

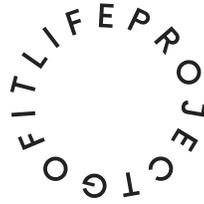
In The Zone

What Every Endurance
Athlete Should Know
About Heart Rate
Zone Training

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Test First

"If you're not testing, you're guessing."

Successful training has a lot to do with knowing which zone you should use to train specific areas. For example, if you want to work on your V02 max you will need to have your personalized heart rate zones determined first so you know what heart rate targets you need to hit.

How do you test? I suggest using Dr. Andy Coggan's 20-minute field test to determine your functional threshold heart rate. You can find this test, along with many other excellent tests to help level up your training, in the book **'Training and Racing with a Power Meter'** written by *Hunter Allen and Andrew Coggan, PhD.*

You can learn about other testing options in this **TrainingPeaks** blog written by Coach Dave Shell: <https://www.trainingpeaks.com/blog/threshold-tests-for-swim-bike-and-run/>

Schedule re-testing throughout your training as these values will change as you get stronger. **If you don't retest, you run the risk of under or overtraining.** The tests can also help determine if your training plan is actually helping you as well as what areas need more attention for improvement.



Tweak It

Zone training is a dynamic process.

Too much or not enough time spent training in certain zones can produce poor results. For example, if you are in zone 1 too much, you will fail to see performance gains. If you are in zone 4 and 5 too much, you will see performance decline and increase your risk for injury.

Be sure to examine your total training time in each zone at the end of each training session and in your weekly training summary of all sessions. Ask yourself - does my heart rate data support the goal of that particular session or overall weekly goal. Adjust your training as needed.

This way you can tweak your training as you move from session to session and week by week. Always keep your main goal in mind. For example, if you are in recovery week vs peak week, the heart rate targets will be completely different. Zone training needs to evolve with the various stages of your training (periodization) and goals at every level.



Zone 1

Active Recovery

<68% of functional threshold heart rate
<2 RPE on the 10-point Borge Scale

This zone is used to recover from training in all training cycles. It is often used as a stand-alone workout lasting anywhere from 30 - 90 minutes. This zone is also used at the very beginning of the warm-up and at the very end of the cool-down. For higher zone training, it can be used for active rest in between each hard effort.

TIPS

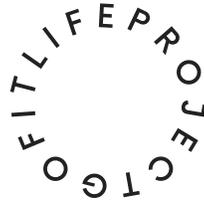
Training with others can lead you out of this zone and into higher zones as you are influenced by their energy = the purpose of this session is lost. In this zone, you need to train at a very low intensity and it can be humbling as you moving slower.

Do this alone or with someone committed to your pace.

Keep the terrain flat and easy (no hills as that will most likely take you out of zone 1) or use an indoor bike, treadmill, etc.

You can use other activities, such as walking, for active recovery workouts.

Too much time overall spent training in this zone will produce poor results.



Zone 2

Endurance

69 - 83% of functional threshold heart rate
2 - 3 RPE on the 10-point Borge Scale

This zone is predominately used to build an endurance base and it is used through all training periods. Several beneficial adaptations happen when training in this zone such as increased muscle mitochondrial enzymes, lactate threshold, muscle glycogen storage, and slow-twitch fibers. It can be used after interval sessions to enhance endurance training.

TIPS

Use this zone for long steady-state zone 2 training such as 2 - 6+ hour sessions.

Use various terrain but nothing that has super steep or long climbs that you are not ready to tackle. You may begin in zone 2 but as the under-trained body fatigues and has to work harder to keep climbing, you will move into higher zones without deliberation
= session goal is not maximized.

This is a great zone to train in social groups where everyone is out for a long comfy and chatty training session.

"You can never have too much base." Joe Friel



Zone 3

Tempo

84 - 94% of functional threshold heart rate
3 - 4 RPE on the 10-point Borge Scale

This zone should be the second most used zone for endurance athletes and produces many great benefits with the number one key benefit being increased muscle glycogen storage. This is important for endurance athletes due to the duration of the training. The more carbs they can store, the better they can train. This zone can be used during base training for experienced athletes.

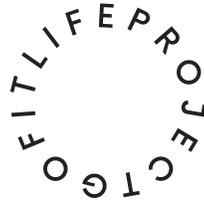
Beginners should stick to zone 2 workouts during base.

TIPS

Use long intervals lasting from 5 - 10 minutes up to an hour.

