop or multi lap courses can also help minimise the effect of wind.
- If kayaking or swimming in tidal bodies of water aim to perform your time trial at the same 'tide time'.
- The surface of your time trial course can have a large influence on your performance. Try and choose quite back roads and tracks that do not get resurfaced on a regular basis. It is not uncommon for some roads to be resurfaced regularly with 'rough chip' that can significantly impact your performance.

While the external environment plays an import role in standardising your time trials, it is important that you standardise our internal environment as well. Replicate as many details as you can between tests so that hopefully the only reason that your performance has improved is that your 'fitness' has



improved not because you have taken a new supplement, are more rested or you have performed a different warm up.

- Try and eat a similar meal at a similar time before each time trial. This is also a perfect time to get use to your planned race breakfast.
- Go into your time trial days rested so you can put in a good performance.
- Perform the same warm up before each time trial.
- Whatever you do before your first 'baseline' time trial this is what you should do for all of your subsequent time trials.