Great for social training sessions as long as everyone is using a similar structure. If the athlete is not hitting their targets = not getting the most out of this session.

Many endurance athletes spend too much time in this zone and thus why they struggle to see progress due to frequently combating fatigue and injuries. Fatigue masks fitness and so to set up a training session in a higher zone, the endurance athlete will have more success if they manage their energies properly, such as prepping for future zone 4+ work.



Zone 4

Lactate Threshold

94 - 105% of functional threshold heart rate
4 - 5 RPE on the 10-point Borge Scale

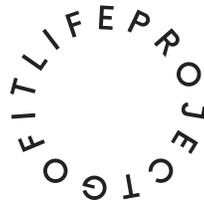
This zone requires harder efforts and therefore takes longer to recover from, so the athlete should be very smart on where to fit this into their training so they do not sabotage future training sessions. This zone is best utilized to increase lactate threshold and muscle mitochondrial enzymes. Other benefits are increased VO₂ max, stroke volume, glycogen storage, slow-twitch fibers, and plasma volume. This zone is best used during the competitive training phase. **NOT RECOMMENDED FOR BEGINNERS!**

TIPS

Use intervals in moderate duration, such as 5 minutes to 30 minutes.

Okay for social training sessions as long as everyone is using a similar structure & fitness level. If the athlete is not hitting their targets = not getting the most out of this session.

Too much time spent in this zone can result in a decline in performance and greatly increase the risk of injury. Not enough time in this zone may hinder progress.



Zone 5/5a

VO2 Max

>106% of functional threshold heart rate
6 - 7 RPE on the 10-point Borge Scale

This zone is tough and some endurance athletes do not train in this zone at all, depending on their personal goals and physical state (injuries, medical conditions, etc). It directly trains VO2 max. It helps slightly to increase lactate tolerance (anaerobic capacity). Training in this zone is taxing and requires more recovery time (48-72 hours). This zone is used during the competitive training phase. **NOT RECOMMENDED FOR BEGINNERS!**

TIPS

Use shorter intervals such as 3 to 5-minutes. Rest will vary in between depending on the level of fitness and base the athlete has previously built. A lack of base will hinder this.

While training with a group can help elevate your energy output, athletes will always need to make sure they are hitting their personal targets in order to maximize the benefits of this type of work. It's best done alone or with a coach / motivating partner.

Too much time spent in this zone can result in a decline in performance and greatly increase the risk of injury.



Zone 6/5b

Anaerobic Capacity

121 - 150% of functional threshold heart rate
>7 RPE on the 10-point Borge Scale

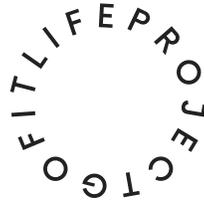
Again, hard efforts and very taxing on the body. Endurance athletes do not need to train in this zone unless they have some very big performance goals, such as wanting to podium. It is best suited for elite levels. The main benefit is increased anaerobic capacity. This zone is used during the competitive training phase. **NOT RECOMMENDED FOR BEGINNERS!**

TIPS

Uses very short intervals (<2 minutes) as the anaerobic system is limited.

While training with a group can help elevate your energy output, athletes will always need to make sure they are hitting their personal targets in order to maximize the benefits of this type of work. It is best done alone or with a coach / motivating partner.

Too much time spent in this zone WILL result in a decline in performance and **SUBSTANTIALLY** increase the risk of injury. You may or may not need to train in this zone.



Zone 7/5c

Neuromuscular Power

n/a of functional threshold heart rate
MAX on the 10-point Borge Scale

This is your full-on 100% hard efforts, balls to the walls work. It is optional for endurance athletes, depending on goals and other factors. Time may be better spent training in other zones. The main adaptation is increased neuromuscular power. This training also increases the size of fast-twitch fibers and trains the ATP-CP system. Requires several days of recovery. This zone is used only in the competitive training phase with a very large base and big warm-ups. **NOT RECOMMENDED FOR BEGINNERS!**

TIPS

Power work is very short, generally 10 to 30 seconds. Take big rests in between intervals/interval sets so the body has time to replenish chemical energy. The ATP-CP system is used in this type of training. Some athletes use creatine to enhance this training.

Not ideal for group training. Best done alone, with a coach or partner to encourage you.

EXTREMELY taxing on the body and high risk for injury. Use only if truly necessary. Most suitable for elite and pro-level endurance athletes.